UNIVERSITY OF CAPE COAST

PROSPECT AND CHALLENGES OF PROCUREMENT SOFTWARE USAGE IN UNIVERSITY FOR DEVELOPMENT STUDIES

BY

DORA KUUNBEYIRE SULLEY

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DECLARATION

I hereby declare that this project report is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature…….. Date……09/09/2019

Name: DORA KUUNBEYIRE SULLEY

Registration No: SB/PSC/18/0075

Supervisor's Declaration

I hereby declare that the preparation, presentation and supervision of this project report was done in accordance with the guidelines on supervision of project report laid down by the Department of Marketing and Supply Chain Management, School of Business, University of Cape Coast.

Signature…… Date……09/09/2019

NAME OF ADVISOR: DR. SAMUEL KWAKU AGYEI

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DEDICATION

To my husband, Samuel Sowedu Mahama and children; Jason Borenyi Mahama and Jenelle Kenyiti Mahama

EXECUTIVE SUMMARY

Procurement is the acquisition of goods, services or works from an outside external source and performance of services by any contractual means. The system of procurement in UDS has been evolved, modified and developed over time. Procurement software makes contracting more accessible, more secure and more efficient. Through the web interface, procurement system information becomes accessible and transparency - making collusive bidding difficult. The University for Development Studies since its inception used paper-based procurement making the processes lag in the face of competition. However, in recent times, it deem it necessary to embrace paperless procurement system to enhance and facilitate efficiency. An institutional based descriptive cross sectional study design using a survey to generate data was employed by the study with simple random sampling technique used to sample 16 respondents at the study institutions. The objectives of this report were; (1) to identify the problems associated with the usage of the manual procurement system at the University for Development Studies (UDS); (2) to explore the prospects of procurement software systems usage in UDS; and (3) to identify problems and challenges of procurement software systems usage at University for Development Studies (UDS). The result of the main objective, the majority of interviewees affirmed that, the electronic system of procurement promotes efficient and boost real-time business. Despite the benefits of the digital system, the identified challenges included; lack of system integration and standardization, among others.

ABBREVIATIONS

BPR	Business Process Reengineering
CPTU	Central Procurement Technical Unit
CSFs	Critical Success Factors
ICT	Information and Communication Technologies
NOA	Notification of Award
PA	Procuring Agency
PPA	Public Procurement Authority
PE	Procuring Entity
PEC	Proposal Evaluation Committee
RFP	Request For Proposal
TEC,	Tender Entity Committee
TOC	Tender Opening Committee
UDS	University for Development Studies
UNCTAD	United Nations Conference on Trade and Development

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PART ONE

INTRODUCTION

Procurement is the acquisition of goods, services or works from an outside external source. It is favourable that the goods, services or works are appropriate and that they are procured at the best possible cost to meet the needs of the acquirer in terms of quality and quantity, time, and location. Corporations and public bodies often define processes intended to promote fair and open competition for their business while minimizing exposure to fraud and collusion. Procurement is an important and expensive business activity for organizations, because organizations usually spend a large portion (even up to 70%) of their revenue/operational budget on purchasing goods and services. According to Kishor, Sajeev, and Callender (2006) a number of public sector agencies globally have recognized Procurement software as an area of priority and have implemented or are in the process of implementing buy-side procurement software systems.

However, the scholarly evaluation of procurement software initiatives, especially in relation to the use of Critical Success Factors (CSFs) in procurement software is very limited. A review of procurement software literature, primarily from the last five years, shows a lack of core constructs around CSFs. The reason for this might be that implementation of procurement software initiatives in the public sector is still in the early stages. Smart (2010) argues that there is little history of extensive use of procurement software in institutions and, therefore, the academic literature covering early institution adoption of procurement software is

limited. This report will assess the CSFs that are likely to influence the success of procurement software initiatives in institutions mainly University for Development Studies (UDS).

Background

Traditional or Manual Procurement system is the legacy system that the University of Development Studies have used overtime, these paper-based system serve as source of information as past records can be accessed with its physical presence and a source for verification of periodic auditing. However, it poses numerous challenges such as; the need to have sufficient work-force to manage the daily activities. Also, the traditional procurement process is expensive in terms of resource and time consumption. Managing the approvals, invoices and waybills on the paper-base system is wasteful, costly and of course prone to errors and loss of paperwork.

In this electronic age, procurement software is common for institutions. The system must ensure the unbiased competition among the bidders (those who participate in the open tendering process). So the procurement software of one institution like University for Development Studies requires a technology that should have a one-to-one mapping of the existing institution's procurement system (Nazia, Rowshon & Latiful, 2012). Procurement software is business software that helps to automate the purchasing function of organizations. Activities including raising and approving purchase orders, selecting and ordering the product or service, receiving and matching the invoice and order.

Paying the bill is handled electronically, enabling the procurement department to see everything that is ordered, ensure that nothing can be ordered without correct approvals, and lets them get the best value by combining several orders for the same type of good or even getting suppliers to bid for the business. Buying organization's choice can be driven by the particular strengths offered by each individual system and the number of vendors available through them. A multinational or otherwise large organization will use a shared procurement system to take advantage of economies of scale to drive down the cost of purchases.

