

Role of Cultural Factors in IT Projects: In the Context of Developing Economies

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ABSTRACT

Various information and communication technologies (ICT) and electronic government (e-Government) projects have been planted in hopes of economic and social growth in developing economies. These types of ventures usually involve working in societies with their own unique cultures in various aspects that often cause “custom ways” of planning, implementing, coordinating, and controlling in IT projects, thus playing a grand role in determining the success of IT projects. Due to a lack of understanding of local cultural factors and a deficiency of cultural risk evaluation models, however, many IT projects especially in the context of developing economies face failure. This study investigates the major cultural factors involved in IT projects and their effects on IT projects in developing economies. The framework is validated using the United Nations Development Programme’s (UNDP) information and communication technology (ICT) and e-Government project cases of two countries in Central Asia, Uzbekistan and Kazakhstan. This study will help project managers develop management practices and strategies associated with the cultural factors they face during the various stages of their IT projects in their specific contexts.

Keywords: Cultural Factors, IT Projects, ICT, E-government, Developing Economies

1. Introduction

Global organizations, like United Nations (UN), and other innovation-driven groups have planted various information technology (IT) related projects, in the hopes of economic growth and innovation expansion in developing economies. Developing

economies are generally classified as such based on their poor economic performance, high poverty level, high corruption rate, lack of critical infrastructure, high inequality of wealth, and inaccessibility to a quality education (World Bank, 2014). Unfortunately, many projects in these environments fail even before the implementation process (Dada, 2006). Such fail-

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ures are frequently caused by the complex dynamics of multiple cultures among project groups and members having diverse cultural backgrounds, such as risk preference, hierarchy, self- vs. group-orientation, trust, and motivation driver (Amid et al., 2012; Heeks, 2002; Heeks, 2006; Lee and Baby, 2013; Maruping et al., 2019; Maumbe et al., 2008). These cultural factors consist of prevailing and shared values, norms, assumptions, belief systems, languages, and behavioral patterns in a society or cultural group (Aycan, 2004; Earley, 1993). However, most of the extant studies on cultural aspects in IT project management are in the context of developed or matured environments, e.g., Sweden, Finland and Singapore (Keil et al., 2000), United States and Korea (Chung and Adams, 1997) or have not considered the unique contexts of developing economies (e.g., Maruping et al., 2019). Thus, their findings may not fully apply to the context of developing economies due to their unique environmental characteristics, involving broader stakeholder groups, technology and project inexperience, infrastructural immaturity, and local uniqueness (Lee and Namayanja, 2019). Hence, the roles of cultural factors in IT projects in the context of developing economies have not been well understood. This study examines how these unique behavioral patterns and cultural values of individuals and groups pose as a dramatic impact on project operations especially in the contexts of developing economies. When considering the growing demand of IT projects in developing economies (World Bank, 2014), the interest of this study is considered a significant question to both academics and practitioners.

Culture itself has long been discussed as a major factor affecting the success or failure of various organizational activities in global settings (Hall and Hall, 1989; Hofstede, 1980; Keesing, 1974). Particularly in a project management context, cultural factors

have been discussed at various levels, including national, organizational, and subunit levels. For example, trust has been discussed at a national level in terms of various aspects, which include trust of technologies, government, and people (Cho and Noh, 2017; Kim et al., 2017; Myers and Tan, 2002; Straub et al., 1997; Walsham, 2002). Different motivations have also been discussed at both an organizational level as a way of creating value around a project (Robey and Boudreau, 1999) and a sub-unit level as an indicator of fairness and collaboration between staff members, e.g., self-oriented vs. group-oriented mindset (Cooke and Lafferty, 1987; Quinn, 1988). These cultural factors have become vital in IT projects as IT projects become more globalized and diversified in their participants (Lee and Baby, 2013; Leidner and Kayworth, 2006). Global IT projects are characterized by their settings in multiple countries, involving multiple people or project teams that are spread across different countries each working on the same project at the same time (Lee and Baby, 2013). Hence, the impacts of cultural factors on global IT projects are more significant (Hasan and Ditsa, 1999; Png et al., 2001; Thatcher et al., 2003). This global project aspect is the key characteristic of IT projects in developing economies, in which various stakeholders and participants from multiple counties are usually involved (Lee and Namayanja, 2019). However, a comprehensive framework of cultural factors and their roles in IT projects in developing economies has seldom been proposed in the literature.

Key cultural factors and their impacts vary by different levels of economic development. For instance, the development level of an economy has been discussed as an influencer on the hierarchical structure of an organization in that economy (Ouchi and Cuchi, 1981; Quinn, 1988), particularly on its communication system and cognitive styles of deci-

sion-making (Hall, 1983; Hofstede, 1980). Specifically, a low power distance played a positive role for group support system (GSS) adoption in Bulgaria, a developing economy (Garfield and Watson, 1997). On the other hand, it played a negative role in Sweden, a developed economy, where the low power distance made the decision-making speed of executive information systems (EIS) very slow and time-consuming (Leidner et al., 1999). As another example, in 2010, the Maji Matone (water drops) program was initiated in rural Tanzania to enable a mobile-based reporting system on faulty water pumps. However, one of the contributing factors to the project failure was the presence of strong social ties among individuals, who were not willing to use the system to report incidents due to fear of those in higher authority (Taylor, 2013). These examples indicate that it is crucial to have a proper understanding of the key cultural factors of target economies and their distinctive impacts on IT project success and failure. However, prior studies on the cultural factors in IT projects fail to consider the development level of target economies where the projects are held, or project participants come from, although the cultural context has been discussed as one of the most important components of projects especially in developing economies (Avots, 1972; Ndou, 2004; Yanwan, 2012). Hence, the roles of cultural factors in IT projects in developing economies are ill-understood, despite the fact that most of the IT projects conducted in developing economies are suffering from very high rates of project failure and critical challenges (Dada, 2006). However, existing theories and practices on IT project management are primarily developed based on research and experiences in developed western economies. Such best practices frequently are not applicable to developing economies due to unique challenges imposed by developing economies

(Muriithi, 2003). Therefore, there are significant demands to study the unique contexts of developing economies in IT project management.

This study aims to better understand the key cultural factors of IT projects and their effects on IT project management particularly in the context of developing economies. Through this study, the following questions will be answered: (1) What are the key cultural factors affecting IT projects and (2) How do these factors influence IT projects especially in developing economies. To answer these questions, a framework to identify cultural factors and their effect on IT projects is proposed, particularly considering the economic development level of target project environments. The proposed framework will be applied to ICT and e-Government projects in two developing economies in Central Asia, Uzbekistan and Kazakhstan, using the project reports developed by the United Nations Development Programme (UNDP). According to the IMF (2018), the characteristics of the two countries match those of developing economies described. The two countries have their backgrounds as former members of the Soviet Union gaining independence in 1991 and can be argued to share certain common characteristics, such as similar political party systems, legal structures, and economic stature with some variances (Alam and Banerji, 2000). Hence, an investigation and comparison of these two economies is believed well-fitting to the purpose of this study. Furthermore, public sectors have invested increasingly in ICTs to improve productivity. e-Government projects in particular can create numerous benefits and opportunities for both governments and citizens. However, challenges associated with technological issues are still looming and as result, the overall adoption and use of e-Government services remains restricted in the most countries. With lots of efforts being invested in the

use of ICTs to improve delivery of government services to citizens in developing countries, the improvement of e-Government services has been one of the most popular research topics and further examined in this study as well (Khatib et al., 2019).

The rest of the paper is organized as follows: the section 2 explains the conceptual bases and literature review about the unique characteristics of developing economies and the cultural factors linked with project management. In the section 3, a theoretical development regarding the impacts of the cultural factors on IT projects in developing economies is provided with multiple propositions. Next, our theoretical development will be reflected on several project cases in the two developing countries in section 4. Lastly, a conclusion with future directions of the study will be discussed in section 5.

II. Literature Review

To develop a framework of the cultural factors in IT project management in developing economies, the following three areas are reviewed as the conceptual bases of our study: (1) unique contexts of developing economies, (2) general cultural dimensions at the national/societal level, and (3) cultural factors in IT projects.

2.1. Unique Contexts of Developing Economies

United Nations publishes yearly reports on developing economies, which are also referred to as *developing countries*, in the world, based on various statistical analyses. Gross domestic product (GDP) per capita, human development index (HDI), and degree of economic vulnerability are the three main factors that determine the ranking position of each country

(UN, 2019).¹⁾ These countries are characterized to have very low literacy, nutrition, gender equality, education, and health rates, which are rooted in their economic vulnerability (IMF, 2018; UN, 2019).

The specific social, economic, and environmental situations of developing countries influence behaviors and practices at various settings, including ICT and e-government projects. For instance, compared with developed countries like US or Japan, developing countries face more difficulty in handling IT related issues due to their limited technological exposure and computer knowledge (Ledford, 2002). Furthermore, due to a shortage of financial resources, the poor infrastructure and low computer literacy in developing countries contributes to minimal trust in technologies, e.g., Internet and online banking (Benamati and Serva, 2007; Isabirye et al., 2015).

