The Influence of IT Project Manager Competencies on Team Commitment
Full Paper

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Abstract

This study addresses two questions: (1) which Information Technology (IT) project manager competencies influence team commitment? and (2) how much these competencies impact team commitment? The main objective is to propose and evaluate a measuring instrument to identify the IT project manager competencies that are necessary to build and sustain team commitment in IT projects. We adopted mixed methods as the research methodology. Firstly, we did an exploratory and qualitative research. Then, we did a quantitative research. An academic contribution is the new scale designed to identify competencies that are more relevant to develop team commitment. Besides that, the research offers a conceptual model that can be used in future studies. This research also presents pertinent implications to the practice of project management in IT settings. For instance, organizations can use the measuring instrument to evaluate project managers, to assess organizational climate or to structure training programs for their employees.

Keywords

Team commitment, organizational commitment, IT project manager competencies, mixed methods, PLS.

Introduction

Human aspects such as lack of end user involvement, miscommunication, weak leadership and unskillful resources are appointed as causes of Information Technology (IT) project failure (The Standish Group, 2013, 2014; Sumner, Bock, & Giamartino, 2006). IT projects with managers who have the "right competencies" and who know how to lead teams towards the project goals is crucial to ensure that the organization's projects will achieve the expected performance (Jha & Iyer, 2007; Wateridge, 1997).

Unfortunately, project managers are usually promoted to this position due to their technical skills rather than their managerial skills (Kerzner, 2009). For this reason, many projects fail since project managers lack important skills such as communication and leadership (Kerzner, 2009; Müller & Turner, 2010; Sumner et al., 2006; Wateridge, 1997).

Altogether, IT project managers are required to develop competencies that will help them to lead their teams in stressful, challenging and dynamic environments such as in many IT project settings (Sumner et al., 2006). In fact, effective IT project managers do not lean on "technical expertise alone" to be effective (Kerzner, 2009, p. 149). IT project managers need to know how to maximize team performance and how to get the team committed with the project goals (Thamhain, 2013).

Commitment is another important component in IT project management (Jha & Iyer, 2007). Scholars have demonstrated that team commitment positively affects team performance (Bishop, Scott, & Burroughs, 2000) and IT project success (Xu, Zhang, & Barkhi, 2010). However, it is known that building commitment is a very difficult task to accomplish (Thamhain, 2013). The academia has significantly contributed to building our knowledge about commitment and its influence in human relationships in the

organizations (Allen & Meyer, 1990; Porter, Crampom, & Smith, 1972). Team commitment is defined as an individual's identification and involvement with a specific team (Porter et al., 1972). Organizational commitment can be characterized by three factors: (1) a strong belief in and acceptance of the team's goals and values, (2) a willingness to exert considerable effort on behalf of the team and (3) a strong desire to remain in the team (Bishop & Scott, 2000; Bishop et al., 2000).

Surely, managerial competencies solely are not sufficient to build team commitment in organizational settings (Jha & Iyer, 2007). However, as the PMI (2013, p. 17) affirms, "the project manager is the link between the strategy and the team". Therefore, IT project managers can use specific competencies to get their team members committed (Thamhain, 2013). In spite of all these evidences regarding the influence of project managers on team commitment, there have been few studies on the relationship between project manager's competencies and team commitment (Jha & Iyer, 2007).

This paper considers the relationship between IT project manager competencies and team commitment. To conduct the research, we adopted mixed methods. The research was divided into two phases. In the first phase, we did an exploratory qualitative research in which sixteen semi-structured in-depth interviews were conducted with IT project managers. The second phase aimed to design a new scale on IT project manager competencies as well as to evaluate the influence of these competencies on team management. In this stage, we conducted a quantitative research in which 484 IT professionals responded to an online survey.

This research project aims to answer the following questions: (1) which IT project manager competencies influence team commitment? and (2) how much these competencies impact team commitment? The main objective of this study is to identify the project manager competencies that are necessary to build and sustain team commitment in IT projects.

