2008

The Impact of Culture on IT Project Management Practices: Research in Progress

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ABSTRACT

Rapid technological changes along with political, social and economical decisions have led the IT and Telecommunications industry to become a very dynamic and changing sector. Partnerships at the international level are everywhere and the stronger influence of IT represent high-risk potential. Statistics show that 70% of IT projects are out of time or budget or simply fail. With such perspectives, measures ought to be taken to avoid the further replication of this pattern. The risk of failure is perceived to be greater as projects rely on players with different cultural backgrounds increasing managerial complexity and supposedly requiring a unique set of skills. Efforts should be aimed to find out the management profile necessary to avoid pitfalls in the implementation of technology projects and provide practitioners with a culture-based project management practice. The research will allow the identification of project management patterns and preferences consistent with national culture.

Keywords

Cross-cultural management, project management, project success, information technology

INTRODUCTION

In the last two decades, more and more organizations have been and are engaging in projects related to IT at different stages of their infrastructure, the actual conditions are taking them to partner and interact with domestic and international organizations increasing technical and organizational complexity (Grover and Saeed, 2003; Turner, 2005). Unfortunately, past experiences showed, in general, that IT projects are high risk undertakings and the IT industry still struggles to improve their efficiency rate when it comes to successful projects (Hasan and Ali, 2007; Nelson, 2007). Under these circumstances, the convergence of telecommunications and information technology propose an unlimited but also threatening environment, as possibilities expand so do the chances of repeating the IT project failure phenomenon (Yetton, Martin, Sharma and Johnston, 2000).
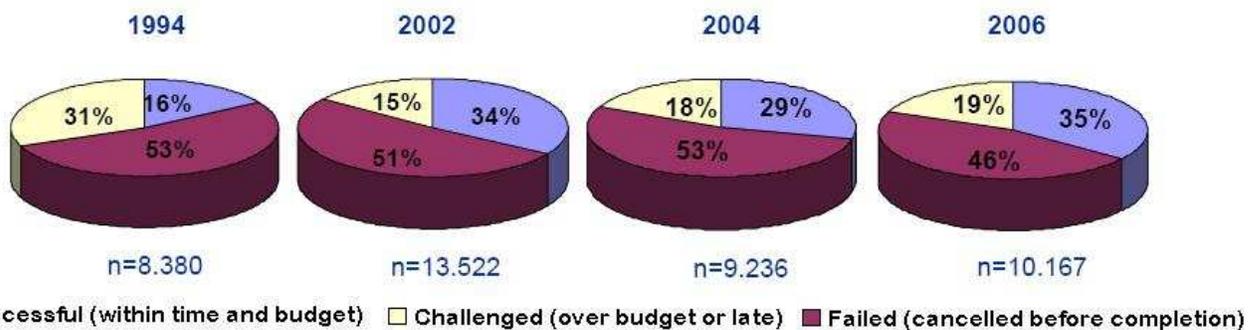
Source: Standish Group (www.standishgroup.com)

Figure 1. The Standish Group's Chaos Report on IT Project success

Practitioners in the field of project management have a great deal of techniques, tools, technologies and management practices to choose from. These resources are supposed to support the whole life cycle of a project, from idea generation, project initiation, planning, execution, control to closure and maintenance. The Project Management Institute has compiled the very best practices in management of projects in its publication the Project Management Book of Knowledge (PMBOK) and provides consistent world-accepted certification for practitioners. Control Objectives for Information and related

Technology (COBIT) 4.0 dedicates a whole control objective to the issue of project management. The Institute of Electrical and Electronic Engineers (IEEE) dedicates a set of standards to software engineering and provides a certification path for practitioners. Still the rate of failure in IT projects has not really improved over the last decade, and approximately 70% of the projects are out of time, budget or have been cancelled (see Figure 1) (Nelson, 2007; Tichy and Bascom, 2008).

