The Impact of Cultural Diversity on Multinational Information Technology Project Success in Saudi Arabia

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Keywords: IT project management, Hofstede, multinational, diversity, cultural dimension, information technology, multicultural.

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Abstract

Information technology (IT) projects in Saudi Arabia face various obstacles that have the potential to hinder their success. Numerous studies have investigated the factors that may lead to high failure rates. However, not many studies have been dedicated to inspecting the impact of cultural factors on the performance of IT projects in Saudi Arabia. This paper presents an empirical study that examines the impact of cultural diversity on multinational IT projects' success in Saudi Arabia through investigating three of Hofstede`s cultural indices: power distance, uncertainty avoidance, and individualism/collectivism. To measure both the cultural indices and performance, a quantitative survey method adopted from Hofstede's cultural survey, was used. It was utilized to collect and analyze the data from 171 employees working physically on 15 multinational teams and who have conducted 70 IT projects in Saudi Arabia. The findings of the study confirmed the substantial correlation between the three targeted cultural indices and the performance. The power distance and uncertainty indices are related positively to performance, while individualism index bears negative correlation to performance. These results are vital for IT project managers in Saudi Arabia as they provide some vital insights on how to compose their multinational teams based on scientific facts and also discuss the indicators where thee managers need to tackle the cultural diversity intelligently within their teams.

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Dedication

I dedicate this research to my parents, who always believed in me and made me who I am; my wife and my two superheroes Hamid and Said for being my backbone that helped me stand strong; my siblings for preventing me from any distraction during this journey.

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Acknowledgment

Today, at last, I have reached the end of a long and amazing journey. Though I know, I am again at the start of a new one, but at this stage, I would like to take a breath and look back for a while. So many faces are floating up, peaceful and happy faces, who have extended selfless support while I was striding forward.

This is indeed an excellent opportunity to express my gratitude towards my advisor Dr. Kovacs. He was there whenever I needed guidance, be it academic or mental. He has been a ceaseless source of strength and enthusiasm to me. I consider myself fortunate that I got an opportunity to work with him. I will forever remember the experience that gave a direction to my life.

I cannot express how lucky I feel to have such a beautiful and supportive family who stood by me in light and dark, in times of joy and distress. Always braced by your warmth, I moved forward, step-by-step, and every footstep knows how thankful I felt. My Father, you have always been like a large tree standing still with a shadow covering me. You have provided the substantial financial support all through these years, thus making it possible for me to complete the journey. I could not imagine even a tiny bit of accomplishment without you. Thank you, Dad!

Words fall short when I want to thank my dear wife who has been my friend, guardian, and mentor as the situation has demanded. She is the spine on whom my existence rests and derives the enthusiasm to live and work. Thank you, Moony!

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I wish to thank my colleagues with whom I have passed three wonderful years. This period was full of academic discussions, sharing ideas, chitchats and refreshments. We had a great time working together. May your life be full of bliss, success and uninterrupted happiness!

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Chapter 1: Introduction

1.1 Background

Researchers have conducted numerous studies on the factors that influence project management in organizations. They found that United States consumer product projects fail 95% of the time (Clancy & Stone, 2005), "and industrial product launches fail about 40% of the time" (Stevens & Burley, 2003). When considering information technology (IT) projects, Taylor (2006) states that "in the mid-1990s, approximately 80 percent of all IT projects failed, and of those that were restarted, about 50 percent failed" (Taylor, 2006, p. 193). In the past, researchers have drawn attention to project management issues that have mainly focused on the language and communications barriers caused by having multinational project team members working in the same environment. However, only few studies have investigated issues raised by having people of different cultures working in the same project in the Kingdom of Saudi Arabia. This paper specifically focuses on the impact of cultural differences on the performance of IT project team members working in Saudi Arabia.

Effective communication, project management, and interpersonal relationships are some of the key cultural variations that have more effect on the practice, and performance of multicultural team member's team than the mono-cultural teams (McDonough, Kahn, & Barczak, 2001). The reasons project coordination fails are rooted in the fact that workers of a team come from different countries with different work norms, beliefs, and experiences. Therefore, Janet and Mike (2005) stated that those team members who have diverse cultural backgrounds could slow down team performance, as they are less harmonious. Speece and Suwannaporn (2004) also claimed that two business parties or two members from different cultural backgrounds could have an unclear argument. The local employees are perceived as in-group members; conversely, the overseas employees do not get this privilege. As a result,

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the output of the project is damaged due to the lack of clear communication between the members.

Saudi Arabia is a prime destination for many Asian and the Arabian world countries. A mid-2013 statistics showed that expatriates represented about a third of the population in the Kingdom and around 89 % of the private sector workforce and 56.5% of the employed power (De Bel-Air, 2014). This means cultural variation is a prominent aspect of Saudi projects, and according to McDonough, this diversity in culture seriously affects the performance of a project's team members (McDonough, 2001). According to a study by the Population Division of the United Nations, Saudi Arabia holds the fourth world rank in terms of foreign manpower with over 11 million foreign employees (Toumi, 2017). These facts, as well as all the above-specified factors, encouraged the researcher to study the relationship between cultural differences amongst team members and their performance while working on the Saudi IT projects.

1.2 Problem Statement

The problem this study focuses on is determining the relationship between the high percentage of IT projects failure and culture differences with respect to Saudi Arabian IT projects. While working with a team, most of the team members go through different challenges. Because of this, most of the firms are unable to achieve the aims or objectives that they placed when the organization was founded. Such challenges often affect the project management abilities of a team, thereby making it impossible for the team members to establish and maintain effective communication and interpersonal relationships (Pnina, 2005).

As far as cultural differences are concerned, "IBM conducted surveys and face-to-face interviews with project leaders, sponsors, project managers and change managers from many of the world's leading organizations" (Jørgensen, Owen, & Neus, 2008) and the following cultural barriers were found to exist among the team members:

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- Changing mindsets and attitudes (58%)
- Corporate culture (49%), and
- Underestimation of complexity (35%) (Kelley, 2015).

The data sample of the IBM survey was 1,500 practitioners (Jørgensen et al., 2008). Furthermore, using a quantitative correlational design, IBM focused this study on "customer satisfaction improvement, sales and revenue growth, cost reduction, process innovation, technology implementation, new market entry and organizational change" (Jørgensen et al., 2008)

Different team members act according to their own cultural backgrounds. So problems of cultural differences often do occur in organizations for several reasons resulting from the differing norms, beliefs, experiences, and characteristics exhibited by employees from different countries. Diversification problems among team members often prevent them successfully coordinating with each other (Pnina, 2005).

Some researchers have studied and investigated the reasons lying behind the IT project failure in Saudi Arabia. The participants of a very recent study conducted to determine the factors of both success and failure of Saudi IT projects were project managers from diverse nationalities and they were employed either in private or public fields in the kingdom. Conflict of interests, characterizing organizational culture, and the instability and lack of clarity were identified as the main factors of IT projects' failure (Alfaadel, Alawairdhi, & Al-Zyoud, 2012). It is clear that some of the proved factors return to people issues such as lack of communication, lack of clarity, and conflicts of interest. Another exploratory examination study has been conducted to address the failure risk factors of IT project across the public and private sectors in Saudi Arabia. It also identified conflict between users, resistance to change behaviors, and poor communication as some of IT projects' risk factors (Altahtooh & Emsley, 2014). One more study addressed the barriers to the success of Saudi IT project in public sectors and

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reported shortage of Saudi IT expertise, stakeholders' conflicts of interest, and resistance to change and adapt with the new environment as the major barriers(Almajed & Mayhew, 2012).

1.3 Purpose

The purpose of this quantitative study is to fill the gap between IT project managers and their multinational employees by identifying the impact of cultural differences on the performance of multinational team members working on Saudi IT projects. By determining the cultural barriers, this research may help organizations and project managers avoid or overcome such barriers to improve the percentage of successful projects.

The study was conducted based on variables presented in Hofstede, G., Hofstede, G., & Minkov, M. (2010)'s multidimensional model of cultural dimensions, which are described thoroughly in chapter two. These factors are 'power distance index', 'individualism / collectivism', 'uncertainty avoidance index', 'masculinity / femininity', 'long-term / short-term orientation', and 'indulgence / restraint impact'. These variables were used as the base to determine the factors that influence performance of diverse team of employees on Saudi IT projects.

1.4 Research Questions

The research questions this study addresses are:

1. How does Power distance index impact the success of multinational IT projects in Saudi?
2. How does Uncertainty avoidance index impact the success of multinational it projects in Saudi?
3. How does Individualism vs. Collectivism index impact the success of multinational IT projects in Saudi?

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1.5 Rationale of Study

A large number of research studies have been conducted previously and they have all examined the problematic influence of differences in language, communication, and other cultural beliefs and values. Therefore, the current research study becomes more important for identifying and tackling cultural differences among team members. It will help organizations to become and remain effective in their operations, thus increasing the percentage of successful projects.

With respect to cultural differences, an investigation has been carried out that shows multicultural group members are confronted by difficulties that are more prominent. This can impact the success of a project as well as effective communication and interpersonal relationships among team members. The study suggested that having team members, who belong to varying cultural backgrounds with unique experiences, convictions, and standards, impacts their capability to perform effectively at work (Zhengzhong, 2014).

Numerous research studies proposed that cultural barriers may become the primary reason for less congruous association among team members and that this will ultimately reduce the level of cohesion and work. This study highlights several factors responsible for the creation of cultural barriers within project teams.

This study will be beneficial for organizational managers, HR management, and other executives who work in multicultural environments. Besides providing aid with managing diversity in terms of ethnicity, culture, psychology, this research will increase understanding of the challenges and implications of diversified teams.

1.6 Scope

The focus of this study is to examine the impact of cultural diversity on multinational IT project success in Saudi Arabia. In addition, the sample population is a group of multicultural and diverse employees working physically in large multinational organizations

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located in Saudi Arabia specifically targeting the IT sector. Therefore, the study implies geographical limitation because the target is to study only Saudi Arabian IT projects. Any subject lying outside the Kingdom or the IT field is beyond the scope of this paper. Additionally, the target population is working physically in the projects. This means the findings may not be applicable for multinational employees working remotely on a project. Another limitation is related to the independent variables. Although, the framework for the research is based on the Hofstede et al.'s (2010) multidimensional model of cultural diversity, the study considers only three dimensions: power distance index, individualism/collectivism index, and uncertainty avoidance index. The author preferred to choose only three aspects of a culture to be measured relative to other cultures. The author planned to inspect the influence of only these three independent variables on the dependent variables due to time limitation. Moreover, concentration on only three dimensions renders the research more focused leasing to more accurate results.