The procurement software value chain consists of indent management, e-Tendering, e-Auctioning, vendor management, catalogue management, Purchase Order Integration, Order Status, Ship Notice, e Invoicing, e-Payment, and contract management. Indent management is the workflow involved in the preparation of tenders. This part of the value chain is optional, with individual procuring departments defining their indenting process. In works procurement, administrative approval and technical sanction are obtained in electronic format. In goods procurement, indent generation activity is done online. Features of a procurement software system include:

- **Requisitions** - Creation of a purchase order with line items to be fulfilled by a vendor. Automated Sending via Fax or Email.
- **Vendor Follow Up** - Automated, or reminders to follow up with Vendors to Confirm Purchase Orders.
- **Receiving of Goods or Services** - Maintaining a physical inventory of goods.

- **Financial Settlement** - Creation of financial and/or inventory related transactions as goods are physically received.
- **Document Management System** - To archive relevant documents.
- **Electronic Signature** - Tool to sign documents online.

Benefit to be derived from the E-Procurement Software

According to Zaiful (2016), for an Institution to implement e-procurement software it ought to move from a manual to an automated process and may initially be intimidating, despite a priceless reward in the future. Discovery the right e-procurement solution alone is to modernize and optimize workflows that can offer businesses substantial benefits, including lower costs, fewer errors, and improved supply chain system. The benefits that an organization can chalk on E-Procurement software includes but not limited to:

- **Shortened Business Cycles**

Transactions are completed quickly using e-procurement, as automated processes and a reduction in physical paper transfers increases the capacity of completing transactions in near real-time. This efficiency can have a ripple effect throughout the organization and improve speed to market, as other departments are no longer required to wait for manual data entry and approvals processes.

❖ **Increased Productivity**

Another benefit of e-procurement software is improved efficiency, reducing the amount of time required to complete business processes such as ordering, invoicing, approvals and payments.

By automating tasks that had formerly been completed manually, an e-procurement system frees staff from low-value tasks, such as data entry and paper processing and filing. Instead, employees can focus on high-impact activities, improving supplier relationships and strategic sourcing.

❖ **Standardization**

Workflows, forms, and approvals for purchase orders, request for quotes, and request for proposals can all be standardized with e-procurement software, limiting the possibility of wasteful spending and deviation from official purchasing policies and authorizations. Companies can include contract and preferred supplier information in the system as well, so that manual research is not required to be completed with each new order. Standardization also provides the benefit of integration, so that data can be shared with other departments within the organization; as well as a centralized data repository for insightful data analytics.

❖ **Reduced Costs**

E-procurement saves companies money by eliminating paperwork and the costs associated with paper processes and physical storage. Errors associated with manual processes are reduced or eliminated, removing the need for the expensive processes like dispute investigation, resolution, and reworking errors.

❖ **Transparency and Control**

An e-procurement system creates a centralized repository for information, so that requisitions, orders, purchases, and payment information is stored in a centralized location. This can help eliminate duplicate orders and track the procurement cycle, providing accurate and updated inventory, pricing, and availability to all parties.

Tracking improves visibility, providing end-to-end transparency of all transactions in the procurement cycle in the supply chain. Authorizations and contract compliance can be verified, while independent spending is subject to control.

Adopting the right e-procurement software, allows an organization to take full advantage of these benefits in order to simplify operations and speed up production.

Statement of the Problem

In the midst of a competitive global village, swiftness and accuracy of service delivery is the need of time. Ultimately, manual or traditional procurement system entails huge paper-based work, couple with delays and many times error prone operational activities.

According to James and Peterson (2013), enormous competition amongst businesses have made organizations eager to benefit from information technology. In order to be competitive in business e-Procurement is recognized as a key technology through which a number of benefits that can be achieved by organizations. In every organization various factors adds their role in success of e-Procurement System. E-Procurement success depends on these factors because many organizations have implemented e-Procurement and they have succeeded while a lot of them have failed (James & Peterson, 2013). On the other hand, the story is different elsewhere as there are reports of extensive corruption, political influence and pressure from trade unions in the procurement process (Zaiful, 2016).

The World Bank (2002) assessment of procurement in institutions concluded that the procurement process is far from satisfactory. They identified problems such as: Poor advertisement; a short bidding period; Poor specifications; Non-disclosure of selection criteria; Award of contract by lottery; One-sided contract documents; Negotiation with all bidders; Rebidding without adequate grounds; Corruption and outside influence. Procurement delays increase costs, defer benefits and deter good firms from bidding.

These problems are not far-fetched as discussions are made regarding University for Development Studies. The Procurement Department of the University was established in the year 2007, fifteen years after the university was established. Before then the store keeper, some few personnel from finance and human resource prepared the request needed by the university to procure the needed items. According to Conduah (2014) the concept of having a procurement department is to ensure that the process by which the public or private individuals acquire goods, works and services using public or personal funds to achieve value for money was relatively new to most public Educational institutions.

After the establishment of the procurement department and hence directorate in UDS since 2007, the manual or traditional procurement system is what the institution practices until recent times where the organization thought it wise to introduce a software (Sage 300 ERP) which will inter link all the departments in the organization to the procurement directorate so purchase order can easily be generated on line to ease the difficulties associated with the manual procurement structures. Though the procurement manual system had its own advantages, but there were lot of challenges the institution also faced comparatively both internally and externally.

Some of which were; time consuming, more labor, more paper work, poor advertisement, bureaucracy, a short bidding period, poor specifications, non-disclosure of selection criteria, award of contract by lottery, one-sided contract documents, negotiation with all bidders, rebidding without adequate grounds, corruption and outside influence have not eased. It is against this relevant

background information that the report concentrates on the prospects and challenges of software procurement in the University for Development Studies.

