



**CHALLENGES IMPEDING THE ADOPTION OF
E-PROCUREMENT BY PUBLIC SECTOR ORGANISATIONS
(MINISTRIES, DEPARTMENTS AND AGENCIES)
IN SIERRA LEONE – A SURVEY**

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Abstract:

The introduction and adoption of public procurement and e-procurement processes as recommended by donor organisations for governments of developing and/or under-developed countries has not achieved the intended objective of value for money. The human and material resources poured into building the capacities of countries like Sierra Leone could be considered as one of the steps of achieving the milestone i.e. value for money. The objective of this study is to examine the factors affecting e-procurement in organizations taking into consideration three factors including the value of e-procurement, e-procurement capability and e-procurement models. Data was collected through the use of a questionnaire targeted at procurement practitioners and Specialists and Heads of government ministries, departments and agencies using convenience sampling which is one of the methods of non-probability sampling. Descriptive statistical analysis techniques were employed for data analysis. Findings from the study revealed that a vast majority of the respondents believe that inadequate or limited capacity, credit facility or credibility and rigid laid-down rules of public procurement procedures and processes are the impediments responsible for the adoption and implementation of e-procurement in Sierra Leone. The paper recommends that the Government of Sierra

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Leone should put the necessary ICT infrastructure in place, review the current procurement act and adopt the implementation of e-procurement in order to achieve value for money.

Keywords: e-procurement, procurement practitioners, procurement processes, value for money

1. Introduction

Purchasing as a business function has evolved from an old-style buying of “*materials of the right quality, in the right quantity from the right source delivered to the right place at the right time at the right price*” (Lysons and Farrington 2006). The vibrant business environment has made it vital for organizations to change the previous ways of doing things to a more strategic tactic which concludes the purchasing revolution. Quesada *et al* (2010); Hawking *et al* (2004), believe that procurement is well thought-out to be as a strategic participant in the value chain, as the purchase of goods and services represents the single largest cost item for any given organization, since each pound a company earns on the sale of a product; it spends about fifty to sixty pence on goods and services.

In addition, more capital is spent on the purchase of materials and services to support the business operations than on all other expense items put together (Hawking *et al* 2004). Organizations are consequently realizing that another way of becoming more profitable can be just as effective, if not so in improving the purchasing operation.

Conventionally, purchasing has involved a number of communication mediums to enable the purchasing process between various parties. These have included the use of phone, mail, fax, Electronic Data Interchange (EDI) and more recently, email and the Internet (Hawking *et al* 2004).

The development of Internet technologies has made these functions at ease and more effective and resourceful through e-procurement. Before the establishment of e-procurement, corporate purchasing often had to deal with administrative routine work which involved pre-purchase activities such as participation in the preparation of specifications and budget decisions, preparation of tender documents, enquiries and requests for quotations, issue of purchase orders, receipt of goods and services, and payment for the goods.

The e-procurement has cut down these procedures and made it possible to undertake at a reduced lead time and made corporate purchasing activities more well-organized and cost-effective (Robinson Jr *et al* 2005).

Gunasekaran and Ngai (2008 p.160) stated that “*e-procurement strategies are emerging as a powerful means of attaining the goal of cost reduction and productivity enhancement*”. Subsequently, profitability can be attained by an increase in the sales volume without necessarily an increase in cost, or on the other hand a reduction in cost, it therefore becomes precarious for organizations to limit costs which is within their

powers through exclusion of undeserved activities in purchasing that do not add value to the organization.

What's more? Teo *et al* (2009) in their work on e-procurement strategies lectured that e-procurement tools offer a complete enterprise application suite for Internet-based sourcing and supply chain optimization by facilitating quotes and order transactions. This helps public procuring entities speed up new products and services to boost revenue and improve customer satisfaction, while at the same time cutting direct material costs to increase customer satisfaction.

This piece of research work is therefore designed to probe into some of the tools adopted in e-procurement, and the benefits derivable from e-procurement with emphasis on the lead time, cost reductions, and challenges encountered by organizations in implementing e-procurement. This is essential as many organizations, who intend to guzzle e-procurement should be made to understand what to expect from such a leap.