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Chapter 2: Literature Review

2.1 Introduction

This chapter focuses on addressing the basic concepts of IT project management in detail including its history, failure rate, and success. A brief introduction to the field of IT project management is then followed by narrowed down approach in which a light has been thrown on the cultural barriers faced in IT projects. This includes a full explanation of all the cultural barriers that are creating serious issues for project managers, specifically those related to communication and language issues between members and project managers. A number of models have been designed to help examining the barriers related to cultural aspects. Hofstede et al.'s (2010) cross-cultural model has been chosen for this analysis. This chapter also investigates whether or not past research studies have shown a relationship between IT project management and Hofstede et al.'s (2010) model of cultural dimensions. Finally, because this study will take place in Saudi Arabia and all the participating IT managers are from Saudi Arabia, a report on Saudi culture by Hofstede's (1980) analysis of the Arab world has been added at the end of the chapter. This will help to address the scores given by Hofstede on each dimension based on the nature of Saudi Arabian culture during that period.

2.2 Growth of IT Projects

Due to current technological changes, numerous organizations and individuals have a renewed or redirected interest in IT project. "During [the] 1980s, the prime focus of project management was limited to resource and schedule data provided to upper management in [the] construction, computer and military industries" (Haughey, 2010). In the modern world, people in almost every country and industry are capable of managing projects from a diverse cultural basis because of the advanced technologies that have in turn gained considerable importance in a large number of business industries (Schwalbe, 2014).

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With the rapid change in IT, many IT projects do not require employees to be physically located where their managers are. Therefore, software development and project management communities have provided a large number of software solutions designed to help IT managers in managing small as well as complex IT projects. For example, a website called infogoal.com has provided a package full of project management resources called the Project Management Center. These packages were developed by IT practitioners and IT provides approximately 300 software solutions related to project management. This website along with other IT management websites have proven to be helpful in the further development and growth of available software products, specifically web-based tools, for project management (Schwalbe, 2014).

2.3 IT Project Managers and Team Members

Motivating the members of a project team is one of the important roles of a project manager. Without project team motivation, the chances for failure of a project increase a considerable level (AACE International, 2004). The success of an IT project depends on the ability of its team members to having a positive attitude, supporting each other, developing sound communication among themselves, and coming to work on time (AACE International, 2004).

Such motivational factors increase the likelihood of concluding the IT project on schedule. If team members show a lack of interest, have poor attitudes or are unmotivated, there is a high possibility that the project will not be successful in delivering the desired outcomes (Dorothy, 2007). Keeping the members of the project team motivated throughout the entire course of the project is an important factor in ensuring timely success within budget (Dorothy, 2007). Other factors such as the cultural background of the team members plays an important role in determining the project's success rate.

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2.4 National Culture

It is a proven fact that national culture has impacts on basic business practices including capital structure and staff performance (Leung, Bhagat, Buchan, Erez, & Gibson, 2005). Thus, for conducting this research it is essential to understand what culture is, given the countless conceptualizations, dimensions, and definitions used to describe this concept (Straub et al., 2002).

Culture definitions in the 1950s were more focused on discovering the distinctions and occasional perspectives (Straub et al., 2002). The definition of Culture according to Kroeber (1952), is "the historically differentiated and variable mass of customary ways of functioning of human societies" (p. 157). According to Parsons and Shils (1951), Culture entails a number of symbols, norms, and values that direct the behavior of an individual. These two definitions, as noted by Straub et al. (2002), perceive values as a basic concept in defining culture. Kroeber asserts that such values may be explicitly seen as traditions or implicitly felt as in folkways by the society holding the culture (Kroeber, 1952). One of the most prominent researchers Hofstede who studied the relation between values in the work area and culture underlines another definition based on the same pattern of thinking that focus on values. He defined national culture as "the collective programming of the mind distinguishing the members of one group or category of people from others" (Hofstede, 2010, p. 6). He believes that individuals share a national collective character that describes their cultural mental programming. The behaviors, assumptions, beliefs, perceptions, expectations, values of a group are influenced by this mental programming (Myers & Tan, 2002). Hofstede`s study included 150,000 participants from all over globe where he established the next four widely-used cultural dimensions or patterns: individualism/collectivism, power distance, uncertainty avoidance, and masculinity/femininity (Hofstede, 1980).

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2.5 Introducing the Hofstede Model of National Culture

The national culture model developed by Hofstede includes six dimensions (Hofstede, 2011) that, according to Grove (2005), have been common since the early 1960s and since the emergence of the intercultural research discipline. They provide the terminologies and concepts that enable people to know, understand, and measure the practices and values of a specific culture. They also help us to distinguish between differences and similarities in various cultures (Grove, 2005). Those cultural dimensions introduce the intrinsic preferences for one country over another. It does not distinguish individuals but countries from each other. This model is used internationally in both academic and professional management environments (Smith, Dugan, & Trompenaars, 1996).

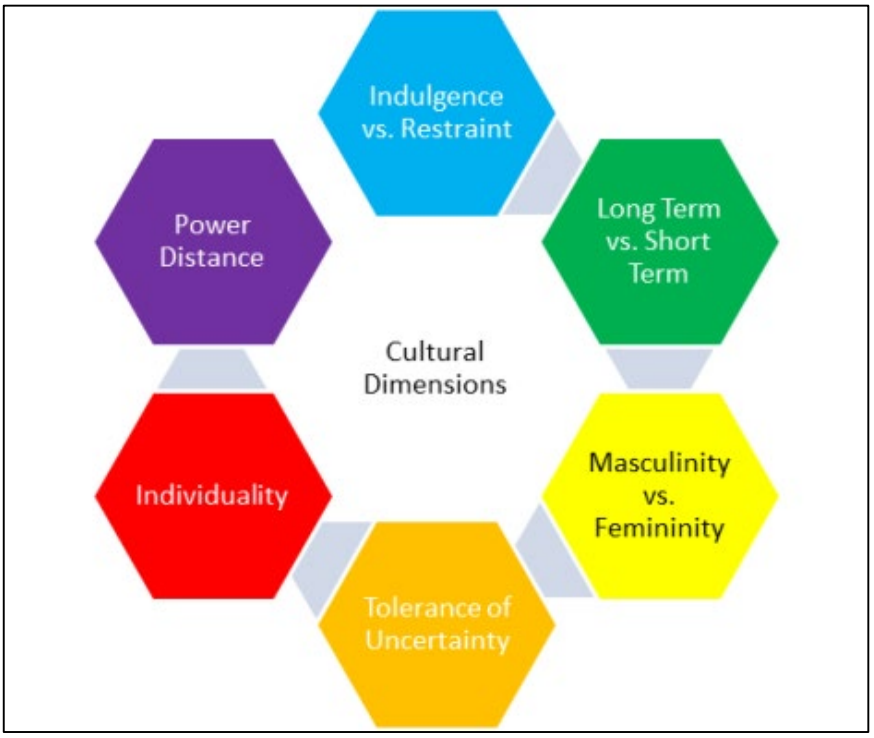

Figure 1. Hofstede's (2011) Six Dimensions of National Cultural Model.

Source: Rowley, J. (2012). Six Sigma Green Belt-Define: Team Dynamics and Hofstede's Cultural Dimensions. Retrieved from https://4squareviews.com/2012/12/19/six-sigma-green-belt-define-team-dynamics-and-hofstedes-cultural-dimensions/

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a. **Power Distance:** "is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally" (Hofstede et al., 2010).

b. **Individualism / Collectivism:** "is the degree to which individuals are supposed to look after themselves or remain integrated into groups, usually around the family. Positioning itself between these poles is a very basic problem all societies face" (Hofstede, et al., 2010).

c. **Masculinity / Femininity:** "refers to the distribution of emotional roles between the genders, which is another fundamental problem for any society to which a range of solutions are found; it opposes 'tough' masculine to 'tender' feminine societies" (Hofstede et al., 2010).

d. **Uncertainty Avoidance:** "is the extent to which a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, and different from usual. The basic problem involved is the degree to which a society tries to control the uncontrollable." (Hofstede et al., 2010).

e. **Long-Term / Short-Term Orientation:** "refers to the extent to which a culture programs its members to accept delayed gratification of their material, social, and emotional needs" (Hofstede et al., 2010).

f. **Indulgence / Restraint:** "Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms" (Hofstede et al., 2010).

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2.6 Cultural Barriers in IT Projects

Previous cross-cultural studies have shown that project teams, with multicultural backgrounds, have challenges related with interpersonal relationships, project management, and effective communication (McDonough et al., 2001). Because of which the effectiveness of the team reduces. This is mainly because team members from varying cultural backgrounds have distinctive values, experiences, beliefs, and norms that hinder the coordination of a project. Global project team members that primarily include workforce diversity and effective information and communication technology are facing a significant number of challenges (Schwalbe, 2014). Selection of suitable IT may trigger the diverse group work procedures and may help in reducing the potential barriers developed through heterogeneity of a team (Pnina, 2005).

2.7 Cultural Barriers – Language and Communication

The evolution of the world society has promoted more cross-cultural communication, and hence, more cultural conflicts arise when two different cultures communicate. According to Hofstede et al. (2010), the cultural differences are rooted in different nation's minds, are difficult to change, and influenced. With respect to culturally diverse teams, team member involvement may reduce when a foreign language is used for developing communication and interaction. This is because not all members will be willing to use and practice the language for the benefit of the organization. However, the mediation of technology facilitates team members to ensure increased participation and equalization, thereby increasing the overall performance (Dube & Pare, 2001). Not only the barriers are in the foreign language, the distinctive nonverbal and verbal styles of the members also have a strong impact on intercultural communication (Pnina, 2005).

It has been suggested by past studies that teams from diverse cultural backgrounds experience a reduced harmonious association with each other, thereby becoming the primary

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reason for low performance of team as a whole (Chonlatis & Barbara, 2012). With respect to cross-cultural communication, numerous research studies have shown that the diverse cultural backgrounds of the two groups can disturb the overall process of communication (Chonlatis & Barbara, 2012). According to Hofstede (1986), "interaction is such an archetypal human phenomenon, and so deeply rooted in the culture of a society, cross-cultural learning situations are fundamentally problematic for both parties" (Hofstede: 1986: 303).

A few elements have become the main reasons for the failure of projects. They are: inadequate project basis, the wrong people with insufficient knowledge and abilities to supervise a project, a lack of commitment, and a lack of technical management of the project. Other elements that can lead to project failure include the rate of customer satisfaction, cost and time considerations (Thomas & Fernandez, 2008), and the model of management (Haughey, 2010).

To gain a deeper insight into the factors of failure and success in IT projects, different questions are required to be answered regarding what impacts the project outcomes (Schwalbe, 2014). The number of IT project failures remains globally high and there have been a large number of efforts to determine and explain the reasons for the high failure rate. Some of the contributing factors for project failure include price, quality, and effective management of time, but it is important to note that cultural factors play an equal role in the high project failure rate (Pamela, 2014). Therefore, the next section will shed light on the six dimensions of Hofstede et al.'s (2010) cross-cultural model that were covered in the literature with respect to IT project management.