RESEARCH QUESTIONS AND OBJECTIVES

The changes in the economic environment have fostered industries, including IT and Telecommunications, to go beyond national boundaries. This increased cross-cultural interaction emphasizes the importance of understanding culture's influence in business. Up to now, different authors and institutions have dealt with IT project management practices as if they were a one-fits-all recipe with very limited consideration of soft management aspects (Yetton et al., 2000; Gowan and Mathieu, 2005; Hasan and Ali, 2007; Iacovou et al., 2008), without taking into account basic cultural and contextual differences. There have been also some efforts on the side of public organizations to establish project management practices in specific countries, take, for example, the Projects in Controlled Environments 2 (PRINCE2) model endorsed by the British government, or its Swiss counterpart: HERMES, or even the German V-Model for software development.

The prevailing controversy on the ingredients and causes of project success, and on the definition of success itself, can be traced back to the universalistic approach applied, where it is often assumed that projects are the same irrespective of their contextual and cultural environment. The use of detailed cross-cultural data will enable us to account for the interaction between managerial and success variables and to address perspectives, often left unanalyzed by previous research.

This work intends primarily to develop an empirical instrument to identify ideal project management frameworks across national cultures in the telecommunications industry with the idea in mind that a comprehensive and integrated project management system can work as a facilitator for project success. We intend to answer the following research questions:

- If cultural conditions determine the development, use and modification of technology, could the same be also argued about project management practices?

- Do cross-cultural differences exist in project management frameworks?

- Is there a significant difference in the definition of project success among different cultures?
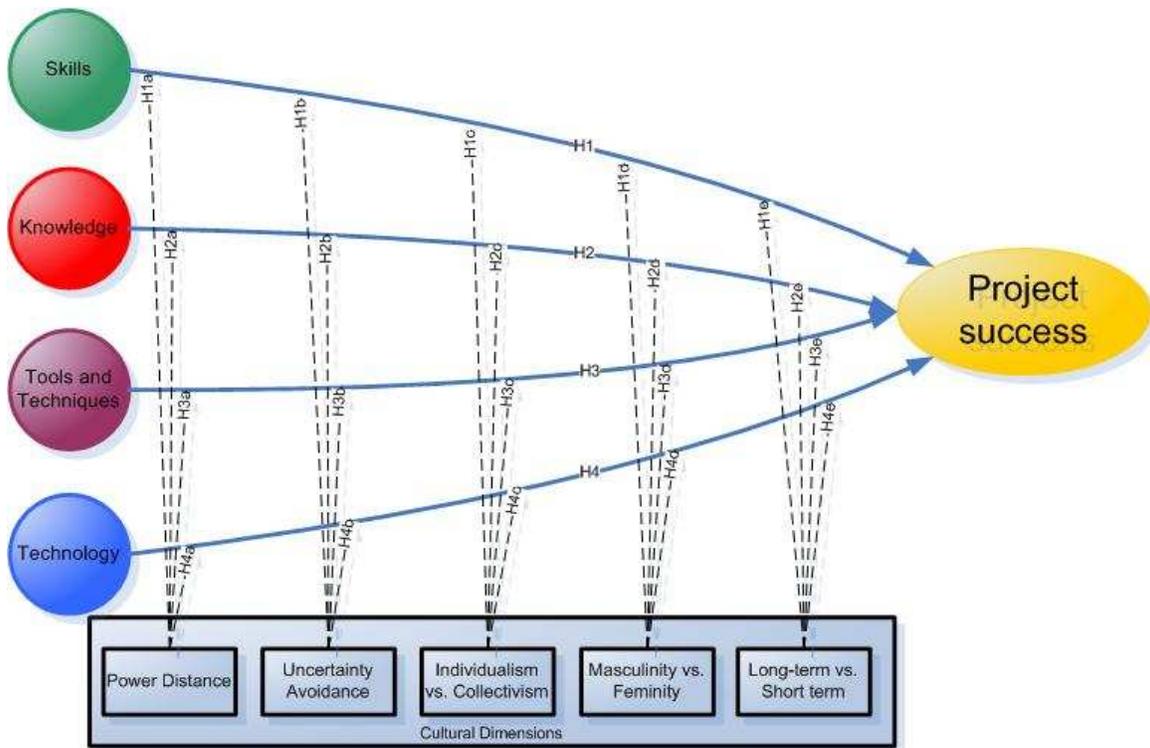
Figure 2. Research model

