



EXAMINING HOW IT CAN LEAD TO THE IMPROVEMENT OF PROCUREMENT PERFORMANCE IN PUBLIC PROCUREMENT

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Abstract

In this study, the researcher seeks to better understand the value of Information technology (IT) in supply chain contexts at the Judicial Service. The study was supported by the resource-based view theory in conjunction with literature gathered, the researcher developed a conceptual model that links three IT-related resources (procurement processes, partner support and IT infrastructure and managerial and staff skills) to procurement performance. The model differs from previous studies by proposing a direct effect of digitally enabled procurement system on procurement performance relationships. With the objective of Investigating the Effect of Information Technology on Public Sector Procurement Performance in Ghana, out of a population of 200, a sample size of 150 was used and getting 110 responses from selected staff through a purposive sampling technique, the analysis indicates significant contribution of IT to supply chain, which is generated through development of the digitally enabled procurement capability and manifested at all processes along the supply chain. Both primary and secondary sources of data were employed in the collection of data for the study. The technological resources alone, however, does not hold the answers to IT value creation. In fact, managerial skills, which enable adaptations of supply chain processes and corporate strategy to accommodate the use of IT, are shown to play a strong role in IT value creation. Furthermore, Partner support and IT infrastructure, procurement processes and managerial and staff skills are found to be more valuable in many Public Procurement practices. Overall, the results shed light on how the public sector needs improvement in its IT infrastructure. The study was limited to only the Judicial Service of Ghana for the purposes of time and funds available but future research could consider more than one public institution. Recommendations were that there should be computers and network equipment provided, staff should be well trained and suppliers and stakeholders integrated into the implementation process with quarterly maintenance on all equipment. It was concluded that information technology in procurement could be achieved when consideration is given to the people who will be using the technology.

KEYWORD: *IT Procurement, Procurement Performance, Procurement Process*

INTRODUCTION

For decades now procurement performance has attracted immense attention from practitioners, academics, and researchers due to poor performance resulting from non-adherence to proper processes and procedure. The Public Sector is used to the manual procurement system which has led to delays and lack of transparency, efficiency, and effectiveness in operation. The procurement function has not been given the recognition it deserves in developing countries, in most public entities, regardless of the effort by partners like the World Bank, the International Trade Organisation, the United Nations Conference on Trade and Development, the World Trade Organisation and, others. This could be deliberate or sheer ignorance on the value the procurement function could contribute to any organization (Telgen, Zomer, & de Boer, 1997).

The emergence of technology in modern businesses has now become a trend that has led to increase benefits in many private organisations (Aberdeen,

2005). Over the past decades, Public Procurement has gained much consideration amongst developing nations. In most developing countries, the procurement function is transitioning from a clerical non-strategic unit to an effective socio-economic unit that is able to influence decisions and add value (Knight, Harland, Telgen, Thai, Callender, & Mcken, 2007).

None the less, most developing countries are facing a problem of rapid changes in public procurement requirements. The changes are impacting how the procurement function performs its internal and external processes and procedures in order to achieve its objectives. The ability to realize procurement goals is influenced by internal forces and external forces (Mlinga, 2009). Procurement spending plans in developing nations represent around 50 percent of government expenditure globally (Mlinga, 2009), numerous governments have undertaken a number of reforms in the area of Procurement systems to



streamline and harmonize legitimate and institutional structure.

In recent years, the role of procurement has developed into a sophisticated function in most successful private organizations. Information technology in procurement is therefore seen to accelerate business changes. It takes into consideration making change, utilization, and information of tools, machines, procedures, specialties, systems, or techniques for organizations, to take care of an issue, enhance a previous arrangement, accomplishing an objective, or perform a particular capacity in connection with procurement and the procurement process (Aberdeen, 2005). The researcher, therefore, seeks to investigate the effect of information technology (IT) on public sector procurement performance in the Judicial Service of Ghana.

Procurement can be extensively seen as the acquisition of goods or services at the best possible cost of ownership, regularly in the right amount and quality, at the right time, in the perfect place and from the right source for the immediate benefit or utilization by, organizations, people, and corporations at large by means of an agreement (Lysons and Farrington, 2006).

Public Procurement, as indicated by the Public Procurement Act, 2003 (Act 663), is 'the procurement of goods, works and services at the best possible total cost of ownership, in the right amount and quality, at the right time, in the right place for the immediate advantage or utilization of governments, organizations, or people, by and large through a contract' (PPA Module, 2007). As such, Public Procurement is the procedure by which organisations get products, works, and services utilizing public funds. It is a comprehensive process that keeps running from proper procurement planning, budget allocation, bids invitation, bid evaluation, the award of the contract, contract management, and performance measurement, monitoring, auditing, and reporting.

