The Role of Public Procurement Framework in Stimulating SMEs Innovativeness in Tanzania

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Abstract

This study examined the role of public procurement framework in stimulating SMEs innovativeness. By using a sample of 208 firms and interviews three identified variables, namely, competition, cooperation and specifications of designs were observed to have a positive effect on SMEs' innovativeness. In other words an increase in these variables in processes of tendering results into an increase in innovation among the SMEs. Despite the observed positive impact of the examined three indicators, respondents highlighted different challenges they encountered in the process of tendering in public institutions. They included difficult conditions like requirement of very high turnover, delay in payments of already delivered services and limited transparency. From findings, it is recommended that governance issues are very important in the process of assuring that public procurement framework will stimulate SMEs' innovativeness. Specifically, each part should honour the contract agreements. SMEs should be involved in the process of designing work specifications and also public institutions should reduce the unnecessary long procuring process as well as delay in payments.

***Keywords*:** SMEs, Public procurement, Innovation.

Introduction

Promoting Small and Medium Enterprises (SMEs) has always been one of the initiatives taken by both, developed and developing countries in their quest for economic prosperity. In Tanzania, SMEs which constitute more than 70 percent of all registered businesses play a significant role in the economic development of the country (Confederation of Tanzania Industries (CTI), 2009). Olomi (2005) reckons that SMEs contribute about a third of the Tanzanian GDP and have the greatest potential for stimulating widely shared growth and thus, contribute to poverty reduction in the country. In the same token, OECD (2004) noted that in the developing countries, SMEs account for more than 90 percent of all firms outside the agricultural sector, constitute a major source of employment and generate significant domestic as well as export earnings. Therefore, promotion of SMEs emerges as a key instrument in poverty reduction efforts. Being so important, SMEs' growth and sustainability in the country require multifaceted interventions. Among other things, innovation has to be promoted among SMEs in order to enable them survive both, local and foreign competition, which is becoming tense. By being innovative, SMEs will dominate not only the local market, but also in the long run, they may pave their way to export success.

The sources of innovation can broadly be categorized into demand - driven and supply - driven sources (Edquist and Hommen, 1999). Public procurement is one of the demand driven sources of innovation. Previous studies indicate that generally, public procurement plays a significant role in promoting innovation (Palmberg, 2004; Saarinen, 2005). Public procurement is generally referred to as acquisition of goods, services and works by public entities. Edler and Georghiou (2007) noted that in most countries, public procurement stands to be the single largest source of demand for businesses. This is true because in Tanzania, for example, approximately 70 percent of the recurrent budget and 100 percent of the development budget are spent through public procurement (PPRA, 2008). With such huge proportion of expenditure, the government stands to be the largest buyer in the country (CTI, 2009).

Statement of the Problem

Being the largest source of demand for businesses in the country, public procurement is one of tools that can be employed to stimulate innovation among SMEs. Through the SMEs Development Policy (2003-2013), the Tanzanian government committed itself to enhance productivity and competitiveness of the SMEs and to facilitate SMEs' access to markets (URT, 2002). One of the strategies stipulated in the policy is facilitation of the SMEs so as to benefit from government procurement needs and activities. As Aschhoff and Sofka (2009) argue, public procurement can be used to achieve multiple objectives such that promoting innovation is potentially one of them. While innovation is considered to be triggered by public procurement, it is also a factor for competitive advantage among SMEs (Droge, et. al. 1994; Brown and Eisenhardt, 1995; Sundbo, 1998; Elly, 2011). Despite its importance, it is still unclear on how public procurement can be used to stimulate innovation. For that reason, this study investigated how public procurement, among other factors, influences on SMEs innovativeness.

The focus of this study forms a point of departure because it is generally agreed that innovation is vital for prosperity of any business firm including SMEs. Existing literature suggests that for public procurement to be used for stimulating innovation, it should emphasize on both criteria of competitiveness and cooperation [(relationship governance mechanisms) Kattel and Lemeber, 2010] whereby aspects such as contractual relations, buyer-supplier cooperation, and the design of product/service specifications are critical factors. Therefore, if the government wants to promote growth and competitiveness[1] of SMEs, among other things, it must consider promoting innovation. Limited empirical evidence from developing countries

[1] Tanzanian SMEs Development Policy, among other things, declares the government's commitment to support the improvement in performance and competitiveness of SMEs.

on public procurement as a policy instrument for influencing innovation motivated researchers to conduct this study. Findings from this study turn a useful input in devising and improving government policies that aim at promoting growth and competitiveness of SMEs using procurement as means to that end.

Research Objective

The main objective of the study was to assess the role of public procurement framework in stimulating innovation among SMEs in Tanzania. Specifically, the study focused on the following objectives:

i. To examine the existing relationship between competition and SMEs innovativeness;
ii. To assess the extent to which cooperation affect SMEs' innovativeness; and
iii. To examine the relationship between specifications designs and SMEs Innovation.

Key Concepts of the Study

To keep the subject in perspective, it is important at this point to have a clear understanding of the key words. The definition of SMEs typically varies from country to country (CTI, 2009; OECD, 2004). Criteria such as number of employees and value of sales and/or value of assets are usually used as the basis for defining SMEs. However, in this study, the definition provided by the Tanzanian SMEs Development Policy (2003-2013) was adopted. According to the SMEs' Development Policy, the SMEs nomenclature in Tanzania is used to mean micro, small and medium enterprises produced in non-farm economic activities such as manufacturing, mining, commerce and services. The policy clarifies further that micro enterprises are those engaging up to 4 people, in most cases, family members or employing capital amounting up to Tanzanian shillings

(Tshs.) 5.0 million; small enterprises are mostly formalized undertakings engaging between 5 and 49 employees or with capital investment from Tshs.5 million to Tshs.200 million; and Medium enterprises employ between 50 and 99 people or use capital investment from Tshs.200 million to Tshs.800 million (URT, 2003).