Research Objectives

The overall goal of the study is to analyse the prospects and challenges of procurement software usage

Specific objectives:

1. To identify the problems associated with the usage of the manual procurement system at the University for Development Studies (UDS).
2. To explore the prospects of procurement software systems usage in UDS.
3. To identify problems and challenges of procurement software systems usage at UDS.

Research Questions

To correctly achieve the study objectives, the study sought to answer the following questions:

1. What are the problems associated with the usage of the manual procurement system at the University for Development Studies (UDS)?
2. What are the prospects of procurement software usage?
3. What challenges/problems are associated with procurement software system usage?

PART TWO

PROCUREMENT SOFTWARE

Introduction

This part contains the critical issues in software procurement or e-procurement. Specifically, it looks at the overview of procurement software usage, elements of procurement software - request for information, request for proposal and request for quotation. Again, this part also elaborates on the current practices of procurement software, prospects of procurement software and the challenges of procurement software.

Overview of Software or E-Procurement Usage

Any system that uses information and communication technologies (ICT) in order to do business can be classified as e-Business system. In fact, e-Business is a broader definition of e-Commerce because it includes not only the buying and selling of goods and services, but also servicing customers, collaborating with business partners, conducting electronic transactions within an organization.

EU literature defines e-Commerce as follows:

Electronic commerce is about doing business electronically. It is based on the electronic processing and transmission of data, including text, sound and video. It encompasses many diverse activities including electronic trading of goods and services, on-line delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, commercial auctions, collaborative design and engineering, on-line sourcing, public procurement, direct consumer marketing and after-sales service. It involves both products for instance,

consumer goods, specialized medical equipment and services such as information services, financial and legal services; traditional activities like healthcare, education and new activities like virtual malls (James & Peterson, 2013).

In this respect, procurement software is defined as a subset of e-Business concerning e-Commerce between private sector and public institutions where e-Commerce is seen as the activity of exchanging goods and services with some kind of payment by means of ICT. In the simplest sense, procurement software means carrying out procurement decisions of the institutions online through the use of the Internet. In other words, procurement software is about transforming the processes associated with institution's procurement and refers to automating corresponding processes of public institutions (Zaiful, 2016).

In other words, procurement software is more than simply buying online and it is changing the traditional way in which public institutions do business (James & Peterson, 2013). Procurement software involves the use of ICT in each step of the procurement process from identification of the need to payment. Implementation of procurement software initiates automation of both internal and external processes associated with public procurement process. It is also possible to characterize procurement software as a comprehensive process in which the institution establishes agreements with vendors for purchasing goods and services (Zaiful, 2016). This process is achieved by either tendering or acquiring directly through e-Marketplaces in exchange for the payment that can be made by the purchasing means.

Shortly, procurement software is "the electronic management of all the procurement activities. It is the use of web communications to enable purchasing processes and strategy and is part of the wider e-Commerce revolution. As a system, procurement software is a Web-based purchasing system that offers the functionality of electronic ordering, electronic payment and enhanced administrative utilities to the public institutions. In general, procurement software systems are developed by using the Internet to streamline, manage and analyze the government procurement activities.

These systems range from basic ordering tools to complex systems that cover the entire tendering process (Zaiful, 2016). In each case, setting up procurement software system involves implementing a software application that is customized based on the public procurement processes and rules. The resulting system should be accessible by each public institution through a Web browser that enables a secure and open purchasing environment.

Main Components of E-Procurement

The three main components of procurement software system are e-Tendering, e-Purchasing and e-Auditing

E-Tendering

E-Tendering is suitable for acquisition of complex goods and services associated with the ICT such as embedded systems and obtaining of goods like construction and capital investment. These transactions are among the most

challenging procurement activities because their technical content is diverse and difficult to define and they are subject to rapid technological change over the project life cycle. In addition, they involve combination of professional engineering services and supply of diverse hard and soft technologies (World Bank, 2003). Theoretically, all the functionality related to tendering can be performed online. The decision should be based on criteria such as culture, electronic readiness and human resources of public institutions.

E-Purchasing

E-Purchasing refers to combined use of information and communications technology through electronic means to enhance external and internal purchasing and supply management processes. These tools and solutions deliver a range of options that will facilitate improved purchasing and supply management. E-Purchasing enables evaluation of end-to-end trading cycles. It also enables connectivity to internal systems and sources of information such as inventory management, maintenance management and Materials Resource Planning (MRP) systems.

E-Auditing

The large scope, high level of risk and software intensity of e-Procurement requires specialized oversight and auditing organization. This organization should balance the interests of the stakeholders of the procurement software system and

promote cooperation among them to gain rapid adoption of procurement software system. The main functions of this organization are as follows:

- Coordinate adoption of procurement software system.
- Provide strategic advice on procurement and contract management.
- Establish operational standards for e-Marketplaces.
- Coordinate the re-engineering of intuition's procurement processes.
- Advice public institutions on human resource education, training and incentive systems.
- Operate the financial and operational auditing system for both e-Tendering and e-Purchasing components.
- Monitor outcomes of the procurement software system.

Other Components of Procurement Software Usage

E-Shopping

In this method, prices of goods and services are fixed (Talero, 2002). The authorized procurement officers buy goods and services by using e-Catalogs of vendors. In e-Catalog of each vendor, they can find required information for comparing prices and features of various goods and services.