In line with these, Lee and Namayanja (2019) proposed four unique characteristics that cause potential risks in IT projects in developing economies, which involve broader stakeholder groups, technology and project inexperience, infrastructural immaturity, and local uniqueness. First, projects in developing economies typically have broader stakeholder groups. In particular, they often have great public visibility and government involvement (Abbasi and Al-Mharmah, 2000; Avots, 1972; Muriithi and Crawford, 2003),

1) Developing economies have been determined with various terms and definitions by different organizations, such as developing economies (IMF and UN), low- or lower-middle-income countries (UN), and the least developed countries (UNCTAD). However, all of these terms agree with the lower income status of an economy (or country): for example, As of 2019, the list of developing economies includes countries whose gross national income (GNI) per capita, representing the poverty level of the country, are less than US \$995 as the low-income countries or less than \$3,895 as the lower-middle-income countries. One of the full list of developing economies can be accessed from the following link: https://www.imf.org/external/pubs/ft/weo/2018/02/weo_data/groups.htm (IMF, 2018).

as well as other prime interest groups, such as local and foreign organizations, such as non-governmental organizations (NGO), private or public sectors, financial institutions, media, and various international communities. This diverse setting of project stakeholder groups generates new types of challenges for projects in developing economies. Second, projects for developing economies are often unprecedented in terms of project scope, requirements, and technologies involved, highlighting lack of project and technology experience, thus requiring new approaches (Avots, 1972; Yanwan, 2012). Third, a shortage of up-to-date social and technological infrastructures and an ability to maintain them remain major challenges in developing economies (Avots, 1972; Ndou, 2004; Kapurubandara and Lawson, 2006; Moertini, 2012). Lastly, each developing economy has its own cultural uniqueness. Previous literature has addressed a variety of cultural dimensions that can be used to distinguish different countries or economies (e.g., Hofstede and Bond, 1988). Muriithi and Crawford (2003), for example, argue that developing economies are likely to accept an unequal distribution of power and authority within their team. They also argue that developing economies are characterized by low risk-taking behaviors and strong emotional resistance to change. The development level of a country might not determine each culture. However, its impacts on IT projects can vary due to the unique characteristics of developing economies above-mentioned.

2.2. General Cultural Dimensions at the National/Societal Level

In the literature, culture has been described from various aspects of human behaviors, such as beliefs, assumptions, core values, cognitive styles, biases, cus-

toms, communication styles, and norms among a group of people (Cho and Noh, 2017; Sackmann, 1992). In general, the term culture can be defined as the common patterns, beliefs, and norms within a behavioral human group at various levels, such as national/societal, cross-national (e.g., religious), organizational, social group/professional, group cultures (Aycan et al., 2000; Karahanna et al., 2005). For this study, we focus on the culture at the national/societal level when considering the context of the study, i.e., IT projects in developing economies. According to Schein (2000), Schein (2010), all of our behavioral assumptions, decision-making styles, and recognition of reality and truth comes from the culture backgrounds we were surrounded by. No matter how many new cultures come into our work or social environment, one will always gravitate towards the initial underlying cultural characteristics.

For the national/societal-level culture, one of the earliest and well-adopted frameworks are Hofstede's six cultural dimensions, which include power distance (PD), individualism vs. collectivism (IDV), masculinity vs. femininity (MAS), uncertainty avoidance (UA), long-term vs. short-term orientation (LTO), and indulgence vs. self-restraint (Bond and Hofstede, 1989; Hofstede, 1980; Hofstede, 1983; Minkov and Hofstede, 2012). First, power distance (PD) describes the strength of social hierarchy and is used as a measurement of how people are placed within the social groups. For instance, in high PD societies, most of the significant decisions are made by the highest-level people (Hofstede, 1980; Hofstede, 1983). Second, individualism vs. collectivism (IDV) describes how loose-knit or tight-knit the social framework plays a role in caring for others, the loyalty and network expectations (Hofstede, 1980; Hofstede, 1983). In regards to a work environment, collective societies tend to hire within their family and friend

circles, while the individualistic societies tend to focus on the quality of applicants instead of social ties. Third, masculinity vs. femininity (MAS) describes a society's preference to achievements, heroisms, and material rewards vs. cooperation, modesty, caring for the weak, and the quality of life (Hofstede, 1980; Hofstede, 1983). Furthermore, since masculine societies are self-oriented and competitive in nature, their productivity level tends to be higher in a work setting than that of femininity societies. This dimension is also known as task- vs. person-orientation. Fourth, uncertainty avoidance (UA) describes the degree in which the members of a society feel uncomfortable with uncertainty and ambiguity of a situation or process (Hofstede, 1980; Hofstede, 1983). This dimension indicates how people feel and tolerate the uncertainties of future events or facts. Fifth, long-term vs. short-term orientation (LTO) describes how a society views the value of a project's impact (Lyu et al., 2019; Shofolahan and Kang, 2018; Suh, 2018). Some societies prefer changes that influence a current state and others prefer changes in the future as a long-term effect (Hofstede et al., 2010). Lastly, indulgence vs. self-restraint (IND) describes how much a society allows self-gratification and indulgence of natural human needs (Hofstede et al., 2010). Since these general national/societal-level cultural dimensions affect and determine individual's behaviors in various contexts, including IT projects (e.g., Maruping et al., 2019), in the literature more specific cultural factors for the context of IT projects have been discussed in the literature.

2.3. Cultural Factors in IT Projects

In the literature on project management and social culture, various cultural factors have been discussed to have potential influences on IT projects, which

involve risk preference, hierarchy, self- vs. group-orientation, trust, and motivation driver.

Risk preference is a cultural preference of a society. Based on this preference, the society tends to either accept or reject unknown and risky projects and prefer more certain and clear ones (Png et al., 2001). This cultural factor is relevant to Hofstede's uncertainty avoidance and long-term vs. short-term orientation dimensions. Some societies are more relaxed about not knowing the future or details about the future events (more short-term oriented). Such societies are usually willing to take more risks than other societies that prefer certainty. For instance, in their study surveying 153 businesses across 23 countries, Png et al. (2001) found that organizations from higher uncertainty avoidance cultures tend to avoid IT infrastructure adoption due to a risk of the loss of their investments. Similarly, Thatcher et al. (2003) found that students from countries with a culture of risk avoiding prefer not to experiment with new IT products and services. Likewise, many risk-adverse (uncertainty avoidance) countries are less likely to adopt IT-related projects due to lack of skilled IT staff and technical knowledge (Hasan and Ditsa, 1999). This aligns itself with criticism as to whether increase in IT investment is effective (Kim et al., 2017). In result, the identical or distinct risk preferences among IT project groups or members will influence the management processes and outcomes of an IT project (Maruping et al., 2019).

Hierarchy is a dimension that indicates how a society places and separates groups or individuals within the social or work environment. This cultural dimension is relevant to Hofstede's power distance and masculinity vs. femininity dimensions. Most hierarchical (high power distance) cultures place age, status, wealth, and gender as determining factors that separate individuals into different levels

(Hofstede, 1980; Hofstede, 1983). In the literature, the impact of this cultural factor has been controversial. On one hand, it has been argued that in non-hierarchical organizations (low power distance), IT adoption and IT project implementation would be more successful since the IT staff and managers collaborate more actively and thus deliver higher productivity (Hasan and Ditsa, 1999). In this cultural environment, individuals are usually seen and positioned at one flat level. In contrast, the high-power distance culture has been discussed in terms of decreasing the freedom to experiment and thus, hinder innovation (Thatcher et al., 2003). On the other hand, a high hierarchical system has also been discussed as having a positive impact on project management. According to Vreede et al. (1998), in a high hierarchical organization, the acceptance of a project and the diffusion of its outcomes can happen faster since junior workers tend not to question the top leaders' decision and simply adopt the top leaders' suggestions. Moreover, due to the centralized decision-making culture, the decision-making process can be quicker, and the project movement can occur more easily (Lee and Baby, 2013). Maruping et al. (2019) also argue that individuals having more masculinity cultural values are likely to support the authority of organizational (hierarchical) structure and more actively engage in project planning and control activities to achieve higher project performance (also see Kankanhalli et al., 2004). While this hierarchy culture will influence IT projects, we believe that its impact may vary based on the context of the projects.

Self- vs. group-orientation is a cultural preference that makes individuals place themselves and their goal or group's goal first. This cultural dimension is relevant to Hofstede's individualism vs. collectivism dimension, where societies that place the group's

needs first in exchange of loyalty are considered group-oriented or collective (Hofstede, 1980; Hofstede, 1983). This cultural dimension influences IT projects as a form of group efforts (Maruping et al., 2019). For example, Tan et al. (1998) found that Singapore teams (known as a high collectivism society) were able to reduce various harmful side effects due to their group-oriented approach in completing tasks during IT project management than their U.S. counterparts (known as a high individualism society). On the other hand, people are more likely to report bad news on the troubled IT projects under self-oriented cultures (Tan et al., 2003). In group-oriented societies, people tend to help each other and have better communication and alignment systems. Such active collaborations with other project members can reduce potential project risks and thus increase project performance (Maruping et al., 2019). Slaughter and Ang (1995) found that people under group-oriented cultures tend to show higher loyalty and support to their social groups. Interestingly, this tendency can also lead to corruption and favoritism mentality under certain circumstances (Husted, 1999). Hence, understanding the unique context is important to understand the impacts of this dimension on IT projects.

