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# A Conceptual Framework for Investigating Suppliers' Participation in Business-to-Government (B2G) Electronic Auction Markets in the Thai Context

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## ABSTRACT

Business-to-government (B2G) electronic auction (e-auction) markets are increasingly being used to create opportunities for suppliers to expand their market as well as trading activities. However, little has been done to understand the behaviour of suppliers participating in these markets. In this paper, we propose a framework to explain suppliers' intention to participate, and the level of participation in B2G e-auction markets, which will be tested in the Thai B2G e-auction markets. Low supplier participation has been a major problem in the Thai e-auction markets. We posit that suppliers' participation depends on organisational motivation, environmental uncertainty, and their capabilities. The conceptual framework draws from the Motivation-Ability Framework, Transaction Cost Theory, Institutional Theory, and Resource-Based Theory. It proposes that four key constructs - efficiency motive, legitimacy motive, environmental uncertainty, and organisational capabilities influence suppliers' intention to participate as well as their participation level in B2G e-auction markets.

## Keywords

Business-to-Government (B2G), electronic auction markets, suppliers' participation, motivation-ability framework.

## INTRODUCTION

Business-to-Government (B2G)<sup>1</sup> electronic markets can be considered as an inter-organisational information system with which participating buyers and sellers utilize electronic markets for a dynamic price-making mechanism (such as electronic auctions), as well as for the exchange of information related to price, product specification, and terms of the trade (Bakos, 1991; Grewal, Comer and Mehta, 2001). Electronic auction (e-auction) markets are increasingly being used in B2G electronic markets to procure goods and services for governments; they have been reported to yield significant price reductions and time saving for governments as well as to create opportunity for suppliers to penetrate new markets (Beall, Carter, Carter, Germer, Hendrick, Jap, Kaufmann, Maciejewski, Monczka and Petersen, 2003; Emiliani and Stec, 2002; Smeltzer and Carr, 2003).

The majority of research on e-auction markets is focused on developed countries, primarily in North America and Europe (Germer, Carter and Kaufmann, 2004). There is very little empirical evidence on how B2G e-auction markets perform in the context of developing countries. This study aims to fill a gap in the literature arising from a lack of research by examining the role of various factors on intention and level of participation in the B2G e-auction markets environment. Developing countries generally lack resources (e.g. skilled people, proper ICT infrastructure) and they also generally report slow

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<sup>1</sup> Business-to-Government is defined as "business activity that involves a business selling its products or services to the central, regional or local government" (source: <http://business.govt.nz>).

economic progress (Jones, 2007), compared with developed countries. Molla and Licker (2005) also support this assertion and further suggested that businesses in developing countries are faced with number of challenges (such as technological, financial, and legal infrastructure constraints) in their adoption of e-commerce. These are example barriers to the development and support for B2G e-auction markets. The literature highlights the need in developing countries for transparency in e-government procurement (Rege, 2001). Equity is generally promoted for developing countries (United\_Nations, 2005). B2G e-markets can result in more equity in supplier participation (MacManus, 2002) and therefore allow new suppliers to enter the marketplace using a competitive bidding process. For all the above reasons, this study which will be conducted in a developing country is particularly interesting. It will therefore increase our understanding of how B2G e-market will assist the Thai government in promoting the level of suppliers' participation.

The Thai B2G e-auction markets have a number of characteristics that make them suitable for this study. Firstly, the study of B2G e-auction markets has become significantly important for the procurement of goods and services in South East Asian countries including Thailand (Jones, 2007; Settoon and Wyld, 2003). The Thai government shows commitment in promoting the B2G e-auction markets by making it mandatory for all Thai government agencies to procure goods and services through e-auction markets, whenever the procurement value is more than 2 million Baht (US\$ 60,000). Secondly, the National Statistical Organization (NSO) of Thailand reported that low supplier participation has been a major problem in the Thai e-auction markets. This could result in a non-competitive electronic auction environment (NSO, 2007). Thirdly, primary researcher has full access to the Thai e-auction markets which makes this study possible.