The Public Procurement Act, 2003 (Act 663) is a thorough enactment intended to wipe out the deficiencies and authoritative shortcomings which were natural in Public Procurement in Ghana. A study by the World Bank (2003a) reported that around 50-70% of the national spending plan (after individual payments) is procurement related. Consequently, an effective Public Procurement system could guarantee esteem for cash in government use, which is vital to a nation confronting tremendous formative difficulties.

Despite the fact that the Public Procurement Act, 2003 (Act 663) has realized some rational soundness into public procurement practices, incorporating the use of information technology practice into public procurement is seen as a modern and more effective way to achieving efficiency and transparency which is been looked at by the researcher.

In public sector procurement, the procurement processes, guidelines, and exchanges must be spelled out and made accessible to people in general and in addition to potential suppliers in order to achieve procurement performance (Ameyaw et. al., 2012). The researcher, therefore, looked at the various systems, tools, and equipment that will aid in the achievement of the research objectives. The researcher used the areas of Procurement, Logistics, Finance, Works, Projects and Reforms and the Internal Audit Departments through a purposive sampling technique of 150 sample size to collect information for the study.

As the procurement capacity of numerous organisations is turning out to be more key, procurement technology takes into account a procedure re-outline that makes the procurement process open with enhanced responsibility, transparency and reporting abilities; in this manner accelerating the procurement cycle and giving more noteworthy access to more open doors for suppliers (CIPS Technology in Purchasing, 2012).

LITERATURER REVIEW

A. Concept of Supply Chain

The competitive environment has changed drastically in recent decades and has turned out to be exceptionally perplexing (Stock et al., 1999; Christianse and Kumar, 2000). Globalization likewise importantly affects business environment and on every single business organisation, particularly in most recent, two decades. In the 1980s when different weights, particularly from clients and authoritative environment, were powerless, the cooperation with substances outside hierarchical fringes was frail (Rushton et al, 2001; Murphy and Wood, 2004). Particularly in the 1990s, happened the movement structure ill-disposed cost driven connections between organizations towards collaboratively oriented organizations driven partnerships between the organization (Howard, 2005).

Organizations began to understand that they are not ready to act freely (any longer) on the worldwide business sector. The globalization has constrained organizations, to search for more compelling approaches to arranging the stream of materials into



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and out of the organization. The key to such coordination is a joint effort and nearer organization with suppliers (Mentzer et al., 2001). A coordinated effort with elements/organizations outside hierarchical outskirts could bring generous advantages for all organizations included (Drew and Smith, 1998; Ballou, 2007; Rushton et al., 2001; Murphy and Wood, 2004; Balou, 1999). In the early beginnings, organizations concentrated principally on the mixes with its suppliers (Slack et al., 1995; Deffe and Stank, 2005; Ballou, 1999).

A mix of organizations, particularly with its suppliers and different elements outside authoritative fringes is known as a store network (SC) idea, which underscored that few unique associations are included in getting the item to the end client (Rushton et al, 2001; Cooper et al, 1997). Because of the changed business environment, investment in one or much more SCs has turned into a critical (pre)condition for organization's available/future achievement (Lumms and Vokurka, 1999). SC exists as an idea, however, it should be appropriately overseen, which is known as SC administration (SCM) (Mentzer et al., 2001). SCM has turned into a theme of extensive enthusiasm among instructors and professionals as of late (Larson and Halldorsson, 2002, Phillips-Connolly et al., 2005; Gibson et al., 2005; Burgess et al., 2006). Because of the numerous members of SC, which are turning out to be increasingly scattered the world over, an imperative issue in the tricky of SC is additionally its organisation (Browne and Zhang, 1999). SC could be composed in different ways. Because of the expanded impact of virtuality and virtual configuration on the associations, SC could likewise be sorted out virtual. Along these lines, SC could be sorted out customary towards one side of the continuum and virtual on the flip side of the continuum (Daft, 2000; Daft, 2003; Hatch, 1997; Tsoukas and Knudsen, 2003). Data and correspondence innovation (ICT) has a vital part in the organisation of SC. Thusly ICT is a focal build which makes virtual sorting out of SC conceivable.