The past decade has witnessed a great number of authors who have written on e-procurement and have succeeded in creating great awareness on the subject. E-procurement applications make purchasing activities more effective in terms of both time and cost (Gunasekaran and Ngai 2008). E-procurement is changing the old traditional ways business organizations purchase their materials and services.

At present, it could be said that efficiency gains from e-procurement are well-known, and the technological viability of its implementation is assured (Davila *et al* 2003). However, the adoption and implementation of e-procurement in Sierra Leone, organization both private and public are rather low when compared with other countries' industries. Even though the overall acceptance rate of e-procurement is still relatively unknown (Pearcy *et al* 2008), but most researchers agree that the full impact of e-procurement has not yet been appreciated.

The adoption and incorporation of e-procurement into the business mainstream are happening at a very slower pace than expected (Davila *et al* 2003). Studies have shown that over 70% of buyers use Internet technologies at work (Caridi *et al* 2006), but the percentage of business procurements carried out electronically is relatively low, ranging from 10% (Qualyle 2005) to 20% (Kulp *et al* 2006). This discrepancy was also made evident in the study by Gunasekaran and Ngai (2008). In this study, 80% of industry respondents accepted that the use of the Internet was important in procurement but only 20% of them had in fact adopted e-procurement technologies.

What's more, there has been much attention paid by scholars to e-procurement in countries with developed technologies and economies. Little emphasis is laid on smaller economies with less developed technology-rated industries. In most of these less developed economies, the awareness of e-procurement solutions is not high due to limited ease of access to the internet and other information technology platforms (Tatsis *et al* 2006).

In the contemporary world, e-business has become part and parcel of routine life in many business spheres as a large number of organizations are involved in one form of e-business or another such as e-procurement. The stress is on the use of technology to

substitute or improve transactional undertakings in order to gain operating effectiveness (Essig and Arnold 2001).

E-procurement structures also allow more well-organized incorporation of supply chains and provide improved organization and tracking of transaction records for stress-free data achievement. There is a need to have a robust automated procurement structure which is interlinked and this will lead to enhanced effectiveness and lowered costs (Ogot *et al*, 2009). Transactions can be consistent and all bids for products and services can be tracked more without difficulty, allowing business owners to use such facts to obtain improved pricing. Due to more rapid exchanges of information and distribution of goods and services, e-procurement also promotes shorter product-development phases.

As it turns out, the buyer is not predominantly price-driven when shopping on the Internet but instead considers brand name, trust, reliability, and delivery time as at least as important as price (Brynjolfsson, Dick, and Smith, 2004). In the past few years, there has been collective prominence on e-procurement from the European Commission and Office of the Government Commerce, starting with the option for online tender submission, followed by online Official Journal of the Economic Union (OJEU) notices. The encouragements for contracting authorities to use e-tendering methods consist of more rapid tender processes and more modernised procurement, particularly for straightforward tenders where face-to-face contact with bidders is non-dominant.

Irrespective of the acknowledgement of the value of e-procurement, it is clear from the study by Gunasekaran and Ngai (2008) that the adoption of e-procurement is still very low.

In Sierra Leone, the adoption of e-procurement has progressed from its conception stage in the public sector due to public procurement rules and regulations however, the private sector easily implements e-procurement as they are not mandated to adhere to public procurement rules and regulations. It is against this background that the study seeks to find out the factors affecting e-procurement in public entities in Sierra Leone to spearhead the improvement of such entities' performance in Sierra Leone.

The study was carried out in Sierra Leone on all organisations that use e-procurement and those who intend to use e-procurement in Sierra Leone. The objective of this research is to find out factors affecting e-procurement in organizations taking into consideration three factors including the value of e-procurement, e-procurement capability and e-procurement models. The findings of the study will be used to develop an understanding of enterprise staff on the use of e-procurement to encourage growth as it eliminates the use of traditional procurement procedures already portrayed as expensive and time-consuming.

2. Materials and Methods

Electronic procurement (e-procurement) and supply chain management are two of the strategic theories used by most business organizations when business links and effective collaborative supply chain management are required with their suppliers and customers.

The development of Internet and World Wide Web facilities, with their associated explosive growth, has fortified the sudden growth of electronic activities which includes procurement of goods and services. The focus of this study, e-procurement is one important element of the e-business.

