

Relationship between E-Procurement Adoption and Supply Chain Management Practices in Tea Firms

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Abstract: Many firms in the world and more so in Kenya have registered dismal supply chain performance in terms of partner relationship, information sharing and supply chain integration within supply chain system because of the inefficient and unsustainable procurement procedures as witnessed in the Kenyan public sector. These have led to firms putting emphasis on supply chain management practices. The purpose of this study was to establish the influence of e-procurement adoption on supply chain management practices. The objectives of the study were to establish the influence of e-procurement adoption on partnership, information sharing and supply chain integration practice in tea firms in Kenya. The study was guided mainly by Diffusion of Innovation theory and Resource Based Theory. The research design adopted during the study was explanatory. From 12 tea firms a target population of 4200 respondents was set. Purposive and proportional sampling was used to select a sample size of 365 respondents among the staff, top management and suppliers. Questionnaires and structured interview schedule was used to collect data. Pearson product moment correlation coefficient and linear regression were used to test strength of the relationship between variables. E-procurement adoption positively influence partnership ($r=.554$), information sharing ($r=.247$) and supply chain integration practices ($r=.332$). The e-procurement adoption positively influenced the partnership relationship, information sharing and supply chain integration practices. From the regression model, R^2 for partnership was .307, with information sharing .016 and integration being .110 and showed that e-procurement adoption account for 30.7% partnership, 6.1% information sharing and 11% integration of the supply chain management practices. The predicted partnership practice $\beta_1= 0.534$ information sharing practice $\beta_2= 0.269$ and supply chain integration practice $\beta_3= 0.362$ in relation to the e-procurement adoption was significant ($p < 0.05$). The tea firms should therefore embrace both E-procurement adoption and supply chain management practices to enhance supply chain performance.

Keywords: Adoption, E-Procurement, Supply Chain management practices, Partnership, Information sharing, Integration, Tea Firms.

1. INTRODUCTION

Supply Chain Management has become an essential prerequisite to stay in the competitive global environment for profitability especially for profit government corporations and entities (Thai, 2009). As the world's economy becomes increasingly competitive, sustaining competitiveness and the resulting profitability depend less on the ability to raise prices (Presutti, 2003). Those competitive dimensions cannot be delivered without an effectively managed supply chain. Firms with the most competitive supply chains are and will continue to be the big winners in contemporary business

world. Procurement is part of supply chain management activities and has exploded into the business scene as one of corporate management's major concerns over the past decades. According to Presutti, (2003) almost 70% of a firm's sales revenues is, on average, spent on supply chain-related activities from material purchases to the distribution of goods and services of finished products to the end customers.

Supply chain performance enables firms to drive rapid change in all aspects of nearly all operations, thus, effective supply chain mastery is a critical factor to achieving high performance which requires end-to-end visibility into factors that drive performance such as cash-to-cash cycle time, overall supply chain cost or perfect order fulfillment (Oloruntoba and Gray, 2006). To proactively manage the overall performance of supply chains, firms need to know more than inventory positions, deliveries dates, and fill rates. They must understand the impact of supply chain changes on the total cost or cash flow and optimize supply chain effectiveness for better corporate results. Organizations must have comprehensive visibility into supply chain performance to maximize competitive advantage (Croom and Johnson 2003). This focus has become even more intense as firms continue to adopt e-procurement strategies to leverage the competitive advantages of the internet. Managers need to understand the impact of technology and gain competency in the practices for e-procurement (Presutti, 2003). E-procurement creates a higher profile for supply management and boosts its visibility to top management (Presutti, 2003). E-procurement is a phenomenon that started in the developed economies but due to the spread of the internet, it has been increasingly adopted in the developing world. The increasing emphasis on supply chain management has created a greater focus on the supply management link in the supply chain. E-procurement is among the supply-side activities that have been identified as a key area where information systems enabled innovations are likely to yield significant benefits for organizations (European Commission, 2012). The advent of the internet has definitely made a change in the modern way of procurement functions. The role of procurement has changed considerably due to advancement in information technologies and information systems. However, there is a looming gap currently existing in our understanding of the role of procurement in our organizations today (Brook, 2002).