A supply chain (SC) is also described to mean a network of facilities and distribution options that function to procure materials, transform these materials into intermediate and finished products, and distribute these finished products to customers. Many authors, including Cooper et al. (1997), Premkumar and Ramammurthy, (1995) have shown that traditional research on supply chains concentrated on the flow of material and information independently. Some writers have recently critically assessed the independent flow of material and information, and

through this assessment have identified the need to create a supply chain that makes possible the integration of material and information as they flow along the supply chain. Gunasekaran & Ngai (2004) also indicated that because suppliers are located all over the world, it is essential to integrate the activities both within and outside of an organisation, as this should improve their flexibility and responsiveness and also lead to their level of competitiveness by changing their operations strategy, methods and technologies. In order to achieve an integrated supply chain that will enable companies to make reliable delivery and present a product to the market, information needs to be shared.

a. Integrated SCM: Steven 1989 defines SCM as 'a series of interconnected activities which are concerned with planning, coordinating and controlling materials, parts and finished goods from supplier to customers. A supply chain can typically be said to consist of the geographically distributed facilities and transportation links connecting these facilities. The achievement of the supply chain function will, therefore, be based on the activities of the other. An integrated function will lead to a successful supply chain and leads to customer satisfaction.

b. Better Integrated system: An organized system should be vigilant recognizing and decision-making structure that can do naturally performing various errands usually executed by people, (Gunasekaran, Lai, and Cheng, 2008). One of the major traits of a planned system is that it solidifies separate records relating to the same subject into one related record held in the computer device. Similarly, with an organized system, information having a spot with more than one application can in like manner be updated at the same time. For example, a business trade may redesign both record receivable and stock records. Also, Bourdé and Butner (2004) exhibited that sensible rates of organisations need to place resources into reconciliation: both internal store system joining and external blend with trading accessories. An organisation can concentrate on a more tried and true transport time if its business demand area and collecting programming packs are fused, Mendelson, H. (2000). Information is consolidated when either enter or made data overhauls the data archives used as a piece of more than one system. An ordinary example is the information of a transaction processing system that actually creates shipping reports, assessed bargains receipts, stock issue rules, and all related record postings. Composed plans routinely impact the advantages of having a



joined store of information. Exactly when information is shared within the stock system, a totally joined generation system can be refined, Tan, K. C. (2001). Moreover, where information systems are fused, the continuous process and activities within the store system will be executed by free subsystems in a clever solicitation, and the available information will be powerfully traded beginning with one program then onto the following. Kalakota and Robinson (1999) illuminated that sharing of information within the developed system will assemble the coordination of business strategies and material stream among trading associates, and this can fulfill a gigantic change in the store system. It is clear from the written work and from an advancing exploration coordinated in an FMCG circumstance Ajayi (2009), that the affirmation of the essentialness of a joined structure has incited the headway of an information development establishment that overhauls and sponsorships the sharing of information within the store system.

B. Optimized Usage of I.T (Information Technology) Infrastructure

The transparency of information and the use of technology to make "accessibility" (i.e., the limit of organisations to share data "dynamically"), (Gunasekaran, Lai, and Cheng, 2008) within supply chains has been of energy to both specialists and professionals. But present-day information technology devices are available, the costs for setting up and working on an information sharing structure between organisations of a store system are still critical, Zhao, X., Xie, J., and Leung, J. (2002). One of the I.T systems that have been used to fulfill this purpose behind existing is ERP (Enterprise Resource Planning) programming. The ERP wander yields an item game plan planning information and business strategies to engage sharing all through an association, Swartz, D., and Orgill, K. (2001). According to Mendelson, (2000). ERP is an item building that empowers the surge of information among the obvious limits within a stock system. The cooperation among business limits empowers correspondence and information sharing, inciting incredible expansions in productivity and rate. Cisco Systems, for the case, harnessed ERP to offer it some help with turning into the business part pioneer in the overall frameworks organization industry, Mendelson, H. (2000).

a. Effects of I.T Infrastructure on supply chain: Continuous exploration has found that when data is shared legitimately inside of an inventory network, the ERP programming will be completely streamlined to perform capacities which incorporate Ajayi (2009).

- Easier access to dependable, precise, opportune and coordinated data.
- Elimination of repetitive information and the legitimization of procedures, which bring about considerable cost investment funds.
- Enabling chiefs to have an undertaking wide perspective of the data they require in an auspicious, solid furthermore, reliable design.
- Providing the spine for an undertaking wide data framework on the grounds that with an ERP framework, information should be entered just once, and this gives consistency and over the whole organization.
- Enhancing work process, expanding effectiveness, and lessening dependence on paper.
- Streamlines procedures and facilitates appropriation of best business practices
- Establishing an establishment for new frameworks and incorporates existing frameworks

C. Internet connectivity (technologies) and its role in SCM

Web access permits organisations to communicate remotely with information and off-webpage back up (Fraser et al, 2005). Sadegh et al (2014), portrays the Internet as "a set of computers that links together with telephone lines, fiber optics, satellite lines and or another transform environment", has no ownership or managed centrally and serves as the premise for electronic business extension in developed economies.

