



## **IT Project Manager Competencies and IT Project Success: A Qualitative Study**

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**Abstract:** *The competences needed by IT project managers to successfully complete their projects are the subject of this research study. The problem statement and the research background are introduced in the abstract. It claims that the failure of IT projects remains a worry despite ongoing spending and research on IT project management. The primary goal of the study is to determine which competencies are most important for IT project managers. The main conclusions highlight the significance of abilities including communication, project management, team management, business domain expertise, and people skills. In order to improve project success, the abstract's conclusion recommends that IT project managers integrate technical expertise with interpersonal and management abilities.*

**Keywords:** *IT project manager competencies, IT project success, success criteria*

### **1. Introduction**

In the dynamic landscape of information technology (IT) project management, the pivotal role of project managers in influencing project success has been widely acknowledged in literature. The

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leadership competencies exhibited by project managers are considered instrumental in fostering an environment conducive to team productivity, ultimately ensuring project success. The traditional criteria to measure project success, such as meeting user requirements within the budget and time specified, do not represent reality. It underscores the need for a more nuanced understanding of project success in the contemporary IT environment. Project managers should pay more attention to the business environment [11] and a successful project increases efficiency, brings positive impact to customers, produces business success, prepares the organization for future endeavors, and affects the project team positively. Studies affirm that project managers are one of the basic factors contributing to project success. Therefore, staffing projects with managers who have the “right competencies” is crucial to achieve organizational goals, to maintain competitive advantage, and to ensure that the organization's projects will achieve the expected performance. The challenges and dynamics of today's IT environment require the project manager to develop other competencies besides technical skills, such as communication and leadership. The IT environment is stressful, challenging, and dynamic. Moreover, IT project managers are often required to deal with users, technical workers, managers, conflicts, miscommunication, and work burnout. Motivated by the persistent challenges faced by organizations in realizing successful IT projects, this study seeks to address several key aspects. First and foremost, it aims to identify and elucidate the competencies deemed most relevant for IT project managers in the contemporary landscape. Through a qualitative research approach, this investigation endeavors to go beyond the traditional emphasis on technical skills, unraveling the intricate interplay of behavioral, business, and managerial proficiencies that contribute to project success. Therefore, IT project managers must develop a diversified range of competencies to be successful. This paper aims to identify which project manager competencies are more relevant to achieve success in IT project settings.

## **2. Related Work**

### **2.1 Project Manager Competencies**

Although the definition of competencies is not new, it is useful yet challenging when examining how various project managers' abilities match the demands of projects in the industry. According to Müller et al. (2018), sensitive competencies consistently contribute significantly to project success, even though managerial competencies are occasionally important. A person's primary attribute that is causally linked to performing well in a situation or job is called a competency or skill. Performance in a variety of contexts and job duties can be predicted based on competency. A person requires competencies, or the capacity to apply knowledge and effectuate actions. Hopkins & Bilimoria (2008) state that intentions that is, goals, characteristics, self-concept, social roles, and knowledge are always a part of competencies.

Consequently, competency is not defined by behavior without intent. Competencies require both action and intent, according to Varziani (2010), who defines a competency as a capability or ability that consists of a set of alternate behaviors organized around an underlying construct. Three competency clusters are mentioned involving cognitive abilities, pattern recognition and system thinking which is emotional intelligence competencies, such as emotional regulation and self-awareness; and social intelligence competencies, such as relationship management skills and social awareness. Consequently, competencies are a behavioral strategy for cognitive, emotional, and social intelligence.

Various guidelines have been developed over time, including IPMA Standards - Individual Competence Baseline. Project manager competencies are categorized into three groups by the IPMA Competence Baseline which divides into technical, behavioral, and contextual (Capin et al. 2006). The term "technical competencies" refers to skills associated with project management specifically, such as time management, project planning, etc. The personal qualities and skills of the project manager, such as commitment, creativity, and leadership, are referred to as behavioral competencies. The range of contextual competencies includes skills like development and programming, business acumen, legal issue knowledge, and another knowledge that is specifically relevant to the context of a particular project (Capin et al. 2006). Numerous studies have been conducted to determine which

individual/managerial competencies are essential for effective project management (Keil et al. 2013; Skulmoski & Hartman 2009; Turner & Müller 2005). These studies have revealed an intriguing conclusion that states IT project managers perform worse because they are lacking soft skills such as leadership and communication (Stevenson & Starkweather 2010; Sumner et al. 2006).