E-procurement creates a higher profile for supply management and boosts its visibility to top management (Presutti, 2003). E-procurement is a phenomenon that started in the developed economies but due to the spread of the internet, it has been increasingly adopted in the developing world. The increasing emphasis on supply chain management has created a greater focus on the supply management link in the supply chain. E-procurement is among the supply-side activities that have been identified as a key area where information systems enabled innovations are likely to yield significant benefits for organizations (European Commission, 2012). The advent of the internet has definitely made a change in the modern way of procurement functions. The role of procurement has changed considerably due to advancement in information technologies and information systems. However, there is a looming gap currently existing in our understanding of the role of procurement in our organizations today (Brook, 2002).

Batenburg (2007) conducted a study on e-procurement adoption by European firms and identify country differences in e-procurement adoption, and that firms from countries with a low uncertainty avoidance such as Germany and the UK are the early adopters of e-procurement, while countries that are less reluctant to change such as Spain and France have lower adoption rates. The global perspective of e-procurement adopted from the Transparency International (2006) shows that it has helped Brazil in sharing of information between the procuring entities and supplying firms. The business processes of a company, such as distribution, research and development, operations and logistics, are heavily influenced by global competition, high-speed information availability, continuously changing business relationships, shorter innovation cycles and an increasing complexity of products. E-procurement is one of the most world existing developments in supply chain management in modern times. However, in most African countries, the ultimate e-procurement system is still in the development stage and will evolve over time (Bardi, Coyle, and Langlay, 2013). Greunen, Herselman & Niekerk (2010) argues that benefits of supply chain management have not yet been realized due to general limited understanding of how supply chain management concept works within government environment. Problems such as poor information sharing between purchasers and suppliers, non-automated supplier appraisal systems, adversarial relationship and non-responsive supply chain integration exist in this electronic age according to Chartered Institute of Purchasing & Supplies (CIPS) (2011). Giner, Alberto, Guillermo, & Cuauhtemoc (2011) confirms

that a properly implemented e-procurement system can connect companies and their business processes directly with suppliers while managing all interactions between them. A good e-procurement system helps a firm organize its interactions with its most crucial suppliers. It is evident that although this study focuses on e-procurement, it fails to address the role played by the web based technologies in supply chain performance.

In the current economic environment, a value creation perspective is important for improving supply chain performance (Wiengarten, Fynes, Humphreys, Chavezand, & McKittrick 2010). The functional characteristics of e-procurement systems can enable companies to improve the efficiency of value creation processes in the supply chain. The process through which e-procurement contributes to supply chain performance can only be highlighted through explaining the relationship among such processes as; partner relationships, information sharing, and supply chain integration which are proposed as the processes that connect e-procurement systems with supply chain performance. Since e-procurement is an electronic (technology-based) system (Presutti, 2003), the consequences of e-procurement can be inferred from the technological applications associated with supply chain management. Partner relationships refers to mutually committed relationships between enterprises and their partners (e.g. suppliers, the same tier manufactures and channel members) in the supply chain (Li, Rao, Ragunathan & Ragunathan 2005; Liker & Choi, 2004; Panayides & So, 2005; Skjott-Larsen, Kotzab, and Grieger 2003). Local studies that have been carried out in e-procurement include: Orori (2011) on factors that influence the introduction of e-procurement in retail industry: a survey of retail chain supermarkets in Kenya; Njoroge (2010) on factors influencing e-procurement practices in construction industry in Kenya and Mburu (2011) on the role of e-procurement in enhancing efficiency in telecommunication industry (A Case Study of Safaricom Limited Company-Kenya). It is however clear that the studies have not focused on the influence of e-procurement adoption on supply chain performance in tea firms. In order to understand e-procurement along with its application in Kenyan tea firms, this study sought to establish the relationship between e-procurement adoption and supply chain management practices such as partnership, information sharing and supply chain integration.

