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The Moderating Role of Power Exercise in B2B E-commerce Adoption Decision

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Abstract

B2B E-commerce (B2B EC) is a technology that supports relationship between business partners. In adopting such technology, power exercise plays a crucial role. Misunderstood power exercised within B2B EC may generate unrealistic or inaccurate outcomes. Unfortunately, the role of power exercise is nearly ignored in B2B EC adoption literature. In response, using the Resources-Dependency-Theory (RDT) and Diffusion-Innovation-Theory (DIT), this paper argues on the interaction between the influence of innovation characteristics and power exercise, so as to explain B2B EC adoption. This proposition could improve understanding B2B EC adoption and help to resolve inconsistency of findings in the literature.

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1. Introduction

Due to the invention of Information and Communication Technologies (ICT), advanced means of technology have been introduced and deployed by organizations to conduct their business activities and transactions with other organizations. ICT introduces e-business world which generally refers to implementing ICT in support of all business activities (Beynon-Davies, 2004). Increasing global interdependence, free trade and reduced entry barriers, have motivated many organizations to conduct businesses globally. Moreover, technological advancement, lower

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cost of transactions, and increased awareness of e-business benefits, attract many non-adopting organizations as well (Al-qirim, 2010). B2B EC as part of e-business world, is defined as an inter-organizational technological innovation that enables inter-firm process integration and allows supply chain partners to trade and share information online (Sila, 2013). It has changed the pattern of business transactions conducted between firms globally as well as domestically and has provided substantial benefits to organizations. Earlier studies on Information Systems (IS) have acknowledged that B2B EC diffusion has a positive impact on business performance. Specifically, it improves customer service, enhances inventory control, reduces marketing and distribution costs, and minimizes operational costs (Tarofder, Marthandan, Mohan & Tarofder, 2013).

Despite various claims of e-business benefits, previous researches have manifested slow progress in adopting e-business technology, especially in the context of B2B EC. Progress among developing countries goes slower than expected as compared to other developed countries (Molla & Licker, 2005; Penttinen & Tuunainen, 2011; Tan, Chong, Lin & Eze, 2009; Wong, Ngan, Chan, & Chong, 2012). From another perspective, the decision to adopt B2B EC among firms in developing countries becomes necessary in response to challenges of globalization. In this era, there is a trend by firms in developed countries to merge and extend their supply chain to firms operating in developing countries. Failure of organizations in developing countries to adopt such technology to collaborate with domestic and foreign partners, may become a major barrier to the implementation of B2B technology initiatives (Ali & Kurnia, 2010).

Many companies face difficulties in adopting B2B systems as this technology cannot be adopted by a firm, single-handedly (Ali & Kurnia, 2010). The adoption process involves at least two business partners and no adoption could take place outside this configuration. The diffusion of B2B EC, therefore, is not limited to a set of e-business functionalities being adopted by an individual organization. Instead, it involves adopters' configuration between two partners at least (Chong, Chan, Goh, & Tiwari, 2013; Lyytinen & Damsgaard, 2011). This increases the complexity of the adoption process. In such a case, the characteristics of the relationship between the trading partners could play a significant role in the decision to adopt (Ali, Kurnia, & Johnston, 2008; Lyytinen & Damsgaard, 2011; Nagy, 2006).

Power exercise is one of the most important characteristics of B2B relationship that can affect the adoption decision. Power exercise is a norm in establishing B2B relationships. Due to resource dependency, a dominant business partner is on a better position to impose some of its business agenda on the weaker business partners (Blois, 2010). Unfortunately, the role of power exercise has been overlooked in B2B EC as not many studies have considered its effect on B2B EC adoption (Ke, Liu, Wei, Gu, & Chen, 2009). Ignoring the influence of power might cause practitioners and academics to recommend strategies, operational practices and generate results that are entirely unrealistic or inaccurate (Cox, Sanderson & Watson, 2001; Maloni & Benton, 1999). Therefore, examining the effect of power exercise in B2B EC context is crucial to practitioners as well as to academics

Additionally, contradictory findings have been reported in earlier research on e-business adoption (Hameed & Counsell, 2012). Reviewing the e-business innovation adoption literatures indicates a knowledge shortage in this area. Prior studies mainly examined factors that either facilitate or hinder e-business adoption. Despite the extensive e-business adoption literature, Hameed and Counsell (2012) argued that the inconsistency in the literature findings, gives a narrow vision as to how these factors influence the adoption decision. Keeping this in mind, more works are anticipated to establish better insights on this issue.