2.8 Hofstede's Model and IT Project Management

According to Hofstede (1997), a team of culturally diverse people has been used to address the key issues or the common elements of culture that can be analyzed and studied in meaningful ways. He outlined these cultural dimensions as:

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Power Distance and Uncertainty Avoidance

As per analysis of past research, power distance and uncertainty avoidance are cited as the two most important yet problematic cultural dimensions for effective performance of a group. Foucault argues in his book *Discipline and Punishment* that power in our modern society has become widely exercised and the "disciplinary society", as Foucault calls it, can be found widely used a variety of institutions (Foucault, 1995). According to Van Hook (2000), Hofstede (1991) cited power distance and uncertainty avoidance as most problematic cultural dimensions on effective group performance. Power distance as a cultural factor has been classified as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (Hofstede et al., 2010).

In groups with low power distance, individual develop a general belief that inequalities between hierarchy levels should be reduced, that higher management should be consulted when subordinates intend to make a project decision (Hofstede, 1984). Contrary to this, in groups with high power distance, the inequalities between the levels of hierarchy are desired and expected, subordinates expect to seek guidance from top management, and the effective leader has undisputed and absolute power that he uses for the benefit of people (Paulus, Bichelmeyer, Malopinsky, Pereira, & Rastogi, 2005). Hofstede (1984, 1997) has laid an increased focus on power distance considering it an important element that affects the relationship between team members.

Effective participation in authoritative based project teams can raise significant challenges for team members with an orientation of high power distance (Paulus et al, 2005). Decision making approaches and processes to resolve conflict are likely to get impacted by the level of power distance enjoyed by a group (Paulus et al., 2005).

Teams with a lower factor of power distance, manage conflict based on principles of cooperation and negotiation. However, in conflict among team members with a high power

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distance is primarily resolved by the holder of power (Paulus et al., 2005). Milgram's (1974) classic research on authority and power states that when team members think that they are the part of a greater power and authority, their control over the actions they perform reduces considerably. Such an approach is not believed to be as successful as an effective teamwork (Paulus et al, 2005).

Irrespective of whether the project is cross-cultural or not, the general subject reference is the individual and the culture to which he/she belongs. Numerous literature sources focusing on cultural studies suggest that each person in a society carries culture and it is quite hard to change it (Hofstede, 1997). When two or more nationalities are present in a project team, a cross-cultural context develops, thus communication can be affected by an important attribute of culture such as power distance (Henrie, 2010).

Gaining deeper insight into the connection between the cultural attribute of power distance and multinational communications of the project team helps the members of project teams to improve the chance of success and overall performance (Henrie, 2010). Such success is achieved because of communication that has been considered a critical factor in ensuring higher success rates for projects and it is positively associated with performance. Communication has been defined as "... a vital element for project success [which] becomes vulnerable to disturbances through misinterpretations caused by cultural differences" (Muller & Turner, 2004). This definition supports the fact that culture plays an essential role in the success of a project team.

As has been indicated in the research studies of organizational culture, the cultural attribute of power distance impacts how communication between superiors and subordinates is carried out (Fey & Denison, 2003). Within cross-cultural and multinational domains of project teams, understanding the factors of communication among project team members demands an

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increased knowledge. As limited research has been carried out in this domain, it demands further empirical research (Henrie, 2010).

Second, project managers have created organizational structures that foster discrimination and segregation, giving rise to "communicative enclaves" empowered by social organization (Simpson, 2009). This was supported by the third dimension of power distance, in that one way of communication is used and becomes the prime reason for the creation of an unfriendly atmosphere (Simpson, 2009). Individuals with highly ethnocentric backgrounds see their cultural groups as superior and virtuous, and in this group, values are considered universal and are applied to all the members of a project team (Levitt, 2013).

The uncertainty avoidance index has been described by Hofstede (2010) as "the extent to which the members of a culture feel threatened by uncertain or unknown situations and try to avoid such situations." Through the uncertainty avoidance index, anxiety about future changing events or conditions is measured. This can be considered an attempt of a society to control uncertainties, some by means of the application of protocols and rules, while others appear to be highly accepting of uncertainties in the future project considerations (Umar et al., 2009).

Collectivism and Individualism

Though the literature review carried out on past research highlights that differences in culture have emerged as the major factor in cross-national research into management, only few prior research studies focused on the management of cultural diversity.

Ethnographic research carried out in Saudi Arabia by Danish expatriates has investigated and reported that "intercultural dialogues and knowledge sharing were perceived as slowing down decision making, as the understanding of cultural differences was perceived as unnecessarily complicating the path to action" (Levitt, 2013). The most important dimension that served as an obstacle to intercultural communications within an organization was

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differences among project members that became the reason for communication differences (Lauring, 2011).

This area of group work is associated with exploring the methods in which individuals and teams provide certain responses to complex social processes and changing circumstances within project teams (Lauring, 2011). Factors investigated within the area of group dynamics involve the association between teams and individuals, the distribution of responsibilities and roles among team members, performance of a team, power and influence, and relationships between members within a group (Paulus et al., 2005).

In the Alanazi and Rodrigues (2003) study, *Power Bases and Attribution in Three Cultures*, Saudi culture was described as collectivist with strong adherence to Islamic teachings. Through these teachings, social behavior of people was governed, a strong cultural fabric was provided, and subsequently the whole nation was governed. Most importantly, projects are influenced by collective Saudi thinking, through which business dealings increase to a considerable level (Abdallah & Rodrigues, 2003). Curry and Kadasah (2002) held traditional culture as a prime hindrance to ensure increased organizational performance. It has also been shown in numerous research studies that organizational change programs and improvement programs must be in accordance with cultural change, particularly in developing states such as Saudi Arabia (Curry and Kadasah, 2002).

Within the cultural groups of a collectivist society, the collective good and interest takes preference over individual interests. This is quite distinct from the Western individualistic culture where the interests of individuals are of great significance (Abdallah & Rodrigues, 2003). Consequently, it is a common assumption that project team members in collectivist cultures will show a greater willingness to share their information and knowledge with other members of the team, mainly to enhance the benefits of the project team (Hofstede, 1984). Similarly, a challenge is posed by collectivist culture to the universality of sharing knowledge

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theories, wherein the large number of barriers within a culture might exist and that becomes the reason for hindering the effective management of knowledge.

In collectivist culture, sharing of knowledge within team members will assist in developing more universal and elegant knowledge sharing theories (Zhenzhong, 2014). However, problems remain highly unexplored and only a small number of researchers have explored the aspects of knowledge in the context of collectivist culture and it is sharing (Huang, Davison, & Gu, 2008; Li, 2010; Ma, Qi, & Wang, 2008). The creation of social capital has a strong impact on the exchange of knowledge (Ghosh & Scott 2009; Nahapiet & Ghoshal, 1998) and social exchanges such as joint problem solving and commitment (Goo, Kishore, Rao, & Nam, 2009; Rai, Maruping, & Venkatesh, 2009), thereby increasing the performance of a project.

Individualism is the association between an individual and his or her partners (Zhenzhong, 2014). Social orders or societies might be found where people show high degrees of self-intrigue or sympathy towards themselves and their close family, and these features are believed to belong to an individualistic culture. Then again, collective social orders are those where an individual is concerned with the prosperity of a more extensive group (AACE International, 2004). As far as project management is concerned, a collectivist culture might be agreeing more that the different objectives of the group are pursued over the objectives of the individual. In a culture of high independence, it may be important to draw closer to key staff, permit the provision of more information, and to take responsibility for parts of the venture while perceiving individual aptitudes and achievements (Umar, Gareth, & Guru, 2009). For example, the capabilities to manage performance and communicate bad news are perceived as important skills for a successful project manager. Hofstede (1984) and others have noted that different cultures have different methods of operation. For instance, giving feedback with the help of a third party is generally an approach adopted by collectivist cultures.

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Masculinity and Femininity

The significance of gender associations to personal and social goals is classified as the masculinity index. Females are considered to play an important role in assigning value to relationships while egoistic goals such as reward and career are seen as favored by males in dealing with project management (Hofstede, 1984). Masculine cultures are considered to be highly competitive and assertive in nature (Umar et al., 2009). Masculinity versus femininity is the dimension through which a country's need is measured for importance and competitiveness of female and male roles. In the United States, which remains high on the dimension of masculinity, male project managers face less resistance than female project managers. Project managers in such countries do not make the boundaries blur with female and male roles (Umar et al., 2009).

Long-Term / Short-Term Orientation

This dimension was first identified in a survey of students in 23 using a questionnaire designed by Chinese scholars (Chinese Culture Connection, 1987). Long-term orientation demonstrates a focus on increasing virtues that are aimed towards future incentives versus a focus on the past or present (Paulus et al., 2005). Hofstede (2010) expanded the cultural dimensions' model to include long-term orientation in which there is a cultural preference for perseverance. However, with respect to project responsibilities, short-term oriented cultures support social obligations and valued traditions (Umar et al., 2009).

2.9 Summary

In this chapter, detailed information has been provided about IT project management, followed by focusing on the language and communication barriers that IT project managers have faced with their project members. Subsequently, an association has been developed to investigate the relationship between project management and the cultural dimensions presented

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by Hofstede et al. (2010). At the end of the chapter, a report shows the scores of different cultural dimensions, exhibited by the people of Saudi Arabia with a short description about Saudi Arabian culture.

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Chapter 3: Methodology

3.1 Introduction

Cultural diversity is one of the major challenges that managers of IT projects have to face when managing multinational and diverse teams. To ensure the performance and efficiency of a team, it is important that IT managers understand the challenges and develop associated strategies to overcome them. Considering these issues, the focus of this study is to determine if there is a high percentage of IT project failures due to cultural differences. There is a lack of scholarly studies in Saudi Arabia that focus on the other cultures that work on IT projects in the country, which could include more barriers than just language differences or communication preferences. The problem that this study focuses on is determining the relationship between the high percentage of IT projects failure and culture differences in respect to Saudi Arabian IT projects.

To identify the factors affecting the performance of culturally diversified IT teams, this research adopted a quantitative research methodology. Furthermore, the purpose of this research is to identify the relationship between cultural diversity and the team performance of multinational IT project teams. Hofstede's (2010) multidimensional cultural model was used as the primary reference to demarcate the potential factors affecting the performance of the multinational and culturally diverse IT teams. The following are the research questions that have been carefully aligned with the scope of the research:

1. How does Power Distance index impact the success of multinational IT projects in Saudi?
2. How does Uncertainty Avoidance index impact the success of multinational it projects in Saudi?
3. How does Individualism vs. Collectivism index impact the success of multinational it projects in Saudi?

