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**24th Australasian Conference on Information
Systems, 4-6 December 2013, Melbourne**

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Understanding E-procurement Systems Benefits: A Theoretical Model with Initial Findings from an Australian Local Council

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Abstract

E-procurement systems, which represent a core e-supply chain initiative, revolutionise the procurement function of organisations and promise many benefits. However, realisation of benefits is not always guaranteed. Existing e-procurement studies are primarily descriptive in nature and do not help management predict the likely benefits that their organisations may experience from implementing an e-procurement system. We thus propose a model to better explain the benefits that organisations could experience from these systems. The model identifies four types of relationships which organisations may establish with suppliers while deciding to introduce an e-procurement system, and associates each relationship type with several predicted benefits. We further present the e-procurement experience of an Australian local government agency, analyse it in terms of the model, and provide initial empirical support for the applicability of part of the model. Finally, the contributions of our study together with its implications for future research and practice are highlighted.

Keywords: e-SCM, e-procurement, benefits, relationship, local government agency, Australia

INTRODUCTION

E-procurement systems represent a major e-business innovation that is used within supply chains (Eassig and Amann 2013). They rely on the Internet and capitalise the novelty of web-based technologies to automate and streamline procurement process. When successfully implemented, these systems can offer many benefits. However, e-procurement benefits are reported to differ among organisations. For example, Croom and Jones (2007), Gunasekaran and Ngai (2008) and Rahim and As-Saber (2011) report the attainment of operational benefits, whereas Panayiotou et al. (2004) and Ronchi et al. (2010) highlight the strategic benefits experienced by some organisations. Current literature on e-procurement benefits are dominated by descriptive studies which lacks predictive ability. Hence, it is not clearly known why different organisations experience different benefits from implementing an e-procurement system. A lack of understanding about the variations in benefits can impede the diffusion of these systems because management of those organisations (which are contemplating to introduce an e-procurement system) may experience difficulties in preparing convincing business cases to justify their investment decisions in e-procurement systems. Therefore, bringing clarity to better understand benefits from e-procurement systems implementation is of importance. We thus present a model to explain variations in the attainment of e-procurement systems benefits by organisations. The model treats business relationship to be an independent variable that influences the attainment of e-procurement benefits, and identifies a total of four types of business relationships which organisations may intend to establish with their suppliers while deciding to introduce an e-procurement system. Each type of business relationship is associated with a specific set of five benefits. We further offer initial empirical evidence in support of the applicability of part of this model by analysing the e-procurement systems implementation experience of an Australian city council which represents an instance of a particular type of relationship described in our model. The local government sector is chosen as the empirical settings because this sector is known to suffer from chronic procurement related inefficiency (Rahim and As-Saber 2011). The model and the case study findings together contribute to the theoretical body of literature as they offer a suitable lens to help management predict attainment of benefits from the implementation of e-procurement systems. Predictions are made by theoretically linking two constructs: 'type of e-procurement enabled business relationships' and 'type of benefits' arising from e-procurement systems implementation. Such a predictive model, built on these two constructs, has not yet been reported (to the best of our knowledge) in the literature. For practice, managers responsible for adopting e-procurement systems can consult our model to make an informed decision on the type of business relationship their organisations seek to form with suppliers by enabling e-procurement systems implementation. This may in turn guide them in formulating a strategy for promoting the anticipated value of their e-procurement initiatives to the senior management and other internal stakeholders.

RELATED E-PROCUREMENT LITERATURE

Benefits from e-procurement systems: There exists a rich body of literature on e-procurement systems benefits. Our analysis of the literature leads to the identification of five broad themes: *narrative description of benefits, ranking of benefits, types of benefits, factors affecting benefits, and comparison of benefits between private and public sectors*. Each theme is briefly discussed below.