Prior studies suggest that a sufficient number of qualified suppliers participating in B2G e-auction markets can lead to a competitive market environment (Beall et al., 2003; Elmaghraby, 2005; Smeltzer and Carr, 2003). Thus, the number of qualified suppliers plays a significant role for the success of e-auction markets. However, the effort to understand the behaviour of suppliers participating in B2G e-auction markets has been lacking. Prior research in this area has two main foci, both in terms of the type of electronic marketplaces (e.g. B2B electronic marketplaces) (Son and Benbasat, 2007) as well as the research approach (e.g. qualitative case studies). Qualitative case studies provide a rich picture of specific phenomenon within the chosen context (e.g. (Emiliani and Stec, 2005; Hackney, Jones and Lösch, 2007; Soh, Markus and Goh, 2006). However, the results do not allow us to generalize to other settings and they also do not allow us to quantitatively validate relationships between key constructs.

This study contributes to the literature in the following ways: Firstly, this study explicitly focuses on the linkage between B2G e-auction markets and supplier participation behaviour, which has not been done before. Secondly, this study conceptualizes supplier participation behaviour within the Motivation-Ability Framework, Transaction Costs Theory, Institutional Theory, and Resource-Based Theory, to extend our understanding of supplier behaviours in the B2G e-auction markets.

## LITERATURE REVIEW

This literature review is taken from diverse disciplines; marketing, economics, organisation management, and information systems. We first introduce the electronic auction mechanism, then summarise four key theories important for this study, followed by a description of the Thai e-auction context, before stating the main research questions.

### Type of Electronic Auctions

Electronic auction (e-auction) is defined as a market institution with an explicit set of rules determining resource allocation and prices on the basis of electronically submitted bids from market participants (Beall et al., 2003). The term "auction" is used to represent both selling auctions (bidding to buy) and purchasing auctions (offering to sell) (Kaufmann and Carter, 2004). The literature in e-auctions is usually discussed in terms of selling auctions, rather than purchasing auction, for simplification (Kaufmann and Carter, 2004). The four basic selling auction types were introduced by McAfee and McMillan (1987): (1) the English auction (ascending-bid auction), (2) the Dutch auction (descending-bid auction), (3) the first-price sealed-bid auction, and (4) the second-price sealed-bid (Vickrey) auction. In the same way, Kaufmann and Carter (2004) suggested that the four selling auction types have mirror images in the context of purchasing auction: (1) reverse English auction, (2) the reverse Dutch auction, (3) the first-price sealed-bid purchasing auction, and (4) the second-price sealed-bid purchasing auction. Moreover, the auction types can generally be defined as the following dimensions: the number of bidders, the number of bids per bidder, and the degree of visibility between bidders (Kaufmann and Carter, 2004). For this study, we employ only the first-price sealed-bid purchasing auction (with descending prices, multiple permitted bids and almost full visibility) because it has been used in the Thai e-auction. Thus, the terms "**e-auction**" used hereafter refer to "the first-price sealed-bid purchasing e-auction", which refers to the electronic competitive bidding between suppliers that drives prices down, or purchasing auctions from buyers.

## **B2G Electronic Auction Markets**

This paper is confined to the context of a B2G e-auction market as it pertains to a situation with one buyer (government) and a group of sellers (Kaufmann and Carter, 2004). In B2G e-auction markets, a government procuring agency invites pre-qualified suppliers who compete against each other to supply a specified good or service, thus driving down the price. Governments generally find the e-auction process attractive because of the tangible benefit of price reductions and the prospect of a reduced transaction cost (Beall et al., 2003; Hackney et al., 2007; Settoon and Wyld, 2003). Similarly, suppliers can obtain benefits from opportunities to bid electronically for new business, to penetrate new markets, to create new low costs sales channels, to lower overall transaction costs for buyers in e-auction markets (Smeltzer and Carr, 2003), and also to obtain benefit from auction process time reduction between bidding and winning the business (Smart and Harrison, 2003). Sometimes the auction results are announced at the end of the event, or a day or two later versus weeks or months under traditional auction processes.