Sadegh et al (2014), places that there is an expansion utilization of e-commerce on the planet and its acknowledgment by firms, combined with consistent acknowledgment of it by buyers accepts the latent advantages of e-business in both economic and social setting. Auramo et al (2005); Laudon K.C. also, Laudon J. P. (2010); have exhibited that the web gives an avenue for trading, communication, distribution channel, information access and much more. Again, the internet helps in the storage of information and interacts with business customers to their needs.

Lancoini et al (2000), outlines the part that web plays in SCM in the regions of procurement, transportation, order processing, customer service and managing vendor relations. Their discoveries uncovered that the utilization of the web in overseeing transportation was the most widely recognized in SCM followed by order processing, managing vendor relations, purchasing



procurement, and customer service. The advance revealed the part of the web in procurement as in communication with suppliers and customers, checking suppliers' price quotation, and purchasing from seller lists, and has decreased staff numbers, streamline transactions cost and procedures and so forth. In the zone of stock management as in communication of stock levels to suppliers, depot management on raw materials to finished goods, shipment information.

D. Skilled Workforce/labour in SCM

Managerial Skills as defined earlier, managerial skills represent firms' ability to manage technology strategy alignment, organizational changes, and process redesign to accommodate the use of IT to improve firm performance. Firms achieving technology strategy alignment can attain more value from IT (Clark and Hammond 1997). SCM literature also highlights the importance of adapting supply chain structures and processes in deriving business value. For instance, evidence shows that, in managing buyer-supplier relationships, supply chain restructuring is associated with greater improvements in logistics costs and order cycle time (Kopczak 1997). In a study of Electric Data Interchange (EDI), Clark and Hammond (1997) find that SCM involving the adoption of EDI and redesign of procurement processes yield performance improvements more than an order of magnitude greater than adopting EDI alone. Together these studies suggest the critical role of managerial skills in improving the effectiveness of a digital supply chain.

USAID | DELIVER PROJECT, Task Order 1. (2011), states the following "A logistics system can only work if well-trained, efficient, staff monitor stock levels, place orders, and provide products to clients. Health programs assign the appropriate resources to staff (for example, supervision authority and technical knowledge) to complete logistics activities. In fact, some countries have established national logistics management units that analyze logistics data and provide feedback throughout the system. Organization and staffing, therefore, are important parts of the cycle. For a logistics system to work correctly, logistics staff must make the six rights a top priority". The handbook further recommends that staff ought not to be overburden with extra information accumulation apparatuses which may bring about expanded mistakes and delay report submission which undermines the abilities procured.

Duimering and Safayeni (1991) place that labourers truancy and business related frequencies make serious disturbances in operations which have restricted spare time. They further propose that the significance of the multi-utilitarian workforce in lessening the interferences taking after an unintended non-appearance, for which the wellbeing division is no exemption because of the basic way of drugs in sparing lives in developing countries. Along these lines, in the workplace, for example, in the field of supply chain management, work interruptions and restricted attitudes influence work forms which in the long run have a genuine impact on the strength of patients.

E. Theory

The Resource Based View (RBV) on Supply Chain Integration. As the researcher look to study IT value in digitally empowered supply chains, the researcher focus basically on the RBV on how technology makes values (Zhu and Kraemer 2002, 2005). The RBV attributes the improvement in firms performance to valuable resources or resource bundles (Barney 1991). From the RBV, one lens through which to take a look at IT value creation is "an indirect role for IT in firm performance. The basic logic is that IT affects other resources or processes which, in turn, lead to competitive advantage. In light of this rationale, the researcher will give a careful consideration to the relationship of IT-enabled supply chain integration to a firm process performance.

Income generation and cost reduction are the two major measurements of process performance improvement through supply chain integration (Mukhopadhyay and Kekre 2002). Such improvements, seen from the RBV, stem from resource synergy along the production network. Successful SCM aims to synchronize supply, production, and delivery (Lee et al. 2000).

For this to be in existence, firm requirement is to influence the network of the Internet to create an inter-firm digital platform, empowering constant data sharing, and enhancing coordination of distributed resources over the supply chain (Lee 2004). The digital platform helps to establish connections among separate resources owned by supply chain partners, thus, translating them into bundles of coexisting resources responsive to each other (Zhu and Kraemer 2002). This is consistent with the notion of creating resource synergy as advocated by the RBV (Conner 1991). The value in supply chain contexts may be manifested in revenue generation and cost reduction.



A case in point is practiced by Cisco. Although the contract manufacturers and partners are not owned by Cisco, the digital integration enables Cisco to take advantage of their manufacturing equipment, distribution channels, and service networks. This allows it to concentrate on developing new products to cope with changing market demand while outsourcing physical production. The outcome is an advantage of the agile supply chain, leading to revenue growth and market expansion (Kraemer et al. 2006).