Theme 1 includes the works of Foerster (2003), Hardy and Williams (2005), Kutschera and Tittel (2005) and Tanner et al. (2008). These studies generally provide a narrative description of e-procurement systems benefits. Popular benefits that are identified include cost savings, maverick buying reduction, greater accuracy, timely information, image building, among others. Studies belonging to Theme 2 however express e-procurement systems benefits in a ranking order. We find little similarity in the ranking of e-procurement benefits given by these scholars. For example, Davila et al. (2003) identify the top three benefits as purchasing transaction costs reduction, purchasing order fulfilment time, purchasing cycle time, whereas Leipold (2004) observe such benefits as transparency, reduction in process complexity (via enhanced simplification) and compliance as the top three most important benefits. Studies included in Theme 3 provide a classification of e-procurement systems benefits. Benefits are categorised in various ways and the type of benefits vary from two to four. The works of Bensaou (1999), Attaran and Attaran (2002), Boer et al. (2002), Croom (2000) and Mukhopadhyay and Kekre (2002), Kalakota and Robinson 2001, Puschmann and Alt (2005), Caniato et al. (2010), and Piotrowicz and Irani (2010) represent this theme. Studies representing Theme 4 help identify a set of factors affecting realisation of benefits from implementing e-procurement systems. Examples of factors include: integration Rahim et al. (2006), employee training, and presence of e-catalogues Rahim and Bantwal (2012), trust, technical system capabilities, organisational factors Rotchanakitumnuai (2013), and degree of adoption of e-procurement systems Karthik and Kumar (2013). Within Theme 5, we are not aware of any specific study that explicitly reports a comparison of benefits between the public and private sector. However, there are some studies that mention about benefits in passing while discussing the adoption of e-procurement systems in the public sector organisations. These studies indicate that government agencies have experienced benefits ranging from procurement related data quality improvements to efficiency gains. However, little evidence exists about long terms benefits or strategic benefits arising from e-procurement systems implementation in the public sector.

E-procurement systems and business relationships: Business relationships are generally discussed in the marketing and management streams of literature. With regard to e-procurement systems, our review of the e-business studies, which investigated the impact of implementing e-procurement systems on business relationships with suppliers, leads to the following observations. First, a majority of e-procurement studies focus on the private sector. Only a few studies report how e-procurement systems may influence buyer-supplier relationships for the public sector. Second, mixed findings are reported on how e-procurement systems influence buyer-supplier relationships. For example, scholars like Jun et al. (2000) and Carr and Smeltzer (2002) report an improvement in business relationship between buying organisations and their suppliers as a result of e-procurement systems implementation. In contrast, Leek et al. (2003) raise reservations about improving business relationships with suppliers. Third, studies examining the influence of e-procurement systems on buyer-supplier relationships are primarily restricted to such countries as USA and some European nations. In contrast, little is reported for the Australian context. Fourth, existing literature views buyer-supplier relationship as a dependent variable and discusses how the introduction of e-procurement systems can have an effect on changing the nature of such relationships. Existing literature does not recognise the possibility that knowledge of several types of business relationships between buying organisations and their suppliers has the potential to discuss how various benefits could potentially be predicted from e-procurement systems implementations.

Gaps in the related literature: We acknowledge that the e-business (including e-SCM) and IS/IT literature streams in which, e-procurement benefits and the influence of these systems on business relationships have been discussed, represents a genuine contribution to knowledge. Despite this, literature on e-procurement systems benefits is still dominated by descriptive case studies and surveys. Moreover, limited e-procurement systems benefits studies exist for the local government sector which suffers from severe procurement related inefficiencies. However, an encouraging observation is that a few studies representing Theme 4 of e-procurement literature (discussed earlier) are beginning to acknowledge that e-procurement benefits are influenced by various factors, but none has so far proposed a rigorous theoretical model to explicitly explain the variations in the attainment of e-procurement systems benefits. In particular, no attempt has yet been made (to the best of our knowledge) that treats e-procurement enabled business relationship as an independent variable and links it with attaining various benefits from e-procurement systems implementation. We argue that the technological novelty of e-procurement systems may help motivate organisations to review their existing relationships with suppliers. Armed with automation potential, organisations can now consciously decide to choose a particular type of relationship in support of their procurement strategy for maximising the usage potential of their selected e-procurement solution. Neither the e-procurement benefits literature nor the business

relationship literature involving e-procurement systems has explicitly recognised this potential. Our proposed model, reported in this paper, thus seeks to address this gap in the literature.