This research will explore the theoretical gap caused by the lack of studies on the influence of project manager competencies and team commitment. We also offer a new measuring instrument to identify and evaluate competencies that influence team commitment.

This paper is structured as follows: introduction, literature review, research methodology, qualitative data analysis, quantitative data analysis, and final considerations.

Literature Review

IT Project Manager Competencies

The definition of competence has been the object of constant debates and remains of diffuse matter in the organizational literature (Crawford, 2005). For the purpose of this research, competence is defined as a combined set of an individual's knowledge, abilities, personal characteristics used to perform an specific task or activity (Crawford, 2005; Müller & Turner, 2010).

Many studies have been done to determine which individual/managerial competencies are essential for efficient project management (Keil et al., 2013; Skulmoski & Hartman, 2009). Unfortunately, in many firms, "personnel are generally promoted to management on the basis of their professional or technical competence rather than their managerial ability" (Kerzner, 2009, p. 172).

Technical skills are not sufficient to guarantee project success (Kerzner, 2009). For instance, in order to spur team commitment soft skills such a leadership and communication are fundamental (Thamhain, 2004). To be effective, project managers should use a synergy of different competencies since they are supposed to deal with "(1) the people to be managed, (2) the task to be done, (3) the tools available, (4) the organizational structure, and (5) the organization environment" (Kerzner, 2009, p.148).

Regarding essential competencies for IT project managers, there is a variety of studies covering this theme (Keil et al., 2013; Skulmoski & Hartman, 2009). Studies indicate that IT professionals lack important skills such as communication and leadership, which jeopardizes their performance (Sumner et al., 2006). These attitudinal and interpersonal competences are known as soft skills.

Keil et al. (2013) and Skulmoski and Hartman (2009) did a thorough research on IT project managers' competencies. They collected information among IT professionals to identify which competencies project managers should develop to be more effective in IT settings. Based on their study and on other researches

(PMI, 2013; Stevenson & Starkweather, 2010), we designed a list of eighty-five project manager competencies. Then, we grouped these competencies into ten categories, as shown in Appendix 1.

Team commitment

Team commitment is similar to organizational commitment since teams build goals and principles that members can accept or not (Bishop & Dow Scott, 2000; Bishop et al., 2000). Based on the concept of organizational commitment, Bishop and Scott (2000) define team commitment as (a) an individual's strong belief in, and acceptance of, team's goals and values; (b) willingness to put in considerable effort on behalf of the team and (c) intense desire to remain as a member of the team.

Bishop, Scott, Goldsby, and Cropanzano (2005) declare that it is important to separate an individual's commitment to the organization from the commitment he/she has towards his/her teammates. An employee may be extremely committed to the team and to the organization or he/she can be committed to the team and not to the organization and even to none of them (Bishop et al., 2005).

Literature confirms that project leaders can influence team commitment (Allen & Meyer, 1990; Shenhar & Dvir, 2007). Effective project leaders serve as "social architects" who spur team commitment in order to increase team performance and to ensure project success (Thamhain, 2004).

In a study on multinational projects, Thamhain (2013) concluded that to drive team commitment it is necessary to have an experienced project leader who is able to gain the team's trust, respect and credibility. Some tactics to spur team commitment are scheduling regular meetings to review project objectives and to discuss problems encountered during project execution (Thamhain, 2013).

Methodology

In order to better define the constructs scope and to analyze the relationship between them, we adopted mixed methods, as recommended by Creswell and Plano-Clark (2011).

The first phase of this study was exploratory and had a qualitative approach. After the literature review, we conducted 16 (sixteen) 40-50 minute in-depth interviews with Brazilian IT project managers. The profile of the interviewees is shown in Appendix 2. This first stage of the research helped us (1) to define the sample of participants for the online survey to be conducted on the quantitative stage; (2) to determine which competencies would be included or excluded from the new measuring instrument; (3) to define the boundaries of the research constructs; and (4) to obtain a better understanding of IT project management on Brazilian organizations.