1.1. Statement of the Problem

Kenya's procurement function has been characterized by massive scandals and indignity which have been attributed to poor handling of procurement information thus leading to excessive corruption (Thai, 2009) and thus a need to have a robust automated procurement system which is interlinked and this will lead to enhanced competitiveness and lowered costs (Ogot, Nyandemo, Kenduiwo, Mokaya & Iraki 2009). Several workshops and meetings have been held within the procurement function to improve the performance of the supply chain but they have inadequately addressed how e-procurement adoption can enhance supply chain performance through partner relationship, information sharing and supply chain integration within supply chain system (PPOA, 2010). Weak ICT infrastructure and its adoption in support of e-procurement is a challenge to procurement (Imbuga, Namusonge, Sakwa & Iravo 2011). A good example is the core mandate system that is deployed to the Public Procurement Oversight Authority (PPOA) is e-procurement. Once this is implemented and linked to procurement entities, it becomes a tool for the compliance function in the monitoring and evaluation of procurement entities (PPOA, 2011). A study by Kiprono (2013) indicated that the main impediment to e-procurement adoption in tea firms in Kenya is a "wait-and-see" attitude among firms in selecting e-market places and procurement service providers which has significantly hampered supply chain performance. This study found it imperative to investigate the relationship between e-procurement adoption and supply chain management practices in tea firms in Kenya.

1.2. Objectives of the study

The purpose of the study was to establish the influence of e-procurement adoption on supply chain management practices in tea firms and the objectives included to;

- Establish the influence of e-procurement adoption on partnership practice.
- Identify the influence of e-procurement adoption on information sharing practice.
- Determine the relationship between e-procurement adoption and supply chain integration practice.

1.3. Significance of the Study

The findings from this study are beneficial to the tea firms as far as the adoption of e-procurement systems is concerned and also in coping with problems of implementation and institutionalization of the e-procurement systems so as to guide firms to formulate effective procurement policies to gain competitive edge in the market. The study findings serve as a benchmark to other organizations intending to adopt e-procurement as it enables them to better understand the role of e-procurement in organizational supply chain performance.

2. LITERATURE REVIEW

2.1. Electronic Procurement

According to Robinson, Wale & Dickson (2010) and Rolstadas, Hetland, Jergeas, & Westney (2011), procurement is a process in which organizations establish agreements for the acquisition of goods or services (contracting) or purchase goods or services in exchange for payment (purchasing). Albrecht, Dean, & Hansen, (2005) stated that e-procurement is where a number of organizations adopt e-procurement systems to purchase indirect materials for processes like operations, sales, maintenance and administration. The only vendors who are connected to a buyer's e-procurement system are visible to the buyer. Kim and Shunk (2004) mentioned that in a narrow sense, e-procurement systems can be defined as the web-based systems building at the buying organizations, i.e. buyer-centric (buy-side, buyer-managed, buyer-focused, buyer-specific, or buyer-oriented) e-procurement systems such as intranet (internal, desktop, or end-user's) e-procurement systems and buy-centric private e-marketplaces managed by a single buyer. E-procurement in this study was defined as an organization's procurement using the internet technologies (Kim & Shunk, 2004) with support to sourcing, procurement, tendering and ordering fulfillment processes. Organizations and individual business people have come to embrace it due to the integration benefits and the immense possibilities it brings about: collapsing space, distance and time (European Union, 2012). Organizations adopt e-procurement due to the myriad benefits: integration, tap digitization benefits, improve procurement efficiency, cost management and elimination of sourcing errors (Done, Liao & Maedler 2011; European Union, 2012 & Reddick, 2004). Efficiencies are generated from the adoption of e-procurement technologies which enable transaction processes to less mistake, and more efficient purchasing (Singh & Punia, 2009).

2.2. Supply Chain Management Practices

The supply chain encompasses all activities associated with the flow and transformation of goods from the raw materials stage through to the end user as well as associated information flow. Supply Chain Management (SCM) is the integration of these activities through improved supply chain relationships to achieve sustainable competitive advantage (Handfield and Nichols, 1999). Li *et al.*, 2005, stated seven dimensions in SCM practices as strategic supplier partnership, customer relationship, information sharing, information quality, internal lean practices, supplier appraisals and postponement. E-procurement has a profound influence on how to manage supply chains of organizations (Eng, 2004). It is e-procurement, the productive use of the internet to improve the effectiveness and efficiency of the end of the supply chain as well as conduct effective appraisals in any supply chain activity.