PROPOSED MODEL AND PROPOSITIONS DEVELOPMENT

A research model (shown in Figure 1) is proposed which envisages four types of business relationships that an organisation may possibly seek to establish with its suppliers when deciding to implement an e-procurement system. These relationships (indicated in the left hand side of Figure 1) are drawn on two criteria: “*level of interaction*” between an organisation and its suppliers and “*level of commitment*” an organisation has towards e-procurement implementation. The term “level of interaction” is characterised by sharing of information, knowledge and resource (e.g. employee, capital, hardware, software) that can possibly occur in a relationship between an organisation and its suppliers due to the e-procurement adoption. The sharing of relevant information aspect involving “level of interaction” is somewhat similar to communication of formal/informal timely information exchange between organisations conceived by such scholars as Morgan and Hunt (1994) and Sin et al. (2006). On the other hand, the term “level of e-procurement commitment” represents an organisation’s support to streamline its purchasing function and is reflected through its investment made in acquiring suitable e-procurement solution, building e-catalogues, acquiring best practices, creating backend integration, and organizing training on e-procurement systems, among others. In principle, the notion of “level of e-procurement commitment” is quite consistent with “investments made by buying companies” which is considered to be a dimension describing buyer-supplier relationships by Bensaou (1999).

We argue that a particular organisation when deciding to introduce an e-procurement system should rationally evaluate two specific aspects: a) the degree of commitment the organisation can possibly obtain from the senior management towards implementing the system, and b) the extent of sharing relevant information, knowledge, resources with suppliers by actively considering the policies of the organisation and IT readiness of the suppliers. Based on these considerations, an organisation should consciously choose one of the four types of business relationships with its suppliers (as indicated in Figure 1). A set of propositions (Table 1) is also proposed which link each type of business relationship with a specific set of the e-procurement benefits which an organisation can expect to experience as a result of the successful implementation of its e-procurement system.

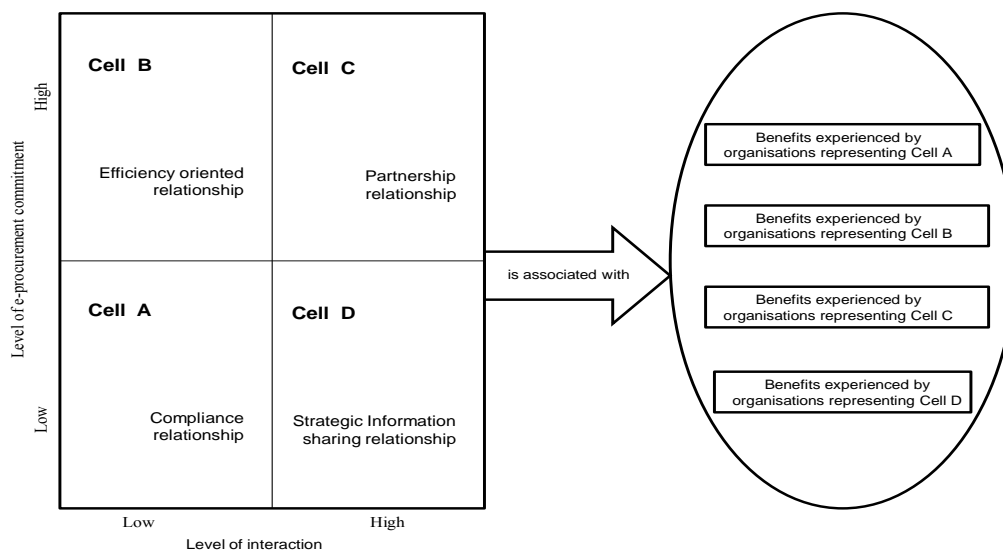


Figure 1: The research model

Cell A describes ‘compliance relationship’ that is characterised by low level commitment by an organisation to support its own e-procurement initiative and low “level of interaction” between the organisation and its suppliers. This scenario represents a superficial adoption of e-procurement technologies by organisations. It may possibly occur when the notion of procurement automation is somewhat imposed on the organisation by government directives or influence of powerful partners. As such, this type of relationship may arise when an organisation reluctantly responds in order to comply with external directives rather than for either wanting to gain internal efficiency improvements or the desire to enhance strategic relationships with its suppliers. Organisations demonstrating this kind of relationship do not introduce an e-procurement system to address a