After transcribing the interviews, we analyzed the collected data using the software NVIVO 10. The categories (see Appendix 1) were generated based on literature review as recommended by Gibbs (2008).

Based on the qualitative analysis, we defined the research constructs - IT project manager competencies and team commitment – as well as the boundaries of these constructs. We opted for studying the direct relationship between IT project manager competencies and team commitment without considering different levels of impact for each competence category, as literature shows that the project manager should combine different competences and abilities to foster team commitment and guarantee project success (Thamhain, 2004). Figure 1 illustrates the conceptual model of research.
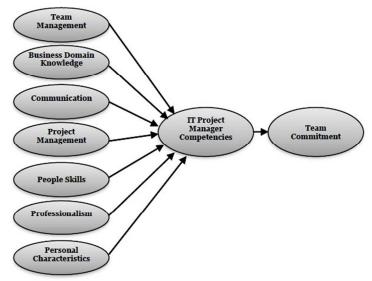
Figure 1: Conceptual Model of the Research Constructs

In the second phase, we conducted a quantitative research that gave us the necessary data to design an instrument to measure the IT project manager competencies that influence team commitment. The items of the new scaled were extracted from 85-competence list (Appendix 1). To avoid excess of scale items, we kept only the most relevant competencies according to the qualitative analysis.

We adopted Slavec's and Drnovesek's (2012) procedure of scale development that propose a ten-step procedure. These then steps were grouped in three stages: "(1) theoretical importance and existence of the construct, (2) representativeness and appropriateness of data collection, and (3) statistical analysis and statistical evidence of the construct" (p. 53).

In the first stage of the scale development, we focused on content domain specification, item pool generation and content validity evaluation. We defined the content domain of the new scale based on the results of the qualitative phase of the research. Then, we had six experts reviewing the scale items. Appendix 3 shows the final version of the scale. Later, the questionnaire was written and revised, translation and back-translation of the questionnaire were performed, and a pilot study with nineteen people was performed as recommended by Slavec and Drnovesek (2012). The next stage of the scale design consisted of sampling and collecting data. It is important to note that our target population was IT professionals who work in project settings.

The last stage of scale development refers to the statistical analysis and statistical evidence of the construct. It involved three steps: dimensionality assessment, reliability assessment and construct validity assessment. To perform these steps we used the software SPSS and SmartPLS. We used the Exploratory Factor Analysis (EFA) to Structural Equation Modeling (SEM) to test and validate the theoretical model. To perform the EFA and the SEM, we randomly split the sample in half: the first half was used to perform EFA and the remaining 242 responses were used in the SEM.

The method used to assess scale reliability was the internal consistency and to assess the internal consistency, the Cronbach's coefficient alpha. We also evaluated the item-to-total and inter-item correlations. Finally, to assess the validity of the construct we used SEM, as recommended by Slavec and Drnovesek (2012).

Qualitative Data Analysis

To analyze the content of the qualitative data, we set codes based on the ten categories described in Appendix 1. To classify the categories in order of relevance, we added up the number of times that the twelve interviewees referred to each competence. Figure 2 illustrates a bar graph showing the ranking of the ten competence categories.
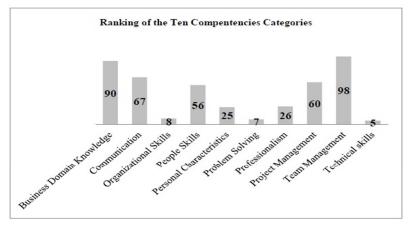
Figure 2: Bar graph showing the ranking of the ten categories

The five most referenced competencies in our qualitative research were (in order of relevance): team management, business domain knowledge, communication, project management and people skills. In the study of Keil et al. (2013), the top five categories were communication, team management, project management, people skills and personal characteristics. Despite these differences, four categories appear in the top five of both studies: team management, project management, people skills and communication. This fact emphasizes the importance of these groups of competencies in IT project management.