E-Auction

The electronic auction e-Auction is an e-Business between auctioneers and bidders, which takes place on an electronic marketplace. It is an electronic

commerce which occurs business to business (B2B), business to consumer (B2C), or consumer-to-consumer (C2C). The auctioneer offers his goods, commodities or services on an auction side on the internet. Interested parties can submit their bid for the product to be auctioned in certain specified periods. The auction is transparent; all interested parties are allowed to participate the auction in a timely manner.

E-Sourcing

The procurement software Lifecycle comprises two aspects – e-Sourcing supporting sourcing activity and purchasing software supporting transaction purchasing. E-Sourcing is the use of secure web-based collaborative tools by procurement professionals and suppliers to conduct the strategic activities of the procurement lifecycle online. These strategic activities, including requirements definition, tendering, negotiation, award and contract management, are designed to deliver value for money procurement solutions to the public sector. The e-Sourcing managed service is a secure, hosted service that is accessed by customers and their suppliers via the Internet.

E-Informing

This is a form of procurement software that is not directly connected with making a deal, while the others are. The process of collecting and distributing purchasing information is made with the help of e-informing from both external and internal parties with the internet technology. For instance, internal clients and

suppliers can access the published purchasing management information on an extranet, so this is called the way of e-informing.

E-Market Places

The procurement software component involves an electronic equivalent of physical market place called e-Market place where goods and services are demonstrated figuratively. It is possible to make several definitions for e-Market place ranged from emphasizing the web-based characteristics to describing the functionality and value-added features (Nishimura, 2002). However, all definitions share in common the statement that e-Marketplace is a web-based application and offers opportunities for online trading. In the context of procurement software, e-Market place is defined as virtual trading environments that bring public institutions and vendors together for procurement software by enabling public institutions to reach more vendors and vice versa.

Many buyers and many sellers coming together in marketplaces where they can obtain sufficient information to make decisions about whether to buy or sell a product, even though payment and delivery may not necessarily be arranged online (UNCTAD, 2000). In other words, mechanisms implemented in e-Market place combine several business processes to save time and cost for both the public institutions and the vendors (UNCTAD, 2001). In addition, e-Marketplaces provide value-added services such as electronic payment, content management, comparison facilities, advanced techniques for finding best prices, etc. (Nishimura, 2002). These tools and services provided by the e-Market place changes depending on the type of the sector.

Benefits of e-Market places to the public institutions

- Information gaps are removed and as a result better selections can be made.
- Costs are reduced by improvement of the procurement related processes (Garicano and Kaplan, 2000)
- Competitive environment is enhanced by enabling the public institutions to access more vendors (ERI, 1998).
- Various goods and services can be screened and price advantage is achieved.
- Market search will become easier through the e-Catalogs of vendors.

Benefits of e-Market places to the vendors

- Sales related processes of vendors are simplified.
- Costs are reduced by modernization of the processes (Garicano & Kaplan, 2000)
- Geographical distance is eliminated.
- Trading opportunities are expanded.

E-Catalogs

This is the supplier's virtual catalog that is available for the buyer to choose the product and or services. Abundance of suppliers and their catalogs require more effort to assess the catalog of each supplier. Suppliers have different catalog formats and integration to each is cumbersome if not impossible. This can limit the number of suppliers. Catalog aggregation can solve the problem of working with different suppliers. If the automation of comparison of

specifications and prices are wished, a centralized database needs to be kept. And this database of the multiple suppliers must be machine so there would be no need for human observation and manual entering data into the procurement software system. Financial justification of keeping a centralized e-catalog is the high frequency of orders (Baron, Shaw, & Bailey, 2000).

Current Practices in E-Procurement

Centralized Registration System

Every stakeholder must be registered in the e-procurement system in order to have appropriate access points and to get working dashboards with authorized functions in procurement software system. Registration should be done through the online registration page of the procurement software system followed by due diligent post verification. The intended user must provide all required information, digital documents and accept the terms and conditions of e-procurement system use. There is an option for registration in the online system for Tenderer/ Applicant/ Consultant, Procuring Entity (PE)/Procuring Agency (PA), Scheduled Bank, Media, Development Partners, TOC/TEC, Approval Authority, System Administrators and Auditors, Operation Maintenance and Management Entity.

Annual Procurement Planning (APP) Publication

Procuring agencies/entities should prepare their Annual Procurement Plan in the format prepared by the CPTU through the procurement software dashboard

as required by the PPA 2006 and PPR-2008. The APP must be prepared and published in the procurement software system to carry out any procurement activities by procuring agencies/entities through procurement software system. The procurement software system will guide the agencies/entities with online support tools and forms for providing draft, update of APP and publishing facilities. The procurement software system provides facility to procuring agencies and entities to revise and update the Annual Procurement Plan through appropriate approval from the authority.

Electronic Tender Document Preparation

Dynamic forms for preparing electronic tender documents and for other activities of the procurement process shall be prepared and updated only by the CPTU or the entity authorized by the CPTU. Procuring Entities may change and update only the specific sections of the template and its contents. Procuring Entities get access to all the available standard procurement document templates for preparing invitation to Tender, Proposal and documents for procurement of goods, works and services.