As e-procurement is a part of the electronic business carried about through the Internet, a few of the electronic business tools are briefly explained - like electronic commerce (e-commerce) as it relates to electronic procurement (e-procurement). Background to public procurement business in Sierra Leone is made, afterwards, the benefits and challenges of e-procurement, and the critical success factors will be discussed.

2.1 Electronic Commerce

Electronic commerce (e-commerce) can be defined in several ways, depending on the context and objective of the author. Electronic commerce could be defined as the process of buying and selling products and services using electronic data transmission via the Internet and www (Gunasekaran *et al* 2009).

This definition by Gunasekaran *et al* could be said to be narrow-minded as it portrays e-commerce as only buying and selling products and services through the Internet. According to Ghobakhloo *et al* (2011), e-commerce is more than just buying goods and services by electronic means. It involves using network communications expertise to engage in a wide range of activities throughout the value chain.

Electronic commerce can be viewed from four outlooks; communication outlook, business process outlook, service outlook, and online outlook. Kalakota and Robinson (2001), believe e-commerce if viewed from the communication outlook refers to the delivery of information, products and or services, and payments via telephone lines, computer networks, or any other means.

When viewed from the business process viewpoint, e-commerce refers to the application of technology and automation of business transactions and workflow. When viewed from a service perspective, e-commerce will be seen as a tool that facilitates the desire of firms, management, and consumers to cut down costs while improving the quality of goods as well as the speed of service delivery. And, finally, e-commerce provides the capability of buying and selling products, services and information on the Internet and other online services when viewed from an online perspective.

From the above, e-commerce could be said to be an internet-based buying and selling of goods, services and information, with the enabling robotics of daily business activities to enhance efficiency. E-commerce as a result has been used as a broad term to refer to the use of the Internet for advertising and showing information about products and or services, and also a narrow term which only involves business transactions, ordering and payments on the Internet (Gunasekaran *et al* 2009).

E-commerce has some benefits associated with its application. The benefits of e-commerce could be enjoyed by both the small, medium and large organizations who key into it. E-commerce could therefore level the competition grounds with the big

organizations, provide location and time independence, and ease of communication to business organizations (Cullen and Webster 2007; Walker and Harland 2008).

All the same the numerous potential benefits of e-commerce, and its adoption by many organizations remain limited. Most organizations use the net for the purpose of communication and gathering of information generally but not for online transactions (Tatsis *et al* 2006; Gunasekaran and Ngai 2008). Electronic commerce is avoided by some business organizations as it is argued that information technology increases productivity and consumer surplus but not necessarily business profit (Cullen and Webster 2007).

Pearcy *et al* (2008), opined that the productivity gains from investment in information technology have generally been neutral or negative. Thus, the perception of the management determines if information technology can be applied to its full usage or is still narrowed to communication and information sharing.

3. Research Methodology

This study was conducted over a 2-week period in Freetown in November 2023. The rationale for this is that Freetown is the administrative centre and location for most Ministries, Departments and Agencies (MDAs) also for the fact the access to e-procurement Internet platform is more accessible in Freetown than in other regions in Sierra Leone. Two questionnaires were developed based on previous work done on the subject area – individual and in-depth questionnaires. These questionnaires consist of open and close-ended questions. The individual questionnaire contained 30-item questions divided into three sections - A, B and C. The first section had 8 questions concerning on personal details of the respondents; followed by Section B which had 8 questions relating to information about respondents' computer literacy, the use of the Internet and related computer applications. Section C had 14 open-ended questions on respondents' perceptions of procurement laws and processes and e-procurement.

The questionnaires were administered by enumerators, who employed pragmatic/convenient sampling in the selection of Public Procurement Authority Agency, Procurement Practitioners in public entities and Heads of MDAs - as respondents. This sampling method was done by approaching prospective respondents in identified Ministries, Departments and Agencies; all in Freetown. The selected respondents were those who agreed to be interviewed. The Statistical Package for Social Sciences (SPSS) version 25.0. The missing values are very small (less than 5%) based on this the percentage used for the study is valid.