It was unanimous among the interviewees that soft skills are more fundamental to IT project success than technical skills. The categories of team management, people skills and communication gathered 221 references, while technical skills got only five. This result agrees with the researches of Stevenson and Starkweather (2010), Sumner et al. (2006) and Wateridge (1997). Some interviewees said that technically skilled project managers tend to underestimate human and business related aspects.

Team management was the most important competence group according to our interviewees. For respondents, IT project managers should help building the competences of their team, motivate their team members and provide an appropriate work environment (Kerzner, 2009; PMI, 2013; Turner & Müller, 2005). Business knowledge is the second most relevant competence category. This result agrees with Kerzner's (2009) work in which he declares business knowledge as one of the critical skills for twenty-first century's project managers. Communication was the third most cited competence group according to the research results. This result emphasizes the importance of communication in IT project management (Keil, Lee, & Deng, 2013; Skulmoski & Hartman, 2009; Stevenson & Starkweather, 2010). Project management was the fourth most relevant competence from the respondents' perspective. The article of Keil et al. (2013), used as the basis for the construction of the team categories, showed a similar result. In their research, project management category was ranked as the third most important competence. People skills were the fifth category with the most significant amount of references. It is interesting that many respondents stressed the importance of the psychological factor, which is an often overlooked aspect IT settings (Stevenson & Starkweather, 2010; Sumner et al., 2006). For many, the project manager is "like a psychologist" who is supposed to deal with the psychological aspects of their team members.

Regarding team commitment, 100% of interviewees agreed that team is fundamental to achieve project success: "I believe that commitment is totally related to results." "Yes, for sure. If the team is not committed, nobody is able to deliver anything!" The respondents also affirmed that IT project managers can create initiatives to create and increase team member's commitment. Their statement corroborates the perspective of many authors such as Thamhain (2004) and Shenhar and Dvir (2007).

It was clear that participants believe that IT project managers should develop certain soft skills to deal effectively with uncommitted team members: "If this person is fundamental to the project, the PM has to use a little bit of psychology and try to befriend this person". Finally, the results show that organizations should consider other aspects in order to increase team commitment such as work environment, career plan, meritocracy, monetary benefits and salary.

Quantitative Data Analysis

There were 484 responses to the online survey. Most of the respondents were men (76%) while women were only 24% of the participants. Regarding the respondents' job position, the range of participants contained all sort of IT related occupations (see Appendix 2). To comply with a primary condition of the research, all respondents worked in IT project settings. In regard to IT experience of the participants of the survey, 89% had at least five years of experience.

As already mentioned, the sample was split in two so that we would perform the factorial analyses with distinct samples. Following, we present the results of statistical analysis (EFA and SEM) used to assess the dimensionality of the new scale (Slavec & Drnovesek, 2012).

Exploratory Factor Analysis (EFA)

The EFA is used to assess to which dimension the scale items should belong to (Zambaldi, Costa, & Ponchio, 2014). Before executing the EFA analysis, the 242 responses were randomly sorted. In addition, we used the Barlett's Test of Sphericity and the Kaiser-Meyer-Olkin Test of Sampling Adequacy (KMO) to assess the strength of the relationship between the variables (Beavers et al., 2013) and how suitable the data is for factor analysis (Williams & Brown, 2010). The Barlett's Test of Sphericity (p<0.001) and a KMO index of 0,961 indicate that the collected data was suitable for factor analysis.

We excluded eight items due to their low factorial loading. We also excluded one item because its communality rate was below 0.5. According to Hair et al. (1995) (as cited by Williams & Brown, 2010) in the humanities, the total explained variance should be at 50-60%. The cumulative percentage of variance in the statistical analysis was 66%. To assess the relationship between the factors we used the orthogonal VARIMAX rotation method (Beavers et al., 2013).