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3.2 Research Design

The framework for the research is based on the Hofstede et al.'s (2010) multidimensional model of cultural diversity. The independent variables of the study are also driven from the model that includes power distance index, individualism/collectivism index, and uncertainty avoidance index. The dependent variable in this case will be the diversified team's projects success rate. Therefore, the impact of the cultural factors indices affecting the performance of the multicultural diverse IT team is determined in the data analysis chapter of this study.

The data was collected from diverse team members of different organizations in Saudi Arabia. For this study, a quantitative survey, adopted from Hofstede's cultural survey, was conducted with different teams in Saudi Arabia. The sample included 171 multinational employees working on different IT projects including 16 Saudi Arabian IT project managers who lead the multinational employees.

The research is quantitative in approach, where the data was collected through surveys. The questions on the surveys were close-ended scaled questions to achieve quantitative values and conduct results that could be further evaluated and analyzed statistically. The research used correlational design, which is "a quantitative method of research in which you have two or more quantitative variables from the same group of subjects, and try to determine if there is a relationship (or covariation) between the two variables (a similarity between them, not a difference between their means)" (Waters, 2015). This type of research focuses on gathering statistical data and figures to present an accurate and reliable overview of the problem. Furthermore, the main "purpose of using correlations in research is to figure out which variables are connected" (Kowalczyk, 2015). These variables were analyzed by correlating the primary and secondary variables to understand the impact of the independent variables on the dependent variables (Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005). The

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quantitative approach is beneficial because it emphasizes the objective measurements through reliable statistical, mathematical, and figurative analysis of the data collected. Statistical and computational methods are used in this approach. Therefore, the strategy of inquiry for the surveys was based on the non-experimental, correlational design that will find the correlation between multicultural dimensions and performance on an IT project.

3.3 Population and Sample

The targeted population for the survey comprised of the multicultural and diverse employees working in large multinational organizations located in Saudi Arabia specifically targeting the IT sector. A cluster sampling technique was used starting with an invitation email (Appendix B) being sent to invite Saudi IT project managers from different organizations to participate in the study. This helped in filtering out the participants so that the sample would include only the IT project managers with a team that consists of members from at least three different nationalities. Out of this population, 15 Saudi IT project managers and their multinational team members from different organizations participated in the survey. The questionnaire was conducted with the project managers and multinational employees to survey their cultural background values. Six additional questions were asked to Saudi IT project managers who were leading the multinational employees to be able to measure the project success rate of the teams who participated in the study.

3.4 Instruments

As mentioned in section 3.3, this study collected data on the cultural dimensions from both project management and multinational employees and project success rate data was collected from Saudi IT project managers, which was then matched to allow analysis of the relationship between the two.

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The questionnaire that was adopted is Hofstede's Values Survey Module 2013 (VSM-13). The selected VSM-13 survey (Appendix A) was developed by Geert Hofstede in 1970s and is updated on a regular basis. It is a 30-item questionnaire created for looking at cultural estimations of comparable respondents from at least two distinct countries. Respondents indicated their answers utilizing different 5-point Likert scales including:

a. Of utmost importance, very important, of moderate importance, of little importance, and of very little or no importance.
b. Strongly agree, agree undecided, disagree, and strongly disagree.

The VSM-13 evaluates six dimensions of culture on the premise of four questions for each dimension. These dimensions are: power distance, uncertainty avoidance, individualism vs. collectivism, masculinity vs. femininity, long-term vs. short-term orientation, and indulgence vs. restraint. The score for each dimension index is calculated using formulae inferred by Hofstede (1980) so that results of each index will flow from 0 to 100. The rest of the first 30 questions are open-ended demographic questions.

The additional six open-ended questions were added by the author to determine the number of projects each team has done, completed on time and within budget, completed with extension in time and budget, has not completed at all (Appendix A).

3.5 Data Collection Procedures

The data was collected from diverse team members from different Saudi organizations by using a survey that adopted questions from the VSM (Appendix A). Six more questions were added only to the project managers for gathering relevant project success rate data. The following steps were taken for the purpose:

a. An invitation email was sent to 119 IT project managers inviting them to participate in this study (Appendix B), which also informed the managers that their teams must have

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employees from at least three different nationalities among the team members who would participate in the study as well.

b. 84 IT project managers responded to the invitation email and only 32 of them were qualified to take the questionnaire.

c. An email was sent to the 32 qualified 32 candidates with a specific link to the survey, together with the consent form (Appendix D) in addition to their team members who accepted to participate.

d. Once the researcher received the responses, they were filtered manually to eliminate any invalid response. 209 responses were received with a completion rate of 81.82%, which equalizes 171 complete responses.

e. The data was then ready to be matched and analyzed.

3.6 Reliability and Validity

The survey used for data gathering and was the VSM-13. The VSM-13 is specially designed to collect data regarding the comparison of factors and values that are influenced by cultural differences. One of the main strengths of the VSM-13 is of its appropriateness for this study as its scope is to cover the cultural comparisons of two or more countries as well as multiple cultural regions from within the same country.

Another factor that makes this strategy reliable and verifiable with the ability to produce generalized results is that the VSM framework has evolved over a period of years. It was first established in the 1970s, and in course of time various updated versions appeared including the VSM-82, VSM-94, up until VSM-13. Because of this evolution and development, the VSM framework has become extremely generalizable and verifiable.

Furthermore, according to Creswell (2009), “It is important to establish the content validity of an instrument and improve questions, format, and the scales” (p. 158). Therefore, because of the additional six project performance questions added by the author, a pilot test

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survey was employed with the first five responses of the survey to ensure its validity. It helped in improving and rewording of the six project performance questions as well as reducing the time needed to complete the survey by removing any irrelevant questions.

3.7 Data Analysis Plan

The data was analyzed in two different stages. The first stage started after pulling all data from questionpro.com to MS Excel to calculate the cultural indices for all 171 responses using the formulae provided by Hofstede (2010) in the user manual of VSM-13. Cultural indices based on the nationalities of the participants were calculated. Based on that, cultural indices of the 15 teams were calculated, and the results were transferred to SPSS for further analysis. The second stage of the analysis was done on SPSS by determining the independent and dependent variables. A Bivariate Pearson correlation was used to find the correlations between the independent variables (the power distance index, individualism/collectivism, the uncertainty avoidance index, masculinity/femininity, long-term/short-term orientation, and indulgence/restraint impact) in relation to the effectiveness of culturally diverse IT project teams. Descriptive statistics was used to summarize the demographics of the respondents to the survey. This involved the use of means, medians, standard deviations, ranges, and proportions as appropriate. Inferential statistics was used to delineate the difference between teams participating in the study as well as investigating the effect that independent variables potentially have on dependent variables. The results of the data analysis are presented in tabular and graphical form for easy reference and further evaluation. Since the correlational research design was used in this research, tabular and graphical research representation provides an interesting and more comprehensive way of evaluating the data and results, thus, deriving their conclusions.

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3.8 Limitations

Some limitations are important to note at this point. First, it is significant to mention that previous research in this field of study has been performed in different organizational and management perspectives. Thus, those investigations have been analyzed to look deeply into the subject matter. In other words, the theory presented in one study may be more related to that particular situation, but it should not be taken as a fact before executing more decisive research in the field. Thus, due to this limitation, it is advisable that readers should consider the particular course of action followed for the current research. It is also important to note that these research findings will only show the perceptions or outcomes for the companies involved. Therefore, the research outcomes should not be assumed universally applicable to all sectors and companies.

3.9 Summary

This research has focused on identifying and evaluating the factors affecting the performance of multicultural IT teams and the ability of the managers to ensure their efficiency. Hofstede et al.'s (2010) model was used for the analysis and research design. The representation of the data is graphical and tabular while the data analysis was done through a statistical coding method. For data gathering and scope-based information, VSM-13 was used. The results were further verified through a review of literature. In order to overcome the limitations of the instrument employed, the data was kept very precise and comprehensive with little deviations to acquire the most precise results.

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Chapter 4: Findings and Discussion

4.1 Introduction

The purpose of this study is to identify and address the cultural factors impacting the performance of multinational IT project teams. This study focused on three independent variables from the cultural dimensions' indices:

a. Power Distance Index

b. Uncertainty Avoidance Index

c. Individualism vs Collectivism Index

The dependent variables used in the correlation testing are:

a. The project success rate

b. The project failure rate

c. The rate of project completion on time and budget

d. The rate of projects requiring extension of time or budget

A quantitative descriptive approach was used to identify the possible impact of cultural dimensions' indices on the performance of that multinational team. The outcome of the current study provides important insights for corporate decision makers about the optimal way to assemble their teams.

The methodology employed to accomplish this objective involved the use of the VSM-13, which is a validated questionnaire developed by Hofstede (2010) for measuring the cultural dimensions of individuals from various nationalities and cultural backgrounds. This first part of this chapter presents a summary of the demographic characteristics of the participants. The second part will represent a summary of the cultural dimension indices for each nationality that participated in the study (collectively) as well as for each team. Then, a descriptive summary of the degree of cultural diversity within each team will be outlined. Comparisons of these

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measures between teams will be presented to delineate any potential heterogeneity between teams participating in the study. The last part of this chapter will present the analysis of correlations between the dependent and independent variables of this study.

4.2 Data Collection

The population for the current study was multinational IT project teams within Saudi Arabian companies. Data was collected using a survey with questions adopted from the VSM with six additional questions added only for project managers (Appendix A). The procedure employed involved sending emails to the selected IT project managers who lead teams of multicultural backgrounds with at least three different nationalities within each team. The survey was also emailed to employees of the selected teams and responses from each team and their IT project managers were grouped together on the basis of the specific survey linked sent to them (responses received from one survey link corresponded to a specific team). Invalid, incomplete, or inconsistent responses were filtered out and excluded from the analysis.

4.3 Demographic Data

The demographical data collected from the 171 participants consist of gender, nationality, age, educational level, and employment history.

Sample Teams

A total of 171 participants from seven countries participated in this study; the participants belonged to 15 multinational teams and had conducted 70 IT projects. Each team had at least three nationalities among its members. The team characteristics and nationalities involved are summarized in Table 1 that shows that the team sizes ranged from 7 to 21 members. Each of these teams has conducted at least three projects with a maximum of seven projects that being conducted by team 6. All the team managers were Saudis and were solely responsible for

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reporting the measures of team performance in this survey. Table 1 also illustrates the various characteristics of the teams who participated in the current study.

Table 1

Demographic Characteristics of the Multinational IT Teams

Team Number	Size*	Nationalities**	Projects
1	17	5	5
2	8	4	3
3	10	4	5
4	8	3	5
5	8	4	6
6	7	4	7
7	8	4	6
8	11	3	3
9	19	4	5
10	21	5	5
11	14	5	4
12	8	4	4
13	9	3	5
14	10	4	4
15	13	5	3
Total	171	7	70

* represents the number of members within a team.