Trust is a feeling and level of certainty and confidence that one has about people, objects, and groups. This cultural dimension is relevant to multiple dimensions of Hofstede, including power distance (Powell et al., 2004), individualism vs. collectivism dimension (Hofstede, 1980; Hofstede, 1983), uncertainty avoidance (Schumann et al., 2007), long-term vs. short-term orientation dimensions, and indulgence vs. self-restraint (Hofstede et al., 2010). In the literature, trust has been discussed at various levels. For example, Farris (1973) argued that an individual's trust is shaped by the environment, relationships,

and situations around her/him. At an organizational level, trust within a firm has been discussed to be closely linked with its operational successes (Lorenz, 1993). Trust has also been discussed at a society level (Fukuyama, 1995; Latané et al., 1995). In particular, Fukuyama (1995) suggested that some countries are high-trust societies, e.g., Germany and USA, while other countries are low-trust societies, e.g., Taiwan and India, especially regarding their trust to the government and regulations. Through our literature review, we find that this cultural dimension can be separated into three different types when it comes to IT project management, which are *people-to-people trust*, *people-to-government trust*, and *people-to-technology trust* (e.g., Gold et al., 2001; Kotlarsky and Oshri, 2005; Latané et al., 1995; McKnight et al., 2011; Nohria, 1992; Srite, 1999).

- ***People-to-people trust*** develops through daily interactions and relationships among people in a society or a workplace. According to Powell et al. (2004), a hierarchical structure of a society (i.e., high-power distance environment) plays a big role in IT projects since limited communication diminishes trust among individuals. The lack of trust among project members or groups has been discussed as a significant source of project risks (Lee and Baby, 2013). On the other hand, a collectivism society or organization can experience higher trust within the family, social groups, and colleagues (Hofstede, 1980; Hofstede, 1983), but low level of trust among the leaders of a project and subordinates. Language, accents, cultural idiom, body language, and face-to-face interactions have also been discussed to affect communications and thus trust among the members in an organization (Latané et al., 1995; Nohria, 1992), which is also facilitated by the

long-term orientation (Hofstede et al., 2010) and high collectivism of an organization (Maruping et al., 2019).

- ***People-to-technology trust*** is about trustworthiness of a technology in serving users' needs (McKnight et al., 2011). At a society level, this type of trust is shaped by the level of technology exposure and computer literacy of a society. With less technological exposure, a society is less likely to trust technology (Benamati and Serva, 2007; Isabirye et al., 2015). The maturity of infrastructure and education systems also influences this type of trust. In a field study of foreign students from 33 countries, Srite (1999) found that people under hierarchical cultures (high power distance) tend to experience less trust in technology or information systems. This is because technology is associated with fear of losing jobs, adverse health effects, increased monitoring and increased control by others. Gold et al. (2001) argue that knowledge management and transmission is much easier in societies with high technology trust. They also found that a low level of technology literacy generates a fear of technology and its potential superiority over humans, thus promoting people to reject new technologies. From this point, this type of trust is deemed relevant to the uncertainly avoidance cultural dimension (Hofstede, 1980; Hofstede, 1983; Schumann et al., 2007).

- ***People-to-government trust*** is developed based on a relationship between a government and its public. A political atmosphere, like democracy vs. dictatorship, level of human rights, and corruption can shape the people-to-government trust. This type of trust is relevant to the power distance and indulgence vs. self-restraint cul-

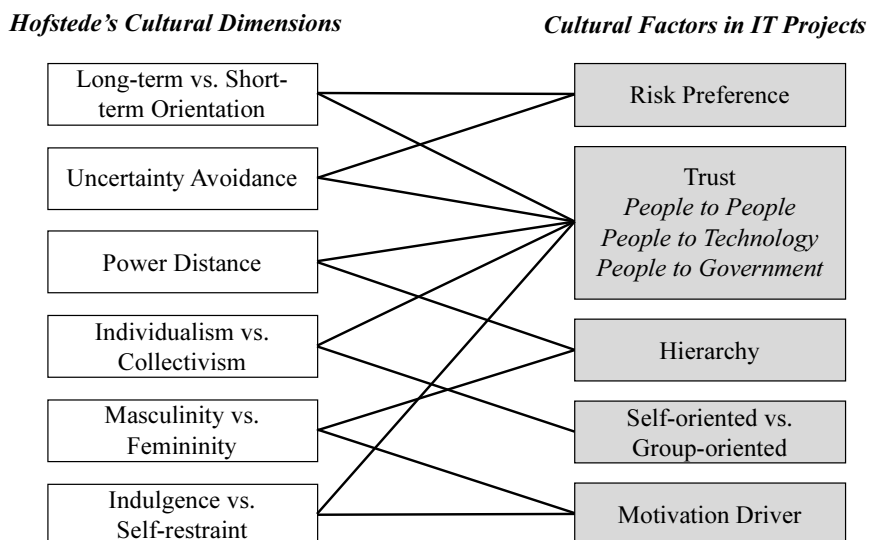
tural dimensions of Hofstede (1980), Hofstede (1983). Since many IT projects, especially in developing economies, involve the government as a key stakeholder, sponsor, and/or compliance regulator, this type of trust will be an important factor influencing project processes and outcomes (Lee and Namayanja, 2019). Particularly, a low level of people-to-government trust due to the lack of communication, transparency, and contradicting project goals with the government can generate a significant delay in project processes and eventually hinder public acceptance of project outcomes (Kotlarsky and Oshri, 2005).

Motivation driver refers to how a person is encouraged to achieve a desired goal, i.e., extrinsically or intrinsically (Berlyne, 1966). Extrinsic motivation denotes to the performance of an activity because it leads to external rewards, such as status, approval, or money. In contrast, an individual is intrinsically motivated if she/he performs for no reward except the activity and task itself (Eom et al., 2019). For

example, Kanungo (1998) found that during a computer network project, the developers with intrinsic motivations experienced more enjoyment and satisfaction upon the project completion than the extrinsically motivated developers. In a survey study of Singaporean and U.S. analysts, Couger (1986) found that Singaporean workers who were extrinsically motivated tended to show less satisfaction in their performance compared to the US analysts who were intrinsically motivated. Hence, this cultural factor is related to an individual's self-gratification and indulgence for given tasks (Hofstede et al., 2010). According to Maruping et al. (2019), moreover, an individual's masculinity cultural values may serve as her/his motivation driver by helping her/him develop positive attitude toward given tasks and organizational structure and promote their self-engagement (intrinsic motivation).

<Figure 1> shows how the above cultural factors in IT projects are linked with the general cultural dimensions proposed by Hofstede.

<Table 1> summarizes the cultural factors and



<Figure 1> Cultural Factors in IT Projects and Hofstede's Cultural Dimensions

<Table 1> Cultural Factors and Their Impacts on IT Project Management

| Factors | Impacts on IT Project Management | Literature in IT Projects |
|----------------------------------|--|--|
| Risk Preference | <p>Risk Taking:</p> <ul style="list-style-type: none"> • Open to innovation, yet lower perception of the risk • Open to experiment with new IT and fast project initiation • Taking risks and sticking with the project till its completion <p>Potential investment loss due to risky IT project management field Risk Avoiding:</p> <ul style="list-style-type: none"> • Less innovative with high perception of a risk • More cautious with their decision making about new IT • Slower initiation and acceptance of an IT project • Due to a high sunk cost and risky IT, often renouncement of IT projects | Hasan and Ditsa (1999), Maruping et al. (2019), Png et al. (2001), Thatcher et al. (2003) |
| Hierarchy | <p>Hierarchical:</p> <ul style="list-style-type: none"> • Fast decision making, due to the centralized power • Fear to challenge the leadership regarding the decisions made and project progress • Limited innovations due to organizational and structural restrictions and regulations • Slow work progress due to poor communication <p>Non-hierarchical (Flat):</p> <ul style="list-style-type: none"> • Faster project progression due to open communication between IT staff and leaders • More innovative and open to explorations • Diverse decision-making (DM) processes, which can also make DM processes slow | Hasan and Ditsa (1999), Kankanhalli et al. (2004), Lee and Baby (2013), Maruping et al. (2019), Thatcher et al. (2003), Vreede et al. (1998) |
| Self-oriented vs. Group-oriented | <p>Self-oriented:</p> <ul style="list-style-type: none"> • Focus on personal credentials and qualifications, which can lead to higher individual performance • Easy to report bad news, which can lead to a more ethical work environment • Tend to show less corruption and favoritisms mentality <p>Group-oriented:</p> <ul style="list-style-type: none"> • Focus on teamwork, collaboration, and alliance among the project parties, which can lead to a higher group performance, especially in project implementation stages • Concern about people-related conflicts, which can slow down project progress • Difficulty in reporting bad news to maintain harmony within the project team • Tend to show higher corruption and favoritism mentality, especially by the members within their circle | Maruping et al. (2019), Slaughter and Ang (1995), Tan et al. (1998) |
| People-to-People (P2P) Trust | <p>Higher P2P Trust:</p> <ul style="list-style-type: none"> • Active communication and easy flow of information within the organization, which can lead to a high performance • Active networking and collaboration among project members and stakeholders • Effective knowledge sharing • Over communications, e.g., long meetings and emails, which can slow down project <p>Lower P2P Trust:</p> <ul style="list-style-type: none"> • Lack of communications among project members and stakeholders, which can lead to a lower performance at both individual and group levels • Knowledge management issues due to no knowledge exchange system and process, which can lead to a low productivity | Lee and Baby (2013), Maruping et al. (2019), Powell et al. (2004) |
| People-to-Technology (P2T) Trust | <p>High P2T Trust:</p> <ul style="list-style-type: none"> • Open to new technologies, leading to more innovations • Fast adoption of IT projects initially • Lower costs for technology training for local members and stakeholders • Fast project initiation due to easier funding from the stakeholders <p>Low P2T Trust:</p> <ul style="list-style-type: none"> • Fear of new technologies and IT projects, resulting in less innovations • Slow project acceptance, due to funding delays from the stakeholders | Benamati and Serva (2007), Gold et al. (2001), Isabiryte et al. (2015), McKnight et al. (2011), Srite (1999) |