E-Tendering

E-Advertisement

Procuring Entities should prepare Invitation of Tenders/ Proposals using online template available from their secured dashboard. The detailed description of the Goods/Works/Services, time schedule, Condition etc. including the tender

documents/ RFPs for e-Tendering shall be made available on the procurement opportunities section of the e-procurement system and shall be available to all interested users to search and read the e-Advertisement.

Online Entry/Uploading Tender Document

Tenderers/Consultants must submit their Tenders/Proposals with documentation online, to be uploaded by the time specified in the Invitation for Tenders/Proposals after signing of the same with the e-Signature or Digital Signature, whichever is applicable, by their authorized representatives.

Pre-Tender/Application/Proposal Meeting

Procurement software system carries out online Pre-Tender/ Application/Proposal meeting on the date, time and venue, if required, as stipulated in the tender notice/documents. Responses/clarification of the queries relating to the Tender or RFP document should be posted by the Tenderers/ Applicants/Consultants online before or during the Pre-Tender/Application/ Proposal meeting.

Tender/Application/Proposal Amendment

To the extent permissible under the procurement rules the Procurement Agencies may amend the tender documents at any time prior to the deadline for receipt of tenders. Procuring Entities shall issue an addendum and publish in the related section of the e-procurement system and also send via an automated

electronic means for example, e-mail, SMS and make available online in the e-procurement system for the information of the public and the bidders.

E-Lodgement

A tender/proposal lodged electronically is deemed for all purposes to be the true and legal version, duly authorized and duly executed by the Tenderer/Consultant and intended to have binding legal effect. E-Signature/Digital signatures are necessary due to the security system for identity and authentication purposes. The bidders must be ensured that their submitted documents/proposal files are virus free and tender will be rejected for unreadable file.

Tender/ Application/ Proposal Opening

The Procuring Entities receiving the tenders/proposals should form a Tender Opening Committee (TOC). Formation of TOC/POC is described in Business Process Reengineering (BPR) document. Access to the dashboard for the TOC/POC shall be available only after the specified Tender/ Application/ Proposal opening date/time. Tenderer/consultant may physically be present online at the tender/proposal opening otherwise they may choose to participate online during tender/proposal live opening session.

E-Evaluation

Formation of Evaluation Committees

The Procuring Entities receiving the Tenders /Applications / Proposals should form a Tender Evaluation Committee (TEC)/ Proposal Evaluation Committee (PEC). Formation of TEC/PEC is described in Business Process Reengineering (BPR) document. Procuring Entities should ensure that the so formed Committees have sufficient knowledge and are conversant with the available tools offered by the e-procurement system. Procuring Entities should make the procurement software system available to TEC/PEC members with the applicable features that support workflow and evaluation process.

Use of Procurement Software System by Evaluators

Access to the Dashboard, technical or financial proposals to TEC/PEC shall be available only at the specified date and time configured in the e-procurement system by the Procuring Entities. Procurement software system will automatically generate draft result of the evaluation to assist the evaluators. Procurement software system shall not allow the evaluator to alter any data provided by the Tenderer/Applicants.

Approval, Notification of Award (NOA) and Contract Signing

Approval of the evaluation report will be routed in e-procurement system through the workflow to appropriate Approving authority as stipulated in PPR-2008 along with subsequent amendments. Procuring Entity will issue NOA to

successful evaluated tenderer/ applicant/consultant online (i.e. via tenderer/ applicant/consultant dashboard, email, SMS as configured in preference settings). Procurement software system provides the facility to sign the contract online between Procuring Entity and the tenderer/ applicant/consultant, but may also choose to sign offline in compliance with the PPR-2008 along with the subsequent amendments. In case of offline contract signing, PE must enter the contract details, contract documents, and schedules of deliveries, contract execution plan in e-procurement system. The procurement software system will publish the contract award information on e-procurement portal as and when contract is signed and system is updated by the PE.

E-Contract Management

Contract Progress Monitoring and Control

The Procuring Entities should nominate individuals for managing contracts, shall have the required knowledge, skills and abilities to effectively carry out their responsibilities by using the dashboard provided in the Procurement software system. Procurement software system provides the standard forms and entry spaces to record the different activities and events of the contract execution under e-Contract Management System.

Procuring Entities should keep updated contract with the project schedules, deliverables, Service Level Agreements if any, specifications, amendments and other information in the e-procurement system. Procuring Entity (PE) or a person nominated by PE must measure time and cost against the budget

and contract specifications. The projected time required to complete the contract will also be assessed to detect deviations from the plan through the e-procurement system dashboard. The performance of the work must be checked to ensure that the targets are being met and accordingly update the data in the procurement software system to reflect the actual status of the contract.

Certification and Payment Processing

The procurement software system provides the standard forms for issuing different types of certifications such as acceptance certificates and others. The designated officers responsible for evaluating performance of the contract must carefully review the contractor's requests submitted online for payments to verify the accuracy of all charges and work performed, as e-procurement system does not have automated tools to verify the physical performance in the field.

Contract Agreement Administration

The e-procurement system also provides a tracking mechanism for all contract agreements. The designated officer should check contract status, contracted parties, contract period, goods, works and services covered and contract point to make any decision during contract agreement administration. If any contract needs to be amended the e-procurement system brings up the auto alerts for required actions. The designated officials must record appropriate reason before any such extensions.