## **Transaction Cost Theory**

According to Transaction Cost Economics (TCE), all economic activity revolves around a transaction, which is simply some form of exchange of a good or service between two or more economic actors. Consequently, transactions may be divided into production and coordination costs (Malone, Yates and Benjamin, 1987). Coase (1937) proposed that the use of price mechanisms generates cost such as searching for prices, reaching an agreement and enforcing the commitments. As production costs remain constant regardless of the sale mechanism, this study will concentrate on coordination costs. If transaction costs are high, no or little economic activity from suppliers is likely to occur. Transaction cost concepts have been deployed in information systems to analyse the impact of information technology on the organisation of economic activity in markets and hierarchies (Malone et al., 1987). Bakos (1991) pointed out that information technology would reduce transaction costs, thereby enabling the emergence of more efficiently organised electronic markets. Soh et al.'s work (Soh et al., 2006) also support this assertion.

## **Institutional Theory**

The institutional approach has been used to study organisations. Institutional environments are important for organisational structure and action (Son and Benbasat, 2007; Teo, Wei and Benbasat, 2003). The key idea behind institutionalization is that organisational action reflects a pattern of doing things that evolves over time and becomes legitimated within organisation and an environment (Eisenhardt, 1988). DiMaggio and Powell (1983) suggested three types of isomorphic pressures - mimetic, coercive, and normative - that cause an organisation to have the same form with their environment (e.g. competitors or government/buyer). Mimetic pressures may cause an organisation to imitate the actions of other structurally equivalent, whereas coercive and normative pressures operate through interconnected relations (DiMaggio and Powell, 1983).

## **Resource-Based Theory**

The resource based view (RBV) of the firm suggests that organisations compete and create value on the basis of resources that are unique, rare, valuable, and not easily imitable or substitutable (Barney, 1991; Conner, 1991). Competencies develop when such resources are combined to create specific organisational ability (Teece, Pisano and Shuen, 1997). Mahoney et al. (1992) suggested three main research perspectives in resource-based theory: 1) a firm's distinctive competencies and heterogeneous capabilities, 2) fitting the resource-based view within the organisational economics paradigm, and 3) its complementary view to industry organisation research. Peteraf (1993) also proposed a resource-based model of the theoretical conditions which underlie competitive advantage, namely resource heterogeneity, ex post limits to competition, imperfect resource mobility, and ex ante limits to competition. Hall (1993) suggested the sources of sustainable competitive advantage as being two types of capability differential; namely, capabilities based on assets and capabilities based on competencies.

## **Thai B2G Electronic Auction Markets**

The Thai e-auction markets were introduced by the Thai government in 2002. The Thai B2G e-auction markets are highly decentralized. There is no central procuring authority or control agency, there is no purchasing department or the associated purchasing staff. Each of the Thai government agencies can procure the goods, services through e-auction markets provided by third-party providers of e-auctions. However, the Prime Minister's Office (PMO) has authority to issue and update regulations that stipulate procurement procedures and standardized contracts in order to enforce all government procuring agencies and public enterprise to deploy transaction through e-auction markets. Given the authority of the different government administration units in mandating the strict electronic procurement practices of the Thai government, it leaves

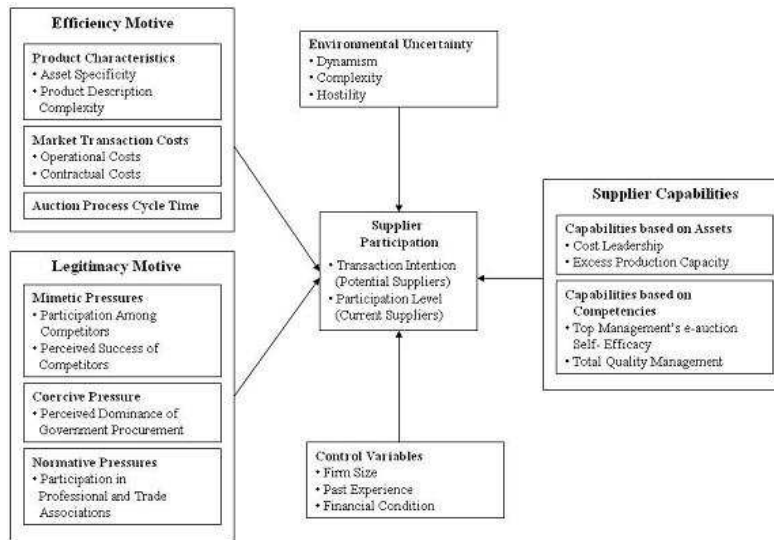
suppliers no choice but to comply with the set rules and regulations if they wish to expand their business to the government sectors.