well defined ongoing inefficiency problem rather they are prompted by compliance with external (e.g. government) directives. E-procurement systems are expected to be used as a defensive measure because compliance with government directives/industry mandates is aimed at minimising social expectation gap between an organisation and its suppliers. Being seen to implement an e-procurement system is more important than economic considerations. Hence, superficial implementation approach of e-procurement systems is likely to be chosen by the organisations. Organisations representing these type of relationships generally make limited investment in e-procurement technologies and integration facilities, and dedicate little effort in sharing of information, knowledge and resources with suppliers. This means data re-entry is still manually made and little cost savings from conducting purchase transactions can be achieved (P1). These organisations are quite reluctant in building e-catalogues and would not be interested in pursuing their suppliers to make e-catalogues available for them. Thus, it would be difficult for these organisations to restrict their employees' buying habits from the approved suppliers and hence they are not able to exercise strict control (P2). However, reporting functions supported by the e-procurement system can give management an improved understanding of the procurement behaviour of their employees (P3). Furthermore, little information sharing with suppliers leads to unavailability of critical data to procurement managers. This would in turn negatively influence preparation of more accurate procurement planning reports for decision making purposes. In addition, the absence of initiative of the organisations to jointly work with their suppliers means that procurement related decision making cannot be greatly facilitated (P4). No sharing of procurement related critical information with suppliers' would mean that the suppliers' perceptions towards the innovativeness of the buying organisations largely remain unchanged. Hence, the image of the organisation in the eyes of the suppliers is not improved (P5).

Table 1: A list of propositions linking business relationship types with e-procurement systems benefits

Propositions No.	Relationship Types	Propositions linking with benefit types
P1:An organisation which is categorized as an instance of	Cell A	Does not expect to gain cost benefits
	Cell B	Expect to gain cost benefits
	Cell C	Expect to gain cost benefits
	Cell D	Does not expect to gain cost benefits
P2:An organisation which is categorized as an instance of	Cell A	Does not expect to gain greater control on purchasing
	Cell B	Expect to gain greater control on purchasing
	Cell C	Expect to gain greater control on purchasing
	Cell D	Does not expect to gain greater control on purchasing
P3:An organisation which is categorized as an instance of	Cell A	Expect improved understanding of procurement needs
	Cell B	Expect improved understanding of procurement needs
	Cell C	Expect improved understanding of procurement needs
	Cell D	Expect improved understanding of procurement needs
P4:An organisation which is categorized as an instance of	Cell A	Does not expect to gain improved decision making
	Cell B	Does not expect to gain improved decision making
	Cell C	Expect to gain improved decision making
	Cell D	Expect to gain improved decision making
P5:An organisation which is categorized as an instance of	Cell A	Does not expect to gain enhanced image
	Cell B	Does not expect to gain enhanced image
	Cell C	Expect to gain enhanced image
	Cell D	Expect to gain enhanced image

Cell B defines 'efficiency oriented relationship' that is characterised by a high level of commitment by an organisation towards e-procurement systems implementation but low level of online interaction between the organisation and its suppliers. This scenario may occur when an organisation intends to use an e-procurement system as a tool to enhance its internal procurement related efficiency by reducing processing time of procurement transactions and minimising data entry errors. E-procurement implementation under this scenario is not directed at improving bonding with suppliers but is aimed at enhancing the efficiency of the procurement function of an organisation through automation and increased internal control over that function. Organisations representing this type of relationship are expected to participate in such activities as streamlining procurement processes and backend integration. This in turn contributes to cost savings (P1) as manual printing and dispatching of purchase orders to suppliers is replaced by e-copies. As automation and streamlining procurement processes helps better allocation of the responsibilities and authority to employees involved in the procurement process, overall greater control can be exercised by managers through such e-procurement systems (P2). Furthermore, by streamlining procurement processes and centralising data, timely and more frequent procurement reports can be produced which is likely to improve understanding of corporate wide procurement practices (P3). However, it may not be possible for managers to make improved decisions without sharing of timely procurement related data and knowledge with suppliers (P4). Finally, the lack of desire to share a variety of information, knowledge and even resources with suppliers would mean that the organisation may not be seen

by suppliers as proactive to increase its bonding with suppliers. As such, the image of the organisation to be a willing and supportive business partner may not be established in the minds of the suppliers (P5).