Prospects of Procurement Software System Usage

The primary motivation for companies, organizations and institutions, adopting procurement software solutions has been cost reductions and process efficiencies. Croom and Brandon-Jones (2005) found that cost reductions in goods purchased comprise from three key issues: consolidation of purchase specifications; reducing the number of suppliers and; through improved compliance with existing contracts. A research by Quesada, Gonzalez and Mueller (2010) proposes that procurement software technologies affect positively institution's procurement practices and procurement performance. Positive impact on procurement practices facilitates the development of operational tasks in the procurement function, which leads to continuous improving.

As the operational tasks are performed more effectively the procurement performance is enhanced. According to Davila, Gupta and Palmer (2003) institutions using procurement software solutions report savings of 42 percent in purchasing transactions costs. Another research by Croom and Johnston (2003) found that e-Procurement implementation can have up to 75% cost reduction in procurement process costs and 16 – 18 % reduction in purchasing price for indirect purchases. According to Croom and Brandon-Jones (2005) complying with existing contracts is an important mechanism for realizing lower prices and discounts. The savings that come out from automating the process derive from eliminating paperwork and human intervention, reducing transaction costs and cycle time and also from streamlining and automating the audit trail and approval process (Nishimura, 2002).

While the cost savings can be significant, De Boer and Heijboer (2002) argue that the total volume of purchases needs to be high, as well as the amount of internal customers, in order to reach savings as mentioned above. The research by Davila et al. (2003) also identifies that institutions using procurement software gain additional control over excessive spending. To support this, Croom and Johnston (2003) found that procurement software can have a major impact on compliance on many different levels of the procurement process: it supports managerial budgetary control; reduces data entering failures; offers greater transparency and accessibility to corporate wide spending; improves system reliability; and improves the access to managerial information.

Institutional Prospects of E-Procurement

Implementation of procurement software is very beneficial for a particular institution. But before defining the gains and efficiencies that procurement software offers, it is essential to indicate the importance of strategic purchasing for the institution. Strategic purchasing refers to "the process of determining which goods and services to procure, from which vendor and for what price'' (Nishimura, 2002). Because of the relationship between strategic purchasing and institutional procurement, it is obvious that when strategic sourcing is performed well, institutional procurement becomes more effective and efficient. In addition, by taking advantage of the ICT, purchasing organizations will be able to operate more effective and efficient in the way they buy from, and work together with their vendors (Nishimura, 2002).

The increased efficiency and effectiveness of procurement process will provide potential to reduce the cost of procurement. For example, in the United States it was reported that procurement software reduced the cost of transactions from $120 to $20 and delay from 40 days to 5 days (Gunyou & Leonard, 1998).

Decrease in Costs associated with Publishing and getting Information

- Publishing the information related to the public sector opportunities and contract awards electronically in the Internet is both faster and cheaper than the traditional methods (Nishimura, 2002).
- Purchasing activities can be monitored better and statistical data for reporting on procurement data and vendor activity will be provided. (Avery, 2000)
- Market search will become easier through the e-Catalogs of vendors (Nishimura, 2002).
- Public institutions will access various goods and services of multiple vendors in a competitive environment.

Decrease in Procurement Transaction Costs

- Institution's procurement services like market search, ordering, tendering, etc. will become more efficient and effective (Nishimura, 2002).
- Institution's resources will be used more efficiently and effectively.
- Administrative costs and time such as time and cost associated with business meetings will be reduced.

- Time spent in the requisition-to-payment cycle will be reduced through the use of electronic ordering, electronic invoicing etc.
- "Maverick buying" will be reduced (Nishimura, 2002).
- Bureaucratic inertia will be reduced (Nishimura, 2002).

Increase Competition

- The public institutions business opportunities will be accessible by all vendors, which in turn will enhance the competitive environment (ERI, 1998).
- The purchasing power of the institution can be better coordinated and costs of goods and services will be reduced through this aggregating purchasing volume (Avery, 2000).

Cost savings and effectiveness

When an organization has the ability to prove to its suppliers that procurement software is used as a tool to ensure end users honour their contract status, this will enable the company to negotiate down prices through greater enhanced capture, reliability of spending information, and increased confidence guaranteeing spending volumes from increased compliance with the system, which will allow volume price breaks and discounts to be obtained. It is also believed that, "procurement software can be a driving force for reform of legal and regulatory framework, technology investments and training that institutions and organisations face as a result of the information revolution" (Talero Carp, 2002).

The efficiency and effectiveness in e- procurement process will bring significant cost savings. There is also a consensus that institution's efficiency and effectiveness in doing business will benefit all stakeholders: institution administrations, vendors and taxpayers (Nishimura, 2002). Procurement software not only does enhance the overall quality of institution procurement management throughout savings in terms of cost and time but also improves transparency in public administration. Comparing to the economic benefits, transparency gains are more apparent from the first stages of procurement software (Nishimura, 2002).

As disclosure of information associated with the procurement is an obligation under the law, the Internet makes this disclosure easier and also makes procurement related information more accessible. In other words, the Internet offers the easiest way to publish this information on time. As consequence of transparency, procurement software improves institution administration further by fighting against corruption. Through the improved accessibility of all parties to the procurement information and electronic logging of all transactions, equal treatment in the public sector business opportunities can be achieved and the likelihood of detection of illegal transactions can be increased (Talero & Carp, 2002).

Prospects to Buyers

Cashable

- The Tender organization can use e-Tender sites to advertise tenders which can result in considerable cost saving from advertising tenders in more traditional forms, i.e. national press
- The dependency on, and cost of, sending proposals via post has eliminated.
- Document storage - no physical storage required.
- Document distribution - saves administration time and cost.