<Table 1> Cultural Factors and Their Impacts on IT Project Management (Cont.)

| Factors | Impacts on IT Project Management | Literature in IT Projects |
|----------------------------------|---|---|
| People-to-Government (P2G) Trust | <p>High P2G Trust:</p> <ul style="list-style-type: none"> • Fast adoption of IT projects initiated by the government • Effective information and knowledge sharing between project team and government and between public and government • Fast project initiation due to more effective and transparent funding from government, leading to more innovations <p>Low P2G Trust:</p> <ul style="list-style-type: none"> • Slow adoption of IT projects initiated by the government • Slow project initiation due to funding delays from the government (frequently by corruptions), leading to less innovations | Kotlarsky and Oshri (2005), Lee and Namayanja (2019) |
| Motivation Driver | <p>Intrinsic-oriented:</p> <ul style="list-style-type: none"> • Self-disciplined, thus requiring less micromanagement by upper managers • More stable with high predictability and consistency • Inducing good citizenship behaviors <p>Extrinsic-oriented:</p> <ul style="list-style-type: none"> • Reward-driven, which needs constant reinforcements • Effective in short-term • Less stable by relying more on luck and fortune | Couger (1986), Kanungo (1998), Maruping et al. (2019) |

their potential impacts on IT projects. As described in <Table 1>, these cultural factors shape how project groups and stakeholders manage and/or accept IT projects.

All in all, we believe these cultural factors play important roles in IT projects. However, their impacts are context specific due to the unique and complex settings of IT projects in developing economies, involving the unique characteristics of developing economies and IT projects operating in highly diverse cultures in globalized settings (e.g., Lee and Baby, 2013; Lee and Namayanja, 2019).

III. A Theoretical Development: The Role of Cultural Factors in IT Projects in Developing Economies

Drawing upon the above literature review, we propose a theoretical perspective on the cultural influence on IT projects in developing economies. In this section, particularly, we develop propositions regarding

the impacts of the cultural factors on IT projects in the context of developing economies.

3.1. The Roles of Risk Preference in Developing Economies

Png et al. (2001) stated that societies that are 'less comfortable' with risk taking are less likely to approve or accept technology-related projects in the initial stages. Moreover, even if the project gets accepted, the project might experience a slower rate of adoption (Galliers et al., 1998). It is known that IT projects in developing economies are more unpredictable and carry many unforeseen risks (Lee and Namayanja, 2019). In such unpredictable and high-risk project environments of developing economies, the risk avoiding culture will lead to more counterproductive outcomes for IT projects. For instance, Thatcher et al. (2003) found that students from developing countries with a low tolerance to uncertainty, i.e., risk avoiding, did not want to experiment or work with unknown technology systems. This also correlates

with the fact that many uncertainly avoidance countries are less likely to adopt IT projects when faced with a lack of skilled IT staff and technical knowledge (Hasan and Ditsa, 1999). On the other hand, willingness to take risks in IT projects can generate productive outcomes and thus economic growth for a society. According to Keil et al. (2000), high-risk taking cultures are open to experiment with unknown IT projects and are more likely to continue with troubled and uncertain projects. When considering the high uncertainty and lack of experience in technologies and projects under the context of developing economies, a risk-taking culture of a society would help its initiation and completion of IT projects. Based on these arguments, we propose:

Proposition 1: Under the context of developing economies, IT projects with a risk-taking culture are more likely to achieve successful outcomes due to their high tolerance for uncertainties characterized by IT projects in developing economies.

3.2. The Roles of Hierarchy in Developing Economies

An open communication style of a non-hierarchical culture can stimulate higher work productivity due to better cooperation among project members, managers, and sponsors through diversified decision-making processes (Hasan and Ditsa, 1999). However, a downside of a non-hierarchical culture is a slow decision-making process, where the diversified group decisions can slow down the project process and thus cause a delay (Chung and Adams, 1997). In contrast, a hierarchical culture can lead to a better project acceptance and more effective project progress since project members and even end-users are less likely to question or challenge

the decisions or directions made by their superiors (Vreede et al., 1998). With this culture, decision-making and implementation processes can be speed up by a centralized management structure for IT projects (e.g., Calhoun et al., 2002; Walsham, 2002). This positive role of the hierarchical culture on IT projects in developing economies would be more significant due to the various stakeholder groups involved in the projects and their varied goals and interests (Lee and Namayanja, 2019). In such a complex project environment, simple decision-making processes and focused communication channels would be more useful to achieve better project progress and outcomes (Lee and Baby, 2013). We thus propose:

Proposition 2: Under the context of developing economies, IT projects with a hierarchical culture are more likely to achieve successful outcomes due to their faster decision-making procedure and stricter monitorization of a management process.

3.3. The Roles of Self- vs. Group-Orientation in Developing Economies

A society with a self-oriented culture focuses on personal credentials and qualifications. This cultural background can lead to a higher performance at the individual level. However, this self-oriented culture can impede team collaboration, thus lowering the work performance at the group level (Matheson and Tarjan, 1998). In contrast, a project group with a group-oriented culture puts stress on sharing a common goal among group members, which is essential for the success of IT projects in developing economies when considering their diverse stakeholders, e.g., local and foreign project groups, local users, government, and NGOs (Lee and Baby, 2013). In addition, the group-oriented culture leads to better collabo-

ration within the group, and thus their project implementation can be conducted faster (Matheson and Tarjan, 1998). These better collaboration practices and project environment among diverse stakeholders would be also vital to IT projects in developing economies. According to Steensma et al. (2000), a group-oriented culture helps a company form a technological alliance with other tech companies. This alliance or collaboration practices across project boundaries would benefit IT projects in developing economies when considering the limited technology resources and knowledge in developing economies. Based on these arguments, we propose:

Proposition 3: Under the context of developing economies, IT projects with a group-oriented culture are more likely to achieve successful outcomes due to shared project goals and better collaboration among their various stakeholders.

3.4. The Roles of Trust in Developing Economies

Trust is productive throughout all stages of IT projects especially in developing economies. In the prior section, we conceptualize three types of trust, i.e., people-to-people trust, people-to-technology trust, and people-to-government trust, for IT projects in developing economies. First, a high level of trust between people improves their communication and collaboration (Chau et al., 2002; Latané et al., 1995; Nohria, 1992; Powell et al., 2004; Ruppel and Harrington, 2001). According to Lee et al. (2015), the people-to-people trust is an essential factor for knowledge sharing among project members. The people-to-people trust will be more vital for IT projects in developing economies due to the broader stakeholder groups in IT projects in developing economies, which may

have different goals and backgrounds. Second, people-to-technology trust lowers fear for technologies in a society and thus promotes the acceptance of IT projects (Bell and Kozlowski, 2002; Powell et al., 2004; Sakthivel, 2005; Srite, 1999). This trust will be critical for the success of IT projects in developing economies since the stakeholders, including the end users and government, who are usually inexperienced in technologies and IT projects (Lee and Namayanja, 2019). Finally, in developing economies, government can have a significant influence on IT projects through diverse ways, e.g., by initiating or approving public IT projects and setting up policies or regulations that can be either favorable or adverse to IT projects (Lee and Namayanja, 2019). Thus, people-to-government trust is critical for the success of IT projects. For instance, a high level of people-to-government trust helps during the project acceptance stage, with a quicker initial investment supply and active shareholder financial involvement (Kotlarsky and Oshri, 2005; Srite, 1999). All in all, it will be important to achieve a high level of these dimensions of trust for successful implementation of IT projects especially in developing economies. We thus propose:

Proposition 4: Under the context of developing economies, IT projects with a high trust culture for the three trust dimensions, i.e., people-to-people, people-to-technology, and people-to-government, are more likely to achieve successful outcomes due to the broader stakeholder groups with different backgrounds and interests and their technology inexperience.