**Figure 1 : IPMA Standard Competence Eye**

Additionally, Cakmakci (2019) suggests categorizing project manager competencies into hard and soft skills. These authors conducted a thorough literature analysis to examine project management competencies. The eleven dimensions of the competency profile, according to these authors, are: professionalism, knowledge and experience, project management knowledge, influencing, communication, emotional intelligence, contextual management, cognitive skills, and personal skills and attributes. The qualities and essential skills that a project manager needs to possess are outlined in Table 1 and were examined in the most relevant reports, guidelines, and research articles.

**Table 1: Summary of Project Manager Competencies**

Classification	Dimension	Competencies
Soft Skills	Influencing Skills	1 Leadership; 2 Influence/persuasion; 3 Motivating others; 4 Conflict management; 5 Negotiation; 6 Charisma
Soft Skills	Communication Skills	7 Verbal communication; 8 Written communication; 9 Listening; 10 Reading; 11 Multi-level communication; 12 Open communication; 13 Clear, direct and concise communication; 14 Engaging communication; 15 Multi-cultural and contextual communication; 16 Presentation skills;
Soft Skills	Team Working Skills	17 Collaboration; 18 Support; 19 Developing others; 20 Team building; 21 Delegation; 22 Escalation; 23 Trustworthiness
Soft Skills	Emotional Skills	24 Interpersonal sensitivity; 25 Interpersonal skills; 26 Empathy; 27 Self-awareness; 28 Stress management; 29 Self-motivation
Soft Skills	Contextual Skills	30 Contextual awareness; 31 Political awareness; 32 Adaptability; 33 Strategic alignments 34; Networking;
Hard Skills	Management Skills	35 Planning; 36 Prioritising; 37 Directiveness; 38 Organization and coordination; 39 Monitor and control
Soft Skills	Cognitive Skills	40 Vision and imagination; 41 Strategic perspectives; 42 Critical analysis; 43 Intuitiveness; 44 Problem solving; 45 Decision-making; 46 Learning; 47 Creativity; 48 Professionalism Ethics; 49 Accountability
Hard Skills	Knowledge and experience	50 Technical expertise; 51 Business expertise; 52 Administrative expertise; 53 Experience
Hard Skills	Project management knowledge	54 Human resources management; 55 Resource management; 56 Requirement management; 57 Scope management; 58 Cost and finance management; 59 Procurement and contract management; 60 Time management; 61 Stakeholder management; 62 Risk management; 63 Quality management; 64 Communication management; 65 Integration management; 66 Project management methods; 67 Client/customer management; 68 Knowledge and information management; 69 Health and safety management; 70 Change management; 71 Supply chain management
Soft Skills	Personal skills and attributes	72 Achievement orientation; 73 Commitment; 74 Initiative; 75 Confidence; 76 Courage; 77 Openness; 78 Detailist; 79 Sense of humor; 80 Multitasking; 81 Discipline; 82 Curiosity