4. Findings and Discussions

4.1 Demographic Characteristics

Data were obtained from 45 respondents out of 50 questionnaires circulated; representing a 90% response rate. The 10% non-responsive were respondents who were unable to complete the questionnaire. The demographic factors revealed that the majority of the

responsive respondents were male (75%) while the rest were female (25%). This indicates that there were more male procurement practitioners than females in government ministries, departments and agencies during the period of study. The analysis revealed that 56% of the respondents were between 20 – 30 years, 22% were between 31 – 40 years, 19% were between 41 – 50 years, while 1 (3%) respondent was non-responsive. A greater proportion of respondents are therefore young, likely young graduates who have ventured into the procurement profession due to the fact that procurement was introduced over a decade and a half ago and is considered lucrative and the upward mobility in the civil service cadre was introduced most recently. The views of the few respondents below 50 years old who were already in the civil service before the evolution of the procurement profession and have been trained on the job thus making the study present a fair and balanced report of the impediment of e-procurement adoption in Sierra Leone.

The survey revealed that 3% of the respondents' educational attainments were at Higher National Diploma (HND) level, 12% attained diploma level, 50% attained first degree, 19% attained postgraduate, 13% had professional qualifications while 3% did not reveal his/her educational status. The majority that has first degree are considered very young and this could be as a result of the recent introduction of procurement specialization at that level in some tertiary institutions and these respondents were ready to provide useful information on the subject matter of the research. 62% of the respondents were employed and on full-time employment, while 38% were on contract employment. Out of the total employed 34% were procurement assistants, 37% were procurement officers, 13% respectively were procurement managers and procurement specialists while 1 respondent (3%) did not reveal his/her designation. 47% of the respondents were only less than 2 years in procurement practice, 38% were between 3 to 5 years, only (3%) 1 respondent was between 6 to 10 years while 12% indicated they had been in procurement practice for over 10 years. The monthly income of respondents during the period of the study indicated that 13% earned between Le800 – Le1m, 31% earned between Le1,000 – Le2,500 43% earned between Le2,600 – Le5,000 13% earned Le8,000 and above. Surprisingly, all the respondents indicated the range of their income. The result could be that the respondents were proud or satisfied with their earnings and they have job satisfaction.

4.2 Data Analysis Techniques of the Key Variables

4.2.1 Computer Literacy

The investigation revealed that all (100%) of the surveyed respondents were computer literate. This signifies that these practitioners should not be challenged in implementing e-procurement as they are knowledgeable in ICT. The utilization of ICT in implementing e-procurement in MDAs requires a great deal of computer literacy. Of the 100% literates, the levels of literacy were basic use and understanding (44%), intermediate use and understanding (31%) and advanced use and understanding (25%). This means all the procurement practitioners were knowledgeable and comfortable in the use of ICT

infrastructure. They were able to use the Internet to access relevant information and email services and sourcing of required goods and services online.

Also revealed in the analysis only 56% of the computer literates had training provided by their institutions while 44% indicated that no training had been provided by their institutions. This may be because there is a great emphasis on ICT training. The types of ICT training provided by the institutions were basics (13%), intermediate (31%), and advanced training (13%) while 44% were not responsive. This could be that the practitioners self-sponsored their ICT training. In the use of ICT in the line procurement profession the investigation revealed that 63% of the respondents made use of ICT, 31% did not use ICT and 6% were not responsive. The use of ICT tools is not limited to office-based infrastructure virtually all IT-literate professionals own a smartphone (s) same tool can be used at any time and anywhere to implement e-transactions as long as the applications are installed.

The result revealed that the telephone is the most popular type of ICT tool used confirming the previous studies done in this area that telephony is the most developed component of ICT in developing countries (Akadiri *et al*, 2009). Mobile Phones are used to communicate by procurement practitioners to implement their daily tasks. The provision of the Internet enabled the practitioners to carry out their duties that are electronically related such as e-adverts on the provision of goods and services and receipt of bid documents through e-mails. MS Office Suite (especially Excel and Word) is another ICT tool/application that is commonly used by procurement practitioners. Other procurement software applications include e-auction, e-sourcing, e-tendering and Enterprise Resource Planning (ERP) applications. The majority of the respondents make use of these tools frequently and they consider them user-friendly.