** represents the number of nationalities within a team.

Gender

Of the 171 respondents who participated in the study, there were 133 males and 38 females. Table 2 shows the distribution of gender within the study sample.

Table 2

Gender Distribution of the Study

Gender	Frequency	Percentage (%)
Male	133	77.78
Female	38	22.22
Total	171	100

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Nationalities

Participants in our study came from seven different countries. The most prevalent country was Saudi Arabia with 34 respondents that represent 19.88% of the total responses received. The least prevalent nationality was the Philippines with only 6 respondents. Summary of the other nationalities in the study is provided in Table 3.

Table 3

Nationality Distribution of Respondents

Nationality	Frequency	Percentage (%)
Saudi Arabia	34	19.88
American	25	14.62
British	10	5.85
Egyptian	39	22.81
Moroccan	10	5.85
Indian	46	26.90
Filipino	6	3.51
Other	1	0.58
Total	171	100.00

Age

Participants in our study had ages ranging from under 20 to over 60 years. Only 1 respondent indicated an age of less than 20, and 5 were older than 60. Most respondents, however, were 30-49 years old, 40-49 being the most dominate age category. Table 4 summarizes the age distribution of the respondents.

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Table 4

Age Distribution of Respondents

Age Category (Years)	Frequency	Percentage (%)
Under 20	1	0.58
21-24	8	4.68
25-29	24	14.04
30-34	32	18.71
35-39	35	20.47
40-49	43	25.15
50-59	23	13.45
60 or over	5	2.92
Total	171	100.00

Educational Level

All respondents had at least 12 years of formal education. However, the majority of respondents (84.21%) had 16 or more years of formal education. 59 (34.50%) respondents had 17 years of formal education that represents the most prevalent educational level category in our sample. Table 5 summarizes the educational levels of the respondents.

Table 5

Educational Level of Respondents

Years of Formal Education	Frequency	Percentage (%)	Cumulative Percentage (%)
10 years or less	0	0.00	0.00
11	0	0.00	0.00
12	5	2.92	2.92
13	4	2.34	5.26
14	10	5.85	11.11
15	8	4.68	15.79
16	38	22.22	38.01
17	59	34.50	72.51
18 years or over	47	27.49	100.00
Total	171	100.00	100.00

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Employment History

8 out of the 171 participants had no paid job (including full-time students) whereas the majority of respondents had general, vocational, or academic training. Twenty respondents were managers of one or more subordinates and 12 were employed at senior management level (i.e. managers of managers). Table 6 summarizes the employment history of the respondents.

Table 6

Employment History Level of Respondents

Employment Position	Frequency	Percentage (%)
No paid job	8	4.68
Unskilled or Semiskilled	16	9.36
Generally Trained	36	21.05
Vocationally Trained	33	19.30
Academically Trained	46	26.90
Manager of Subordinates	20	11.70
Manager of Managers	12	7.02
Total	171	100.00

The overall findings from the descriptive statistics of the demographics of respondents show that the most common age group was 40-49 years with males being more predominant than females. Additionally, the analysis showed that the highest number of participants in this study had 17 years of formal education and that most respondents were academically trained employees. Table 7 summarizes the top category for each demographic variable.

Table 7

Top Responses for Demographic Variables

Variable	Top Response	Percentage (%)
Gender	Male	78.88
Nationality	Saudi	19.88
Age	40-49	25.15
Years of Formal Education	17	34.50
Employment History	Academically trained position	26.90

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4.4 Teams Project Performance

This section provides summary statistics for the performance of the 15 teams that participated in the current study. The teams have undertaken 70 projects in total of which 33 projects have been completed on time and within budget, with 37 projects requiring an extension on either time or budget. Of the 70 projects, 25 have been completed successfully while 45 have failed. Table 8 summarizes the performance of various teams and the total number of projects conducted by each team. Figure 2 also illustrates the performance of each of the participating teams.

Table 8

Participated Teams' Project Performance

Team Number	Total No. Of Projects	Completed on Time and Budget	Required Extension of Time and/or Budget	Completed Successfully	Failed
1	5	1	4	2	3
2	3	1	2	2	1
3	5	3	2	4	1
4	5	3	2	4	1
5	6	3	3	4	2
6	7	4	3	5	2
7	6	3	3	5	1
8	3	1	2	1	2
9	5	3	2	4	1
10	5	1	4	2	3
11	4	1	3	1	3
12	4	3	1	3	1
13	5	2	3	4	1
14	4	3	1	3	1
15	3	1	2	1	2
Total	70	33	37	25	45

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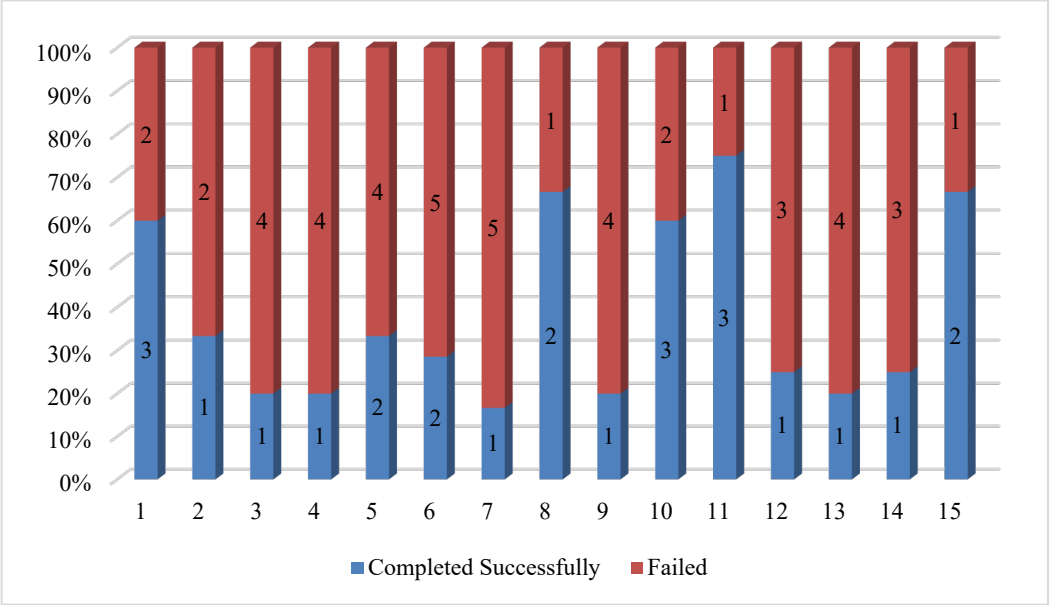

Figure 2. Project performance for participated teams.

4.5 Description of Cultural Backgrounds and Diversity

This section provides summary statistics for the cultural backgrounds and diversity of various teams and the nationalities within the study sample. Cultural backgrounds are summarized based on Hofstede's (2010) cultural indices while cultural diversity is presented by the standard deviation of the mean of cultural indices for each team as described in detail in chapter three.

Cultural Indices of Nationalities

Hofstede's (2010) cultural indices for each nationality that participated in the study were calculated based on the responses received from participants of that nationality collectively, irrespective of their team membership. The equation used for the calculation was provided by Hofstede (2010) in the VSM-13 user manual. The six cultural dimensions' indices for each nationality are represented in Table 9 with a comparison to the value reported in literature for that nationality.

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Table 9

Cultural Indices for Participated Nationalities

Nationality	Parameter	Cultural Index					
		Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-Term Orientation	Indulgence
Saudi Arabia	Literature value	95	25	60	80	36	52
	Sample Value	28.15	14.09	22.65	22.79	34.82	23.97
USA	Literature value	40	91	62	46	26	68
	Sample Value	15.90	40.40	19.60	0.80	0.20	62.00
UK	Literature value	35	89	66	35	51	69
	Sample Value	0.50	60.00	31.50	10.50	76.00	48.00
Egypt	Literature value	70	25	45	80	7	4
	Sample Value	8.32	19.97	8.97	8.59	28.18	44.74
Morocco	Literature value	70	46	53	68	14	25
	Sample Value	33.00	0.50	17.50	44.00	52.50	10.00
India	Literature value	77	48	56	40	51	26
	Sample Value	41.80	30.78	20.54	7.72	46.98	20.33
Philippine	Literature value	94	32	64	44	27	42
	Sample Value	48.83	11.00	35.00	11.67	67.67	58.33

Cultural Indices of Teams

Hofstede's (2010) cultural indices for each team that participated in the study were calculated based on the average of the cultural indices values for each of the nationalities within that team as discussed in chapter three. The six cultural dimensions' indices for each team are represented in Table 10.

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Table 10

Cultural Indices for Participated Teams

Team Number (Team Size)	**Cultural Index**						
		Power Distance	**Individualism**	**Masculinity**	**Uncertainty Avoidance**	**Long-Term Orientation**	**Indulgence**
1 (17)	**Index Value**	20	28	19	10	27	41
2 (8)	**Index Value**	19	25	16	10	25	41
3 (10)	**Index Value**	27	21	17	12	35	24
4 (8)	**Index Value**	25	10	17	23	40	24
5 (8)	**Index Value**	33	21	23	15	38	32
6 (7)	**Index Value**	29	21	17	14	41	26
7 (8)	**Index Value**	31	14	18	21	44	20
8 (11)	**Index Value**	28	32	20	7	24	40
9 (19)	**Index Value**	28	23	16	11	40	28
10 (21)	**Index Value**	16	29	16	9	38	39
11 (14)	**Index Value**	28	29	21	7	30	44
12 (8)	**Index Value**	33	16	24	13	47	42
13 (9)	**Index Value**	24	32	20	7	18	44
14 (10)	**Index Value**	28	21	17	14	39	27
15 (13)	**Index Value**	18	41	26	12	54	37

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Cultural Diversity of Teams

Cultural diversity within teams was represented by the standard deviation of the mean of the specific cultural index of the members of that team. The details for calculation of this factor are presented in the chapter three of this research. The average cultural diversity within all teams ranged from 15 to 52. A summary of the diversity within each cultural dimension and within the whole team is provided in Table 11 for all the 15 teams. These results show that there is a clear discrepancy between the teams regarding cultural diversity within each dimension and within the team as a whole. The diversity within teams as a whole ranged from 314 (mean 52) for team 10, to 90 (mean 15) for team 6. The higher the value (either total or mean), the higher is the cultural diversity within that team.