## 2.2 Project Success

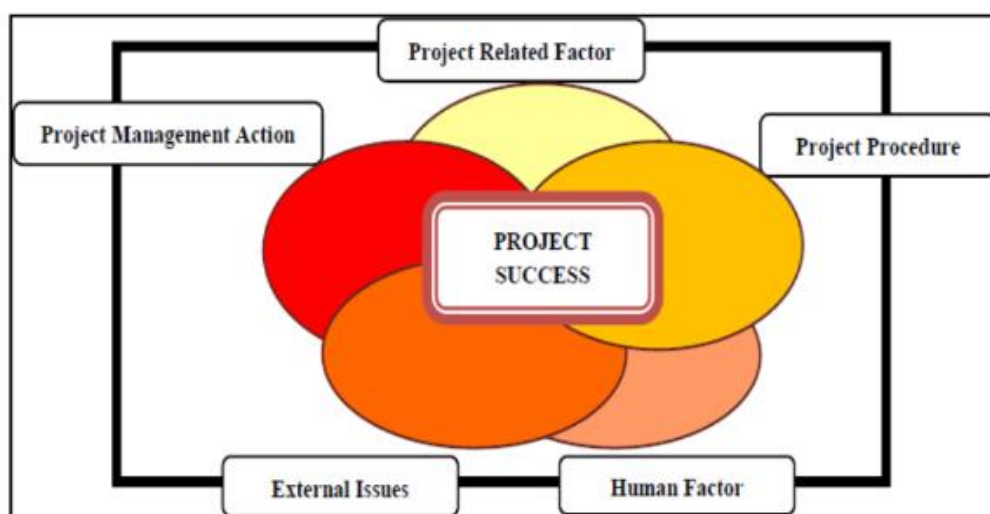
Project success is considered as an outcome that pleases clients, consumers, or other stakeholders such as the project team, business executives, or board members. The expectations and specifications set forth at the beginning of the project are usually met by successful projects. Stakeholders might view a project as successful, for instance, if it is finished on time and on budget. A project's overall success can frequently be attributed to a number of different factors. Establishing these standards at the outset of the project is crucial to ensuring that the team knows how to effectively accomplish the goals of the task at hand. However, project success also is being defined with several explanations. Many writers base their conceptions of success on unagreeable standards; the most common of these is the so-called "iron triangle," which consists of quality, cost, and time. According to Baccarini, project success is a fundamental idea in project management. He distinguishes between two elements that go into making a project successful: effective project management and the project's successful outcome.

According to Pinto and Slevin (1988), technical validity, organizational validity, and organizational effectiveness are the three criteria that should be used to determine a project's success. A project must be technically correct first. Secondly, the project should address the needs and issues of the clients. Lastly, the project needs to be put to use after it is implemented so that its users can benefit from it. Moreover, the goal of the study was to develop a broader, more accessible measurement for project success that could be used for a range of organizational initiatives. Success is determined by factors related to the project, such as schedule, budget, and project performance, as well as factors associated to the client, such as effectiveness, use, and satisfaction.

On the other hand, Müller and Turner (2007), propose two constituents of project success: determining success criteria and critical success factors (CSFs). Success criteria are "the set of principles or standards by which project success can be judged," according to Lim and Mohamed (1999,

p. 243). The so-called "Iron Triangle" of "time, budget, and quality" was the set of guidelines used in early research on project success criteria for determining a project's level of success. However, Pinto and Mantel, 1990; Atkinson, 1999; Wateridge, 1998 tend to include both external and internal aspects of a project organisation, in addition to complex criteria in evaluating project success, such as stakeholder satisfaction, stakeholder community benefits, and organisation benefits. In addition to the "efficiency of implementation phase" criterion, which evaluates the project success in relation to internal performance indicators, and the Iron Triangle, Pinto and Mantel (1990) proposed two additional criteria for success: "the quality of the project" as perceived by the project team, and "an external performance indicator" of both the project and its team performance (e.g., client satisfaction). Pinto and Slevin's work form the basis of the current theory of project success. In an effort to evaluate project success in terms of both task- and people-oriented factors, Andersen and Jessen (2000) further defined project success criteria into ten elements. These factors include the degree of importance of the products to the base organisation, the results as perceived by all stakeholders, the learning experience, motivation for future work, knowledge acquisition, the final report preparation method, and the manner of project termination (Andersen & Jessen, 2000). These elements go beyond the traditional Iron 13 Triangle components of time, budget, and quality. Thus, Andersen and Jessen (2000) offered a more comprehensive view for determining a project's level of success.