The Thai government procuring agencies in B2G e-auction markets face a major problem pertaining to too few suppliers participating in these markets - this could result in a non-competitive electronic auction environment (NSO, 2007). Smeltzer and Carr (2003) have suggested that at least four or five suppliers are needed to begin the bid process. Whereas, Elmaghraby (2005) argues that more bidders is not always better. These different views notwithstanding, it is important to understand what motivates suppliers to participate in the Thai B2G e-auction markets, in order to facilitate these markets' success and to make these markets more competitive. Thus, the aims of this research are 1) to investigate the factors that influence suppliers' intention to participate and the level of participation in the Thai B2G e-auction markets and 2) to examine differential effect of the four groups of factors in participation intention and participation level. The main research questions to be addressed are;

1. What types of precursor factors motivate suppliers' intention to participate, and to increase their level of participation in B2G e-auction markets?
2. Do these key factors play different roles in explaining suppliers' intention to participate and participation level?

**FRAMEWORK DEVELOPMENT**

In this section, we describe the theoretical development of a framework for explaining the factors that influence suppliers' participation in B2G e-auction markets. We propose that four main constructs: efficiency motive, legitimacy motive, environmental uncertainty, and supplier capabilities - influence suppliers' participation (dependent variable) in B2G e-auction markets. Components of the proposed model (Figure 1) are explained below.



**Figure 1. Research Framework for B2G e-Auction Markets**

**Supplier Participation**

In B2G e-auction markets, suppliers' participation can be classified into two groups; transaction intention and participation level.

*Transaction Intention*

In the technology acceptance model and e-commerce literature, transaction intention is likely to influence future transaction behaviour (Davis, 1989; Son and Benbasat, 2007; Teo et al., 2003). Behavioural intention refer to the motivational factors that reflect how people are willing to try to undertake a behaviour (Ajzen, 1991).

### *The Level of Participation*

To deal with the varying levels of supplier activities in B2G e-auction markets, the participation level can be classified into four distinct stages: the exploration stage, the trial stage, the commitment stage, and passive stage (Grewal et al., 2001; Son and Benbasat, 2007). A supplier firm can only be in one stage at any point in time (Grewal et al., 2001). In the **exploration stage**, the supplier has been registered in the B2G e-auction market but has not yet begun to conduct trading activities through the e-auction market. In the **trial stage**, the supplier will have conducted several transactions through a B2G e-auction market, but supplier is still evaluating the pros and cons of this means of doing business. In the **commitment stage**, the supplier has made a full commitment because trading through a B2G e-auction market has become an important part of its operations. In the **passive stage**, the supplier has considered not doing business or terminated conducting business in the B2G e-auction market.

### **Efficiency Motive**

Efficiency and effectiveness benefits encourage organisations to participate in e-commerce (Bakos, 1991). An e-market can reduce coordination costs, which include setting up a relationship, search costs, and market costs, between the buyers and the sellers (Bakos, 1991). We draw from the Transaction Cost Theory to study the economic organisation of how suppliers seek to minimize transaction costs (Williamson, 1981). Arguments for the move to e-markets were based on expected reduction in the transaction costs between buyers and sellers (Bakos, 1991; Williamson, 1981; Williamson, 1999). Malone et al. (1987) provide two characteristics of products (i.e. asset specificity and product description complexity) which can influence an organisation to select one of governance structures between electronic markets and electronic hierarchies that minimize their total cost.

### *Product Characteristics*

Hackney et al. (2007) suggest that not all products are equally suitable for procuring through e-auction markets. Hur et al. (2007) also support this assertion and further suggest that not all products are auction-suitable and the commodities are most suitable for e-auction markets. The type of products directly impact on its specificity (Hackney et al., 2007) and product description complexity (Malone et al., 1987). Malone et al. (1987) proposed two characteristics of products (i.e. asset specificity and product description complexity) that influence suppliers to participate in a B2G electronic auction market. **Asset specificity** refers to transaction-specific capital investments (e.g., in customized machinery, tools). If products in the e-auction market have high asset specificity, suppliers tend not to participate in this market. **Product description complexity** refers to the amount of information necessary to describe the attributes of a product (Malone et al., 1987; Son and Benbasat, 2007). If complex products are difficult to translate into unambiguous product description, suppliers tend not to participate in a B2G e-auction market.