3.5. The Roles of Motivation Drivers in Developing Economies

Both intrinsic- and extrinsic-oriented motivational culture can be useful for successful IT project

management. The project groups focusing on extrinsic-oriented motivations need value incentives, e.g., monetary reward and promotion, to motivate project members and stakeholders, which is known to have a more short-term effect (Couger, 1986). In contrast, the project groups with an intrinsic-oriented motivational culture focus more on personal growth and self-discipline of project members and stakeholders, which are known to be more stable with high predictability and consistency, which has a more long-term effect (Kanungo, 1998). When considering the limited resources, e.g., lack of funding, and high unpredictability of IT projects in developing economies, intrinsic-oriented motivational cultures appear to be more useful for IT projects, mainly due to the dedicated, consistent, stable, and self-motivated project members (Couger, 1986). The intrinsic-oriented drivers push project members to continue to perform for their own sake regardless of the external environments (Kanungo, 1998). Intrinsically motivated project members can also promote a productive work environment by creating a shared social value among co-workers (Dubé, 1998). Such a shared project value will be vital for the success of IT projects in developing economies that have broader stakeholder groups. This is reflected in Maslow's hierarchy of needs which states that people are motivated by five categories of needs: physiological, safety, love, esteem and self-actualization. In this theory, the final stage of self-actualization is feeling fulfilled or living up to one's potential which showcases intrinsic motivation. On the other hand, esteem describes feeling that one's achievements and contributions have been recognized by others, and thus capturing extrinsic motivation. Extrinsically motivated groups need value incentives and a micro-managing approach. It can be argued that an extrinsically motivated culture could achieve a high

performance with a proper external incentive. We thus propose,

Proposition 5: Under the context of developing economies, IT projects with an extrinsic-oriented culture as the key motivation driver are more likely to achieve successful outcomes due to the overall financial limitations and due to a more short-term oriented project nature.

IV. Research Validation

4.1. Research Methods

In this study, we investigate two developing economies, Uzbekistan and Kazakhstan, both located in Central Asia. According to IMF (2018), the characteristics of these countries match those of developing economies discussed in this study (also see World Bank, 2014). Since both countries have their backgrounds as former members of the Soviet Union gaining independence in 1991, they share certain common characteristics, such as similar political party systems, legal structures, and economic stature. Moreover, they have a similar cultural heritage especially due to their geographic location while they have shown slightly different paths in economic transition (Alam and Banergi, 2000). Hence, an investigation of these two economies is believed well-fitting to the purpose of this study.

Our approach to validate the propositions developed in this study is twofold. First, we used multiple IT project cases that were conducted in the two countries, i.e., four UNDP-sponsored ICT and e-Government projects. While various projects have been held by UNDP in these two developing countries, the four projects were selected because of their

<Table 2> Demographics of the Projects

| Projects | Attributes | Descriptions |
|--|------------|---|
| Project 1. Local Governance Support Program: Phase 1 and Phase 2 (LGSP I-II) | Country | Uzbekistan |
| | Period | 2010-2015 |
| | Type | ICT |
| | Goals | To promote a more effective, accountable, and inclusive local governance of Uzbekistan by improving the public online communication platforms and to solve issues of power centralization and overall awareness of ICT in all regions. The ICT development project would contribute to reforming the existing policy and fiscal framework for active citizen participation. Pilot areas included Djizak, Namangan, and Tashkent. |
| | Budget | 1 million USD (0.5 million from Uzbekistan and 0.5 million from UNDP) |
| | Partners | Key Partners: Cabinet ministry of Uzbekistan and UNDP Others: local regional officials, ministries (economy, finance, justice, academy, social protection) and private sector groups, i.e., UzTelecom, Uzbekturism, Uzinfocom |
| Project 2. e-Government Promotion for Improved Public Service Delivery | Country | Uzbekistan |
| | Period | 2010-2015 |
| | Type | e-Government |
| | Goals | To improve and enhance the governance of Uzbekistan by applying effective business process reengineering (BPR) mechanisms, foster e-government interoperability, and create an online public platform for a responsive people-oriented public services delivery. This would stimulate citizen's political participation and ease the online document services operations. |
| | Budget | 0.35 million USD |
| | Partners | Key Partners: Cabinet ministry of Uzbekistan and UNDP Others: local regional officials, Uzbek e-government center, and the private sector groups, including UzTelecom, Uzbekturism, Uzinfocom, TUIT, IT Association, Center BePro, mass media |
| Project 3. Processes of Public Administration Performance Assessment and Service Delivery are streamlined in view of best international practices and leading ICT technologies | Country | Kazakhstan |
| | Period | 2013 |
| | Type | e-Government |
| | Goals | To assist the Ministry of Economy and Administration of the President of Kazakhstan to improve a public administration system through merging the sectors of public service delivery and public administration assessment. This project aims to develop an information system for public services provided by government agencies at the central and local levels with a unified information system in a test mode. The main project outputs were the creation of awareness and usage of ICT for public services and the development of a concept for a computerized management system for delivery and monitoring. |
| | Budget | 59,706 USD |
| | Partners | Key Partners: UNDP, Ministry of Economy, and the Japanese partners |
| Project 4. Assistance in Improving the System of Provision and Evaluation of Public Services: ICT Development in Kazakhstan | Country | Kazakhstan |
| | Period | 2014 |
| | Type | e-Government |
| | Goals | To assess the methodology of public services of the country, increase transparency between government and public, create an online platform to discuss issues of the public admiration, create a one-stop system for the public service delivery, and introduce the system of a comprehensive quality audit system. Note: This project served as a continuation to the UNDP Project 3 in Kazakhstan. However, the scope and size of this project were much larger. |
| | Budget | 0.75 million USD (680,000 from Kazakhstan and 70,000 from UNDP) |
| | Partners | Key Partners: UNDP, Ministry of Economy, and the Japanese partners |

context as it relates to IT projects (IMF, 2018). A summary of the project demographics is provided in <Table 2>.

Second, we examined the project reports developed by UNDP for the focal projects. These reports provide enough details about the projects, their motivation, systematic management process tactics, risk log factors, evaluation of previous projects, prevention framework, and contracts among the involved stakeholders at the beginning and end of each project. Hence, the UNDP reports are believed to provide interesting and useful insights about both the cultural events that happened during the projects and their impacts on the project management process and performance. Based on our analysis of the reports, we extracted cultural incidents and reflected them on the cultural factors and propositions proposed through this study.

4.2. Results and Findings

Our review of the UNDP reports provided useful insights regarding the various cultural characteristics and practices in IT projects particularly in the two

developing countries and their impacts on IT project management, either positive or negative. <Table 3> summarizes our findings from the UNDP reports.

The above results provide a justification of the cultural factors examined and the propositions developed in this study, thus supporting our key argument, i.e., the context specific impacts of the cultural factors on IT project in developing economies. The detailed roles of each cultural factor as it applies to each project case are as follows:

Project 1: Local Governance Support Program: Phase 1 and Phase 2 (LGSP I-II): ICT Development of Uzbekistan, 2010-2015

- **Risk-taking:** While the project demanded a large sum of initial funding, there was a high uncertainty about the future loss in investments. However, the local government and the private stakeholders risked their finances to front the project (UNDP LGSP I-II, 2014, p. 39), which supports our Proposition 1.
- **Group-oriented:** The report identifies the importance of a local collaboration and collectivist approach to conduct the project, suggesting that

<Table 3> Summary of the Findings from the UNDP Reports

| Cultural Factors | Relevant Propositions | Context-Specific Influences in Developing Economies | Supporting Projects |
|-----------------------------------|-----------------------|--|--|
| Risk Taking vs. Avoiding | Proposition 1 | More positive defined by risk-taking culture (<i>more negative defined by risk-avoiding culture</i>) | Project 1, Project 2, Project 4 |
| Hierarchical vs. Non-Hierarchical | Proposition 2 | More positive defined by hierarchical culture | Project 2, Project 3, Project 4 |
| Self- vs. Group-oriented | Proposition 3 | More positive defined by group-oriented culture | Project 1, Project 2, Project 3, Project 4 |
| People-to-People Trust | Proposition 4 | More positive defined by high trust in people | Project 1 |
| People-to-Technology Trust | Proposition 4 | More positive defined by high trust in technology | Project 1, Project 2, Project 4 |
| People-to-Government Trust | Proposition 4 | More positive defined by high trust in government | Project 3 |
| Intrinsic- vs. Extrinsic-oriented | Proposition 5 | More positive defined by extrinsic-oriented motivational culture | Project1, Project 2 |

the cabinet ministry must collaborate and communicate with the UNDP country office for project progress and knowledge exchange (UNDP LGSP I-II, 2014, p. 26), which supports our Proposition 3.