4.2.2 Procurement Law, Processes and e-Procurement in Sierra Leone

The national laws and regulations of public procurement do not make much provision for the implementation of e-procurement and this is confirmed by the respondents (34%) who revealed that the national procurement process does not permit e-procurement, 56% indicated that the process does permit to some extent while 9% were not responsive. As a follow-up, the investigation revealed that of the 56% that indicated the procurement process permitted e-procurement only 38% engaged in some form of e-procurement while 62% did not engage in e-procurement in their institutions for the following reasons - procurement method does not permit e-commerce/procurement, the provision of e-procurement has not been applied/adopted, there is inadequate facilities, there is poor internet access and weak infrastructure and the public is not used to e-procurement were the responses in this order.

4.2.3 Achievement of Value for Money in the Practice of Public Procurement

When respondents were asked if public procurement leads to the achievement of value for money; all the respondents (100%) responded in affirmative with the following justifications – there is greater competition, reduction of risk and corruption, give

opportunities for a wider selection of suppliers, advertisement opportunity for bid opening and evaluation of bids and award of contracts, goods are supplied at the right quality, quantity, time and affordable price. However, this is contrary to the perceptions revealed by end users during the in-depth interviews.

In attaining value for money through e-procurement 94% believed value for money is achieved through e-procurement on the following reasons – no face-to-face contact with suppliers which combats the possibility of corruption, guarantees paperless transactions and transactions are completed at a faster rate while 6% believed the contrary.

4.2.4 Benefits and Challenges of e-Procurement

Respondents who indicated they practise e-procurement believed the following as the benefits – e-procurement creates a greater opportunity for procurement practitioners or buyers to meet wider supplier network; access to a variety of products whilst coping with the modern trend of access to quality goods and services; adoption of best international practice and effective utilization of public funds in order to avoid wastage.

However, respondents from the in-depth interviews pointed out that e-procurement has more benefits to public sector procurement in Sierra Leone than challenges. They asserted that cost reduction is the major benefit as administrative and procurement costs are expected to be reduced by between 20% and 30%. The respondents went further to state that e-procurement will bring about ease of transaction, save time in terms of lead time and transaction time, enhance transparency in purchasing activities, and eliminate or reduce unnecessary paperwork.

It was also asserted that if e-procurement is fully adopted by public sector procurement in Sierra Leone, they will, in addition to the benefits enumerated above achieve ease in purchasing processes, improve productivity level, enhance quick sourcing of items and materials, and maintain some level of confidentiality which enhances building of trust in business relationships. Generally speaking, e-procurement will bring efficiency to operations.

These assertions were in line with the benefits of e-procurement described in a literature review by Gunasekaran and Ngai 2008; Gumussoy and Calisir 2009; Ozbilgin and Imamoglu 2011; Ronchi *et al* 2010; Farzin and Nezhad 2010; Gunasekaran *et al* 2009; Chang and Wong 2010.

Furthermore, these benefits will overcome the inefficiencies of the traditional procurement process as outlined in the literature by Lysons and Farrington 2006; Hampton *et al* 2012, and Ren *et al* 2012.

However, the respondents pointed out that cost reduction as a benefit of e-procurement can only be achieved in the long run. In the short run, this is not achievable because of the huge cost of the technology.

On challenges faced in implementation, the following are indicated poor network and limited accessibility to Internet facilities and poor security tools and measures. In combating these challenges, the respondents recommended the following – all

procurement practitioners must be equipped with required training; the government of Sierra Leone should ensure proper electronic data transfer (EDT) systems are instituted on behalf of MDAs in order to ease the delay in payment issue.

4.2.5 Hindrances or Clauses in the Rules and Regulations that disallow e-Procurement

The national procurement rules and regulations and the Acts as revealed by respondents have clauses that inhibit full implementation of e-procurement as a result it is strongly recommended that the government should ensure that these documents are reviewed in order to achieve the intended purpose of adopting public procurement which is value for money.

5. Conclusion and Recommendations

5.1 Conclusion

E-procurement has no doubt benefitted the private sector significantly in order to achieve value for money in their procurement activities in Sierra Leone, unlike the public sector which is hindered by the adherence to public procurement rules and regulations.