More broadly, integration across separate stages of a supply chain allows each supply chain partner to focus on the operation at its own stage. This may eliminate the burden of acquiring duplicate resources (which are required by operations at other stages), thus, increasing resource utilization and decreasing operational costs. Cost reduction can be further achieved through resource synergy among horizontal partners (Lee 2002). For instance, because of the risks of supply disruption, firms often keep safety stocks for key components. Holding excess inventory, however, reduces asset productivity. Alternatively, more effective firms can share safety stocks with other firms that also need the components (Lee 2002).

F. Conceptual Framework

Taking into account the above theoretical point of view, the researcher built up a conceptual model as appeared in Figure 2.4. Reliable with the research purpose, the researcher indicated procurement performance as dependent variables and identify key resources for the digitally enable procurement management as independent variables. The model relates these keys resources to procurement performance. At that point, the researcher tries to concentrate on how information technology may improve Procurement performance. Below, the researcher examines these variables in turns and clarify why they have been picked.

The Dependent Variables: Procurement Performance. Following the Resource-Based View theory on IT value creation discussed above, the dependent variables incorporate improvement in both procedure level execution and infrastructure improvement. Several recent papers started to examine IT's relation to firm performance improvement at the business process level (Ray et. al. 2004, Banker et al. 2006).

The Independent Variables: Key Resources Enabling digital procurement. Using the RBV to study IT value, researchers have noted that improving firm performance through IT deployment depends on the combination of IT infrastructure, procurement

processes, relevant skills, and supportive relationships in IT management (Armstrong and Sambamurthy 1999). Based on a review of prior studies, a typology of IT-related resources has been proposed (Wade and Hulland, 2004). While it is mostly difficult to find resources that precisely meet these requirements, the researcher has tried to use them as guidelines and have found that three resources procurement processes, partner support and IT infrastructure and managerial skills will be particularly relevant in our research setting.

G. Procurement processes and procurement performance

Procurement process requires not only resources inside a firm, but also external resources provided by partners along the supply chain (Bensaou, 1997). As emphasized in prior research, the effectiveness of SCM depends on the support of a cluster of suppliers and procurement processes (Lee et al., 2000). Procurement processes are the means through which effective procurement activities are undertaken therefore when an organisation is able to effectively ensure that all its processes are structured it will lead to procurement performance with the help of technology. Measuring the performance of the purchasing function yields benefits to organisations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as was noted by Batenburg & Versendaal (2006).

According to Lee & Whang (2001), e-business is the use of Internet for computing and communications to execute both front-end and back-end business processes. E-Procurement has developed to become a key enabler in driving supply chain integration, of which e-procurement forms part of improved procurement performance.

The RBV contends that some gains in firms' relative competitive positions may be competed away (Barney 1991). the firm might see efficiency at the process level, but no improvement in its profitability relative to competitors (Hitt and Brynjolfsson1996). Therefore procurement processes in the public sector will lead to procurement Performance. The author proposes the following hypothesis;

H1: Procurement processes is positively related to Procurement performance

H. Partner Support with IT infrastructure and Procurement Performance



Partner support within the supply chain function leads to efficiency and effectiveness (Kalakota and Robinson, 1999). Miller and Shamsie (1996) also emphasized that a firm's knowledge and skills together with its processes will be more important in a changing environment than in a stable environment. This is because the use of information technology helps to make work easier and increase the accuracy and reliability of information when it is needed. Research has demonstrated that enhancing performance through IT relies upon a mix of variables such as IT foundation, coordination, significant aptitudes and steady relationship management (Armstrong and Sambamurthy, 1999). Several recent papers started to examine IT's relation to firm performance improvement at the business process level (Ray et al., 2004, Banker et al., 2006). With real-time information about inventory and material requirements, cost-effective transshipment of goods can be performed from one firm with excess inventory to the other with excess demand (Lee, 2002). This benefits the former by reducing inventory holding costs and the latter by fulfilling a growing demand. By streamlining information flow and substituting information for inventory, integration may increase supply chain efficiency and reduce costs (Milgrom and Roberts, 1988), with supportive evidence from the retail industry (Zhu and Kraemer, 2005). These all within the supply chain help increase procurement performance. Therefore, the extent of the strength of the relationship among the players involved has a potential of affecting procurement performance as the dependable variable. The researcher, therefore, the following hypothesis;

H2. Partner support is positively related to performance improvement.