E-procurement creates a higher profile for supply management and boosts its visibility to top management (Presutti, 2003). The increasing emphasis on SCM has created a greater focus on the supply management link in the supply chain. This focus has become even more intense as firms continue to adopt e-procurement strategies to leverage the competitive advantages of the internet. Managers need to understand the impact of technology and gain competency in the practices for e-procurement (Presutti, 2003). From the SCM practices of Tan, Lyman & Wisner (2002) time-based issues such as on-time deliveries and reducing response time received the highest mean score. They also found that price/cost may not be a primary factor in selecting suppliers for firms but quality, and service levels, on-time delivery, quick response and volume flexibility are critical factors in selecting suppliers and its influence on supply chain performance. However, more scholars have other more comprehensive thoughts regarding supply chain performance. Eng (2004) considered the perceived contributions of e-marketplace to SCM are examined in three dimensions which include: unit cost reduction, increased efficiency and streamlined operations whereas Croon & Johnson (2003) identified three areas of internal service performance as cost efficiency, process conformance and internal satisfaction.

2.3. Partner Relationship

Partner relationship is a critical issue for business, especially in supply chain activities. Corporations need to be convinced that in today's scale-driven, technology-intensive global economy, partnerships are the supply chain's lifeblood (Liker & Choi, 2004). There are a lot of synonyms for partner relationship, such as partnership, supply chain relationship, buyer-supplier relationship, strategic relationship, and obligation contractual relations (CIPS, 2010). It also has multiplex statement. Liker & Choi (2004) used the Japan diction "keiretsu" to represent the deep supplier relationship: close-knit networks of vendors that continuously learn improve and prosper along with their parent companies. Therefore, partner relationship is an ongoing relationship between firms that involve a commitment over an extended time period, a mutual sharing of information and the risk and rewards of relationship (Ellram & Krause, 1994). All these characteristics showed that partnerships play an important role in procurement aspect. As a result, the researcher can know that e-procurement has positive relation with partner relationship, information sharing and supply chain integration. Johnson & Klassen (2005) also mention that e-procurement deepens strategic partnerships between networks of firms. Therefore, it was expected that firms that deliver e-procurement system in the supply chain were likely to strengthen partner relationship.

2.4. Information Sharing

Information sharing refers to good-quality information flow between an enterprise and its partners (e.g. suppliers, the same tier manufactures and channel members) in the supply chain (Tan *et al.*, 2002). Information sharing is about the information flow, the timeliness of information availability, and the openness and transparency. It will affect performance apparently. For instance, the e-market place provides a mechanism for companies to control, coordinate, and economize on transaction costs, as it improves information flow and helps reduce uncertainty (Eng, 2004). The use of IT enables far greater information to be more widely distributed, and in terms of the ability to offer access to large catalogues of suppliers, the range of products and services available to employees is reported to have provided far greater range flexibility (Evans and Wruster, 2001). Tan *et al.*, (2002) shows that information sharing related to the use of IT and sharing including formal and informal information sharing, communicating and determining customers' future need and participation in sourcing decision. Li *et al.*, (2005) mentioned that information sharing refers to the extent to which critical and proprietary information is communicated to one's supply chain partner. From the description above, the information sharing does not only share information with partners, but also provides adequate, timely and accurate information. In other words, information sharing should include the concept of information quality. Therefore, information sharing defined here included both formal and informal information sharing with partners and the information must ensure quality with accuracy, timeliness, adequacy, credibility, and criticality (Croom, 2003).

2.5. Supply Chain Integration

Supply chain integration is defined as the coordination and activity integration of supply chain processes between an enterprise and its partners (e.g. suppliers, the same tier manufactures and channel members) in the supply chain (Tan *et al.*, 2002; Zhang, Anosike, Lim, & Akanle, 2006). Firms that intend to reap the strategic advantage of their participation in e-marketplaces should be aware that their interaction with other firms requires an integration of various functional areas within an organization and coordination with external participant organizations (Eng, 2004). Narasimhan & Das (2001) and Narasimhan & Kim (2002) definitely pointed that improved integration improves the performance of both the buyer and supplier. All of these indicated that firms which improve their supply chain integration are likely to increase their supply chain performance. There has been an increasing movement towards adopting the concept of supply chain integration (Frohlich & Westbrook, 2001). The supply chain structure attempts to coordinate cross-functional activities into holistic business processes, both within and across firms in the supply chain. The meaning of supply chain structure is consistent with supply chain integration.