Cell C describes 'partnership relationship' that is characterised by a high level of an organisation's commitment towards its e-procurement systems implementation and a high level of online interaction between the organisation and its suppliers. This scenario is likely to emerge when an organisation contributes a great deal of assets into implementing an e-procurement system and believes in long term strategic partnership development with its suppliers by agreeing to share relevant procurement related information (e.g. budget, scheduling and forecasting), knowledge (e.g. procurement, metrics, benchmarks), and even resources (e.g. software) with them. Increased information sharing will lead to greater knowledge sharing between an organisation and its suppliers (Croom and Jones 2007). Organisations representing this type generally have a higher level of understanding about the potential impact of e-procurement systems and are willing to spend considerable resources in e-procurement systems implementation driven by their desire to seek both operational and strategic benefits. They would build a seamless integration between e-procurement systems and their backend IT systems. By automating and streamlining their procurement process, these organisations would establish electronic linkages with many suppliers. The implications are that the procurement related documents are not printed at their end and are instantaneously sent from individual employees' desktop to the suppliers' fulfillment systems. Hence, these organisations are expected to experience cost savings in terms of reduction in paperwork and postage mail (P1). As these organisations use integrated e-procurement systems, and use e-catalogues, procurement related documents are not required to be entered manually into their computer systems. Data are being updated at their end without ever changing the electronic medium. The automation and streamlining the procurement process using e-procurement system means that accountability and authority of the individual employees can be identified, supported and monitored easily. Therefore, a greater control on the purchasing function can be exercised (P2). Moreover, the use of e-catalogues and decision rules built into e-procurement system should help enforce strict control over the purchasing practice. E-procurement systems also assist these organisations in reconciling various procurement related documents. As a result, improved understanding can be developed for the corporate wide purchasing process (P3). Such organisations would seek to maximise their economic returns by utilising the information held by their suppliers. They would even exchange relevant information and knowledge to create close electronic coupling among their processes. The cost savings that results from reduced paperwork and integrated procurement processes imply that these organisations would care much about improving bonding with suppliers by sharing timely information and knowledge and may even place greater volume of purchase orders to short-listed suppliers. This may be interpreted by the suppliers as an improvement in organisations' image (P5). This may also mean that the organisations can make improved procurement related decisions due to the timely exchange of information and joint planning activities (P4).

Finally, Cell d represents 'strategic information sharing relationship' that is characterised by an organisation's low level of investment in e-procurement systems but a high level of online interaction between the organisation and its suppliers. This scenario may arise when an organisation does not consider e-procurement systems to be an internal efficiency improvement tool, rather it likes to use those systems for better coordination and communication of strategic information, knowledge and even resources with suppliers without making substantial financial investments. This may be done in order to reduce uncertainty involved in purchasing function by coordinating greater purchase related information with suppliers. These organisations do not view e-procurement systems as a cost cutting measure. As these organisations would be driven by a desire to reduce uncertainty related to their procurement function, they would prefer to share procurement related information, knowledge and to some extent resources with the suppliers. This should in turn improve decision making ability of the organisations by jointly working with suppliers (P4). As suppliers tend to receive greater attention and information from the organisations, they are likely to develop a positive image about the organisations (P5). Furthermore, as the e-procurement systems introduction in such organisations is not driven by cost cutting focus, the implementation strategy may emphasise more on building external integration with suppliers rather than internal integration between e-procurement systems and backend IT systems. This may result in data re-entry and may not help bringing a reduction in procurement transaction costs (P1) and may not introduce a control over the procurement practices (P2).

RESEARCH DESIGN

We have adopted an exploratory case study research approach for the two reasons. First, little work is reported in the scholarly literature describing the ways the Australian local government sector has experienced benefits from e-procurement systems implementation. Second, it is not empirically known how e-procurement benefits relate to the intentions of councils to establish certain types of business relationships. Hence, we aim to discover the existence of a possible relationship between two sets of theoretical constructs: *nature of relationships between councils and suppliers due to e-procurement systems implementation*, and *subsequent benefits arising*

from such implementation. This particular aspect has been overlooked in the existing e-business literature. As such, according to Yin (2003), an exploratory case study approach is deemed appropriate.

The council which took part in our study was chosen based on the principle of a revelatory case (Yin 1994). This council is a pioneer in introducing an e-procurement system (called Oracle Internet Procurement Solution - IP5) within the local government sector of Victoria, and has been using the system for over seven years. In the past, the e-procurement implementation experience of the Victorian local government sector has remained largely unexplored. Thus, based on the recommendations of Patton (1990), we believe that the council's e-procurement experience could be considered quite unique and would provide exemplary sources of insights on this topic. The council is also using an Oracle ERP system which is integrated with the IP5 e-procurement solution. Currently, about 300 users have access to IP5, they can use it for sending purchase orders and remittance notices to suppliers in either e-mail or internet fax format. A total of 5500 active suppliers are registered in this system. However, these suppliers are not connected with the IP5 solution directly.

The participating council serves a population of about 1 million at a large Australian city. The council provides a variety of services including parking, transport, roads, community services, building and planning, parks and activities, environment, residential services, business services and visitor services, among others. Many of these services are offered online for council residents for their increased convenience. Procurement represents an important function of this council as it spends about 60% of its operating budget on procuring various services (e.g. road maintenance) and products. The council has about 1000 staff members and there are a dozen business units operating under the control of CEO. The annual budget of the council for 2009 was AUS\$270 million.