Hypothesis 1: Product characteristics (high asset specificity and high product description complexity) in a B2G e-auction market will negatively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

### *Market Transaction Costs*

E-markets offer facilities to support communicating information about price and production characteristics, and conducting transactions between buyers and sellers (Bakos, 1991; Ivang and Sorensen, 2005). E-markets can also help to reduce transaction costs that occur between buyers and suppliers (Bakos, 1991). Market transaction costs is defined as the coordination costs involved in using an outside markets, comprising operational costs and contractual costs (Gurbaxani and Whang, 1991). **Operational costs** refer to the costs for accessing market information and process transaction such as search costs and communication costs. **Contractual costs** refer to the costs of establishing and maintaining contractual relationships with outside parties, including costs of writing contracts and costs of enforcing contracts. We propose that the transaction costs that occur in B2G e-auction markets will negatively influence suppliers' intention to participate and the level of participation.

Hypothesis 2: High market transaction costs in a B2G e-auction market will negatively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

### *Auction Process Cycle Time*

The use of traditional processes for government buying goods and service can consume several weeks or months (Beall et al., 2003; MacManus, 1991). On the other hand, the use of e-auction markets can decrease auction process cycle times (Emiliani and Stec, 2005), which are condensed into a period of a few hours (Beall et al., 2003). Process cycle time reduction in B2G e-auction markets can benefit suppliers in that suppliers would be better able to plan production scheduling because time is

reduced between bidding and winning the business (Beall et al., 2003), and suppliers also save costs in terms of a reduction in negotiation time (Smeltzer and Carr, 2003). We propose that the longer the auction process cycle time, the less willing suppliers are to participate in a B2G e-auction market.

**Hypothesis 3:** The longer auction process cycle time in a B2G e-auction market will negatively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

### Legitimacy Motive

Much of the institutional literature emphasises that organisational structures and processes tend to become isomorphic with the accepted norms for organisations of particular types (DiMaggio and Powell, 1983). Isomorphism is often used as a mechanism for reducing uncertainty by organisations by adopting innovations (DiMaggio and Powell, 1983). For example, Son and Benbasat (2007) studied how legitimacy-oriented factors, which are mimetic pressures, coercive pressure, and normative pressures, influence organisational buyers' adoption and use of B2B e-marketplaces. They found that two isomorphic processes; mimetic and normative pressures have significant effects on adoption intent, but not on participation level. While, coercive pressures did not significantly explain either adoption intent or the level of participation.

#### Mimetic Pressures

As with Teo et al. (2003), we focus on two specific types of mimetic pressure: participation among competitors and perceived success of participated competitors. **Participation among competitors** refers to the participation level of competitors participating in B2G e-auction market. Whereas, **perceived success of participated competitors** refer to suppliers often closely monitoring their competitor to identify successful practices and imitate their actions to achieve similar benefits.

**Hypothesis 4:** Mimetic pressures in a B2G e-auction market will positively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

#### Coercive Pressures

Coercive pressures is defined by DiMaggio and Powell (1983, p. 150) as "both formal and informal pressures exerted on organisations by other organisations upon which they are dependent and by cultural expectations in the society within which organisation function". These pressures may take several forms, such as force, threats, persuasion, and invitation (DiMaggio and Powell, 1983). For example, the government is one of the largest customers of the supplier, and the supplier's well being may very much depend on whether it is being awarded the contract from the government. Thus, the purchasing volume from government can dominate a supplier firm's need to participate in B2G e-auction markets.

**Hypothesis 5:** Coercive pressures in a B2G e-auction market will positively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

#### Normative Pressures

Normative pressures implies that strategic processes taken by organisations are subject to the values and norms shared among members of their social network (DiMaggio and Powell, 1983). Normative pressures from participation in professional and trade associations may promote transactions through a B2G e-auction market. We posit that the effect of supplier participated in professional and trade associations on the supplier's intention to participate and the level of participation in a B2G e-auction market.