Our proposed model, shown in Figure 2, was partially derived from the theory of social construction of technology (SCOT) and the theory of reasoned action; it depicts the influence of the components of a project management framework on project success, where the cultural dimensions proposed by Hofstede and Hofstede (2005) act as moderating variables.

We argue that when project participants perceive a tool or a skill as being valuable for the success of their enterprise, they will probably act according to their beliefs and attitudes which are influenced by their national culture, leading them to use the artifact, thus affecting project outcomes.

One of the critical factors most mentioned in the literature are the skills that a project manager or participant should possess in order to produce positive outcomes; such skills refer to leadership, communication style, negotiation, problem solving, influence and motivation, among others. Thus, we pose the following hypothesis:

H1: The skills perceived as necessary in an IT project will have an influence in project success.

H1a-e: Culture moderates the skills that are positively perceived as necessary in an IT project.

The hard-core knowledge of project management refers to the familiarity with best practices, standards and guidelines. These can be easily accredited by certification bodies, for example, the PMI credential, the certification PRINCE2; HERMES; the International Standards Office 10006:2003, which provides guidelines for quality management in projects; just to name a few. Our hypotheses in this sense are:

H2: The knowledge perceived as necessary in an IT project will influence project success.

H2a-e: Culture moderates the knowledge that is positively perceived as necessary in an IT project.

Tools are the entities that provide an advantage in accomplishing a task or actually enable the completion of the task, and the techniques are the way the task is accomplished. Examples of this include project management tools like the Gantt chart, or the risk break down structure. Still the utilization of such artifacts depends in their acceptance among project participants.

H3: The tools and techniques perceived as beneficial in an IT project will influence project success.

H3a-e: Culture moderates the tools and techniques that are positively perceived as beneficial in an IT project.

By technology, it is meant the software, hardware and communication resources deployed during all phases of a project and whose aim is to facilitate its positive completion.

H4: The technology perceived as beneficial in an IT project will influence project success.

H4a-e: Culture moderates the technology that is positively perceived as beneficial in an IT project.

THEORETICAL FOUNDATIONS

Cobit 4.0 recognizes that one of the critical success factors in project management is the availability of experienced and skilled project managers and a robust life cycle methodology (IT Governance Institute, 2005).

The research literature has mainly focused on evaluating projects in terms of schedule, cost and sometimes functionality, and amazingly enough the findings lead us to attribute failures in any of these fields mainly to human interactions (Iacovou and Nakatsu, 2008). There are assumptions that the IT project participants might require a unique set of social and emotional skills in order to achieve success in a project. The question magnifies when it comes to managing culturally mixed teams. Hofstede and Hofstede (2005), and Trompenaars and Woolliams (2007) argue that culture is the underlying factor that leads humans facing similar situations to take different actions based on their values, beliefs and/or customs.

A Definition of Culture

The most accepted definition of culture was given by Tylor (1881) who described it as a complex whole which includes knowledge, values, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society.

Culture is also a multi-layered construct existing at different levels (see Figure 3): global, national, organizational, and group cultures encompassing also the individual (Craig and Douglas, 2006).

Figure 3. The construct of culture

Cultural Influence on Management

Demeester (1999) affirms that *"science and technology are context-blind components of real life problems, but they can only affirm themselves in a cultural context"*. The SCOT theory affirms that technology does not determine human action, but rather, that human action shapes technology (Pinch and Bijker, 1984). Furthermore, it argues that the reasons for acceptance or rejection of a technology rely on the social world.