Tan, (2001) also suggested that a well-integrated supply chain should involve coordinating the flow of the materials and information among stakeholders, and implementing product postponement and mass customization. The supply chain integration involves both internal and external process integration. The approach to supply chain integration proposed by Zhang *et al.*, (2006) is based on the concept of dynamically integrated manufacturing systems, within an enterprise or across a supply chain, that are dynamically integrated for optimal performance in response to changes in the business environment.

Technological is concerned with modularized manufacturing hardware, software and technologies, which would support the dynamic integration of physical manufacturing systems (Zhang *et al.*, 2006).

2.6. Theoretical Framework

The study adopted Diffusion of Innovation (DOI) theory (Hsu, Kraemer & Dunkle 2006) and Resource-Based View (RBV) theory (Zhu & Kraemer, 2005) to explain the effect of e-procurement adoption on supply chain performance in tea firms. The technological context is addressed by both DOI theory and RBV theory. Diffusion of innovation theory by Rogers (2003) describes the process of spreading an innovation via communication channels over time among the members of a social system. Roger's theory details the stages of the innovation decision process (knowledge, persuasion, decision, implementation, and confirmation). According to DOI theory, an innovation is communicated via channels over time. The communication channels are mass media channels (e.g., radio and newspapers) and interpersonal, interactive channels (such as in face-to-face communication). It is common to draw distinction between process and variance theories: theories describing typical stages of a process and theories hypothesizing cause effect relationships between variables (Gregor, 2006). The members of a social system, the potential adopters, could be individuals, informal groups, or organizations. When the adopter is an organization, along with the attributes of the organization's leader as an adopter, DOI theory suggests that organizational structure (e.g centralization, complexity, and formalization) and organisational openness (links to other organizations) affect the rate of adoption.

Resource-Based View theory suggests that firms create value by combining resources, both tangible and intangible along with the term resources. The value of a particular resource may depend on the presence of other, related resources (Mohd Salleh, 2009). RBV theory distinguishes physical capital resources, human capital resources, and organisational capital resources. Information technology can be seen as a physical capital resource. Training, experience, judgment, intelligence, relationships, and insight of individual managers and workers in a firm (all highly relevant to managing innovation and technology) are human capital resources. The structure of a firm is both reflected and supported by its information systems, and the firm's relationships with other firms may involve sharing information in digital form and inter-organisational system integration. Srinivasan, Lilien, & Rangaswamy (2002), in a survey of companies in multiple industries in the US, found that the adoption and use of e-business was influenced by the technological capabilities of the firms. RBV theory has been criticised for being not specific enough in defining various types of resources; Priem and Butler (2001) argued that key definitions varied from study to study, with the resulting inconsistency hindering the accumulation of knowledge. Arguably, RBV theory addresses this context in a rather limited way, as the environment cannot be viewed solely as a resource, but also presents constraints and threats. DOI theory explicitly targets explaining technology adoption and addresses all the three contexts. RBV theory simply considers technology as a physical capital resource that can be used to generate a sustained competitive advantage. DOI theory suggests the specific attributes of an innovation (applicable to technology innovation) relevant to decisions regarding adoption and use. The organisational context is addressed by DOI theory and RBV theory. DOI theory and RBV theory are similar in terms of modelling the organisational context, because from the perspective of RBV theory, the aspects of organisational structure claimed by DOI theory to affect adoption and use can be seen as human capital and intra-organisational capital resources.

2.7. Conceptual Framework

The study conceptualize that there is a relationship between E-procurement adoption and supply chain management practices as in Figure 1. The independent variable was the E-procurement adoption and the dependent variables were the partnership, information sharing and supply chain integration practices.



Fig1. Conceptual Framework

3. RESEARCH METHODOLOGY

The study adopted explanatory research design. The design was suitable because it concerns with quantifying a relationship purposely to identify a cause-effect relationship. The study was conducted in tea firms located in the West and East of Rift Valley. The location was chosen because their tea firms have adopted the e-procurement and therefore provides viable information required in the study. The study targeted twelve (12) tea firms. The target population was 4200 respondents. Census sampling was used to select all the tea firms, as few firms have adopted the e- procurement. The line managers and staff from the procurement, administration and suppliers were sampled purposively. Using Yamane’s (1967), the sample size was computed as hereunder:

$$n = \frac{N}{1 + N(\epsilon)^2} = 4200/1+4200(.05)^2 = 365 \text{ respondents}$$