Table 11

Cultural Diversity within Participated Teams

Team	Cultural Dimension						Total	Mean
	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-Term Orientation	Indulgence		
1	28	20	20	41	59	67	235	39
2	16	11	8	21	30	34	121	20
3	14	5	10	39	20	22	110	18
4	29	8	26	23	21	18	125	21
5	27	3	9	24	19	25	106	18
6	14	5	9	27	19	16	90	15
7	35	4	22	26	26	13	125	21
8	21	15	20	38	71	55	221	37
9	19	19	23	87	56	52	256	43
10	34	55	18	87	40	79	314	52
11	20	13	22	46	67	58	226	38
12	28	10	12	36	17	26	130	22
13	28	14	18	23	81	59	224	37
14	15	7	12	37	24	24	119	20
15	72	25	17	79	41	37	271	45

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4.6 Relationship between Cultural Dimensions and Team Performance

This section provides the results of the analysis of the impact of cultural dimensions and diversity within teams on their performance. The performance is judged in terms of the number of projects completed successfully, failed, completed on time and budget, or that required an extension of time and/or budget.

Effect of Power Distance on Performance

Correlation analysis showed that power distance index has significant positive correlation with both the number of successful projects with r = 0.532 and a p-value = 0.041, and the number of projects completed on time and within budget with r = 0.711 and a p-value = 0.003. This means those teams' project performance increases positively when the power distance index of that team increases. As shown in table 12, Pearson correlation coefficient represented by (r) is used to describe the degree of association between the two variables and can take a value between +1 and -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases, so does the value of the other variable. A value less than 0 indicates a negative association; that is, as the value of one variable increases, the value of the other variable decreases. In other word, as the value of Pearson's correlation coefficient gets closer to +1 or -1 the association becomes stronger. The 'Sig.' row represents the p-value associated with the particular test. A p-value of 0.05 or less indicates a significant test statistic, which means that the association is real (not due to chance) at a confidence level of 95%. On the other hand, a p-value of more than 0.05 indicates that the association is not significant (not real), or in other words, there is not enough proof for the presence of correlation. Table 12 shows the Pearson Correlation value of the independent variable Power Distance Index and teams' performance.

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Table 12

Correlation Analysis of Power Distance Index and Team's Project Performance

Correlation		Successful projects	Failed Projects	Required Extension of Time/Budget	Completed on Time & Budget
Power distance index	Pearson Correlation	.532*	-.374	-.352	.711**
	Sig.	.041	.170	.198	.003

Figure 3 shows a scatter plot of power distance index and both the number of projects completed on time and within budget and the number of successful projects that confirms the presence of positive correlation.

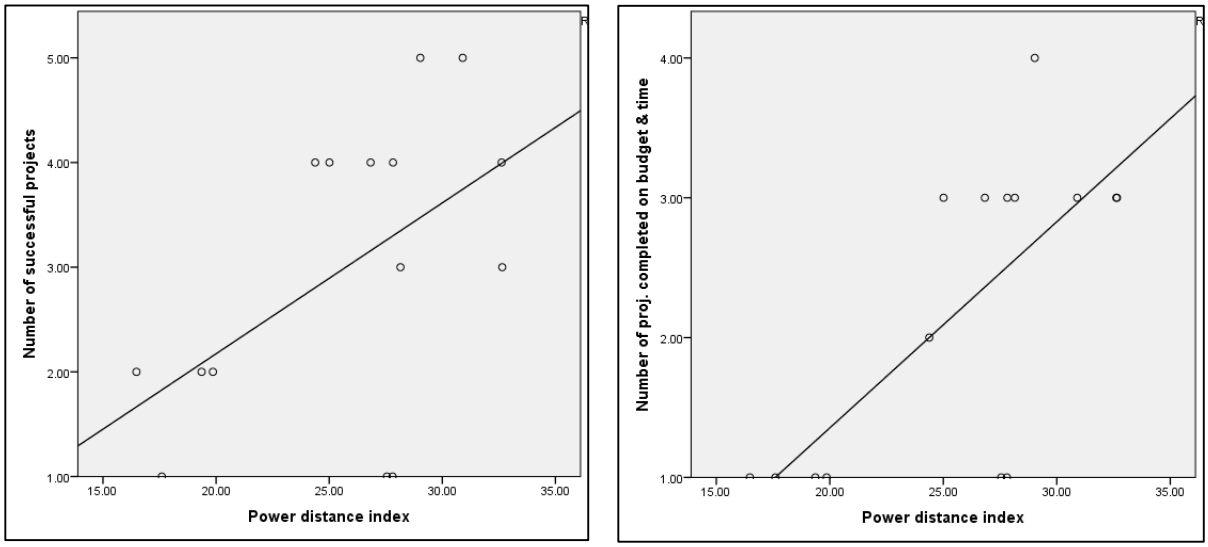

Figure 3. Scatter Plot of Power Distance Index and Team Performance*

* Only correlation with successful projects and projects completed on time and within budget are shown as they were the only significant correlation with power distance index.

Effect of Individualism on Performance

Correlation analysis showed that individualism index is negatively correlated with both the number of successful projects with r = -0.695 and p = 0.004, and the number of projects completed on time and within budget with r = -0.736 and = 0.002. This implies that the higher the individualism index, the lower the number of successful projects and projects completed

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on time and within budget will be. Therefore, the teams' project performance decreases when the individualism index of that team increases. Table 13 summarizes the correlation analysis results of individualism and teams' project performance.

Table 13

Correlation Analysis of Individualism Index and Team's Project Performance

Correlation		**Successful projects**	**Failed Projects**	**Required Extension of Time/Budget**	**Completed on Time & Budget**
Individualism	Pearson Correlation	-.695**	.488	.232	-.736**
	Sig.	.004	.065	.406	.002

Figure 4 shows a scatter plot of individualism index and both the number of projects completed on time and budget and the number of successful projects that confirms the presence of positive correlation.

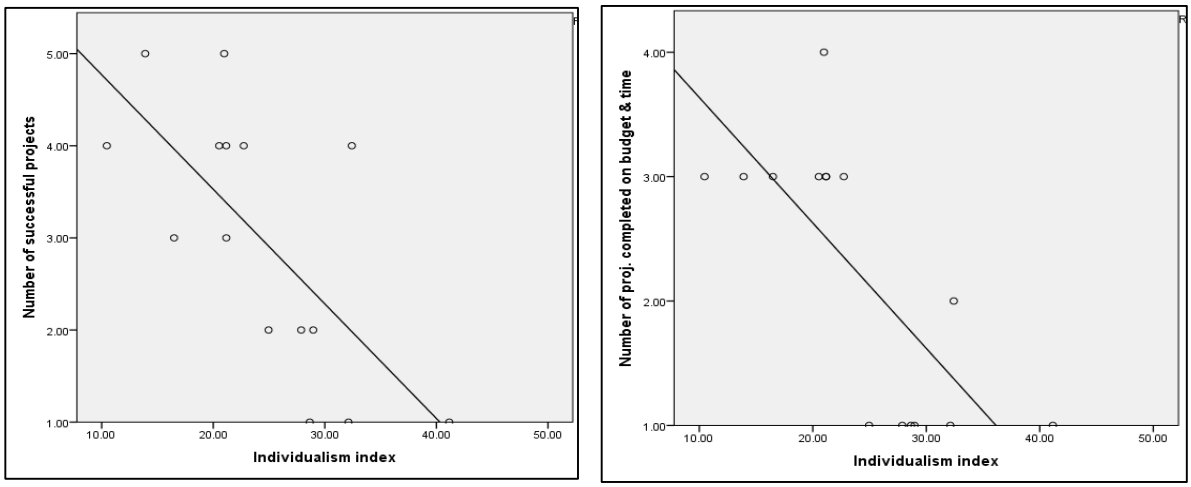

Figure 4. Scatter Plot of Individualism Index and Team Performance*

* Only correlation with successful projects and projects completed on time and budget are shown as they were the only significant correlation with individualism index.

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Effect of Uncertainty Avoidance on Performance

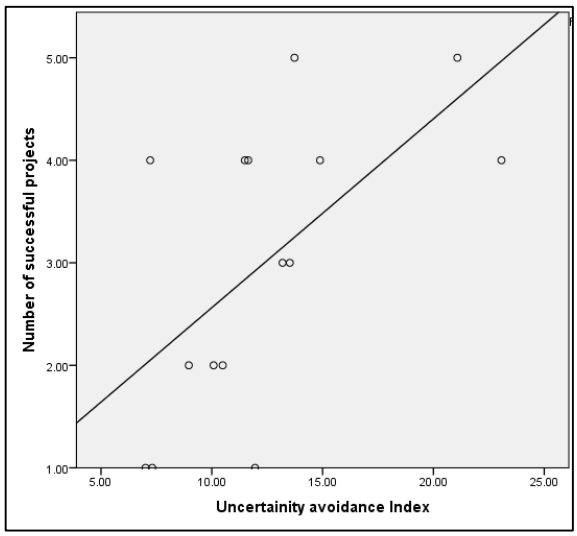
Correlation analysis showed that uncertainty avoidance index was has significant positive correlation with both the number of successful projects with r = 0.606 and p = 0.17, and the number of projects completed on time and within budget with r = 0.616 and p = 0.15. This means those teams' project performance increases positively when the uncertainty avoidance index of that team increases. Table 14 summarizes the correlation analysis results of uncertainty avoidance index and teams' project performance.

Table 14

Correlation Analysis of Uncertainty Avoidance Index and Team's Project Performance

Correlation		Successful projects	Failed Projects	Required Extension of Time/Budget	Completed on Time & Budget
Uncertainty avoidance	Pearson Correlation	.606*	-.432	-.176	.616*
	Sig.	.017	.108	.530	.015

Figure 5 shows a scatter plot of uncertainty avoidance index and both the number of projects completed on time and within budget and the number of successful projects that confirms the presence of positive correlation.



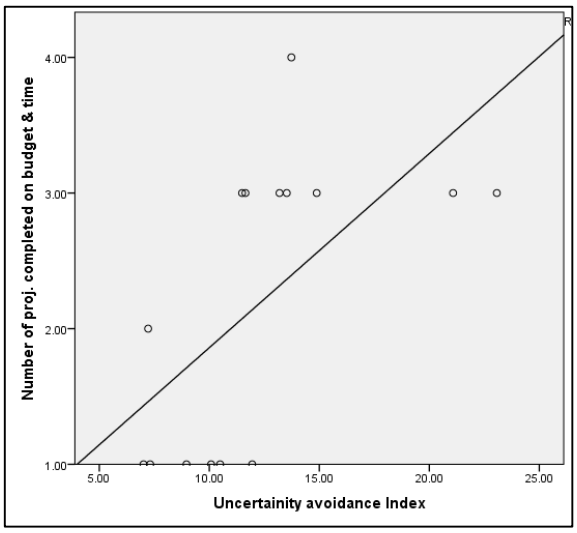


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Figure 5. Scatter Plot of Uncertainty Avoidance Index and Team Performance*

* Only correlation with successful projects and projects completed on time and budget are shown as they were the only significant correlation with uncertainty avoidance index.