I. Managerial and staff skills and procurement performance

Procurement Performance requires managerial and staff skills aligning with business strategy and managing transformation in processes and structures (Armstrong and Sambamurthy 1999). Such managerial skills are important, because IT applications in SCM may induce changes in the supply chain, for instance, multi-channel coordination and mass customization at the downstream, and continuous replenishment program and vendor managed inventory at the upstream. Firms thus need managerial and staff skills to orchestrate the adaptations in technology, strategy, and business processes to achieve procurement performance. Managerial Skills as defined, represent firms' ability to manage technology strategy alignment, organizational changes, and process redesign to accommodate the use of IT to improve

procurement performance. Firms achieving technology strategy alignment can attain more value from IT (Clark and Hammond 1997). Therefore, the researcher proposed the following hypothesis;
H3: Managerial and staff skills are positively related to procurement performance.

RESEARCH METHODOLOGY

A. Research Design;

This research follows a phenomenological approach in investigating the effect of information technology on Public sector procurement performance at the Judicial Service. The researcher used an exploratory research approach to collect data, where a purposive sampling technique was used for a sample of 150 respondents from Procurement, Logistics, Finance, Internal Audit, Judicial Reforms and Projects, Monitoring and Evaluation, Works officials and service providers out of a total population of 200. The researcher administered the questionnaire in order to solicit information about information technology in the Judicial Service. Literature review on Resource Base View was gathered for the study to investigate the effect of information technology on public sector procurement performance in the earlier chapter. The researcher ensured that the process of data collection was of a high quality which resulted in a higher quality of research findings by using a structured methodology and triangulation in order to facilitate replication.

Quantitative research approaches were used with case study strategies. In order to ensure commitment to ethics of the profession, the research design made room not to subject the study population to any form of embarrassment or disadvantage; therefore the study ensured adequate sensitisation of the research topic and sought for concerns first before the administration of the questionnaire. There was a sufficient and appropriate acknowledgment of all sources of information and adequate citation to avoid plagiarism.

B. Target Population

The researcher concentrated on a target population of 150 officers and service providers out of the total population of 200 employees at the head office of the Judicial Service who had their working activities involved with procurement.

C. Sample and Sampling Procedure

The researcher considered a target population to be made up of officials from the procurement department, finance department, logistics, and transport department, ICT department, works



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department, service providers and other related officers within the supply chain management function. The staff from the procurement department were mostly used in other to understand the degree to which the application of information technology could help reduce corruption, delays errors and rather increase efficiency and effectiveness in the use of public funds. The researcher also thought that the staff of the procurement department will help identify areas of concern raised and how the application of information technology can help solve the problem. Service providers were also considered to be part of the study due to their involvement the activities of procurement. The exploration work was finished with the utilization of both probability and non-probability sampling procedures. The sampling strategy utilized was purposive sampling method which is a non-probability sampling procedure to choose the respondents for the study. The departments like finance, works, logistics and the other departments were selected on random basis for easy accessibility, also was their commitment towards the accomplishment of the exploration goals. The researcher selected contractors and supplier to be part of the study through a simple random sampling method. It was considered to be appropriate for the research work because it offered an equivalent, measurable and a non-zero likelihood of the respondents, (Sarantakos,1997:p138). This was done to guarantee genuine representations of respondents.

A sample size of 50 service providers was derived from the database of the Service. Simple random sampling technique was used to determine the sample of 100 officers and 50 suppliers and contractors. According to Saunders et. al., (2009) a sample size of more than 50 of a population of 100 will give a good representation of the population. A representation of the distribution is represented below.

Table 3.1: Distribution of questionnaire

Respondents	Number of respondents
Procurement Department	10
Finance Department	20
Judicial Reforms and Projects Department	15
Internal Audit Department	10
Logistics and transport Department	15
Monitoring and evaluation Department	15
ICT Department	15

Service providers	
Contractors	10
General suppliers	15
Goods suppliers	15
Consultants	10
TOTAL	150

Source: Field Study (2016)

D. Sources of Data

The research work was conducted with the use of both primary and secondary sources of data. The information that was collected with the use of primary data was done through the administration of the questionnaire. The primary data which is the first-hand information provided reliable and accurate information relating to the effect of information technology in public procurement which was obtained from the staff of Procurement, Logistic, Finance, Audit, Budget and Projects departments etc. with the use of a questionnaire. Information obtained from the internet, library, journals articles, newspapers and research reports were done through secondary data collection form. Secondary data was used in other to get all necessary information for the research work.