Where; n = the sample size, N = the population size, ε = the acceptance sampling error

The research study was based on the primary and secondary data. Questionnaires were used to obtain information from procurement and administration staff, as well as structured interview schedule for managers and suppliers. A pilot study was conducted in Kenya Tea Development Agency (KTDA) among four KTDA tea firms with similar characteristics. Expert opinion was used to assess the validity of the data collection tools. The suggestions were used to modify the research items and make them adaptable to the study. Cronbach’s coefficient alpha was used to determine the reliability of the research instrument, where a reliability coefficient of 0.7 and above was assumed to reflect the internal reliability of the instruments (Fraenkel & Wallen, 2000). The instruments’ deemed reliable after many typographical errors and omissions detected were corrected. The responses from questionnaires and interview schedule items were cross-checked to facilitate coding and analysis using SPSS Version 21.0 computer programme. Pearson product moment correlation and linear regression were used to establish the relationship between independent and dependent variables.

4. RESULTS OF THE STUDY

The objective of the study was to establish the relationship between e-procurement adoption and supply chain management practices in tea firms.

4.1. Correlations between E-Procurement Adoption and Supply Chain Management Practices

The influence of e-procurement adoption on supply chain management practices in tea firms was investigated using Pearson product-moment correlation coefficient as shown in Table 1. There was a positive influence of e-procurement adoption on partnership (r=.554), information sharing (r=.247) and supply chain integration (r=.332). This implies that as the e-procurement adoption in tea firms improved the partnership relationship, information sharing and supply chain integration practices increased. The e- procurement has positive relation with partner relationship, information sharing and supply chain integration.

Table1. Correlations between E-Procurement Adoption and Supply Chain Management Practices

		Adoption	Partnership	Information	Integration
Adoption	Pearson Correlation	1			
	Sig. (2-tailed)				
Partnership	Pearson Correlation	.554**	1		
	Sig. (2-tailed)	.000			
Information	Pearson Correlation	.247**	.325**	1	
	Sig. (2-tailed)	.000	.000		
Integration	Pearson Correlation	.332**	.398**	.307**	1
	Sig. (2-tailed)	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

b. N=272

Source: Primary data, 2015

This finding agrees with Johnson & Klassen (2005) that e-procurement deepens strategic partnerships between networks of firms. Therefore, it was expected that firms that deliver e-procurement system in the supply chain were likely to strengthen partner relationship. The firms that increased their partner relationship in the supply chains are likely to improve their supply chain performance as it happened in

tea firms. Ensuring the quality of shared information has become a critical issue of effective supply chain management.

4.2. Linear Regression on the Relationship between E-Procurement Adoption and Supply Chain Management Practices

A linear regression model was used to explore the relationship between dependent variable and independent variable or predictor. It was used to predict supply chain management practices. From the regression model, R^2 for partnership was .307, with information sharing .016 and integration being .110. These showed that e-procurement adoption account for 30.7% partnership, 6.1% information sharing and 11% integration (Table 2). The predictors used in the model have captured the variation in the supply chain management practices of Tea firms. The regression model significantly improved the ability to predict the supply chain management practices. The F- ratio was significant ($P < .05$) leading to rejection of the null hypotheses.

Table 2. Linear regression on the relationship between E-Procurement Adoption and Supply Chain Management Practices

	R	R Square	Adjusted R Square	F	Sig.	β	Std. Error	β Standardized	t	Sig.
Partnership	.554 ^a	.307	.305	119.833	.000 ^b	.534	.049	.554	10.947	.000
Information	.247 ^a	.061	.057	17.530	.000 ^b	.269	.064	.247	4.187	.000
Integration	.332 ^a	.110	.107	33.459	.000 ^b	.362	.062	.332	5.784	.000

a. Dependent Variable: Partnership, information sharing and supply chain integration

b. Predictors: (Constant), Adoption of e-procurement

Source: Author, 2015

The β value for adoption of e-procurement had positive relationship with all the supply chain management practices as shown in Table 2. From the findings the t-test associated with β -values was significant and the e-procurement adoption as the predictor was making a significant contribution to the model. The coefficients results showed that the predicted partnership practice in relation to the e-procurement adoption was significant; $\beta_1 = 0.534$ ($p < 0.05$) which implies that we reject the null hypothesis (H_{01a}) stating that E-procurement adoption has no significant influence on partnership practice in tea firms. This indicates that for each unit increase in the adoption of e-procurement, there is 0.534 units increase in partnership practice in tea firms. These findings agree with Presutti, (2003) that E-procurement creates a higher profile for supply management and boost its visibility to top management. It concurs with Giner *et al.*, (2011) that a properly implemented e-procurement system can connect companies and their business processes directly with suppliers while managing all interactions between them.