Therefore, this paper argues on the interaction between exercising powers and the influence of innovation characteristics on B2B EC adoption decision as an alternative view to explain B2B EC adoption. By doing so, this study demonstrates how partner's power plays a significant role by influencing the relevance of other e-business determinants and ultimately affects the organization's decision to embrace B2B EC.

The rest of this paper is organized as follows. In the next section, the authors review previous research and discuss selected theoretical frameworks that have been utilized to explain B2B EC adoption. The next section then provides further elaboration on the importance of institutional pressure in general, and power exercise in particular, to better understand B2B EC adoption. The last section provides a conclusion to the issues concerned and possibilities for future researches. This paper uses e-business, e-commerce, inter-organizational systems (IOS), and electronic supply chain interchangeability as a B2B EC technology. The terms (dominant firm) and (focal firm) are also used interchangeably. Non-dominant firm, and target firm are also used interchangeably.

2. Review of Prior Studies on E-business

In e-business adoption researches, two different perspectives had been considered to investigate as well as to analyze the influencing factors, namely Efficiency-choice perspective and Institutional perspective. The first perspective is oriented to study intra organizational factors, whereas the second perspective examines the impact of the institutional environment that may affect the adoption decision (Khalifa & Davison, 2006; Shih, 2012).

2.1. Efficiency-Choice (Rational Perspective)

Efficiency-Choice (Rational Perspective) is the main theme in studying intra-organizational factors. This theme examines factors that affect the evaluation of innovation desirability and organizational capability. Potential adopters, evaluate the innovation characteristics to build cognition that e-business can provide the organization a new value and competitive advantage (Khalifa & Davison, 2006). Despite the fact that, several theories have been commonly associated with this perspective, Diffusion of Innovation Theory (DIT) emerges as one of the most widely used theories in adoption researches (Mohamad & Ismail, 2009). Its main assumption is that the potential adopter, first evaluates the innovation characteristics, and later decides whether to accept or reject the innovation (Rogers, 2003). Through a meta-analysis research, results indicate that the most significant factors that affect innovation evaluation are: relative advantage that innovation can provide to potential adopters, compatibility of innovation with adopter values and situation, and the degree of innovation complexity (Jeyaraj, Rottman, & Lacity, 2006; Tornatzky & Klenin, 1982).

Under Rational perspective, organizational characteristics also demonstrate substantial role in determining the efficiency of innovation as a choice. It facilitates assessment of an organization's ability to successfully adopt any type of innovation (Chwelos, Benbasat, & Dexter, 2001; Iacovou, Benbasat, & Dexter, 1995; Khalifa & Davison, 2006). This concept is closely linked to organizational readiness. Chwelos et al. (2001) identified three readiness factors, namely; financial resources, trading partner readiness, and IT sophistication. Several empirical results further demonstrated the positive effect of organizational readiness on the B2B EC adoption (Chwelos et al., 2001; Penttinen & Tuunainen, 2011; Soares-Aguiar & Antonio, 2008; Yoon & George, 2013).

In summary, the above discussion highlights the relevance of technology characteristics to evaluating efficiency of e-business technology. In addition, organization-related capabilities play dual roles to explain technology adoption namely; source of competitive advantage and a constraint of technology adoption.

2.2. An institutional perspective

On the other hand, the second perspective focuses on the influence of institutional environment factors to the adoption decision. Many studies have considered the Institutional theory as a lens to investigate the effect of business environment. This perspective assumes that the organization's decision and behavior to embrace technological innovations cannot be explained by emphasizing only the rational actions of managers. As such, emphasizing on irrational actions within the institutional environment will also play a significant role in the adoption decision (Teo, Wei, & Benbasat, 2003). In this perspective, the organization accepts and follows social norms to gain organizational legitimacy, regardless of the actual impact of the innovation on the performance of particular organizations (Scott, 1995).