- **Trust in people and technology:** The report suggested that financial monitoring is critical because the program official has low trust in local financial managers, indicating that low trust can create tension between stakeholders and financial advisors (UNDP LGSP I-II, 2014, p. 31). In addition, the report suggests that the poor technological infrastructure and low information technology exposure might be an obstacle to gain initial acceptance by the locals and the government (UNDP LGSP I-II, 2014, p. 30). These concerns support our Proposition 4.
- **Extrinsic motivation-oriented:** The report indicates that IT projects in this society lean towards monetary incentives. For example, the government workers might not cooperate with other external project members or stakeholders, since they were on a flat rate income plan (UNDP LGSP I-II, 2014, p. 30). This finding indicates that the low extrinsic motivation in project members becomes a critical threat to the projects under the context of developing economies, which supports our Proposition 5.

Project 2: E-Government Promotion for Improved Public Service Delivery in Uzbekistan, 2010-2015

- **Risk-taking:** The risk log proposes that the project might face a delay and inefficient initial funding, if the government parties are not willing to risk their investments. A low government commitment and low risk-taking culture of the investors might create significant financial stress on the project (UNDP Uzbekistan, 2014, p. 25),

which supports our Proposition 1.

- **Hierarchical:** The report suggests that a hierarchical reporting system needs to be implemented in order to ensure successful project outcomes and business continuation, where all subordinates must report the progress to their managers and then the management group must report to the government of the country. This would help monitor and evaluate each of the project steps (UNDP Uzbekistan, 2014, p. 13), which supports our Proposition 2.
- **Group-oriented:** Since the implementation of e-Government programs is risky and expensive, the report suggests that a collectivistic approach needs to be placed. Thus, the tight collaborations with the local government, private partners, UN officials, and local IT specialists was discussed to be crucial for an effective project application (UNDP Uzbekistan, 2014, p. 14), which supports our Proposition 3.
- **Trust in technology:** The society shows a low level of technology literacy and a lack of technological infrastructure. Regarding this, the report suggests that a success of this E-Government project depends on strong people-to-technology trust and ICT awareness (UNDP Uzbekistan, 2014, p. 8), which supports our Proposition 4.
- **Extrinsic motivation-oriented:** According to the report, the UNDP projects tend to experience a high turnover rate mainly due to low wages of project members, and this high turnover is considered as a critical risk factor of the project (UNDP Uzbekistan, 2014, p. 8). This suggests that the project members need to get better extrinsic incentives to solve the current high turnover problem threatening the project, which supports our Proposition 5.

Project 3: Processes of Public Administration Performance Assessment and Service Delivery are streamlined in view of the best international practices and leading ICT technologies- Kazakhstan, 2013

- **Hierarchical:** The report emphasizes the importance of a hierarchical system in project monitoring and evaluation. Junior project members subrogate reports quarterly and monthly to the leading manager of the UNDP branch and UNDP provides reports to the rest of the stakeholders. A hierarchical and consistent reporting system would provide accountability and a risk prevention framework (UNDP Kazakhstan, 2013, p. 12), which supports our Proposition 2.
- **Group-oriented:** The risk logs of the project report indicate that the group-orientation of the culture is substantial since the project can easily face risk of conflicts between the donor organization, the private and public sectors. A contradiction in project goals, lack of communication, and low commitment to the project can lead to poor project outcomes or even failure (UNDP Kazakhstan, 2013, p. 9), which supports our Proposition 3.
- **Trust in government:** According to the project report, the project might face a failure or discontinuation due to a low people-to-government trust and political instability. This indicates that the people-to-government trust dimension is significant to keep the project progressing (UNDP Kazakhstan, 2013, p. 8), which supports our Proposition 4.

Project 4: Assistance in Improving the System of Provision and Evaluation of Public Services: ICT Development in Kazakhstan, 2014

- **Risk taking:** The government of Kazakhstan and the President Administration took a risk to invest USD 680,000, which was the biggest investment contribution to the UNDP projects in Kazakhstan, and also risked losing the sunk cost of the infrastructure. This risk-taking culture in the project helps achieve an acceptance of the project in its initial stages (UNDP Kazakhstan, 2014, p. 1-2), which supports our Proposition 1.
- **Hierarchical:** Due to the hierarchical culture of Kazakhstan, the government could significantly encourage citizens to actively participate during the project evaluation and implementation stages. The centralization of power, governmental motivation, and influence on the citizens were important to foster acceptance of the project (UNDP Kazakhstan, 2014, p. 4-11), which supports our Proposition 2.
- **Group-oriented:** The collectivistic approach and active communication were encouraged throughout the project management process. Weekly, monthly, quarterly, and annual group-oriented meetings between the project manager and main stakeholders were requested. In particular, group collaboration was essential during the initiation and implementation stages due to the complexity and high sensitivity of the project (UNDP Kazakhstan, 2014, p. 4-8), which supports our Proposition 3.
- **Trust in technology:** The project report encourages more ICT awareness among the citizens to promote their trust in technologies. According to the report, this people-to-technology trust played a vital role during the later stages of the system implementation (UNDP Kazakhstan, 2014, p. 3-5), which supports our Proposition 4.

V. Conclusion

It is important to understand the causes and influences of an IT project's success or failure, especially in developing economies. In this study, we propose a theoretical perspective on the significant cultural factors in IT project management and their specific influences in the developing economy context. Through a comprehensive literature review, in particular, we examine risk preference, hierarchy, group-/self-orientation, three types of trust (people-to-people, people-to-technology, and people-to-government), and motivation driver as the significant cultural factors for IT projects. In this study, we argue that these cultural factors have context-specific roles in IT projects, especially in the developing economy settings. Considering the unique characteristics of developing economies such as broader stakeholder groups, technology and project inexperience, infrastructural immaturity, and local uniqueness (Lee and Namayanja, 2019), we developed multiple propositions of the impacts of the cultural factors on IT projects in the developing economy context. In validating the propositions, four UNDP project cases for the ICT and e-Government projects in Uzbekistan and Kazakhstan were analyzed using their UNDP reports. The findings from the reports further confirmed our five propositions of cultural factors and their influences on IT projects in these countries.

This study provides a useful theoretical perspective on IT project evaluation and management, especially for understanding the unique challenges and risks that IT projects in developing economies can face from the cultural aspects. From an academic perspective, the contributions of this study are twofold. First, the proposed perspective on the cultural factors in IT projects can be used as a cultural risk assessment tool for IT project management. Many studies in

the literature have pointed out that individual's or group's cultural value is one of the important consideration in project evaluation and management (e.g., Kankanhalli et al., 2004; Tan et al., 1998; Tan et al., 2003). However, a comprehensive perspective has seldom been proposed to investigate their significant role in IT project management or in IT project success or failure. Although some recent studies have discussed the various cultural aspects in IT projects, the extant perspectives are based on the general cultural dimensions (e.g., Maruping et al., 2019), not on the specific settings of IT projects, such as dynamic relationships among various stakeholders, complex interactions among people, technology, process, and environment, and global and virtual work settings (Lee and Baby, 2013; Lee and Namayanja, 2019). Therefore, the cultural factors conceptualized in this study provide more IT project-specific perspective on the cultural aspects.

Second, this study further considers the development level of the project location as a specific context that leads to context-specific impacts of those cultural factors on IT projects. Although the cultural factors play important roles in causing or restraining certain risks in IT projects and thus determining their success or failure, the roles of cultural factors may change in different contexts or environment, known as a cultural contingency perspective (Maruping et al., 2019). Consistent with this perspective, this study proposes the context-specific roles of the cultural factors especially for the developing economy context having unique characteristics distinctive from those of developed environments. Thus, this study extends the relevant literature on the cultural aspects of IT project management in general and specific in developing economies.

This study also benefits IT project professionals with practical implications. This study guides IT proj-

ect managers or management teams about which cultural factors they should focus when their projects are operating in a culturally diversified setting. This understanding will be an important source when they develop an initial project plan especially for project stakeholder, communication, and human resource management where the cultural factors may play more significant roles. In addition, these cultural influences should be carefully considered in project risk management activities, e.g., potential risk assessment, conflict management, and risk responses. In addition, the findings from the UNDP reports also provide practitioners, involved in IT projects in developing economies, with important insights in understanding the contextual impacts of the cultural factors on project dynamics. According to our findings, the roles of the cultural factors are not uniformed across different project environments. Hence, project managers should carefully assess the specific contexts of their project, e.g., the project organizational structure, the degree of cultural diversity, and the role and responsibility of each stakeholder (e.g., western-base project manager vs. local developer of a developing country) within their project group. A lack of understanding of these unique cultural characteristics and requirements cause serious project risks especially for the IT projects in developing economies (Lee and Namayanja, 2019; Maruping et al., 2019).

The study proposes appropriate recommendations to address the culturally-related IT project challenges in developing economies. However, we also discovered certain limitations that could impact the

effectiveness of these strategies. First, as an initial study for the cultural effects in developing economies, some counter perspectives can also be proposed. For example, one can argue that unwillingness to take risky IT projects can help a society avoid a loss in investment. When considering the limited financial resources and high risks in various areas, such risk-avoiding practices can be argued to be required. In addition, a society with a group-oriented culture has been described as more vulnerable to corruption since the members in that society tend to hide negative news to avoid group conflict or to cover for each other, while people in a self-oriented culture feel more comfortable to report bad news promptly. In our future study, such potential counter perspectives should be carefully reviewed and reflected on our theoretical development. Second, this study also has a limitation in its validation using the four UNDP reports in only two developing countries. The findings from the UNDP reports for the two countries may not provide a substantial generalizability of the findings. Therefore, more project cases from additional developing countries would help improve the generalizability of the findings and validity of the given propositions. Third, in this study, the propositions were subjectively reflected on the UNDP reports. More systematic approaches, e.g., text mining using secondary data sources and structural equation modeling using directly measured data, will provide more objective findings. Our future study will include such systematic methods in validating the proposed framework.