In addition, Critical success factors (CSFs) which is the other constituent of the project success, are traits, circumstances, or variables that, when properly sustained, maintained, or managed, can have a major impact on the project's success from the standpoint of project management (Patanakul & Milosevic, 2005). CSFs is used to measure and support the guarantee of project success and facilitate the appropriate distribution of limited resources, strategic approaches and tactics for project implementation. As seen in Figure 1, a study has identified five project performance variables. These include Human Factors, External Issues, Project Related Factors, Project Procedures, and Project Management Action.



**Figure 2 : Variables for Project Success**

Source: Chan et.al (2004)

- a) **Project Management Actions:** Project management actions will focus on the planning process, communication system, creation of a suitable organizational structure, execution of a successful safety program, execution of a successful quality assurance program, and supervision and control of the work of subcontractors.
- b) **Project Procedures:** These include the strategies and tactics for procurement and tendering.

- c) **Human Factors:** This category includes the experience, character, and size of the client's organisation, as well as the client's emphasis on speed, high quality, and low construction costs. It also includes the client's capacity for decision-making, role-defining, and briefing.
- d) **Project Related Factors:** This section will address factors related to the project, including its size, complexity, and type.
- e) **External Issues:** These include things like advancements in physical science, politics, social work, and the economy.

### 3. Methodology/Framework

#### 3.1 Study Method

This research focuses on identifying the specific competencies that IT project managers should cultivate to achieve success in their projects. Figure 3 presents the conceptual framework employed in this study.



Figure 3 : Conceptual framework

This research employed a qualitative methodology with an exploratory approach to gain a profound understanding of IT professionals' perspectives on the role of project manager competencies in IT project success. The choice of qualitative method was based on the literature's recommendation for in-depth analysis and capturing the meaning respondents attached to specific experiences. The research is classified as contextual qualitative, aiming to explore participants' understanding of the subject.

- Qualitative methodology with an exploratory approach was employed.
- Contextual qualitative research aimed to explore IT professionals' perspectives.
- Various resources used: interview guide, digital voice recorder, transcription software, data analysis software, coding framework.
- IT professionals with diverse backgrounds and experience levels were selected as research participants.
- Ethical considerations were followed throughout the research process.

#### 3.2 Execution of Study

The study involved conducting 16 semi-structured in-depth interviews with IT project managers, each lasting 20-30 minutes. This interview technique encouraged respondents to share their spontaneous perspectives on the issues. The sample consisted of Brazilian IT professionals working in IT projects, specifically chosen for their role as project managers and substantial experience (minimum of five years). By selecting professionals from diverse

business sectors, the research aimed to achieve a detailed and unbiased view of the subject. The profile of the 16 respondents is presented in Table 2.

**Table 2: Respondents' profile**

<b>Interviewee</b>	<b>Occupation</b>	<b>Firms' Business Sector</b>	<b>Years of Experience</b>	<b>Size of projects</b>
<b>Interviewee 1</b>	IT manager	Big multinational fashion retail clothing store	20	All sizes
<b>Interviewee 2</b>	IT project manager	Small technology consultancy	10	Small to medium
<b>Interviewee 3</b>	IT project manager	Small technology consultancy	5	Small to medium
<b>Interviewee 4</b>	IT project manager	Big multinational IT consultancy	20	All sizes
<b>Interviewee 5</b>	IT project manager	Big multinational technology company	18	All sizes
<b>Interviewee 6</b>	IT project manager	Big multinational technology company	15	All sizes
<b>Interviewee 7</b>	IT project manager	Multinational in the telecommunication sector	16	All sizes
<b>Interviewee 8</b>	IT project manager	Multinational in the telecommunication sector	8	Small to medium
<b>Interviewee 9</b>	IT Business Analyst	Multinational in the telecommunication sector	5	Small to medium
<b>Interviewee 10</b>	IT Senior Business Analyst	Multinational in the telecommunication sector	7	All sizes
<b>Interviewee 11</b>	Senior System Analyst	Public data processing company	10	Small to medium
<b>Interviewee 12</b>	Team Coordinator	Multinational e-commerce company	16	All sizes
<b>Interviewee 13</b>	IT Project Management	Multinational security and protection company	5	All sizes
<b>Interviewee 14</b>	IT Project Management	Multinational security and protection company	6	All sizes