Effect of Cultural Diversity on Performance

Correlation analysis showed that cultural diversity of within a team (both total and average) had significant effects on number of projects completed successfully, number of failed projects and number of projects completed on time and within budget. The correlation was negative between cultural diversity and both the number of successful projects and the number of projects completed on time and within budget while it was positive for number of failed projects. This means that higher cultural diversity within teams will impact project performance negatively. Table 15 summarizes the correlation analysis results of cultural diversity and teams' performance.

Table 15

Correlation Analysis of Cultural Diversity and Team Performance

Correlation		**Successful projects**	**Failed Projects**	**Required Extension of Time/Budget**	**Completed on Time & Budget**
Total of Teams' Cultural Indices	Pearson Correlation	-.589*	.546*	.399	-.695**
	Sig.	.021	.035	.140	.004
Mean of the Total Cultural Diversity	Pearson Correlation	-.589*	.546*	.399	.695**
	Sig.	0.021	.035	.14	.004

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Figure 6 also supports the finding by showing a scatter plot of cultural diversity and both the number of projects completed on time and within budget and the number of successful projects that confirms the presence of negative correlation.

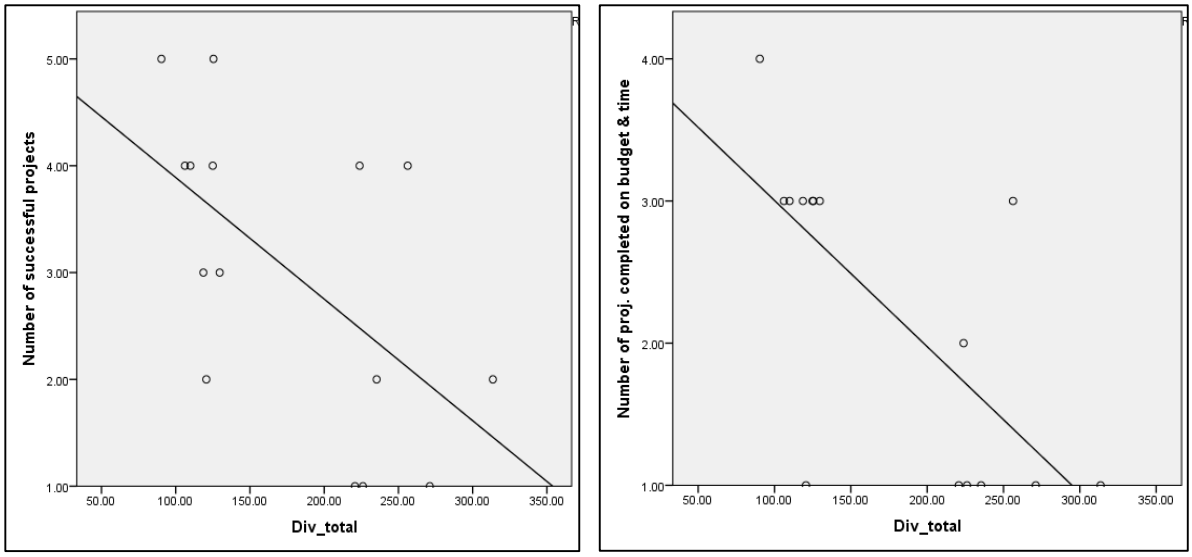

Figure 6. Scatter Plot of Cultural Diversity and Team Performance*

* Only correlation with successful projects and projects completed on time and budget are shown here.

Figure 7 shows a scatter plot of cultural diversity and number of failed projects that confirms the presence of positive correlation. The vertical line represents the number of projects that failed to complete, and horizontal line represents the total of the participated teams' cultural indices. It shows that the higher the teams' cultural indices are; the more failed IT projects will occur.

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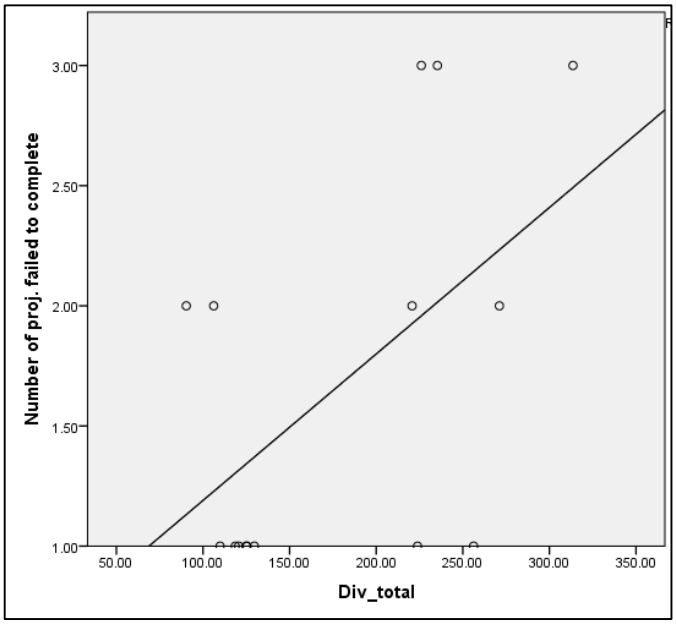

Figure 7. Scatter Plot of Cultural Diversity and Number of Failed Projects

4.7 Summary of the Results

The results presented in this chapter shows significant impact of the three cultural indices that are power distance index, uncertainty avoidance index, and individualism/collectivism index on the performance of IT project teams. The results also provide evidence that the IT field in Saudi Arabia is male dominant. Data analysis shows that power distance index (PDI) of a project team impacts project success rate positively. This implies when PDI of a project team increases that teams' project performance also increases, and when uncertainty avoidance index (UAI) of a project team increases the teams' project performance also increases, thus resulting in a higher rate of project completion in time and within budget. The analysis also demonstrates that the individualism index impacts project success negatively which means that when individualism index decreases the project success rate of that team increases. A detailed summary and a discussion of the findings will be presented thoroughly in the next chapter.

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Chapter 5: Conclusion

5.1 Introduction

This quantitative study is conducted to identify the impact of cultural differences on the performance of team members working physically on IT projects in Saudi Arabia. The researcher aimed at determining the relationship between the high percentage of IT project failure and culture differences with respect to Saudi Arabian IT projects. The research tried to investigate how cultural dimensions, namely, power distance index, uncertainty avoidance index, and individualism and collectivism impact the success of multinational IT projects in Saudi. Hofstede's (2010) multidimensional cultural model was used as the primary reference to determine the potential factors affecting the performance of the culturally diverse and multinational IT teams, having at least three nationalities within each team. The research evaluated the responses of 171 participants, who are members of different teams, to calculate the targeted cultural indices and cultural diversity values for each team members. The independent variables of the study are power distance index, uncertainty avoidance index, and individualism/collectivism index. The dependent variable in this case was the diversified team's projects success rate.

The outcomes are in line with the reviewed literature and prove the relationship between cultural differences within an IT project team and the success or failure rate of that project. The author adopted the Hofstede's Values Survey Module 2013. The participants indicated their answers based on a 5-point Likert scale. Then, using the formulae provided by Hofstede (2010) in the user manual of VSM-13, MS. Excel is used to calculate the cultural indices on an individual as well as team basis. For further analysis, SPSS is employed to determine independent and dependent variables. After that, a Bivariate Pearson correlation was used to discover the correlations between the independent variables. This chapter discusses and summarizes the findings of the study and how the outcomes answer the specified research

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questions. It also highlights the study limitations, recommends future research, and offers a conclusion.

5.2 Discussion of Findings

The analysis of the collected data shows several significant results that go in line with the proved literature facts provided in chapter 2. Here is the discussion of the findings of this research with respect to all three-research questions.

Direct Correlation between Power Distance and IT Team Performance

In response to the first research question, "how does Power distance index impact the success of multinational IT projects in Saudi?" the findings proved positive relation between power distance index and the success of multinational IT projects in Saudi Arabia. The Pearson's correlation coefficients between power distance and both successful and completed on time and within budget projects were $r = 0.532$ and $p = 0.711$ respectively. Having a positive Pearson's correlation coefficient validates the direct relation between the two variables. Moreover, the coefficients are greater than 0.5, which refers to the existence of a strong relation. Accordingly, the power distance index is directly related to performance since the statistics analysis showed that power distance is positively correlated to both the number of successful projects and the number of projects completed on time and within budget. In other words, the performance of a specific team increases positively when the power distance index of that team increases; therefore, higher power distance index indicates a better performance.

This positive relation comes in accordance with the recommendation from some previous studies. For instance, Paulus et al. assured that the managers should choose teams with high power distance, because, the inequalities between the hierarchy levels are desired and expected, subordinates expect instructions from the top management, and the effective leader possess an undisputed, absolute power, which he uses for the benefit of people (Paulus

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et al., 2005). Another study by Henrie (2010) also underlined the importance of understanding the relation between power distance and multinational communications in a team in helping members improve the rate of success and overall performance (Henrie, 2010).

Direct Correlation between Uncertainty Avoidance and IT Team Performance

In attempt to answer the second research question, "how does uncertainty avoidance index (UAI) impact the success of multinational IT projects in Saudi?" the findings ascertained positive relation between UAI and the success of multinational IT projects in Saudi Arabia. The Pearson's correlation coefficients between uncertainty avoidance and both successful and completed on time and within budget projects were $p = 0.606$ and $p = 0.616$ respectively. It is obvious that the Pearson's correlation coefficient is positive, which proves the existence of a direct relation between the two variables. Moreover, the value of the coefficients is greater than 0.5, which refers to the significance of that relation. Accordingly, the uncertainty avoidance index proved to be directly related to performance as the statistical analysis showed that UAI is positively correlated to both the number of successful projects and the number of projects completed on time and budget. That is, the teams' project performance increases when the uncertainty avoidance index of that team increases.

Hofstede has identified uncertainty avoidance index as "the extent to which the members of a culture feel threatened by uncertain or unknown situations and try to avoid such situations" (Hofstede, 1997). While comparing our results to other literature studies, we found that our results contradict with Shane`s (1993) findings, where he assured the negative impact of high UAI degrees on the tendency of organization towards innovation (Shane, 1993). However, the positive correlation between the UAI and performance is congruent with the outcomes of a more recent study that suggested high degrees of UAI support the creativity of marketing (Giarratana & Torres, 2007).

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Direct Correlation between Individualism and IT Team Performance

Responding to the third question, 'how does individualism and collectivism index (ICN) impact the success of multinational it projects in Saudi?' the researchers postulates the existence of an indirect relation between individualism and performance. The Pearson's correlation coefficients between ICN and both successful and completed on time and within budget projects were -0.695 and -0.736 respectively. The negative sign demonstrates an indirect relationship. The Pearson's values are greater than 0.5, which reflects the strength of the correlation. Based on this statistical analysis, the individualism index is related indirectly to both the number of successful projects and the number of projects completed on time and within budget. In other words, any increase in the individualism index reduces both the number of successful projects and projects completed on time and budget. Therefore, the teams' project performance decreases when the individualism index of that team increases. This implies individualism, as a cultural aspect, has the potential to hinder performance. This fact goes in line with what a study in Saudi Arabia has investigated, "intercultural dialogues and knowledge sharing were perceived as slowing down decision making, as the understanding of cultural differences was perceived as unnecessarily complicating the path to action" (Levitt, 2013).