Institutional environment exercises three different types of pressures on organizations, namely; Coercive, Normative and Mimetic (DiMaggio & Powell, 1983). The formal and informal pressure exerted by a dominant business partner to a non-dominant business partner refers to Coercive pressures. Meanwhile, normative pressure usually emerges when an organization's actions and behavior are subject to the shared values and norms of other organizations, as well as its social networks. Following the beliefs of its members in social networks, the organization is likely to adjust its practices and behavior (DiMaggio & Powell, 1983). Finally, Mimetic pressure arises when firms tend to imitate the success of a competitor's practice such as adopting e-business in the organization's operation (Soares-Aguiar & Antonio, 2008). Under the Mimetic pressure, practice and behavior of the firm accrues regardless of the economic benefit or the technical considerations (Teo et al., 2003; Tingling &

Parent, 2002). This type of pressure frequently appears at times of ambiguity and uncertainty, where firms tend to imitate other successful organizations in certain fields (Abrahamson & Fairchild, 1999). IS researchers have found the empirical support for the ability of this theory to explain the IT-related adoption decision (Bala & Venkatesh, 2007; J Son & Benbasat, 2007; Teo et al., 2003; Zheng, Chen, Huang, & Zhang, 2013).

Other recent researches have reported that institutional pressures influence the potential adopters only at the later stages of B2B EC (Beatty, Shim, & Jones, 2001; Jeyaraj, Balsler, Chowa, & Griggs, 2008; Shih, 2012). This argument corresponds to Abrahamson and Fairchild (1999)'s "Theory of Bandwagon" or "Fashion Management Theory". The theory posits that organizations in advanced innovation diffusion life cycle do what everybody else does, which in return creates social pressure to force the organization leaders to jump into the bandwagon. These results also in line with Mignerat and Rivard (2009) argument that is: "all pressures are not institutional" (p. 388) especially in early stage in the innovation diffusion process.

In summary, institutional perspective explains how B2B EC adoption is constrained by institutional forces. An institutional force provides more insights into the complex process of innovation adoption in business organizations of which the adoption decision needs both internal assessment as well as external assessment.

2.3. Technological–Organization–Environment framework

In order to explain that adoption decision is neither entirely goal-oriented nor uniquely responds to pressure, many studies have integrated the 'rational and institutional perspective' into a single theoretical framework such as Technological–Organization–Environment (TOE) framework. The TOE classifies innovation characteristics as technological factors, organizational factors i.e. factors related to organizational characteristics, as well as environmental factors, which also includes the institutional pressures (Bala & Venkatesh, 2007; Khalifa & Davison, 2006; Oliveira, Martins & Lisboa, 2011; Soares-Aguiar & Antonio, 2008; Wong, Lai, & Teo, 2009).

3. The role of Power Exercise in B2B EC Adoption

3.1. Theoretical background

As B2B EC technology is a reflection of existing relationship between business partners (Chae, Yen, & Sheu, 2005), researchers have considered Power Dependency Theory (PDT) or Resources Dependency Theory (RDT) to investigate the adoption issue (Hart & Saunders, 1997; Ke et al., 2009; Son, Narasimhan, & Frederick, 2005; Son, Narasimhan, & Riggins, 2008). The basic assumption of RDT is that relying on critical and important resources will influence the organization's behavior including action and decision. Therefore, the organization's decisions and behavior can be explained based on the dependency situation between the parties (Nienhüser, 2008). The central hypothesis of RDT is that 'whoever controls resources has the power over those actors who need these resources' (Pfeffer & Alancik, 2003, p. 44). Meanwhile, Emerson (1962) refers such conceptualization as PDT. He illustrates that in case of actor A has a greater dependency upon actor B, therefore, actor B has more power over actor A (Emerson, 1962).

Provan (1980) view partner's pressure or power enacting as a function of (i) the potential power of the imposing partner and (ii) its chosen influence strategy. Frazier (1983) defines the influence strategy as compliance-gaining tactics that facilitate the channel members to utilize and to achieve their desired actions from channel partners. Organizations use this strategies for many purpose ranging from a simple coordination to a more serious matter such as B2B EC (Payan & Mcfarland, 2005). Two different influence strategies proposed in the literature are Coercive influence strategy and Non-Coercive influence strategy. Coercive influence strategy focuses on the exploitation of certain strategies like resource-control, rewards and punishments to motivate target firms to attain their objectives. In contrast, Non-Coercive influence strategy depends more on tolerable approaches such as requests, information exchange, and recommendations to change the attitude and intended behavior of the target firms (Frazier & Suaamers, 1986; Frazier & Summers, 1984).