**Hypothesis 6:** Normative pressures in a B2G electronic auction market will positively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

### Environmental Uncertainty

Organisational theories have suggested that organisations must adapt their environment to remain viable in business (Duncan, 1972). Lee and Clark (1997) claimed that environmental uncertainty is inherent in e-markets. The literature has identified many different environment dimensions, three factors are viewed as particularly important (Kabadayi, Eyuboglu and Thomas, 2007; Karimi, Somers and Gupta, 2004; Newkirk and Lederer, 2006) and have been included in a majority of e-commerce studies. They are dynamism, complexity, and hostility. This is also consistent with Duncan's work (Duncan, 1972), which identifies dynamism and complexity as major sources of environmental uncertainty. **Dynamism** refers to the rate and unpredictability of environmental change. It is especially challenging for suppliers who need to participate in B2G e-

auction markets (Kabadayi et al., 2007). **Complexity** refers to the number and diversity of competitors, suppliers, buyers, and other environmental actors that firm decision makers need to consider in formulating their strategies (Duncan, 1972; Kabadayi et al., 2007). **Hostility** represents the availability of resources and the degree of competition (Newkirk and Lederer, 2006) in e-auction markets. Hostility can be measured in terms of the threats to the supplier's firm posed by labor and material scarcity, intense competition in price, and product differentiation (Karimi et al., 2004; Newkirk and Lederer, 2006).

Hypothesis 7: Environmental uncertainty in a B2G e-auction market will negatively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

### Supplier Capabilities

This construct is mainly drawn from Resources-Based View Theory (RBV). In the strategic management literature, there is growing evidence that competitive advantage often depends on the firm's deployment of capabilities (Barney, 1991; Day, 1994; Wade and Hulland, 2004). Thus, firm's capabilities enable a firm to compete more effectively in the marketplace (Day, 1994). Suppliers with greater efficiency can develop sustainable competitive advantage by using this capability to reduce costs and develop a cost leadership position in their industry (Barney, 1991; Porter, 1985). Hall (1993) suggests that two types of supplier capabilities – capabilities based on assets and capabilities based on competencies - could influence supplier to gain competitive advantage in markets.

#### *Capabilities Based on Assets*

We propose two sub-constructs that can influence suppliers' decision to participate in B2G e-auction markets. Cost leadership and excess production capacity would be used as sources for suppliers' competitive advantage in B2G e-auction markets (Elmaghraby, 2005). **Cost leadership** refers to supplier can gain sales by offering products and/or services at a price that is lower than that of competitors as well as pursuing economies of scale in production (Kabadayi et al., 2007). **Excess production capacity** infers supplier may differ in its production capacity. Excess production capability can be used to supply products and services as supplier's competitive advantage (Elmaghraby, 2005). If excess product capacity exists in the supply base, supplier can allocate this valuable resource in an e-auction market (Jap, 2002).

Hypothesis 8: Capabilities based on assets of supplier will positively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

#### *Capabilities Based on Competencies*

Hall (1993) proposed two types of capabilities based on competencies which can be the sources of sustainable competitive advantage, namely, functional capability (i.e. top management's e-auction self-efficacy) and cultural capability (i.e. total quality management). In the context of B2G e-auction markets, **top management's e-auction self-efficacy** refers to the perceptions of the owner and/or CEO of supplier to manipulate e-auction process in the accomplishment of a task (Bandura, 1986; Compeau and Higgins, 1995). This definition is based on the concept of self-efficacy defined by Bandura (1986, p.391). For example, top management can use his/her ability to manipulate e-auction system provided by third-party providers of e-auctions. Hulland et al. (2007) also found that the organisation which had a strong IT skill capability was positively influenced to commit to the online channel. **Total quality management (TQM)** refers to the continuous improvement of work processes to enhance the organisation's ability to deliver high-quality product or services in a cost-effective manner (Beer, 2003). Supplier's firms that implement TQM are better positioned to gain through lowered costs and improved customers' satisfaction (Beer, 2003). In addition, Powell (1995) found that TQM can produce economic value; and it can also be used as a potential source of sustainable competitive advantage for suppliers' firm. Thus, we expect that TQM can be used as a source of competitive advantage for suppliers in B2G e-auction markets.

Hypothesis 9: Capabilities based on competencies of supplier will positively influence supplier's intention to participate and the level of participation in the B2G e-auction market.