<b>Interviewee 15</b>	IT Project Management	Multinational security and protection company	7	All sizes
<b>Interviewee 16</b>	IT Senior Business Analyst	Multinational security and protection company	10	Small to medium

The interviews were conducted using a semi-structured guide with open questions. The questionnaire was designed based on literature related to IT project success and project manager competencies. Linking sentences were used to connect the two sections of the interview, ensuring that respondents related project manager competencies to project success. All questionnaire questions were answered during the interviews. The interviews were recorded and transcribed, with six conducted face-to-face using Evernote and the others conducted via Skype using Pamela for Skype software. The transcribed data was analyzed using NVIVO 10 software, with codes used to classify the qualitative data.

#### 4. Results and Discussion

The results of the study provide a comprehensive analysis of IT project manager competencies and their association with project success. The researchers utilized a categorization system with ten competency categories derived from the literature, and the relevance of each category was determined by counting the number of references made by interviewees. The top five competencies identified as crucial for IT project success, in order of importance, were team management, business domain knowledge, project management, communication, and people skills. Interestingly, technical skills were considered significantly less relevant, with only five references compared to the 349 references for interpersonal and business skills combined. This emphasizes a shift in focus towards the importance of behavioral and managerial competencies in the context of IT project success.

Team management emerged as the most cited competency, highlighting the consensus among respondents on the pivotal role of project managers in fostering a conducive work environment, motivating team members, and building team competencies. Business domain knowledge ranked second, emphasizing the contemporary demand for project managers to possess a deep understanding of the business context. Within this category, involving end-users was particularly underscored as crucial for project success, with respondents noting that neglecting end-user involvement could pose a serious risk.

Communication skills were ranked third, with an emphasis on the ability to communicate at multiple levels, open communication, and active listening. Project management competencies, including alignment, resource utilization, time management, scope management, and risk management, were rated fourth in importance. People skills, the fifth category, were highlighted as critical, with competencies such as understanding the psychology of people, good people skills, and negotiation being the most cited.

The discussion likely elaborates on the differences between these findings and those of previous studies, such as Keil et al. (2013), noting the consistent emphasis on certain competencies like team management, project management, people skills, and communication. The qualitative insights also shed light on the psychological aspect of IT project management, with project managers being likened to psychologists, underlining the importance of understanding and managing the human factor for project success.

In terms of project success criteria, the iron triangle criteria—cost, budget, and quality—were most frequently cited by respondents. However, the study recognized the limitations of evaluating success solely based on these criteria and highlighted the importance of considering end-user satisfaction, customer satisfaction, and the ability to achieve project goals despite time and budget deviations. The unanimous agreement among respondents on the critical role of the IT project manager as a success factor aligns with existing literature, with comparisons drawn to a conductor in an orchestra, emphasizing the orchestration required for project success.

In conclusion, the study contributes valuable insights into the competencies deemed most relevant by IT project managers for achieving success. The shift towards prioritizing interpersonal, business, and managerial skills over technical expertise underscores the evolving landscape of IT project management. The discussion likely delves into practical implications for the development and training of IT project managers, emphasizing the multifaceted nature of success criteria and the pivotal role of project managers in navigating the complexities of IT projects.

#### 4.1 Discussion on the area of the Project Management Body of Knowledge (PMBOK)

The competencies that IT project managers should possess to effectively manage projects. These competencies align with the knowledge areas outlined in the Project Management Body of Knowledge (PMBOK) and now we will discuss how project managers handle projects in relation to the selected areas of the PMBOK.

Project Communications Management involves managing project communications. This Project highlights the importance of communication skills for project success. Communication is one of the most important skills for effective IT project management. It involves the ability to exchange information and ideas with the project team, stakeholders, and other parties involved in the project. According to the PMBOK, communication management consists of three processes: planning communication management, managing communication, and monitoring communication. It emphasizes that effective project managers should be able to communicate at multiple levels, including with team members, stakeholders, and executives. While not explicitly discussing project communications management, this highlights the significance of communication competencies in managing project communications effectively.