In many IT-related studies, project success has been attributed to specific critical success factors (CSF). Nevertheless, CSFs differ from one manager to another depending on the context of his or her organization and according to geographical regions (Rai, Borah and Ramaprasad, 1996; Niazi, Wilson and Zowghi, 2006). Other studies have shown supportive evidence of the

impact of culture on managerial practices (Allen, Takeda and White, 2005; Kayes, Kayes and Yamazaki, 2005; Kanungo, 2006). These studies concluded that competencies must be consistent with the values of culture, emphasized flexibility to work in multicultural teams understanding cross-cultural values while contradicting the notion that a homogeneous world culture has developed and that a standard set of management practices can be universally used by multinational corporations. Despite globalization and trends towards convergence of management practices, there appear to be many differences still between behavioral patterns and adoption of practices.

The field of cross-cultural management proposes two currents of thought about engaging on "western ways" of doing business (Garg and Ma, 2005), one results on the adoption of Western values and suggests that the demands, opportunities, management and leadership styles of a technologically advancing society responds to industrialization rather than to indigenous cultural forces. On the other hand, the argument exists that culture is a force powerful enough to ensure that managerial values will remain different for businesses in different countries despite the impact of Western-style industrialization. Still, the phenomenon goes beyond Western vs. Eastern culture, differences can be found among countries in the European Union, across all Latin American countries, and even inside the Middle-East (Kanungo, 2006).

In the field of psychology, the theory of Reasoned Action (Fishbein and Ajzen, 1975) and its extension, the theory of Planned Behavior (Ajzen, 1985) have been widely used to study the relationship between beliefs, values, attitudes, norms, intentions and behavior. The meaning of these theories to our research is that project participants hold specific attitudes towards certain managerial styles, project management tools, technologies and acquisition of knowledge depending on their culture, constituted by values, norms, and beliefs, then they will act accordingly.

In this sense, a study conducted across different industries in the UK suggested that variations in attitudes and behaviors of project managers towards leadership, staff, policy and strategy, partnerships and resources, life cycle processes and key performance indicators could be used to measure levels of performance (Bryde, 2003). Usually the perceptions and attitudes towards management practices, styles and, tools are deeply rooted in beliefs, values and norms bound to the cultural environment in which the individual unfolds, therefore if managers believe that a certain skill or tool is useful or appropriate they will probably apply it to real life situations and will have an impact in project management performance.

Project Management Practice

Loo (2003) provides a multi-level causal model for best practices in project management (PM); he found four main components of a successful PM practice:

•   Project management skills

•   Organizational facilitators and inhibitors, e.g. available technology

•   Project management competencies

•   Project management outcomes

While Bryde (2003) adopts from the European Foundation of Quality Management Excellence Model a project management assessment model whose structure is based on "enabling" and "results" criteria. Remarkably, Loo's (2003) and Bryde's (2003) research allowed us to envision an arrangement of the aspects that constitute a project management practice providing the rationale for consolidating both models to form a project management framework comprising three main components (see Figure 2):

1. Project Back-End

2. Project Life Cycle Management

3. Project Outcomes

Project Back-End

The first component of our framework deals with features that are indirectly related to the project itself but provide the support for the life cycle management. They are referred to as skills, knowledge, tools and techniques, and technology.

In the IT industry, the growing dispersion of teams due to internationalization exacerbates the importance of soft management skills, as well as, the domain-relevant skills (Hoegl, Ernst and Proserpio, 2007). Nelson (2007) identified classic mistakes in project management and found that failure to deal with people was one the main causes for project failure, it follows that personal and emotional skills are a must in the profile of project participants.

