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A garbage can model of government IT project failures in developing countries: The effects of leadership, decision structure and team competence

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ABSTRACT

Government IT projects in developing countries face a number of unique challenges. However, there has been a paucity of research addressing government IT project management in developing countries. Based on the garbage can model, this research discusses and addresses how government IT project in developing countries should be managed from a leadership and decision structure perspective. With samples drawn from 433 IT project participants in Semarang municipal government, Indonesia, this research finds that leadership style is a major predictor of decision structure used in government IT projects. Decision structure, in turn, influences IT project success. Specifically, participative decision structure is positively associated with project success, whereas hierarchical decision structure hurts project performance. Empowering leadership is positively related to participative decision structure, while transactional leadership is positively related to hierarchical decision structure, and laissez-faire leadership is positively associated to specialized decision structure. Finally, team competence moderates the relationship between hierarchical decision structure and project success so that when team competence is low, hierarchical decision making is less negatively related to project success versus when team competence is high. Our findings contribute to the theoretical discourse of garbage can theory by extending it to include leadership style as a key predictor of decision structure in organized anarchy. The implications for government IT project management in developing countries are also discussed.

1. Introduction

The rate of failure for government IT projects is abnormally high in many countries. In the United States, the Government Accountability Office revealed that 49% of federally funded IT projects had been poorly planned, poorly performed, or both (Powner, 2009). In the UK, government agencies have reportedly wasted $4 billion on failed IT projects, achieving a success rate of only 30% (Johnson & Hencke, 2008).

If managing government IT projects is difficult for developed nations, it is even more difficult for developing countries. Research shows that government IT project development efforts in developing countries are largely unsuccessful, with 35% classified as total failures and around 50% classified as partial failures (Heeks, 2008; Heeks & Bailur, 2007).

In light of these high failure rates, extensive research has been devoted to exploring the factors that contribute to the failure of government IT projects. A multitude of causes have been investigated. At the national level, factors such as level of digital literacy, rate of Internet penetration, severity of the digital divide, and trust have been associated with government IT project failures or success (Anthopoulos & Fitsilis, 2014; Heeks & Bailur, 2007; Kim, Pan, & Pan, 2007). At the project level, multiple project failure causes have been identified (for a review, see Dwivedi et al., 2015). For example, Anthopoulos, Reddick, Giannakidou, and Mavridis (2016) found that design-reality gap, poor overall project planning and management, project scope changes, failures in budget and time control led to the failure of an e-government website in the U.S. Gauld (2007) reported that inadequate management support, lack of user involvement, a weak business case and heavy reliance on outsourcing were reasons why an IS project failed in a New Zealand hospital. Janssen, van der Voort, and van Veenstra (2015) highlighted the importance of project dynamics and pointed out that inability to manage project dynamics is an important cause of project failure. For government agencies, power asymmetries, status differences, and self-serving institutional agendas further complicate and introduce risks to IT project management (Dwivedi et al., 2015). These recent findings highlight the importance of conducting research from multiple perspectives and from various organizational contexts. Dwivedi et al.

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(2015) called for more research examining the underexplored organizational contexts of IS project failure, especially in the public sector.

Government IT projects in developing countries face several unique challenges. First, unlike developed nations, where IT education and training are relatively easy to obtain, developing countries typically do not have educational institutions that provide high-quality training in IT. As a result, government IT staffs and IT managers typically suffer from a lack of proper training and education (Arcieri, Melideo, Nardelli, & Talamo, 2002; Ebrahim & Irani, 2005). Thus, government IT projects are often led by project managers with inadequate competencies in IT and are frequently implemented by team members with insufficient skills and knowledge. Second, developing countries in general have underdeveloped IT industries and deficient IT talent pool. With a few exceptions such as India and China, most developing countries do not have a sizeable IT industry, and generally have poor ICT literacy, awareness, and knowledge (UNCTAD, 2015). Thus, it is very difficult for governments to seek external help to resolve IT issues and therefore must rely on their own resources. Third, governments in developing countries are typically less well-structured compared with those in developed countries. Roles and expectations are typically more fluid, and responsibilities change frequently (Dada, 2006; Ndou, 2004). Finally, government IT projects are typically severely limited in terms of financial resources. Governments in developing countries usually have limited financial resources to spare on IT projects (Beeharry & Schneider, 1996; Gichoya, 2005).

With these limitations, managing government IT projects in developing countries becomes even more challenging. Experiences and insights that are gained from research that is conducted in developed nations may not be readily applied or generalized to developing countries. As the majority of the world's nations are categorized as developing countries, it is imperative that more research on government IT projects are conducted from the perspective of developing countries in order to bridge the gap between the urgent needs for improving government IT projects in developing countries and the paucity of applicable research.