We consider an "individual city council" as the unit of analysis because a council is likely to have only one single e-procurement system implemented in support of its indirect procurement process. Data was gathered from multiple sources, including semi-structured interviews, e-procurement related documents that the council shared with us in confidence, and city council websites. A total of four managers from various functional areas (e.g. Procurement, Arts, Finance, IT) who had considerable involvement with e-procurement systems were interviewed. Each interview was transcribed. Related data from interview transcripts and documents were analysed by identifying and extracting relevant concepts via a coding scheme (Neuman 2006). In order to validate the research propositions, data were analysed using the pattern matching logic described by Yin (2003). This technique compares an empirically derived pattern with a predicted one (Trochim 1989). Using the pattern matching technique, we have compared the pattern of outcomes of e-procurement systems implementation benefits and business relationships between the council and its suppliers predicted from the research model, with the pattern of outcomes deduced from the collected case data. Based on the suggestions of Yin (2003), reliability was addressed by developing a case study protocol and a summary of definitions concerning e-procurement relationship and benefits. The protocol and the summary of definitions were both sent to the participating interviewees prior to the actual interviews. Validity was addressed using data collected from multiple sources and having interviewees reviewed their own interview transcripts.

CASE STUDY FINDINGS

Classification of business relationship of the council: Business relationship between the council and its suppliers as a result of e-procurement systems implementation represents an instance of 'Efficiency oriented relationship' (Cell B of Figure 1). The case study findings indicate that the "level of e-procurement commitment" demonstrated by the council is high, but its "level of interaction" is low. The details are described below:

Level of e-procurement commitment: The "level of e-procurement commitment" of the council is analysed in terms of several attributes: *investment made in such components as internally/externally developed e-catalogues, backend integration, e-procurement software systems and training in e-procurement systems.* The council acknowledges that considerable amount of funds it has invested into adopting an Oracle based e-procurement system. According to the Finance Manager: "*Definitely the cost is quite high, it is roughly about A\$2 million.*"

The council is currently using e-catalogues which were provided to them by large supplier companies. These e-catalogues can be accessed by the Oracle e-procurement system and allow the council to place everyday purchase orders. However, the council is aware that in future it may need to consider making investments in building e-catalogues for some of its preferred SME suppliers. This sentiment is expressed by Procurement Manager as follows: "*Maybe in the future, we need to help some of our suppliers by developing e-catalogues. But at this stage, we simply don't know what sort of advances there might be in the future.*"

The council was not required to allocate additional funding to establish backend integration because the A\$2 million Oracle package included the cost of integration of the e-procurement module with the council's financial application which is also maintained in Oracle ERP environment. The council however spent considerable staff

time for evaluating the accuracy of integration and performance acceptance testing. According to the Procurement Manager: *"We did a lot of testing, it wasn't our role to look at the back-end system but our role was to look at it as how it works, we had people from Oracle working with us and we had a big say and participation in the process."*

No investment was made by the council to educate suppliers because they were not considered as a part of the procurement automation initiative. Suppliers were only expected to receive just purchase orders sent through the system in the form of e-mail. According to the IT Manager: *"No training was provided to our suppliers because they were outside of our Oracle procurement system."*

The council however acknowledges that its internal staff members were all trained in the use of the e-procurement system.

Level of interaction: The "level of interaction" of the council is analysed in terms of three attributes: *information sharing, knowledge sharing and resource sharing*. On the matter of information sharing, the council acknowledges the existence of very limited information exchange with suppliers through its Oracle e-procurement system. This view is supported by the IT Manager who made the following remarks: *"Not much really; we are exchanging limited information."*

It appears that only one kind of document (i.e. purchase order) is being communicated through the e-procurement system. According to the Arts Manager (involved in e-procurement): *"We are exchanging information but it is limited to the order we are placing, so its just order details, there isn't two way communication with our suppliers."*

Except purchase orders, no other documents (e.g. budget, procurement plans) are exchanged between the council and its suppliers. This is because of the perceived accountability concerns of the council and its lack of trust for the suppliers. This sentiment is expressed by the Finance Manager as follows: *"We do not like to share information on how we to spend money, it is a trust issue and we have accountability. We have to be accountable of what we are doing and sharing."*

Therefore, the council can be considered to have a low degree of information sharing with its suppliers even though it implemented the Oracle e-procurement system.