Structural Equation Modeling (SEM)

As instructed by Slavec and Drnovesek (2012), the SEM was performed to assess the results of the EFA. To perform the SEM, we used the other 242 survey responses. The software used in this stage was the SmartPLS. The construct of IT project manager competencies was set as a construct of second order, linking the competence categories with the construct of team commitment (Figure 3).
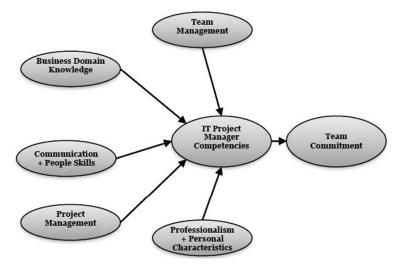

Figure 3: The conceptual model that was tested in SEM

We assessed two subtypes of the construct validity (Zambaldi et al., 2014): the convergent and the discriminant validity. In the convergent validity, item 34 - "Identify and expand opportunities for improvement and growth" - was excluded because it had the lowest Wilk's lambda.

As you can see in Figure 3, after the statistical analysis, the model was simplified. Instead of seven competence categories, the final version of the model presents five categories. That happened because in the statistical analysis (EFA) the categories of communication and people skills were grouped into one single category. The same happened with the categories of professionalism and personal characteristics.

In total, ten items were excluded: nine in the EFA and one in the SEM. This "cleaning" addressed a recurrent comment of respondents of the online survey. Many commented that the survey was "too extensive". Appendix 3 presents the version of the scale that resulted from the statistical analysis. Figure 4 illustrates the final version of the model. In this illustration it is presented the value of the path coefficients representing the relationship between the constructs and between each construct and its items.
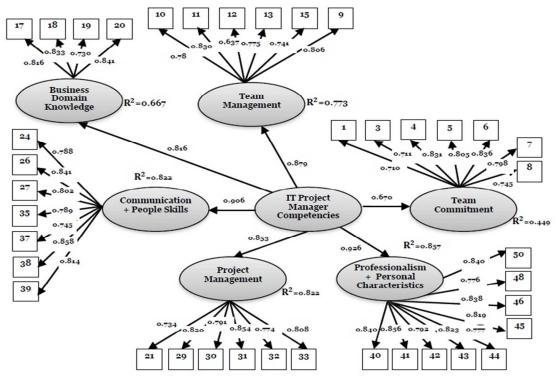

Figure 4: The model that resulted from SEM

Table 1 displays the results of the SEM. It shows the AVE (Average Variance Extracted), the composite reliability, the coefficient of determination (R^2), the Cronbach's alpha, the communality and redundancy of the constructs. All indicators showed acceptable values, confirming convergent validity.

	AVE	Composite Reliability (ρ_c)	R^2	Cronbach's alpha	Communality	Redundancy
Team Commitment	0.60552	0.914534	0.445473	0.890326	0.60552	0.268237
Team Management	0.585907	0.893983	0.771295	0.856729	0.585907	0.450822
Business Domain Knowledge	0.64928	0.880715	0.666745	0.819762	0.64928	0.429798
Communication + People Skills	0.649807	0.928394	0.822306	0.909837	0.649807	0.531972
Project Management	0.63671	0.912985	0.731135	0.885426	0.63671	0.461508
Professionalism +Personal Characteristics	0.669499	0.947945	0.855116	0.938087	0.669499	0.571586

Table 1: Results of the SEM

For a measure to have discriminant validity, according to Fornell and Larcker (1981), the AVE of each latent variable should be higher than the square of their correlations with the other latent variables. The result of the Fornell-Larcker criterion is described in Table 2.

	Business Domain Knowledge	Communication + People Skills	Team Commitment	Project management	Professionalism +Personal Characteristics	Team Management
Business Domain Knowledge	**0.806**					
Communication + People Skills	0.748	**0.806**				
Team Commitment	0.415	0.507	**0.778**			
Project Management	0.693	0.713	0.483	**0.798**		
Professionalism + Personal Characteristics	0.697	0.804	0.545	0.745	**0.818**	
Team Management	0.698	0.771	0.539	0.701	0.767	**0.765**

Table 2: Results of the Fornell-Larcker criterion

Differently from Keil et al. (2013), the competence categories of communication and people skills were grouped into a single one and the same occurred with the professionalism and personal characteristics. Since individuals tend to take into the organization environment their cultural identity (Hilal, 2003; Hofstede, Hofstede, & Minkov, 2010), we can look at some aspects of Brazilian culture in order to understand this result.