Project Risk Management involves identifying, analyzing, and managing project risks. It mentions competencies related to strategic thinking and risk management. These competencies can be associated with identifying, assessing, and managing project risks. It requires the project manager to plan risk management, identify risks, perform qualitative and quantitative risk analysis, plan risk responses and implement risk monitoring and control. This area is crucial for IT project managers because they need to deal with the uncertainties and challenges that are inherent in IT projects, such as changing requirements, technical issues, stakeholder conflicts, etc. Managing risks effectively can help the project achieve its purpose and bring positive results to the organization, which are also important success criteria in the project.

Project Integration Management is a critical knowledge area in project management, and project managers must possess competencies related to project management itself, including the ability to integrate project components, manage project changes, and ensure project quality. It emphasizes the importance of competencies such as project management and team management. These competencies are crucial for integrating various project components, coordinating team efforts, and ensuring the overall success of the project. This area is vital for IT project managers because they need to integrate all the other areas of the PMBOK and ensure that the project is aligned with the organization's overall business strategy.

Project Quality Management involves ensuring that project deliverables meet the required quality standards. It emphasizes the importance of competencies such as project management and business domain knowledge. These competencies can contribute to ensuring project quality by effectively

planning and implementing quality control measures. This area is essential for IT project managers because they need to deliver the project with quality, which is Quality also affects end-user satisfaction and customer satisfaction, which are also highly cited in the project.

Project Scope Management involves defining and controlling what is and is not included in the project. It mentions the relevance of competencies such as business domain knowledge and the ability to understand the overall context of the project. These competencies suggest the importance of effectively managing and defining the project scope. This area is relevant for IT project managers because they need to ensure that the project meets the user requirements and technical specifications.

Project Cost Management involves estimating, budgeting, and controlling project costs. It mentions competencies related to project planning, resource utilization, and alignment. These competencies can be related to managing project costs and ensuring efficient resource allocation. It also requires the project manager to use various tools and techniques to estimate costs, determine budget, control costs and manage changes. This area is important for IT project managers because they need to deliver the project within the budget constraints, which is one of the most cited success criteria in the text.

In conclusion, these competencies align with the knowledge areas outlined in the PMBOK and it does offer insights into the competencies and factors that contribute to IT project success. These competencies, such as project management, team management, business domain knowledge, communication, and people skills, can be related to various knowledge areas within the PMBOK framework. However, it is important to note that the document does not provide a detailed discussion of these specific knowledge areas.

## **5. Conclusion**

In conclusion, this article explores the crucial field of IT project management and highlights the issues that still exist even with continued funding and investigation. The traditional measures of project success, focusing on satisfying financial and schedule requirements, are considered insufficient. Rather, the study highlights the necessity of adopting a more comprehensive viewpoint, imploring project managers to consider the business environment and give top priority to elements like productivity, favorable customer effect, company success, organizational readiness, and team well-being.

The results highlight how important project managers are to the success of a project. It is a critical realization that managers possessing the "right competencies" are essential to accomplishing company objectives, preserving competitive advantage, and guaranteeing project performance meets expectations. However, the report acknowledges that project managers now need to possess a wide range of abilities in addition to technical expertise, such as communication and leadership, due to the changing nature of IT projects. The importance of a thorough competency framework is further supported by the recognition of the demanding and dynamic nature of the IT environment, as well as the numerous difficulties IT project managers encounter while interacting with diverse stakeholders and preventing burnout. The qualitative method, which makes use of in-depth interviews with seasoned IT specialists from various industries, deepens our comprehension of key competencies.

This article opens the door for a more comprehensive approach that is in line with the complexity of the modern IT environment by providing insightful information about the competencies necessary for success in IT project management. The emphasis on developing a well-rounded skill set among project managers emerges as a key takeaway from this research, ready to guide future endeavors in IT project management, as organizations strive for success in their IT endeavors.

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