The empirical evidence further suggests that very little knowledge is shared between the council and its suppliers with regard to procurement policy. For example, purchasing performance metrics and forecasting are neither discussed with the suppliers nor are transmitted electronically to the suppliers. The following remarks were made by the Procurement Manager: *"Not really, we share little knowledge with our suppliers regarding what we need."* Likewise, no evidence was found to suggest that the council has an intention to share any computing resources with its suppliers. Therefore, given limited information exchange and no sharing of procurement related knowledge and computing resources between the council and its suppliers, the level of interaction can be characterised as low in nature.

Evaluation of the propositions: The participating council is regarded to represent an instance of "efficiency oriented" relationship (Cell B of Figure 1). We therefore evaluate the e-procurement benefits experience of this council in terms of the propositions relevant for this cell indicated in Table 1. A council which establishes an "efficiency oriented" relationship can expect considerable cost savings due to automation and streamlining of its procurement process. Moreover, integration between e-procurement systems and backend application also contribute to cost savings by minimising the time spent on duplicate data entry. The Oracle e-procurement system benefits experience of the participating council is consistent with this prediction (P1). The council experienced a major reduction in its procurement transaction costs and reported to have saved money on postal stamps. The costs associated with the total processing time were also reduced. These sentiments are echoed by the Finance Manager as: *"The cost of creating a P.O. went down from AS\$54 dollars to AS\$8 dollars. We saved great deal on stamps, time spent in communicating P.O. and also time spent on tracking the orders as well as savings on HRs."* As such, propositions P1 is supported.

A council demonstrating an "efficiency oriented" relationship is expected to assert greater control over its purchasing activities. This is because approval and authorisation protocols are often changed due to streamlining procurement processes. Furthermore, better reporting and order tracing is made possible due to the e-procurement systems introduction. Finally, the use of e-catalogues further helps reduce maverick buying practice. This expectation (P2) is largely in line with the Oracle e-procurement implementation experience of the participating council. In the past, some council staff used to receive products from suppliers first and then prepared a purchase order. This created a problem because the procurement manager often could not match the

delivered products against the purchase orders. The Oracle e-procurement system allowed the council to introduce strict rules for not placing orders without an approved purchase order number and from preferred suppliers only. Furthermore, the system enabled the central city council to monitor purchasing activities within the council with much ease through the sophisticated reporting functions. The Oracle e-procurement system also enabled council employees to trace their orders. According to the Procurement Manager: *"All orders are now well documented. Restrictions were also placed on what sort of items can be ordered and what not along with shortlisted preferred suppliers to order from"*. Given the evidence presented above, propositions P2 is supported.

A council demonstrating an "efficiency oriented" relationship can use the e-procurement system to develop an improved understanding of the procurement behaviour patterns and needs of its various functional departments. This is possible because the e-procurement system can capture more accurate and up-to-date data, generate various types of reports, and help identify procurement anomalies within the council. The experience of the participating council supports this view (P3). The council acknowledges that the use of Oracle e-procurement system enables accurate capturing of procurement transactions and generates a range of reports at any time highlighting the purchasing patterns of various departmental units and whether each department has exceeded its allocated procurement budget. This sentiment is reflected by the Procurement Manager as follows: *"Having this system allows us to accurately capture data as soon as a transaction takes place. We can now prepare reports whenever we want and find out how much our departments have spent. That is a major benefit."* As such, propositions P3 is supported.

A council intending to demonstrate an "efficiency oriented" relationship is unlikely to experience improvements in its procurement related decision making ability (P4). This is due to the lack of knowledge and resource sharing and the long term strategic relationship vision of the council with its suppliers, the council management is unlikely to be able to make improved strategic decisions. This view appears to be partially supported by the experience of the central city council. At an individual employee level, the ability to decide what and from whom to purchase has been made more efficient because the Oracle e-procurement system allows employees and managers alike to generate an approved purchase order in a more timely and precise manner. However, no evidence was found to suggest that the strategic decision making ability of the council's procurement managers was better supported as a result of the introduction of e-procurement systems. According to the Procurement Manager: *"No, it (Oracle e-procurement system) does not affect strategic decision making, because the strategic procurement vision and policies are not influenced by the e-procurement system."* Hence, propositions P4 is partially supported.