Brazilian culture is strongly relational (Hilal, 2003) and Brazilians have a high tendency to take things personally (Damatta, 1997). Therefore, it is understandable why our respondents did not separate

communication abilities from people oriented abilities. Neither did they separate professionalism from personal characteristics.

According to the statistical analysis, communicating well with superiors and peers (items 24, 26-27), creating trust within project team members and stakeholders (item 26), building relationships, dealing with conflicts and political issues (items 35 and 37) and negotiating (item 36) are strongly correlated. It is very important to note that theses aspects were highly graded by the respondents. According to the survey results, more than 40% of respondents believe that Brazilian IT project managers are good or excellent on these competencies.

In the same reasoning, ethics, credibility, accountability, commitment, experience (items 40-44), cooperation, empathy, initiative, transparency and honesty (items 45, 46, 48, 50) are interrelated according to respondents. We can also infer the influence of our relational society (Damatta, 1997) on this result. It should be mentioned that 35.5% of respondents think that IT project managers have little or any empathy. This result may reflect a cultural characteristic of Brazilian leaders: for Hofstede et al. (2010), Brazilian business leaders tend to focus more on their own interests than on the expectations of others (i.e. stakeholders and community).

Final Considerations

Project manager competencies and team commitment are topics that usually are presented at the literature (Stevenson & Starkweather, 2010; Thamhain, 2013). However, we could not find a scale that would identify and measure the project manager competences that impact team commitment. Therefore, we aimed to answer the following research questions: (1) which IT project manager competencies influence team commitment? and (2) how much these competencies impact team commitment? The main objective of this study was to identify the project manager competencies that have direct impact on team commitment in IT projects. To accomplish this goal we proposed and evaluated a new measuring instrument.

At the conclusion of the research, we presented a scale with five categories and forty items. Besides, the results of the statistical analysis show that the scale is very consistent and has a strong correlation with the research constructs. On the top of that, a parsimonious model was delivered, as needless complexity was cut away and the model was reduced as much possible without being false (Vandekerckhove, Matzke, & Wagenmakers, 2015). According to the research results, the five competence categories that impact team commitment on IT projects are business domain knowledge, communication combined with people skills, team management, project management and professionalism combined with person characteristics.

The results of this research are of great use for the academia and project management practice. The statistical analysis demonstrates that almost 45% of team commitment can be explained by IT project manager competencies. The implications of this finding are very relevant for the practice of project management. IT project managers should develop competencies and create ways make their teams committed to the project objectives.

The main contributions of this study were: (1) proposing a new scale to measure the influence of project managers competencies on team commitment; and (2) proposing an instrument to be used by IT organizations in order to help project managers building and sustaining team members' commitment in order to project success.

This study also provides foundation for further studies. It offers consistent material for scholars to develop researches regarding the influence of team commitment and project manager competencies on IT project success. Academics can evaluate the new scale in other business sectors and cultures. Another contribution for future studies is that model derived from the statistical analysis can be assessed in empirical studies.