<References>

- [1] Abbasi, G. Y., and Al-Mharmah, H. (2000). Project management practice by the public sector in a developing country. *International Journal of Project Management*, 18(2), 105-109.
- [2] Alam, A., and A. Banerji (2000). Uzbekistan and Kazakhstan: A tale of two transition Paths. *Policy Research Working Paper*, No. 2472. Washington, DC: World Bank.

- [3] Amid, A., Moalagh, M., and Ravasan, A.Z. (2012). Identification and classification of ERP critical failure factors in Iranian industries. *Information Systems*, 37(3), 227-237.
- [4] Avots, I. (1972). Projects in developing countries. *Business Horizons*, 15(4), 69-73.
- [5] Aycan, Z. (2004). Leadership and teamwork in the developing country context. In H. Lane, M. Maznevski, M. Mendenhall, and J. McNett (Eds.), *The Blackwell Handbook of Global Management: A Guide to Managing Complexity*, London: Blackwell, 406-423.
- [6] Aycan, Z., Kanungo, R., Mendonca, M., Yu, K., Deller, J., Stahl, G., and Kurshid, A. (2000). Impact of culture on human resource management practices: A 10 country comparison. *Applied Psychology*, 49(1), 192-221.
- [7] Bell, B. S., and Kozlowski, S. W. (2002). A typology of virtual teams: Implications for effective leadership. *Group & Organization Management*, 27(1), 14-49.
- [8] Benamati J., and Serva, M. A. (2007). Trust and distrust in online banking: Their role in developing countries. *Information Technology for Development*, 13(2), 161-175.
- [9] Berlyne, D. E. (1966). Curiosity and exploration. *Science*, 153(3731), 25-33.
- [10] Bond, M. H., and Hofstede, G. (1989). The cash value of Confucian values. *Human Systems Management*, 8(3), 195-199.
- [11] Calhoun, K. J., Teng, J. T., and Cheon, M. J. (2002). Impact of national culture on information technology usage behaviour: An exploratory study of decision making in Korea and the USA. *Behaviour & Information Technology*, 21(4), 293-302.
- [12] Chau, P., Cole, M., Massey, A., Montoya-Weiss, M., and O'keefe, R. M. (2002). Cultural differences in consumer's online behaviors. *Communications of the ACM*, 45(10), 138-143.
- [13] Cho, J., and Noh, G.-Y. (2017). Roles of health-oriented personal factors in influencing Koreans' perceptions about telemedicine: Exploration of regional differences. *Asia Pacific Journal of Information Systems*, 28(3), 176-190.
- [14] Chung, I. K., and Adams, C. R. (1997). A study on the characteristics of group decision making behavior: Cultural difference perspective of Korea vs. US. *Journal of Global Information Management*, 5(3), 18-30.
- [15] Cooke, R. A., and Lafferty, J. C. (1987). *Organizational culture inventory*. Plymouth, MI: Human Synergistics.
- [16] Couger, J. D. (1986). Effect of cultural differences on motivation of analysts and programmers: Singapore vs. the United States. *MIS Quarterly*, 10(2), 189-196.
- [17] Dada, D. (2006). The failure of e government in developing countries: A literature review. *The Electronic Journal of Information Systems in Developing Countries*, 26(1), 1-10.
- [18] Dubé, L. (1998). Teams in packaged software development: The Software Corp. experience. *Information Technology & People*, 11(1), 36-61.
- [19] Earley, P. C. (1993). East meets West meets Mideast: Further explorations of collectivistic and individualistic work groups. *Academy of Management Journal*, 36(2), 319-348.
- [20] Eom, M., Gudigantala, N., and Kim, Y. J. (2019). Investigating the process of developing and retaining competent IT personnel: The role of IT leadership. *Asia Pacific Journal of Information Systems*, 29(1), 83-116.
- [21] Farris, G. F., Senner, E. E., and Butterfield, D. A. (1973). Trust, culture, and organizational behavior. *Industrial Relations: A Journal of Economy and Society*, 12(2), 144-157.
- [22] Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. New York, NY: Free Press.
- [23] Galliers, R. D., Madon, S., and Rashid, R. (1998). Information systems and culture: Applying 'stages of growth' concepts to development administration. *Information Technology for Development*, 8(2), 89-100.
- [24] Garfield, M. J., and Watson, R. T. (1997). Differences in national information infrastructures: The

- reflection of national cultures. *The Journal of Strategic Information Systems*, 6(4), 313-337.
- [25] Gold, A. H., Malhotra, A., and Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185-214.
- [26] Hall, E. T. (1983). *The dance of life: the other dimension of time*. New York, NY: Anchor Press.
- [27] Hall, E. T., and Hall, M. R. (1989). *Understanding cultural differences*. Yarmouth, ME: Intercultural Press.
- [28] Hasan, H., and Ditsa, G. (1999). The impact of culture on the adoption of IT: An interpretive study. *Journal of Global Information Management*, 7(1), 5-15.
- [29] Heeks, R. (2002). Failure, success and improvisation of information system projects in developing countries. *Development Informatics Working Paper Series*, No.11/2002. Manchester, UK: Institute for Development Policy and Management.
- [30] Heeks, R. (2006). Health information Systems: Failure, success and improvisation. *International Journal of Informatics*, 75(2), 125-137.
- [31] Hofstede, G. (1980). *Cultures consequences: International differences in work-related values*. Newbury Park, CA: Sage Press.
- [32] Hofstede, G. (1983). Dimensions of national cultures in fifty countries and three regions. In J.B. Derogowski, S. Dziurawiec and R.C. Annis (Eds.), *Explications in Cross-Cultural Psychology*. Lisse Neth: Swets and Zeitlinger, 335-355.
- [33] Hofstede, G., and Bond, M. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, 16(4), 5-21.
- [34] Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and organizations: Software of the mind*. New York, NY: McGraw-Hill.
- [35] Husted, B. W. (1999). Wealth, culture, and corruption. *Journal of International Business Studies*, 30(2), 339-359.
- [36] IMF (2018). *World Economic Outlook, Database—WEO Groups and Aggregates Information*. Retrieved from <https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/groups.htm>. Accessed at 24 Apr. 2019.
- [37] Isabirye, N., Flowerday, S., Nanavati, A., and von Solms, R. (2015). Building technology trust in a rural agricultural e-marketplace: A user requirement's perspective. *The Electronic Journal of Information Systems in Developing Countries*, 70(4), 1-20.
- [38] Kankanhalli, A., Tan, B. C. Y., Wei, K. K., and Holmes, M. C. (2004). Cross-cultural differences and information systems developer values. *Decision Support Systems*, 38(2), 183-195.
- [39] Kanungo, S. (1998). An empirical study of organizational culture and network-based computer use. *Computers in Human Behavior*, 14(1), 79-91.
- [40] Kapurubandara, M., and Lawson, R. (2006). Barriers to adopting ICT and e-commerce with SMEs in developing countries: An exploratory study in Sri Lanka. In *COLLECTeR '06*, 9 December, Adelaide, Australia.
- [41] Karahanna, E., Evaristo, R., and Srite, M. (2005). Levels of Culture and Individual Behavior: An Integrative Perspective. *Journal of Global Information Management*, 13(2), 1-19.
- [42] Keesing, R. M. (1974). Theories of culture. *Annual Review of Anthropology*, 3(1), 73-97.
- [43] Keil, M., Tan, B. C. Y., Wei, K. K., Saarinen, T., Tuunainen, V., and Wassenaar, A. (2000). A cross-cultural study on escalation of commitment behavior in software projects. *MIS Quarterly*, 24(2), 299-325.
- [44] Khatib, H., Lee, H., Suh, C., and Weerakkody V. (2019). E-government systems success and user acceptance in developing countries: The role of perceived support quality. *Asia Pacific Journal of Information Systems*, 29(1), 1-34.
- [45] Kim, J., Rhee, C., and Moon, J. (2017). Gaining insight into IT investment in the agriculture industry: Comparison of IT portfolios by type of crops. *Asia Pacific Journal of Information Systems*, 28(4), 233-244.
- [46] Kotlarsky, J., and Oshri, I. (2005). Social ties,