Process Saving

- Significant Process improvements
- Receiving documentation electronically means circulating tenders internally across multiple locations is simplified greatly
- Saves time handling large numbers of expressions of interest and quickly reduce them to a manageable number
- Secure communications with suppliers can be data encrypted and time locked to protect all sensitive information
- Improved continuity when staffs are absent.
- Automatically generates and dispatches common correspondence.
- Dramatic time savings allow more time to make accurate buying decisions.

Reduction in Overhead Cost

The administration overhead of producing multiple bound copies of large paper-based proposal documents has eliminated.

- Electronic submission can support environmental policies
- Total visibility of all tenders – greater management/audit control
- Project Management - project access for remote users
- Privacy, authenticity, integrity and non-repudiation
- Document control - Freedom of Information
- Improved history function of procurements, all emails between the tender administrator and the tenderers are automatically recorded by the system.

Prospects to Suppliers

Cashable Improvements and Benefits

- Visibility of all current and future business opportunities
- No cost to view opportunities and to register an interest - free access to the secure area of the portal (there may be a charge from the contracting authority for issuing the relevant documents).

Process Savings

- Tender documents are easily accessed and downloaded from the procurement software site.

- The online submission process is simple to use, the upload is quick and a confirmation of receipt is usually issued.
- Once a tenderer has gone through the pre-qualification process with the organization issuing the tender, it is likely that the tenderer will be asked only to update their own details resulting in fewer forms for the supplier to fill in.
- History log - keeps supplier up to date with the process.
- No need to rely on third party delivery of documents.
- The minute the supplier sends their response the buyer should be able to view it, the supplier can therefore submit responses minutes before the deadline
- Project Management - all communications and documentation held on portal
- Suppliers can generally make changes to their submission, including adding or deleting documents, at any time up to the tender opening date.

Non-Cashable

- Ease of use
- Data security - secure communications with suppliers can be data encrypted and time locked to protect all sensitive information
- Supplier can update pre-qualification and insurance details held on procurement software portal.

Challenges/Problems of Procurement Software System Usage

A research by Smart (2010), identifies that there are numerous obstacles in implementation projects to achieving in full the benefits which procurement software offers. In some cases the benefits of implementing procurement software solution have been hard to evaluate. According to Kalakota and Robinson (2001), before the implementation of procurement software, an institution must first clearly define the business problems its procurement software solution is intended to address. Furthermore, before procurement software solution can be deployed, an institution must undergo thorough procurement process reengineering.

Automating an existing procurement process will only make matters worse (Kalakota & Robinson, 2001). Puschamann and Alt (2005) recognize that in the successful practices the redesigning of the procurement process is focused on: reduction or elimination of authorization stages; regulation of exceptions to a limited degree in the beginning; elimination of paper; integration of suppliers in the entire process chain; and consideration of the complete process from searching for goods through to invoicing.

A study by Angeles and Nath (2007), identified three important challenges to procurement software implementation:

- Lack of system integration and standardization issues
- Immaturity of procurement-based market services and end user resistance
- Maverick buying and difficulty in integrating procurement software with other systems
- Huge cost of training fees

- Unwillingness on the part of suppliers to trade electronically

Institution need to be aware of the possible hidden costs related to implementation of e-Procurement solutions, such as system integration, content aggregation and rationalization, catalog and search engine maintenance, supplier enablement, end user training and procurement process reengineering. These costs can easily exceed software licensing and maintenance cost by five to ten times (Angeles & Nath, 2007). A supplier may claim they could not access the procurement software portal because their network was down, before making a decision to accept the late tender. The immaturity of suppliers and the lack of preparation is also a challenge for many companies. After all, suppliers need to learn how to generate catalogues, process electronic purchase orders, how to use invoicing mechanisms among other tasks (Angeles & Nath, 2007).

The other challenge here relates to the resistance of end-users towards operating the procurement software solution. To prevent this Angeles and Nath (2007) institutions should encourage using new e-Procurement technologies through intensive training and educational sessions with end-users. Some institutions find it difficult to eliminate maverick buying even after the implementation of procurement software. This can be prevented by intensive end-user training and educational programs. Institutions also need to be aware of the problems in integrating the procurement software solution with other systems (Angleles & Nath, 2007). According to Zaiful, (2016) integrating procurement software solutions with other business applications (e.g. accounting) can be more complex than businesses think.

In a research by Davila *et al*., (2003) four risks associated with adopting procurement software technologies were identified. The authors stress that these risks need to be carefully addressed before these technologies are adopted. These risks are as follows:

- Internal business risks
- External business risks
- Technology risks
- e-Procurement process risks

Discussions of Result and Findings

Introduction

This part analyzed and discussed the results of the report with the aid of interviews conducted in the field. Opinions of interviewees were sought on the Prospects and Challenges of Procurement Software usage in the University for Development Studies. This part is made up of four sections. The first section talks about the demographic characteristics and background information of the interviewees. The second section sought to identify the problems associated with the usage of the manual procurement system at the University for Development Studies. The third section explores the prospects of procurement software system usage in UDS. The final section identifies problems and challenges of procurement software system usage at UDS.

Background of Interviewees

Gender of the Interviewees

The study finds out the gender of the interviewees. According to the findings, majority of the interviewees were males. Thus, the Procurement Job portfolio is male dominating in the University for Development Studies.