F. Data Collection Instrument

The administration of questionnaire was used to collect data from a sample of respondents with relationships drawn from their responses to establish the application of information technology in the public sector. The researcher used Purposive sampling technique in the selection of respondents to avoid bias that was likely to occur. Purposive sampling involves taking a representative of a population and taking their data collected as a research information (Frey et. al., 2000). It is also said to be a sampling method base on which the researcher selects a sample base on his own knowledge of the population, its element and the nature of the research objectives (Babbie, 1990). The researcher administered questionnaire with the assumption that most of the respondents were literate. This procedure facilitated data collected to be able to match concept with reality. Out of the 150 questionnaires, 100 were given to Procurement, Logistics, Finance, Internal Audit, Judicial Reforms and Projects, Monitoring and Evaluation, works officials and other officers and the rest were given to suppliers and contractors. Out of the 150 questionnaires issued out only 110 were retrieved. The researcher personally administered the questionnaire to the respondents. Below is the outcome of the questionnaires received.



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Table 3.2: Questionnaire received

Respondents	Number of respondents
Procurement Department	10
Finance Department	15
Judicial Reforms and Projects Department	10
Internal Audit Department	10
Logistics and transport Department	10
Monitoring and evaluation Department	10
ICT Department	15
Works Department	5
Service providers	30
TOTAL	110

Source: Field Study (2016)

G. Questionnaire Design

The study was to a large extent a survey research and thus a suitable communication method was introduced. A comprehensive questionnaire was prepared to gather firsthand information from a sample of respondents. In some instances, the researcher met with the respondents through interactions or call them on phone and also asked specific questions from the prepared questionnaires to find answers to the research problems. This was done in order to establish the usefulness of the variables in the conceptual framework adopted from the Resource Base View (RBV) theory used by the researcher.

H. Validity and Reliability

In order to test the reliability and validity of the data collection instrument, a pre-test was carried out. Saunders et. al., (2007) proposed that, in order to obtain correct answers to the research problem, the researcher should concentrate on specific areas of validity and reliability. Validity is about the extent to which a text measures a researcher's intended results and that the research variance identified in the measurement tools reveal correct variances amongst the respondents. The hypothesis will be tested to establish the relationship of the independent variables to the dependent variable.

The researcher obtained information from the literature review and the secondary data sources and made sure they were a reflection of the knowledge and understanding of the respondents. The content validity aspect was done to ensure consistency in questionnaire

administration. The researcher administered the questionnaire personally to the respondents. Clear, unambiguous and easy to understand questions which were asked, this was to ensure that all respondents knew what they were answering. Also, instructions on how to answer the questionnaire were issued out.

I. Data Analysis and Presentation

This area manages the techniques for analyzing of the information. Quantitative strategies were utilized to break down the information. Computer information

		Pro cur em ent pro ces ses.	Pub lic Pro cur em ent Pra ctic es	Part ner Sup port	Avail abilit y of IT infras tructu re.	Manag erial and Staff Skills.	Pro cur em ent Per for mance
Procur ement proces ses.	Correlatio n Coefficien t	1.000	.956**	.945**	.965**	.948**	.925**
	Sig. (1- tailed)		.000	.000	.000	.000	.000
Public Procur ement Practic es.	Correlatio n Coefficien t	.956**	1.000	.928**	.958**	.957**	.937**
	Sig. (1- tailed)	.000		.000	.000	.000	.000
Partner Support t.	Correlatio n Coefficien t	.945**	.928**	1.000	.918**	.916**	.916**
	Sig. (1- tailed)	.000	.000		.000	.000	.000
Availa bility of IT infrastr ucture.	Correlatio n Coefficien t	.965**	.958**	.918**	1.000	.938**	.935**
	Sig. (1- tailed)	.000	.000	.000		.000	.000
Manag erial and Staff Skills.	Correlatio n Coefficien t	.948**	.957**	.916**	.938**	1.000	.955**
	Sig. (1- tailed)	.000	.000	.000	.000		.000
procur ement Perfor mance.	Correlatio n Coefficien t	.925**	.937**	.916**	.935**	.955**	1.000
	Sig. (1- tailed)	.000	.000	.000	.000	.000	



analysis programming, for example, Statistical Programme for Social Sciences (SPSS) and Microsoft Excel were the principle tools utilized to break down the information into means and standard deviations on figures and tables so as to translate results. Correlation and regression analysis were used to test for the relationship between the independent variables and the dependent variable to determine the validity and reliability of the questionnaire used.

J. Pre-test

In other to ensure the achievement of the research objectives, twenty questionnaires were tested on a pilot basis to be able to determine the responses and understanding of respondent about the questions used. The researcher after the piloting decided to change some of the questions to be able to get more meaning to the question being answered.

K. Distribution of Respondents

The data showed the distribution of respondents among all the departments that are within the supply chain network and the service providers who are actors within the supply chain. Responses can be seen from the analysis tables in data analysis and presentation in the next chapter. The table shows a distribution of the questionnaire.