5.3 Other (unintentional) Findings

Analysis of the results helped the author to reveal additional outcomes. By scanning the data in table 9, the author found that the calculated value of power distance index for Saudi Arabia is 28.15 while Hofstede (1980) calculated it as 95. In addition, the sample value of uncertainty Avoidance index for Saudi Arabia is 22.79, while Hofsted`s estimated value is 80. Moreover, the author has also noticed that the sample value of individualism index for Saudi Arabia is 14.09, whereas Hofsted`s estimated value is 25.

To the best knowledge of the author, the substantial differences between Hofstede`s values of the three cultural dimensions and the sample values return back to several reasons

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including the revolution of IT communications and globalization, specifically to the abroad missions that the country encourages. This may return to changing the Kingdom's educational system. The change in the country is rapid. The Kingdom has been encouraging internationalization of higher education (Ahmed, 2015). According to a news, "For 2015, the government allocated about $6 billion to support students studying abroad" (Walcutt, 2016). Therefore, the country watches sharp changes in terms of new institutions and ideas. Saudi`s missions to abroad are to a variety of countries such as the Australia, Britain, United States, and Canada. With the verity of cultures within these countries, the Saudi students who spend at least 3 years of education, when they go back home, they convey part of the cultures they have experienced.

One more observation is based on figure 2 that provides evidence that the IT field in Saudi Arabia is male dominant. Generally, people in Saudi Arabia are traditionally reserved towards working of the women. This is what had been emphasized by a research conducted in 2010 that reported very traditional attitudes towards working females by Saudi males.

5.4 Implications of the Study

The outcome of the current study will provide important insights for organization decision makers about the optimal way to assemble their multinational teams. Managers should select individuals with greater power distance index, greater uncertainty avoidance index and lower individualism and collectivism index. Composing a multinational team brings some challenges associated with cultural diversity. To overcome such a problem, cultural diversity management is a workable solution.

5.5 Limitations of the Study

The results of this study are dedicated to IT projects in Saudi Arabia. Therefore, for any other type of projects or IT projects external to Saudi Arabia, these results may not be

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applicable. One more observation is related to the participants who all worked face-to-face on their projects. Consequently, the findings of this research may not be valid for team members working remotely through the Internet. The conducted questionnaire aimed at evaluating the six cultural dimensions of Hofstede. It did not include other cultural or non-cultural factors such as language or employees' IT skills. Furthermore, the research did not consider some other factors that may influence projects` success rates, for example the proficiency of the respective project managers.

5.6 Future Study

For the current study, the author preferred to analyze only the results for three cultural dimensions namely, power distance, uncertainty avoidance, and individualism and collectivism, so that he can stick to the specified budget and scheduled time. For future studies, the author might plan to conduct another research in the course of two purposes. The first is analyzing the results of the remaining cultural indices, namely masculinity and femininity, long-term / short-term orientation, and indulgence/restraint. The second is to apply this study on a larger population without focusing only on the IT sector.

5.7 Conclusion

The study reported some significant outcomes. It verified the influence of power distance index, uncertainty avoidance index, and individualism/collectivism index on the performance of multinational IT project team members in Saudi Arabia. Two cultural indices, namely, power distance and uncertainty avoidance, have recorded a direct relationship with performance. However, the third index, individualism, showed an indirect relation with performance. Moreover, cultural diversity may impose an obstacle in front of performance. By looking at the power distance index results mentioned in table 9, we find the Philippian participants who score 94 points, and the British participants who score 35 points on power

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distance index. Based on these results we can conclude that members from these two nationalities will have a huge cultural gap between them, which might negatively affect the performance of the whole team in general. Therefore, managers should consider cultural diversity management techniques before forming a team with different nationalities and should consider taking some time to review their country's national cultural score as well as the score of the cultures they regularly manage or work with. This will help them to avoid any critical events that may cause any culture shock to both parties, which might affect the harmony inside the team and reduce its performance. Finally, with a strong management support and clear common goals and objective among the team members, the managers will have the key to guide their diversified teams into a successful project.

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Appendices

Appendix A: VSM Survey 2013

Please think of an ideal job, disregarding your present job, if you have one. In choosing an ideal job, how important would it be to you to ... (please circle one answer in each line across):
1 = of utmost importance
2 = very important
3 = of moderate importance
4 = of little importance
5 = of very little or no importance

01. Have sufficient time for your personal or home life 1 2 3 4 5

02. Have a boss (direct superior) you can respect 1 2 3 4 5

03. Get recognition for good performance 1 2 3 4 5

04. Have security of employment 1 2 3 4 5

05. Have pleasant people to work with 1 2 3 4 5

06. Do work that is interesting 1 2 3 4 5

07. Be consulted by your boss in decisions involving your work 1 2 3 4 5

08. Live in a desirable area 1 2 3 4 5

09. Is a job respected by your family and friends 1 2 3 4 5

10. Have chances for promotion 1 2 3 4 5

In your private life, how important is each of the following to you: (please circle one answer in each line across):

11. Keeping time free for fun 1 2 3 4 5
12. Moderation: having few desires 1 2 3 4 5

13. Doing a service to a friend 1 2 3 4 5

14. Thrift (not spending more than needed) 1 2 3 4 5

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15. How often do you feel nervous or tense?
    1. Always
    2. Usually
    3. Sometimes
    4. Seldom
    5. Never

16. Are you a happy person?
    1. Always
    2. Usually
    3. Sometimes
    4. Seldom
    5. Never

17. Do other people or circumstances ever prevent you from doing what you really want to?
    1. Yes, always
    2. Yes, usually
    3. Sometimes
    4. No, seldom
    5. No, never

18. All in all, how would you describe your state of health these days?
    1. Very good
    2. Good
    3. Fair
    4. Poor
    5. Very poor

19. How proud are you to be a citizen of your country?
    1. Very proud
    2. Fairly proud
    3. Somewhat proud
    4. not very proud
    5. Not proud at all

20. How often, in your experience, are subordinates afraid to contradict their boss (or students their teacher?)
    1. Never
    2. Seldom
    3. Sometimes
    4. Usually
    5. Always

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To what extent do you agree or disagree with each of the following statements? (Please circle one answer in each line across):
1 = strongly agree 2 = agree 3 = undecided 4 = disagree 5 = strongly disagree

21. One can be a good manager without having a precise answer to every question that a subordinate may raise about his or her work
1 2 3 4 5

22. Persistent efforts are the surest way to results 1 2 3 4 5

23. An organization structure in which certain subordinates have two bosses should be avoided at all cost 1 2 3 4 5

24. A company's or organization's rules should not be broken - not even when the employee thinks breaking the rule would be in the organization's best interest
1 2 3 4 5

Some information about yourself (for statistical purposes):

25. Are you:
1. Male 2. Female

26. How old are you?
1. Under 20
2. 20-24
3. 25-29
4. 30-34
5. 35-39
6. 40-49
7. 50-59
8. 60 or over

27. How many years of formal school education (or their equivalent) did you complete (starting with primary school)?
1. 10 years or less
2. 11 years
3. 12 years
4. 13 years
5. 14 years
6. 15 years
7. 16 years

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8. 17 years
9. 18 years or over

28. If you have or have had a paid job, what kind of job is it / was it?
1. No paid job (includes full-time students)
2. Unskilled or semi-skilled manual worker
3. Generally trained office worker or secretary
4. Vocationally trained craftsperson, technician, IT-specialist, nurse, artist or equivalent
5. Academically trained professional or equivalent (but not a manager of people)
6. Manager of one or more subordinates (non-managers)
7. Manager of one or more managers

29. What is your nationality?

30. What was your nationality at birth (if different)?

31. Have you managed an IT Project before?

32. How many IT projects have you managed with team members from different countries? (Please type your answer in numbers)

33. How many of these IT projects were completed on time and budget planned? (Please Type your answer in numbers only)

34. How many of these IT projects were completed with an extension in time and budget? (Please type your answer in numbers only)

35. How many of these IT projects were failed to complete? (Please type your answer in numbers only)

36. Based on your experience, what are the nationalities you prefer to manage in an IT project?

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Appendix B: Invitation Email

Hello Mr. /Mrs.

I am Amjad Roboey, a doctoral student in Information System and Communication at Robert Morris University, USA. I am currently working on my dissertation, which focuses on determining the relationship between multicultural team members and their performance while working on an Information Technology project in Saudi Arabia. Because you are a Saudi project manager, I am writing to request your participation in a survey that includes 14 closed-ended questions that can help me measure the performance of employees. In order to participate, team members must have at least 3 different nationalities from different cultures.

The company's name, employees' names, and your responses to this survey will be anonymous and used only for this study. This will help me evaluate the impact of the multicultural on the performance of the project team members.
In order to determine if you will be a good fit for my survey, I would like to ask you two questions before I send you the survey:

1- Are you currently an IT project manager of employees from other nationalities than Saudi Arabian?

If the answer to question 1 is yes,

2- What are their nationalities?

Please don't hesitate to send me an email to ahrst251@mail.rmu.edu with any questions or concerns you have.

Sincerely,
Amjad Roboey

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Appendix D: Consent Form

Amjad Roboey
Doctoral Student at Robert Morris University – Department of Information Systems and Communication
ahrst251@mail.rmu.edu

The Impact of Cultural Diversity on the performance of Multinational Team Members in Information Technology Projects in Saudi Arabia

Online Consent Form (For Employees)

You are invited to take part in a research survey about the relationship between multicultural team members and their performance while working on an Information Technology project in Saudi Arabia. Author will also conduct your performance at the latest IT project and that information will be kept confidential and will only be used for the purpose of this study. Your participation to this cultural survey will require approximately 10 minutes and is completed online at your computer. There are no known risks or discomforts associated with this survey. Taking part in this study is completely voluntary. If you choose to participate in this study you can withdraw at any time without adversely affecting your relationship with anyone at Robert Morris University or the researcher.

Your responses will be kept strictly confidential, and digital data will be stored in secure computer files. Any report of this research that is made available to the public will not include the company's name, your name, or any other individual information by which you could be identified.

If you have questions or want a copy or summary of this study's results, you can contact the researcher at the email addressed above. Please feel free to print a copy of this consent page to keep for your records.

The Robert Morris University Institutional Review Board has approved this activity. This Committee administers the University policy covering the protection of human subjects. The Committee may be contacted through the Chairperson, Dr. Priyadarshan Manohar, at email: manohar@rmu.edu
Phone: 412-397-4027

Clicking the "Agree" button below to indicate that you are 18 years of age or older, and you consent to participate in this survey

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