This research work was set out basically to evaluate the benefits derivable and challenges impeding the adoption of e-procurement by public sector organisations in Sierra Leone. A case studies approach was adopted with a focus on some of the MDAs in Sierra Leone's public sector.

In an attempt to accomplish this aim, some objectives were laid out which include:

- 1) To understand different forms of e-procurement;
- 2) To identify the benefits derivable from adopting e-procurement by MDAs in Sierra Leone's public sector;
- 3) To determine the extent of use of e-procurement by MDAs in Sierra Leone's public sector; and
- 4) To identify impediments to e-procurement by MDAs in Sierra Leone public sector

In order to achieve these set objectives, the researchers embarked on a critical review of the literature which identified many benefits and impediments to the adoption of e-procurement, as well as forms of e-procurement tools available.

With the use of a mixed method approach, the researchers went further to test most of the findings in the literature review as they relate to the research objectives and the MDAs in Sierra Leone's public sector by adopting a case studies approach and the use of interviews and questionnaires.

5.1.1 Different Forms of e-Procurement

It was identified from the study that different forms of e-procurement known to the industry are limited to e-informing, e-auction, e-sourcing, and e-bidding. E-informing is predominantly being used in the partial implementation of e-procurement by some public sector organisations.

However, full implementation of the e-procurement system by MDAs in Sierra Leone's public sector is still feasible as most other African countries are fully into e-procurement and can influence such adoption by their Sierra Leonean counterparts.

5.1.2 Benefits Derivable from e-Procurement

Notwithstanding that the e-procurement system is at the initiation stage of implementation by the MDAs in Sierra Leone's public sector, there are awesome envisaged benefits with the system. The major benefits derivable from the e-procurement system by MDAs in Sierra Leone's public sector are a reduction in costs and less paperwork.

Furthermore, e-procurement will bring about transparency in purchasing processes thereby eliminating or minimize unethical practices in procurement processes in the MDAs in Sierra Leone public sector industry; improve productivity, enhance trust and improved efficiency, and effective collaboration.

However, a reduction in cost as a benefit will only be achieved in the long run. The initial cost implications in acquiring the software and the training of personnel and other associated costs are always on the high side which negates this benefit in the short run.

5.1.3 Extent of Use of e-Procurement

The e-procurement system is relatively new within MDAs in Sierra Leone's public sector with an average of two years' implementation, e-informing being the extent the sector has achieved. The growth was very sluggish as the e-procurement system witnessed user resistance and frustration by employees and suppliers in fear of losing jobs and businesses to e-business solutions.

There is no readiness of the sector to fully imbibe the e-procurement system as they seem to be comfortable with their traditional purchasing system and have not yet seen the need for change. They are shelved from perceiving the need for change by personal benefits emanating from the traditional purchasing system as most of the top management staff have a vested interest in some supplier companies and use their position to influence the award of contracts to them.

5.1.4 Impediments to Adoption of E-Procurement

In as much as e-procurement is beneficial, there are many impediments to its adoption by the sector. The impediments could be related to people, technology, and the organization.

The identified major impediments to the adoption of e-procurement systems by the sector include the high level of ignorance of e-procurement by the public sector stakeholders, local suppliers' technology knowledge gap, lack of supporting legislation, lack of top management support, poor and unreliable internet facilities, and lack of trust.

Other challenges include employee envisaged resistance in accepting the technology for fear of losing jobs, and the cost of e-procurement technology or software. Cost in this context is not limited to the equipment alone but should include in detail the

employee training cost, cost of integration to an existing system, and possibly the cost of upgrading existing systems if need be.

E-procurement could be beneficial, essential and very important, however, if organizations and companies do not have clear visibility of all costs associated with the adoption and implementation; benefit derivable, and ensuring that the benefits outweigh the cost, they are more unlikely to invest. This could be said to be one of the reasons why e-procurement implementation is limited to e-informing two years after adoption.

5.2 Recommendations

There should be enough enlightenment campaigns to create enough public awareness in the public sector organizations on the benefits and advantages of e-procurement to the organizations and its effect on the quality of services to their clients especially in the delivery of projects on time.

MDAs in Sierra Leone public sector stakeholders have to determine what they want in terms of changes to people, organization, and technology for the successful adoption and implementation of e-procurement.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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