### Construct Measurement

In order to operationalise the constructs, scales to measure each of the constructs in the model are developed based on review of previous literature and existing scales are used where applicable. Some new measures are also developed from both research literatures and practitioner to reflect development of instruments. There are nine main constructs for this study. Six of the main constructs, which are product characteristics, market transaction costs, mimetic pressures, environmental uncertainty, capabilities based on assets, and capabilities based on competencies, which are operationalised as formative, whereas auction process cycle time, coercive pressure, and normative pressure are operationalised as reflective (see Table 1).



Scale items used to assess asset specificity and production description complexity constructs are developed from Son and Benbasat (2007) and Teo et al. (2003). Operational costs and contractual costs are assessed with two-item measures adapted from the definitions of the constructs found in Gurbaxani and Whang (1991). Moreover, the auction process cycle time is operationalised based on the extant definitions of the constructs found in Beall et al. (2003) and (Emiliani, 2000). Measures of mimetic pressures, coercive pressures, and normative pressures constructs are synthesized from Son and Benbasat (2007) and Teo et al., (2003). The three type of environmental uncertainty are measured, which are dynamism, complexity, and hostility. Dynamism and complexity are adapted from Kabadayi et al. (2007), while hostility is adapted from Newkirk and Lederer (2006). Capabilities based on assets construct and capabilities based on competencies construct are operationalised based on the competitive advantage literature found in Hall (1993). Measures of Capabilities based on assets construct is assessed through cost leadership and excess production capacity of supplier. Scale items for cost leadership construct are based on the work of Kabadayi et al. (2007), whereas excess production capacity construct is assessed with multi-item developed from the definition of the construct found in Elmaghraby (2005). In addition, measures of capabilities based on competencies construct is assessed through top management's e-auction self-efficacy and total quality management. Scales items for top management's e-auction self-efficacy are adapted from the IT self-efficacy literature found in Compeau and Higgins (1995). likewise, total quality management is assessed with multi-item adapted from the description of the constructs found in Powell (1995).

Constructs	Type	Sub-constructs	Type	Source
Mimetic pressures	F	Participation among competitors	R	Son and Benbasat, 2007
		Perceived success of competitors	R	Son and Benbasat, 2007
Coercive pressure (Perceived dominance of government procurement)	R			Son and Benbasat, 2007
Normative pressures (Participation in professional and trade associations)	R			Son and Benbasat, 2007
Product characteristics	F	Asset specificity	R	Son and Benbasat, 2007
		Product description complexity	R	Son and Benbasat, 2007
Market transaction costs	F	Operational costs	R	Developed for this study
		Contractual costs	R	Developed for this study
Auction process cycle time	R			Developed for this study
Environmental uncertainty	F	Dynamism	R	Kabadayi, 2007
		Complexity	R	Kabadayi, 2007
		Hostility	R	Newkirk and Lederer, 2006
Capabilities based on assets	F	Cost Leadership	R	Kabadayi, 2007
		Excess production capacity	R	Developed for this study
Capabilities based on competencies	F	Top management's e-auction self-efficacy	R	Developed for this study
		Total quality management	R	Developed for this study
Transaction intention	R			Son and Benbasat, 2007
Participation level	n/a			Grewal et al., 2001; Son and Benbasat, 2007

(Adapted from Son and Benbasat 2007) Note: F = formative; R = reflective; n/a = not applicable

**Table 1. Constructs and Measures**

## CONCLUSION

In this paper, we have attempted to derive a theoretical framework for explaining supplier behaviours in a B2G e-auction context, by drawing from multiple disciplines. The outcome is derived from extensive and rigorous literature review. It is anticipated that the examination of four key constructs; efficiency motive, legitimacy motive, environmental uncertainty, and supplier capabilities will help to identify reasons for suppliers' decision to participate in B2G e-auction markets in Thailand. Overall, we believe that this paper extends the understanding of supplier behaviours in the Thai B2G e-auction markets. We also hope that the outcome of this study encourages new thinking and research into the B2G e-auction markets. Future steps include interviews with suppliers in the Thai B2G e-auction markets to help use develop survey instruments, followed by pre-test of the instruments, the main survey, and follow-up interviews (if necessary) to explore unexplained results.

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