The coefficients results showed that the predicted information sharing practice in relation to the e-procurement adoption was significant; $\beta_2 = 0.269$ ($p < 0.05$) which implies that we reject the null hypothesis (H_{01b}) stating that E-procurement adoption has no significant influence on information sharing practice in tea firms. This indicates that for each unit increase in the adoption of e-procurement, there is 0.269 units increase in information sharing practice in tea firms. E-procurement enhanced the flow of information along the supply chain (Johnson & Klassen, 2005). As a result, if firms delivered e-procurement system in their supply chain, they will enhance their information sharing. The findings agree with Barratt and Rosdahl (2002) that ease of search and transparency acts as an advantage to the buyer. The findings agree with Li *et al.*, (2005) that information sharing does not only share information with partners, but also provided adequate, timely and accurate information.

The coefficients results showed that the predicted integration practice in relation to the e-procurement adoption was significant; $\beta_3 = 0.362$ ($p < 0.05$) which implies that we reject the null hypothesis (H_{01c}) stating that E-procurement adoption has no significant influence on supply chain integration practice in tea firms. This indicates that for each unit increase in the adoption of e-procurement, there is 0.362 units increase in integration practice in tea firms. The findings agree with Tan *et al.*, (2002) that supply chain integration influence majorly product quality and customer service levels. The finding further agrees with Narasimhan & Das (2001) and Narasimhan & Kim (2002) that integration improves the performance of both the buyer and supplier. The tea firms

that improved their supply chain integration were more likely to increase their supply chain performance. A good e-procurement system helps a firm organize its interactions with its most crucial suppliers. The findings also agree with Schorr (1998) that firms no longer compete against each other individually, but do so together with their respective supply chains. For firms to compete and survive in this global competitive environment, they have to continuously improve their enterprise, collaborative and cohesive relationships within the supply chain networks.

5. CONCLUSION AND RECOMMENDATIONS

A strong positive influence existed between e-procurement adoption and supply chain management practices in tea firms. The e-procurement adoption affected the supply chain management practices in tea firms positively. Also the e-procurement adoption existed among the individual supply chain management practices constructs (partnership, information sharing and supply chain integration). E-procurement adoption positively influence partnership ($r=.554$), information sharing ($r=.247$) and supply chain integration practices ($r=.332$). The e-procurement adoption in tea firms has improved partnership relationship, information sharing and supply chain integration practices. From the regression model, R^2 for partnership was .307, with information sharing .016 and integration being .110 and showed that e-procurement adoption account for 30.7% partnership, 6.1% information sharing and 11% integration of the supply chain management practices.

The predicted partnership practice $\beta_1= 0.534$ ($p < 0.05$), information sharing practice $\beta_2= 0.269$ ($p < 0.05$) and supply chain integration practice $\beta_3= 0.362$ ($p < 0.05$) in relation to the e-procurement adoption was significant. The electronic procurement adoption in tea firms has built partner relationships with suppliers, benefited in the reduction of cost, lead time and stable supply source and adopted the supply chain management practices. It has enhanced trust and partner relationship with suppliers using electronic procurement. The adoption of e-procurement enable tea firm providing information to their suppliers on forecasted demand for their products. The e-procurement adoption was found to make firm partner relationships and information sharing positively effects supply chain performance and integrated software improves supply chain performance.

The tea firms should provide information to all their suppliers on inventory levels of products, product compositions and raw materials purchased from them promptly without bias and also execute adequate debriefing of suppliers to enhance partner relationships after every evaluation. The tea firms should embrace the sound supply chain management practices to enhance the firms' supply chain performance which consequently lead to profit maximization.

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