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Appendix 1 - <u>Competence categories for IT project management</u>

Competence Category	Category Description		Skills	Skumoski and Hartman (2009)	Keil et al. (2013)	Kerzner (2009)
Team Management	Includes competences required to manage and lead team members effectively. Not only should IT project managers lead their team but they also need to motivate and empower project team members.	1	Ability to motivate team members	X	X	X
		2	Ability to empower future leaders (mentoring / coaching)	X	X	
		3	Celebrating accomplishments	X	X	X
		4	Collaboration	X	X	X
		5	Ability to bridge diverse teams	X	X	X
		6	Virtual team skills	X	X	
		7	Leadership		X	X
		8	Create an effective environment	X		X
		9	Share-information and credit	X		
		10	Protect the team	X		
		11	Provide feedback	X		X
		12	Give autonomy to team members			X
Business domain knowledge	This category encompasses the competences needed to work effectively with business partners. A successful IT project manager understands the overall context of the project and oversees the impact of the project on the organization.	13	Ability to understand the business domain	X		X
		14	Ability to identify stakeholders	X	X	X
		15	Ability to involve end-users	X		X
		16	Business skills	X	X	X
		17	Knowledge of the end product		X	X
		18	Ability to document process		X	X
		19	Strategic thinking		X	X
		20	Vision-oriented/articulate the business problem	X	X	X
		21	Cultural fit			X

Competence Category (cont.)	Category Description		Skills	Skumoski and Hartman (2009)	Keil et al. (2013)	Kerzner (2009)
Communication	Communication involves all the skills necessary to communicate effectively with the team, stakeholders and all those affected directly or indirectly by the project.	22	Verbal communication	X	X	X
		23	Written communication	X	X	X
		24	Listening	X	X	X
		25	Ability to construct persuasive arguments	X	X	X
		26	Effective questioning	X		X
		27	Open communication	X		X
		28	Presentation skills	X		X
		29	Ability to communicate at multiple levels			X
People skills	These skills are used to build and maintain good relationships with the individuals involved in the project. Building good relationships is crucial to avoid political and relational obstacles.	30	Conflict management	X	X	X
		31	Good people skills	X	X	X
		32	Negotiation	X	X	X
		33	Relationship building		X	X
		34	Understanding the psychology of people		X	X
		35	Charisma	X		X
		36	Political awareness/agility/tact	X		X
		37	Compromise	X		X
Technical	Generally, these skills are related to IT developers. They include knowledge on IT development methodologies, processes and techniques.	38	Technical skills	X	X	X
		39	Development methodology skills		X	

Competence Category (cont.)	Category Description	Skills		Skumoski and Hartman (2009)	Keil et al. (2013)	Kerzner (2009)
Project management	This category includes competencies necessary to ensure that the project is well managed, such as planning and motoring.	40	Scope management	X	X	X
		41	Project planning	X	X	X
		42	Time management	X	X	X
		43	Resource utilization	X	X	X
		44	Closing the project	X	X	X
		45	PM tool skills	X	X	X
		46	Project chartering	X	X	X
		47	Cost management	X	X	X
		48	Risk management	X	X	X
		49	Alignment	X		X
Personal characteristics	There are personal characteristics that may help project managers to achieve positive results. This category includes innate and nurtured personal features.	50	Sense of humor	X		
		51	Consensus seeking	X		X
		52	Attention to detail	X		
		53	Patience		X	
		54	Ability to handle stress		X	X
		55	Persistence		X	X
		56	Cooperation		X	X
		57	Decisiveness	X	X	X
		58	Objectivity	X	X	X
		59	Confident/realistic	X	X	
		60	High-level perspective	X	X	X
		61	Flexibility/manage ambiguity	X	X	X
		62	Judgment	X	X	X
		63	80/20 perspective / Pareto principle	X	X	
		64	Mental capability	X		
		65	Ability to learn/self-evaluation	X		

Competence Category (cont.)	Category Description		Skills	Skumoski and Hartman (2010)	Keil et al. (2013)	Kerzner (2009)
Personal characteristics (cont.)		66	Self-organization/self-directed	X		X
		67	Initiative/proactive	X		X
		68	Empathy	X		X
		69	Transparency/honesty			
Organizational	Organizational competences include abilities that enable the IT project manager to organize and coordinate the project activities and resources.	70	Organizational skills		X	X
		71	Multi-tasking		X	
Problem solving	Successful IT project managers are able to identify, analyze and solve problems that occur during the project.	72	Analytical skills	X	X	X
		73	Research skills	X	X	
		74	Creativity/innovation/resourcefulness	X		X
		75	Decision making ability			X
		76	Credibility	X	X	X
Professionalism	Professionalism refers to the project manager's values and characteristics that express his/her commitment and integrity.	77	Commitment	X	X	X
		78	Focus on quality	X	X	
		79	Professional skills		X	X
		80	Ownership of tasks	X		
		81	Not compromising on the facts	X		
		82	Participate and contribute fully	X		
		83	Results-oriented	X		X
		84	Lifelong learning	X		
		85	Experience			