- knowledge sharing and successful collaboration in globally distributed system development projects. *European Journal of Information Systems*, 14(1), 37-48.
- [47] Latané, B., Liu, J. H., Nowak, A., Bonevento, M., and Zheng, L. (1995). Distance matters: Physical space and social impact. *Personality and Social Psychology Bulletin*, 21(8), 795-805.
- [48] Ledford, J. L. (2002). Establishing best practices for e-government within the U.S. Faulkner Information Services (February), DocId: 00018275.
- [49] Lee, O. K. D., and Baby, D. V. (2013). Managing dynamic risks in global IT projects: Agile risk-management using the principles of service-oriented architecture. *International Journal of Information Technology & Decision Making*, 12(6), 1121-1150.
- [50] Lee, O. K. D., and Namayanja, J. M. (2019). IT project risks in developing economies: For the contexts of Cambodia and Uganda. *Pacific Asia Conference on Information Systems (PACIS) Proceedings*.
- [51] Leidner, D. E., and Kayworth, T. (2006). A review of culture in information systems research: Toward a theory of information technology culture conflict. *MIS Quarterly*, 30(2), 357-399.
- [52] Leidner, D. E., Carlsson, S., Elam, J., and Corrales, M. (1999). Mexican and Swedish managers' perceptions of the impact of EIS on organizational intelligence, decision making, and structure. *Decision Sciences*, 30(3), 632-658.
- [53] Lorenz, E. (1993). Flexible production systems and the social construction of trust. *Politics & Society*, 21(3), 307-324.
- [54] Lyu, F., Lim, H.-A., and Choi, J. (2019). Customer acceptance of self-service technologies in retail: A case of convenience stores in China. *Asia Pacific Journal of Information Systems*, 29(3), 428-447.
- [55] Maruping, L. M., Venkatesh, V., Thong, J. Y. L., and Zhang, X. (2019). A risk mitigation framework for information technology projects: A cultural contingency perspective. *Journal of Management Information Systems*, 36(1), 120-157.
- [56] Matheson, L. R., and Tarjan, R. E. (1998). Culturally induced information impactedness: A prescription for failure in software ventures. *Journal of Management Information Systems*, 15(2), 23-39.
- [57] Maumbe, B. M., Owei, V., and Alexander, A. (2008). Questioning the pace and pathway of the government development in Africa: A case study of South Africa's Cape Gateway project. *Government Information Quarterly*, 25(4), 757-777.
- [58] McKnight, D. H., Carter, M., Thatcher, J. B. and Clay, P. F. (2011). Trust in a specific technology: An investigation of its components. *ACM Transactions on Management Information Systems*, 2(2), 12-32.
- [59] Minkov, M., and Hofstede, G. (2012). Hofstede's fifth dimension: new evidence from the world values survey. *Journal of Cross-Cultural Psychology*, 43(1), 3-14.
- [60] Moertini, V. S. (2012). Managing risks at the project initiation stage of large is development for HEI: A case study in Indonesia. *The Electronic Journal of Information Systems in Developing Countries*, 51(1), 1-23.
- [61] Muriithi, N., and Crawford, L. (2003). Approaches to project management in Africa: implications for international development projects. *International Journal of Project Management*, 21(5), 309-319.
- [62] Myers, M. D., and Tan, F. B. (2002). Beyond models of national culture in information systems research. *Journal of Global Information Management*, 10(1), 24-32.
- [63] Ndou, V. D. (2004). E-government for developing countries: Opportunities and challenges. *The Electronic Journal of Information Systems in Developing Countries*, 18(1), 1-24.
- [64] Nohria, N. (1992). Is a network perspective a useful way of studying organizations?. In N. Nohria and R.G. Eccles (Eds.), *Networks and Organizations: Structure, Form, and Action*. Boston: Harvard Business School Press, 1-21.
- [65] Ouchi, W. G., and Cuchi, W. G. (1981). *Theory Z: How American Business can Meet the Japanese Challenge* (Vol. 13). Reading, MA: Addison-Wesley.

- [66] Png, I. P., Tan, B. C., and Wee, K. L. (2001). Dimensions of national culture and corporate adoption of IT infrastructure. *IEEE Transactions on Engineering Management*, 48(1), 36-45.
- [67] Powell, A., Piccoli, G., and Ives, B. (2004). Virtual teams: a review of current literature and directions for future research. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, 35(1), 6-36.
- [68] Quinn, R. E. (1988). *Beyond rational management: Mastering the paradoxes and competing demands of high performance*. San Francisco: Jossey-Bass.
- [69] Robey, D., and Boudreau, M. C. (1999). Accounting for the contradictory organizational consequences of information technology: Theoretical directions and methodological implications. *Information Systems Research*, 10(2), 167-185.
- [70] Ruppel, C. P., and Harrington, S. J. (2001). Sharing knowledge through intranets: A study of organizational culture and intranet implementation. *IEEE Transactions on Professional Communication*, 44(1), 37-52.
- [71] Sackmann, S. A. (1992). Culture and subcultures: An analysis of organizational knowledge. *Administrative Science Quarterly*, 37(1), 140-161.
- [72] Sakthivel, S. (2005). Virtual workgroups in offshore systems development. *Information and Software Technology*, 47(5), 305-318.
- [73] Schein, E. (2000). Sense and nonsense about culture and climate. In N. M. Ashkanasy, C. P. M. Wilderom, and M. F. Peterson (Eds.), *Handbook of Organizational Culture & Climate*. Thousand Oaks, CA: Sage, xxiii-xxx
- [74] Schein, E. H. (2010). *Organizational culture and leadership* (Vol. 2). San Francisco, CA: John Wiley & Sons.
- [75] Schumann, J. H., Wangenheim, F., Yang, Z., Jinenez, F., Komor, M., Praxmarer, S., and Shainesh, G. (2007). Cross-cultural differences in the development of trust in relational service exchange - An empirical analysis of the moderating role of uncertainly avoidance. *Workshop on Trust Within and Between Organisations 4th Proceedings*.
- [76] Shofolahan, T. O., and Kang, J. (2018). An integrated framework for modeling the influential factors affecting the use of voice-enabled IoT devices: A case study of amazon echo. *Asia Pacific Journal of Information Systems*, 28(4), 320-349.
- [77] Slaughter, S., and Ang, S. (1995). Information systems employment structures in the USA and Singapore: A cross-cultural comparison. *Information Technology & People*, 8(2), 17-36.
- [78] Srite, M. (1999). The influence of national culture on the acceptance and use of information technologies: An empirical study. *American Conference on Information Systems (AMCIS) Proceedings*, 355.
- [79] Steensma, H. K., Marino, L., Weaver, K. M., and Dickson, P. H. (2000). The influence of national culture on the formation of technology alliances by entrepreneurial firms. *Academy of Management Journal*, 43(5), 951-973.
- [80] Straub, D., Keil, M., and Brenner, W. (1997). Testing the technology acceptance model across cultures: A three country study. *Information & Management*, 33(1), 1-11.
- [81] Suh, A. (2018). Sustaining the use of quantified-self technology: A theoretical extension and empirical test. *Asia Pacific Journal of Information Systems*, 28(2), 114-132.
- [82] Tan, B. C., Smith, H. J., Keil, M., and Montealegre, R. (2003). Reporting bad news about software projects: Impact of organizational climate and information asymmetry in an individualistic and a collectivistic culture. *IEEE Transactions on Engineering Management*, 50(1), 64-77.
- [83] Tan, B. C., Wei, K. K., Watson, R. T., Clapper, D. L., and Mclean, E. R. (1998). Computer-mediated communication and majority influence: Assessing the impact in an individualistic and a collectivistic culture. *Management Science*, 44(9), 1263-1278.
- [84] Taylor, B. (2013). *Let's make a success of failures*. AfricanBrains: Innovation for Education. Retrieved from <https://africanbrains.net/2013/08/07/lets-make-a-success-of-failures/>

- [85] Thatcher, J. B., Stepina, L. P., Srite, M., and Liu, Y. (2003). Culture, overload and personal innovativeness with information technology: Extending the nomological net. *Journal of Computer Information Systems*, 44(1), 74-81.
- [86] UN (2019). *World economic situation and prospects: Statistical annex*. United Nations, 168-206.
- [87] UNDP Kazakhstan (2013). *Processes of public administration performance assessment and service delivery are streamlined in view of best international practices and leading ICT technologies - Kazakhstan*.
- [88] UNDP Kazakhstan (2014). *Assistance in improving the system of provision and evaluation of public services: ICT development in Kazakhstan*.
- [89] UNDP LGSP I-II (2014). *Local governance support program: Phase 1 and Phase 2: ICT development of Uzbekistan 2010-2015*.
- [90] UNDP Uzbekistan (2014). *E-government promotion for improved public service delivery in Uzbekistan, 2010-2015*.
- [91] Vreede, G. J. D., Jones, N., and Mgya, R. J. (1998). Exploring the application and acceptance of group support systems in Africa. *Journal of Management Information Systems*, 15(3), 197-234.
- [92] Walsham, G. (2002). Cross-cultural software production and use: A structural analysis. *MIS Quarterly*, 26(4), 359-380.
- [93] World Bank (2014). *World development report: Risks and opportunities*. Washing, D.C: The World Bank.
- [94] Yanwan, W. (2012). The study on complex project management in developing countries. *Physics Procedia*, 25, 1547-1552.

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Submitted: September 1, 2019; 1st Revision: December 27, 2019; Accepted: January 6, 2020