Napier, Keil and Tan (2007) performed a qualitative analysis and found four project manager archetypes, the experiment was carried out among specialist from IT and Telecommunications sector. The four archetypes represent beliefs held by experienced project managers about the required combination of skills associated with ideal IT project managers. In this study, the importance of communication, general management, leadership, planning and control, and systems development was confirmed, as well as, client management, problem solving, personal integrity and team development. Napier et al. (2007) also found that process issues, such as planning or controlling, could be mitigated by a solid basis of knowledge; Nelson suggests that becoming well acquainted with the PMI's documents or following the work of the Software Engineering Institute could help achieving better results. The conclusion is that practitioners should possess and/or have access to proper project management knowledge and training. Aided by the availability and application of appropriate technology and tools they integrate a consistent project management environment in which the outcomes could be satisfactory.

Project Life Cycle Management

The best practices found in the literature (Yetton et al., 2000; Bryde, 2003; Loo, 2003; Napier et al., 2007) suggest, as depicted in Figure 4, paying attention to at least ten aspects of project management: scope, schedule, stakeholders, team, communication, procurement, resources, quality, risk and change. The empirical evidence shows that the utilization of a formal project methodology to manage a project's life cycle predicts whether the estimated completion time will be met or not, whereas project size and complexity do not have a direct influence (Gowan and Mathieu, 2005).
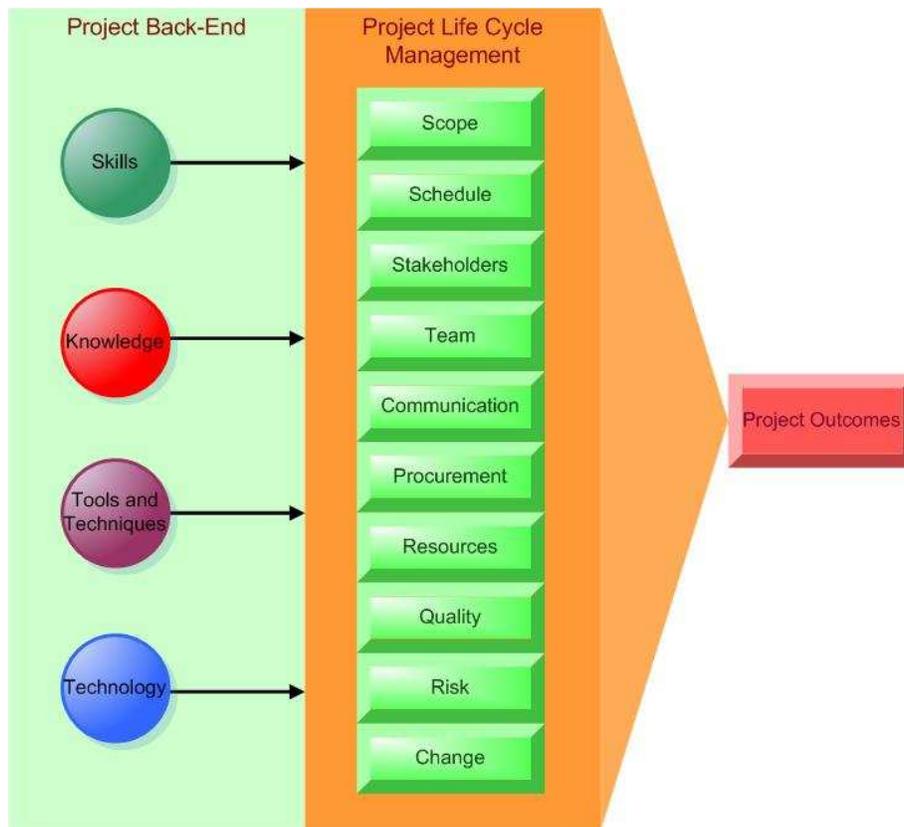

Figure 4. Project Management Framework

Project Outcomes

As stated before, the outcomes of a project have been often measured in terms of completion time and budget, sometimes functionality has played a role in the assessment. Still, even projects that were completed on time and within budget have often failed to bring the expected value. Procaccino, Verner and Lorenzet (2006) argue that the concept of successful IT project is vaguely defined and have suggested at least nine aspects of a successful project. Nevertheless, just as the necessary skills, tools and technology for a successful project might vary across cultures, so does the definition of success.