Appendix 2 – Interviewees' Profile

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

Appendix 3 - New Scale

TEAM COMMITMENT	
1	Think it is great working with team mates
3	Believe that their personal values are aligned with the values of the team they are working with.
4	Feel proud to be part of the team they are in.
5	Feel motivated to give their best for the welfare of the team.
6	Feel happy to be part of the team they are currently in.
7	Indeed care about what happens to their team.
8	Believe that the team they are in is the best place to work.

Competence Category		Competence	Scale Item
Team management	9	Ability to motivate team members	Lead the team, without being authoritarian, so that the team accomplishes the project goals with enthusiasm.
	10	Collaboration	Engage themselves to accomplish tasks spontaneously.
	11	Ability to bridge diverse teams	Have a good understanding of each team's responsibilities and where they overlap.
	12	Virtual team skills	Know how to deal with cross-cultural factors such as different time zones, international customs, holidays, traditions and distinct work ethics.
	13	Share information	Share information about the project with all people involved.
	15	Provide feedback	Give team members timely positive or negative feedback.
Business domain knowledge	17	Ability to understand the business domain	Understand the business requirements as well as the factors that can affect the project's health, instead of only focusing on the technical solution.
	18	Ability to identify stakeholders	Identify the individuals (stakeholders) that will be impacted by the project.
	19	Ability to involve end-users	Sell the project to end-users and make them accept the system.
	20	Knowledge of the end product	Understand what the end product is, how it works and what it must accomplish.
Communication + People skills	24	Communication	Have both verbal and written skills to communicate well with all those involved in the project.
	26	Open communication	Communicate openly in order to build trust and improve communication in all project phases.
	27	Ability to communicate at multiple levels	Are able to communicate not only with his/her team members but also with stakeholders and people from different hierarchical levels.
	35	Conflict management	Manage conflicts constructively to obtain alignment within those involved in the project.
	37	Political awareness/agility/tact	Discern and deal with political issues.
	38	Good people skills	Work with and interact with all types of people in all types of situations.
	39	Negotiation	Build relationships and are able to negotiate with the different people involved at distinct hierarchical levels (technical and business area).

Competence Category (cont.)		Competence	Scale Item
Project Management	**21**	Ability to document process	Document organizational processes effectively.
	29	Scope management	Manage the project scope well.
	30	Project planning	With business requirements as a starting point, create activities and precise deadlines, avoiding penalties for not meeting these deadlines.
	31	Time management	Make a good time management to prevent bottlenecks, by using appropriate techniques such as critical path analysis.
	32	Cost management	Have good control of project budget and its actual costs.
	33	Risk management	Identify potential risks and develop a plan to reduce or eliminate these risks.
Professionalism + Personal Characteristics	40	Credibility	Keep their promises and demonstrate a high level of ethics.
	41	Participate and contribute fully	Participate and contribute fully.
	42	Ownership of tasks	Are accountable for their tasks.
	43	Commitment	Are committed to the project.
	44	Experience	Know how to learn from past experiences and interaction with others professionals.
	45	Cooperation	Help others for the common benefit.
	46	Empathy	Know how to put themselves in the place of another to feel what another feels (empathy).
	47	Decisiveness	Take decisions based on real facts instead of feelings or personal beliefs.
	48	Initiative-proactive	Have initiative and pro-activity.
	50	Transparency-honesty	Are transparent and honest.