Enacting power from trading partners or "partner pressure", is expected to be one of the most critical factors for B2B EC adoption by SMEs, as the weaker partners in inter-organizational relationships, smaller firms are highly liable to the pressure imposed by their larger partners (Hart & Saunders, 1997). Many studies have acknowledged

that B2B EC adoption decision of a firm could be influenced by its dominant customers and suppliers. For the purposes of improving efficiency, dominant actors could invest in new B2B innovation, where the benefit from this technology cannot be exploited without the collaboration and cooperation of its trading partners. When such externalities exist, dominant actors in the organizational environment will use their power capability to influence firms that dependent in it to invest in complementary and similar technologies (Al-Hakim, Abdullah, & Ng, 2012; Chan, Chong, & Zhou, 2012; Chong et al., 2013; Chong, Ooi, Lin, & Tang, 2009; Hertwig, 2012; Ravichandran, Han, & Hasan, 2009; Teo et al., 2003). The power exercise from dominant actors, acts as an external factor that pushes the dependent firm to reconfigure its strategies and practise accordingly (Porter, 1980). In result, dependent firm may adopt the B2B EC not based on their own best interests (Wu & Lee, 2005).

3.2. *Theoretical gap*

Many scholars highlight the importance of understanding power exercise in B2B relationships. For example, Cox et al. (2001) argue that misunderstood power exercise within the B2B domain, can cause both practitioners and academics to implement wrong strategies and operational practices. Similarly, Maloni and Benton (1999) conclude that practice and research will be entirely unrealistic if they do not take power exercise into account. Despite the importance of power in the joint action decision, at the present, limited IS-related studies have been initiated to investigate the impact of power in the adoption process (He, Ghobadian, & Gallea, 2013). As expected by Cox et al. (2001) and Maloni and Benton (1999), contradictions and contingencies in the prevalence of the DIT logic are noted within and across studies. These indicate that the DIT framework is inadequate to explain B2B EC (Ali et al., 2008; Lyytinen & Damsgaard, 2011; Nagy, 2006). For example, authors such as (Chan & Chong, 2012; Chong et al., 2009; Ifinedo, 2011; Pan, 2013; Seyal & Rahman, 2003) found all or some technological attribute (relative advantage, compatibility, observability, trialability, and complexity) have no effect on adoption decision.

Responding to the above review, this paper outlines two critical limitations in previous studies that lead to contradictory results in previous research. First, all previous studies focus on the direct effect of power exercise on adoption decision, while it is also supposed to have contingency role on the relevance of the other determinants. Meanwhile, researchers note that the logic of DIT cannot be considered in isolation of the existing relationship (configuration) between adopters which is represented by factors such as power and trust. Rodón & Sesé (2010) contend that the relevance of these factors (DIT factors) is contingent upon the configuration between adopters. Inadequate attention to the role of adopter's configuration with partners in explaining individual adoption behavior represents critical theoretical gap. Thus, understanding the contingencies imposed by the partner power may shed additional light on the adoption decision.

As for the second limitation, many studies have adapted the term of "Coercive pressure" as part of Institutional theory to study the influence of power exercise on adoption decision. This is because, the main argument of Coercive pressure concept in Institutional Theory has emerged from RDT (Teo et al., 2003). Unfortunately, it has been used for this purpose in an inappropriate manner. The conceptualization of "Coercive pressure" in e-business literature reflects the power enacting without specifying the influence strategy as neither Coercive nor Non-Coercive (Teo et al., 2003) did. For example, Khalifa & Davison (2006) conceptualize the Coercive pressure as partner encouragement and partner belief that the company should adopt B2B EC. Most of the previous research uses Teo's et al. (2003) conceptualization of Coercive pressure. They conceptualize this concept as the perceived dominance of supplier adopters, perceived dominance of customer's adopters, and conformity with the parent corporation's practices. While Provan (1980) identifies the partner pressure resulted from the potential power of the imposing partner and the chosen influence strategy, Teo's et al. conceptualization does not include any measurement related to the "Influence strategy". On another aspect, coercive pressure in Institutional theory is interrelated with theoretical assumption that an innovation (i.e. e-business) is the best way of conducting business in organization environment. In other words, when coercive pressures from partner, come into direct conflict with the norms in the organization environment, it is reasonable to judge that the coercive pressure is not institutional pressure.