RESEARCH METHODOLOGY

One of the main difficulties of performing research in the high-tech sector is the reluctance of firms to disclose sensitive information. To overcome this obstacle, the researchers will constantly participate in activities sponsored by the Tele Management Forum (TM Forum; www.tmforum.org); the forum is the world-wide industry association providing strategic leadership, best practices and pragmatic standards in the telecommunications branch. The solutions provided are developed by bringing together the technical minds from vendors, service providers and systems integrators. The work of the TM Forum is well recognized by the International Telecommunications Union.

Under the guardianship of the TM Forum, a project will be initiated within the Catalyst Program focusing on the topic discussed previously. The Catalyst Program of the TM Forum provides stakeholders in the telecommunications industry with a collaborative platform to solve common, critical industry challenges through short term projects.

In order to achieve the proposed objectives, the project will be carried out in two phases combining qualitative and quantitative methods. The reason to apply a multi-method approach lays in the explorative nature of our work, by first establishing country models, and later on testing the validity of the models in a larger sample.

Stage One: Country Profiles

The first stage is aimed at identifying key constructs of each project back-end category by performing interviews with up to ten project managers in each participant country. They will be asked to relate their experiences in project management and describe the four aspects of the project back-end presented in Figure 4, then briefly explain project success.

Through the application of qualitative methods we will derive a set of skills, knowledge, tools and techniques, and technology relevant to each country as well as a definition of project success. After the first round of interviews, it is expected to have a profile of an ideal IT project management system for a minimum of 5 countries. Some of the methods to be used during this phase of analysis are the content analysis, laddering method, repertory-grid analysis and means-end chain. From the profiles described by practitioners, a country model will be derived, to explain the relationships between skills, knowledge, tools and technology and the success factors of a project in the specific country.

Stage Two: Data collection

At the second stage of the research, we will test the country profiles drawn from stage one in a larger sample of project managers and team members (min. 70 participants per country) by means of a questionnaire. The constructs found in stage one will be formulated to be applied in a multiple choice questionnaire, and derive some conclusion based on the hypothesis posed in the previous section. Additionally, provided the respondents' sample per country is large enough, advanced statistical analysis like structural equations and factor analysis will be used in order to identify relations between variables that were not considered during the hypothesis elaboration as we intend to analyze the extend of cultural influence on the profile of the project management framework and the necessary skills accordingly, as well as, its impacts in a project realization.

CURRENT STATUS OF THE PROJECT

As of March 2008, our institution, became an academic member of the TM Forum, followed by the membership of the researchers. Since then, a white paper has been produced and published and the necessary steps are being undertaken to make this research part of the Catalyst program. This will enable us to gain sponsorship and industry acceptance, as well as access to a global community of experts. The requirements were already fulfilled by our organization.

Simultaneously, we have conducted an extensive literature review and we are working on the preparation of the interview. As soon as, the TM Forum approves of the project, we will start collecting the qualitative data corresponding to the first stage of the research.

CONCLUSIONS AND FUTURE WORK

A central argument of this paper is the understanding of project management practices, outcomes and national culture as a moderating factor. The study intends to analyze the attitudes of practitioners in the field towards specific models of PM and the effects of it on project success. Specially, we are interested in depicting different profiles for the participant countries and offer a guide for those conducting and leading projects in those countries. A recommendation for further research is to analyze project management practices in as many countries and industries as possible to discover tendencies and possible form clusters with the countries and industries showing similar patterns.

WHAT AUTHORS PROPOSE TO PRESENT AT THE CONFERENCE

The authors intend to present the project management framework and research model generated from the literature review and possibly the results of the first round of interviews.

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