Table 3.3: Questionnaires distributed

Respondents	Number of respondents
Procurement Department	10
Finance Department	20
Judicial Reforms and Projects Department	15
Internal Audit Department	10
Logistics and transport Department	15
Monitoring and evaluation Department	15
ICT Department	15
Service providers	
Contractors	10
General suppliers	15
Goods suppliers	15
Consultants	10
TOTAL	150

Source: Field Study (2016)

DATA DISCUSSIONS

A. Correlation Analysis

An inter-item correlation matrix was conducted to establish the relationship between the various variables. The relationships are shown in table 4.6 which gives an understanding of how the various variables will be able to help in the achievement of the research objectives. The effect of Information Technology on Public sector procurement performance was assessed by the researcher and the results showed that there was a relationship between the various variables that will help achieve the research objective. From the correlation analysis below, variables with correlation coefficient values close to 1 and significant level of 0.000, this means they have a stronger correlation and stronger relationship with the depended variable procurement performance.

Table 4.6 Correlation coefficient of Variables

B. Measurements

The researcher used the items under the various variables to measure the model constructs. For the dependent variable the researcher measured procurement performance in process performance with the following items; Transparent Processes, Reduce process Cost, Reduce Process Lead time, Increased Efficiency and effectiveness and Easy access to information.

The independent variables were also measured. The researcher measured procurement processes with items as follows; Procurement conducted in an effective and efficient manner, transparency in the procurement process, Management adhere to all necessary process in procurement management, Public procurement Laws took into consideration in undertaking every procurement activity, Public procurement reforms could bring positive impact on procurement practice. Public Procurement Practice were measured with items as follows; the practices are influenced by management of the Judicial Service, there are challenges in the application of the Procurement Act, staff have knowledge about Public Procurement Act, public procurement reforms could bring positive impact on procurement practice, Public Procurement Laws are taken into consideration in undertaking every procurement activity.



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Partner support was measured with items as follows; procurement is done on transparent basis, less error with the use of manual system of procurement, timely response to response to requirement by procurement, there is reduced process cost in procurement, procurement is done with increased efficiency and effectiveness, easy access to information in other departments practice, the current procurement practice ensures free duplication. Availability of IT infrastructure was also measured with items as follows; Judicial Service has constant internet supply, Offices within the Service re networked for information sharing, Available computers for use by staff, regular maintenance of equipment, availability of IT officers to offer support during challenges. Managerial and staff skills were measured with items like; Management and staff are trained on the use of a computer for electronic requisition, Staff is trained every quarter on procurement management and the implementation of IT will help reduce workload.

	B	Std. Error	Coefficients	Beta	
(Constant)	2.359	.135			17.536 .000
Managerial and Staff Skills.	.288	.050	.299		5.743 .000
Availability of IT infrastructure	.107	.058	.162		1.865 .063
Partner Support.	.424	.070	.270		6.049 .000
Public Procurement Practice	.283	.037	.438		7.706 .000
Effective Procurement Processes	-.148	.061	-.182		-2.432 .016

Source: Field study (2016)

The measurement model was done with the use of the correlation coefficient as indicated in table 4.6 from the data gathered. As indicated above, all measurement items have significant mean scores with the acceptable magnitude of 0.000 as said by Chin (1998). Thus, constructs measured by these items can be used to evaluate the model and associated hypotheses.

C. Regression Analysis

The conceptual framework of the researcher for this study was to develop the relationship between the variables procurement processes, partner support, managerial and staff skills and the dependent variable procurement performance. This was done by analyzing the questionnaire received to establish the relationship between the variables. The result showed that there was a relationship between the variables as shown blow. From the table 4.7 of the regression analysis, there was a significant relationship between variables managerial and staff skills (0.000), Partner Support (0.000), procurement process (0.016) and public procurement practice (0.000) which were all below the significant level of 0.05 and the dependable variable Procurement performance. Availability of IT infrastructure was detected not to be statistically significant since it is more than 0.05 as indicated in table 4.7 below.

Table 4.7 Regression

	Unstandardize d Coefficients	Standard ized	t	Sig

CONCLUSIONS

This second objective of the study was to determine how IT can lead to improving procurement performance at the Judicial Service. The results from table 4.3 and figure 4.1 shows that procurement processes undertaken at the Judicial Service were mostly done in accordance with the Public Procurement Act 2003 (Act 663) with most items tested having a mean score above the midpoint of 4 from a 7 point Likert scales used to determine how the independent variable will help achieve improved procurement performance. It was observed that tools and available equipment for the implementation of IT obtained lower mean scores and it is an area that needs to be given a major priority before IT can be implemented.

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