Experiences of the Interviewees

Most of the employees are people with wide range of experiences in the Procurement and Stores discipline. They are all employees of UDS with the obligation of providing prompt and responsive supply chain without any form of discrimination to the University's stakeholders.

Educational Background

The study inquired into the educational background of the interviewees at the University. The aim was to find out whether the officers who were involved in the procurement operations had the required qualification to meet the sensitive treatment it deserved. All the employees have sound education background, the least being HND and the Highest being Post Graduate degree. The academic experience of the respondents suggests that they appreciate basic elements in procurement and stores management. They are therefore in positions to contribute meaningfully even at the strategic levels.

Discussions and Findings of problems associated with the usage of the manual procurement system at the University for Development Studies.

The interviewer sought to identify the problems associated with the usage of the Manual Procurement system at the University for Development Studies. It was revealed by majority of interviewees that the manual procurement system is associated with the constraints below;

- High Cost for "Advertisement of tender notice: cost for advertisement of tender is high as compared to manual tender. Time for "Advertisement of tender notice" is prolong compared to electronic tender.
- High cost in Tender Document Preparation: Cost for "Tender document preparation" in manual tender is on the high as compared to electronic tender.
- Time consuming: it is time consuming for "Tender document preparation" in manual tendering as compared to e-tender.
- Expensive and prolong tender evaluation report preparation: According to the majority of the interviewees it takes longer time and expensive for "Tender evaluation report preparation" as compared to e-tender. In the same vain, it takes longer time in sending tender evaluation report to approving authority for approval in manual tender as compared to electronic tender.

Discussions and Findings of the prospects of procurement software system usage in UDS

This sought to explore the prospect of the procurement software system usage in the university. To this extent, Majority of the interviewees answered in

the affirmative. In effect the prospects as outlined below will ensure transparency, accountability and fairness, interviewee's opinion indicated that; this prospect will enhance efficiency among others, in the system which the manual or traditional system of procurement lacks;

- **Good Governance in e-Procurement**: Tender box snatching problem in manual tendering is been solved in e-procurement system. Collusion among the bidders has reduced significantly after introducing e-Procurement system. Competition among the bidders has increased. Thus e-Procurement is playing important role for ensuring good governance in procurement process.
- **Efficiency in e-Procurement:** Total tendering process has improved after implementation of e-Procurement. E-Procurement process is faster and easier than manual tender. Thus, e-Procurement system is efficient than manual tender.
- **Transparency:** Secrecy of bidder's information and Openness of information regarding procurement have ensured after introducing e-Procurement. Thus e-Procurement is playing important role for ensuring transparency in procurement process.
- **Process Improvement:** e-Procurement increases availability of tender notice and necessary tender documents through online. Thus, e-Procurement has ensured process improvement in "Good" level in procurement activities.

Discussions of Result and Findings of Challenges of e-Procurement usage at University for Development Studies:

This section sought to identify the challenges associated with the e-Procurement, interestingly all the interviewees affirmed to three factors such as; Internet speed, Internet connectivity and Uninterrupted access to e-procurement server as technological challenges for proper implementation of e-Procurement. Majority of the interviewees went further and mentioned three folds of challenges University of Development Studies is likely to face with the e-Procurement software system as identified below;

- Challenges of Awareness: Acceptability of new system and awareness of all stakeholders are the challenging factors for proper implementation of e-Procurement.
- Challenges of Security: The two factors such as Protection against computer virus and Maintenance capability for e-GP software problem are the two challenging factors for proper implementation of e-Procurement.
- Administrative Challenges: The two factors such as Training of suppliers/contractors about e-Procurement and Computer knowledge of tenderers are administrative challenges for proper implementation of e-Procurement.

PART THREE

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APPENDIX

UNIVERSITY OF CAPE COAST

INTERVIEW QUESTIONS ON THE TOPIC;

THE PROSPECTS AND CHALLENGES OF PROCUREMENT SOFTWARE USAGE

(A CASE STUDY OF UNIVESITY FOR DEVELOPMENT STUDIES)

SECTION A

Biographical Data

1. Gender Male [ ] Female[ ]
2. Age 18-25 ( ) 26-35 ( ) 36-45( ) 46-55( ) Above 56 ( )
3. Educational Background

DBS ( ) HND ( ) Bachelor Degree ( ) Master's Degree ( ) Professional Certificate ( ) PHD ( )

4. What is your job title? .....
5. How long have you been working with this directorate/department/Unit/Section in this organization?

i. Less than one year ( )
ii. 1-5years ( )
iii. 6-10years ( )
iv. 11-15years ( )
v. Above 16years ( )

SECTION B

Interview regarding the Prospects and Challenges of both Procurement Software and the Manual System Usage in UDS.

1. Did you face problems with the usage of the manual system? Yes/No
2. What were some of the problems you encountered with the usage of the manual system?

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3. Did the problems you faced hinder your inputs and productivity at work? Yes/No
4. Do you think with the introduction of Sage 300 will have positive impact on productivity? Yes/ No
5. What are some of the benefits in you opinion the directorate and organization as a whole is going to enjoy with the introduction of Sage 300?

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6. What are some of the challenges the organization is going to face with the introduction of Sage 300?
7. In your opinion which of these do you prefer? Sage 300/ Manual System?
8. Give reasons for your answer to question 7.

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