A council intending to demonstrate an "efficiency oriented" relationship is less keen to project a supportive and caring image to suppliers. This is because of the unwillingness of the council to share a wide range of procurement related information and knowledge with suppliers. As a result, collaboration between the council and its suppliers is not expected to improve despite the introduction of the e-procurement system. This in turn does not help establish a caring and supportive image of the council as perceived by the suppliers (P5). This view is difficult to evaluate without evidence collected from the suppliers of the participating council. However, drawing on the views expressed by the interviewees, an indirect inference has been drawn. It generally appears that the council is not much concerned with establishing its image. The council generally expects that as it represents a large government customer, most suppliers will be willing to maintain a good trading relationship regardless of how procurement data is exchanged. No specific evidence has emerged that positively asserts that the image of the council has improved as a result of the Oracle e-procurement system introduced at the central city council. According to the IT Manager: *"We are a large government customer and our suppliers maintain good relationships for their own sake"*. Therefore, propositions P5 is thus supported.

DISCUSSION

The council made a considerable investment in the e-procurement system but that investment was intended purely for internal efficiency improvement. There was no intention of the council to revolutionise its existing relationship with its suppliers. Hence, the council was reluctant to share much information, knowledge and resources with its suppliers. This observation is in line with various scholars who have reported the tendency of the local government sector to introduce ICT in a superficial manner which does not allow for overwhelming changes in their relationships with suppliers. For example, Croom and Jones (2007) report that the adoption of e-procurement systems in a UK public sector organisation was not considered important for building close relationships with suppliers. Moreover, capabilities and sophistication at the local government sector are still not at par with those of the private sector. According to Kuk (2002), the local government sector usually lags behind the private sector in terms of capabilities and ICT infrastructure. Hazlett and Hill (2003) argue that government

agencies hardly stand at the forefront of Internet innovations, although they are beginning to acknowledge the need to exploit the potential of innovative web-based systems. On the matter of five propositions, four (i.e. P1 to P3, P5) received full support and only one (P4) received partial support. We thus believe that the proposed model is able to provide satisfactory explanations for the predicted benefits of organisations representing 'efficiency oriented' (Cell B) type of relationship. We also note that propositions P1 to P3 are concerned with operational benefits and were fully supported. For example, a reduction in procurement related costs (P1), greater control by minimising maverick buying practice (P2), and improved understanding of procurement needs (P3) were experienced by the council. Hence, the case study offers support to the observations of Neef (2001), Panayiotou et al. (2004), Rahim et al. (2006) and Rotchanakitumnuai (2013) with regard to the attainment of operational benefits from the implementation of e-procurement systems. In contrast, no evidence was found from the council in support of gaining strategic benefits. The reasons for not achieving strategic benefits can be explained in terms of the participating council's decision to choose the "efficiency oriented" business relationship type with its suppliers. Hence, the case study findings offer no support for the views expressed in the literature about attaining strategic benefits from the implementation of e-procurement systems. However, this situation may change when we fully evaluate the e-procurement experiences of organisations representing the remaining three cells included in our model.

CONCLUSION

We believe that our proposed model and the initial case study findings (supporting part of the model) are useful. They help highlight the role of business relationships in explaining the attainment of benefits by the buying organisations (city council in our case). In the past, business relationships have traditionally been considered to be a dependent variable. Whereas, in our model (which identifies four types of business relationships) e-procurement enabled business relationships are treated as an independent variable that link with the expected benefits. This particular aspect, which has not been reported in the literature, represents a genuine contribution to the theoretical foundation of e-procurement literature. One important implication for the management of local government councils is that they can consult our model to help identify the realistically attainable benefits and then create employee awareness about those benefits. This may in turn minimise creating unrealistic employee expectations from e-procurement systems implementation, and therefore, help organisations in avoiding employee frustrations as it prevents creating excessive hype about the impact of such systems. Our work reported in this paper although useful can be extended in several ways. For example, the four types of relationships proposed in the model represent theoretically derived 'ideal scenarios'. In reality, sometimes it may be possible to observe organisations which may not neatly fall into one of these types. The model, in its current form, cannot be applied to such contexts. This in turn calls for further research to refine the model. Furthermore, the attainment of benefits from the implementation of e-procurement systems could be influenced by several external factors (e.g. readiness of suppliers, critical mass of suppliers ready to join e-procurement initiative). The role of these factors in mediating e-procurement systems benefits is not explained by our model. Finally, our findings cannot be generalised due to the partial empirical evaluation of the research model; hence further attempts are needed to examine the entire model.

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