In general, developing countries suffer from a lack of competent people in terms of both team members and leaders for IT projects. Turner (1999) identified the "people" force, i.e. the people on the project, and their management and leadership as two critical factors leading to project success. Leadership is part of the project strategy, which in turn may lead to successful project implementation (Turner, 1999). Unfortunately, most prior literature on project management has largely ignored the impact of project managers and their leadership style on project success (Turner & Müller, 2005). This research attempts to address the challenge of government IT project management in developing countries from a leadership and team competence perspective. Based on the garbage can theory, we develop a theoretical framework that encompasses project leadership, project decision structure, project team competence, and government IT project success. We argue that leadership style determines decision structure in IT project management, which in turn interacts with team competence to predict IT project success.

2. Theoretical framework and hypotheses development

The garbage can model (Cohen, March, & Olsen, 1972) describes organizational decision making in organized anarchies. Organized anarchies are organizations that are characterized by severe ambiguity: there is no clear or consistent notion about what it is they are trying to do (problematic preferences); how it is they are supposed to do it (unclear technology), or who it is that should make decisions (fluid participation). Public sectors are frequently accused of being afflicted with these traits (March & Olsen, 1976; Sager & Rielle, 2013; Sproull, Weiner, & Wolf, 1978). Garbage can theory describes organizations as "collections of choices looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which there might be an answer, and decision makers looking for work" (Cohen et al., 1972).

The garbage can model elaborated on two aspects of organizational structure: organizational decision-making structure, i.e., the mapping of choices onto decision makers, and access structure, i.e., the mapping of problems onto choices (Levitt & Nass, 1989). The garbage can model implies that in organized anarchies, random outcomes should be expected, as the connections between decisions and outcomes are determined by temporal factors such as loading of the system or timing. However, several studies reported decision making processes tend to become less random and more organized if deadlines are imposed (Eisenhardt & Zbaracki, 1992). Similarly, Levitt and Nass (1989) found that despite the anarchical organizational context, institutional environments may constrain the garbage can processes and lead to homogenized outputs, thus putting a lid on the garbage can. Pinfield (1986) found that participation was not always randomly fluid, but rather a consequence of institutional roles, politics, and the phase of decision process.

Extending the work of Levitt and Nass (1989) and Pinfield (1986), the present research further argues that, in addition to institutional environments and roles, the organizational context influences the garbage-can process and thus may be used to predict outcomes. Specifically, we seek to explore the influence of one particular factor, leadership, in decision-making and project outcomes in organized anarchies.

2.1. Leadership and decision structure in IT projects

There are three types of decision making structure in the garbage can model: hierarchical decision structure, participative decision structure and specialized decision structure (Cohen et al., 1972). If decision makers and choices are arranged in a hierarchy, such that important choices must be made by important decision makers, then it belongs to hierarchical decision making. In participative decision structure, any decision maker can participate in any active choice opportunities. Finally, in specialized decision structure, each decision maker is associated with a single choice and each choice has a single decision maker (Cohen, March, & Olsen, 1972). The three decision structures can coexist in the same team. For example, the manager can engage team members or experts in decision making process (participative or specialized decision structure) for some decisions such as technology choice or timeline projection, but keep the right to make certain decisions such as vendor selection solely to him/herself (hierarchical decision structure). Or, the manager can solicit team member and experts input at the beginning (participative or specialized decision structure), but hold firmly to the final decision rights in the end (hierarchical decision structure).

Decision authority is the hallmark of leadership (van Knippenberg, 2013). Leadership and decision making are greatly interwoven. People who make the final decisions are usually leaders, and those whom we call leaders are always engaged in the decision-making process (Heller, 1992, p2). While firms tend to encourage open discussions and debate, final decision authority often lies with the leader. Leaders have not only the final decision authority, but also the power to structure the decision process, i.e., how decisions are made as they are in charge of the organization structure and allocation of resources (Kotter, 2001; Mintzberg, 2003). van Knippenberg (2013) notes that leaders decide the extent to which followers are involved in the decision-making process.

The processes of decision making overlap with leadership in that both require expertise, effort, formal-informal interaction, and authority level (Heller, 1992). Therefore, what one exhibits as a leader may also be observed in the decision-making process. Therefore, we argue that leadership style is a predictor of the decision-making structure of a team. Specifically, we look at transactional, empowering, and laissez-faire

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