Therefore, this present work tries to extend the DIT theory by adding the power exercise "partner pressure" as a moderator on all DIT factors due to the fact that RDT shares a number of fundamental assumptions with Contingency theory. RDT suggests that partner's power is the most influential factor over organizational actions and

outcomes (Hillman, Withers, & Collins, 2009). In addition, this work differentiates between the types of influential strategies of power exercise for two reasons. First, the power exercise is a function of the potential power of the imposing partner and its chosen influence strategy. Second, influence strategy is a tactic used to change the target firm's attitude either coercively or non-coercively, thus different strategies will have different impact on adoption decision as well as on the relevance of determinants of adoption decision. Therefore, the question this study seeks to answer is; do different influence strategies of power exercise affect the way in which decision makers employ the logic of DIT in adoption decisions?

Fig. 1 depicts the proposed framework of the present study. In case potential adopters perceive a coercive power exercise (coercive influence strategy), their decision will be based on the partner's imposition in order to avoid negative consequences instead of being based on the evaluation of innovation characteristics, productivity, and efficiency as suggested by DIT. In other words, characteristics of innovation may play an insignificant role in adoption decision if the potential adopters perceive coercive power exercise. In contrast, when potential adopters perceive a non-coercive power exercise, will avail the opportunity for potential adopters to evaluate the innovation characteristics in order to make adoption decision. In this case, innovation characteristics will play dominant role in determining the innovation adoption decision

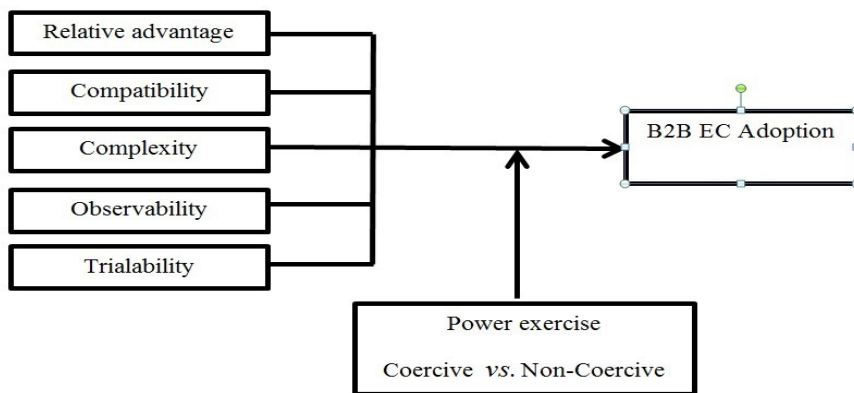


Fig. 1. Proposed Research Framework.

4. Methodology

This study focuses on examining the determinant of B2B EC adoption between firms in the business sector in Jordan. Business sectors in Jordan have a low level of E-business adoption (Shkoukani, Lail, Abusaimeh, & Hamarneh, 2013). This study, therefore, considers companies listed in Jordan stock market (JSM) directory as a sampling frame to study this issue. 241 Jordanian firms are registered in the ASE list (ASE, 2013). Since the research objective is to examine the determinants of B2B EC adoption amongst firms, the unit of analysis is the organization. The targeted respondent is the IS manager or any top management member. They generally have extensive IS knowledge about the firm, have access to the organization's data, and have the ability to complete the questionnaire (Basu, Hartono, Lederer, & Sethi, 2002). A self-administered questionnaire is considered for the data collection. There are three sections in the survey questionnaire. The first section gathers information about the organization's perception of B2B EC characteristics. The second section evaluates organization's perception of power exercise as well as the influence strategy used by the organization's customers and suppliers. The last section measures the B2B EC adoption decision.

5. Conclusion

This paper discusses the importance of power exercise in B2B EC adoption decision and explains the usage of different influence strategy may affect the role of other factors in B2B e-commerce adoption decision. This concept paper suggests and encourages future work to examine the role of power exercise strategy to explain B2B EC adoption decision. In the next stage of this study, authors intend to investigate whether an influence strategy plays a significant role in moderating the effect of B2B determinants to explain B2B adoption decision. By doing so, managers and policy makers can utilize the findings of this study to understand which factors would most likely facilitate the adoption of B2B EC. In addition, the findings of this paper are to enable the managers and policy makers to manage the effects of these factors more effectively.

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