On the other hand, innovation refers to development or delivery of a new or significantly improved product, process or service, a new marketing method, or a new organizational method in business practice (Procurement Innovation Group, 2009). It can involve creation of entirely new knowledge or diffusion of existing knowledge and therefore, innovative solutions are either new or better solutions. Therefore, innovation can be related to improvements in quality, yield, and delivery time (Monezka, et. al., 1993). Innovation is widely acknowledged to be a key driver of economic growth through improvements in efficiency, productivity, and quality (Aschhoff and Sofka, 2009). Due its role in economic growth, innovation has always received close attention by policy makers. This study adapted the innovation definition from the Procurement innovation group (2009).

Theoretical Perspectives

In order to develop theoretical framework, the study employed innovation theory and inter-organizational relationship theory. Theoretically, the role of public procurement in stimulating innovation stems from the system oriented paradigm which focuses on a broad-based approach that considers the full scope of the innovation cycle as opposed to a linear oriented paradigm, which usually focuses only on supply side (Edquist and Hommen, 1999; OECD, 2011). The rationale for adoption of the system approach is due to the fact that linear innovation models that have been widely used are very simple and unrealistic (Edquist and Hommen, 1999). It is on that account this research employed the system-oriented paradigm in which innovation is examined from demand point of view, like recent studies, which have done the same (for example, Aschhoff and Sofka, 2009; Zeng, et. al., 2010).

The theory of innovation embodies the entire framework that accounts for all scientific, technological, organizational, financial, and commercial activities necessary to create, implement, and market new or significantly improved products or processes. According to Sundbo (1998), the original theory of innovation is usually attributed to Joseph Schumpeter (1934, 1939, and 1943). However, he Sundbo (1998) argued that the theory had a marginal status until 1970s and 1980s when the tradition of innovation picked up momentum. Literature on innovation largely captures issues revolving around the drivers, inputs, process, and output, dissemination of output and the impact of innovation (Edquist and Hommen, 1999; Aschhoff and Sofka, 2009; Zeng, et. al., 2010).

Innovation is triggered by what literature refers to as 'drivers of innovation' and are categorized into demand-side and supply-side drivers. Factors such as potential market for innovative products/services, government regulations and standards, trends in the industry (especially competition), and availability of potential market are among the key drivers of innovations largely discussed in literature. Therefore, it is from these drivers of innovative that innovation theory stresses on the importance of specifications in stimulating innovation whereby designing of specification should be done in a way that demands suppliers or contractors to innovate. In order to innovate actors need to acquire relevant knowledge necessary for the design and production of the new/significantly improved product and such knowledge is acquired through research.

Literature on innovation indicates that research has a crucial role to play as far as innovation process is concerned. The goods/services created are referred to as the output of innovation which are physical manifestation of a knowledge acquired through research. Innovation would not be an interesting subject if it did not have substantial impact in the economy. Therefore, it is considered to be the main source of national economic growth and competitiveness (Sundbo, 1998); and source of growth and

competitive advantage among companies (Droge, et. al., 1994; Brown and Eisenhardt, 1995; Sundbo, 1998). The innovation theory also captures the impact of innovation, which includes such issues as the performance of innovative products, competitiveness of innovative firms and growth and competitiveness of nations as a result of innovations. In light of the rich innovation theory, most of the scholars who have researched on this subject have addressed one or more of the elements within the major aspects discussed herein. This research builds and contributes on previous research by assessing the role of public procurement in promoting innovations among SMEs.

Inter-organizational relationship theory which has been applied in buyer-supplier relationship accounts for characteristics of the manner in which buyers and sellers interact as well as conduct their relationships. The subject of buyer-seller relationships is of particular interest because, among other things, such relationships may be greatly desirable and can have strategic advantages over transaction based relationships (Kalwani and Nayarandas 1995; Nyaga, et. al., 2010). Such strategic advantages may include creation of a setting for a collaborative innovation (Petersen, et. al., 2003).

As far as buyer-seller relationships are concerned, the main issue that appears to impart innovation is the type of governance mode applied by the partners (Dyer and Singh, 1998 p. 669; Wang, et. al.; 2008). Governance mechanisms are argued to have the capability to provide safeguards that encourage parties in a buyer–seller relationship to share proprietary knowledge and think creatively. The literature suggests three governance mechanisms in buyer-seller relationships, namely, market based, hierarchy and bilateral mechanisms (Heide, 1994). Based on the theory, the contention is the type transaction governance mechanism can largely influence innovative tendencies in a particular buyer-seller relationship. Cooperation between buyers and seller is thus viewed as one of the catalysts for innovation.

On the other hand, competition is one of important tool, that forced firms to come with new ideas to overcome market pressure. For example, the traditional micro-economic theory predicts that competition will lead to more efficient and high quality outcomes (Cooper, Gibbons, Jones and McGuire, 2009). Existence of competition among suppliers will force them to differentiate their services in order to qualify for the tendered works. The process of differentiating their services is directly linked to SMEs' innovativeness because without being innovative, there would be no chance to generate new ideas. Therefore, it is from these perspectives that competition is considered as a driver that motivates the SMEs owners to think and create more innovative ideas.

Empirical Evidence

Public Procurement as a Policy Tool for Stimulating Innovations

Recently, public procurement has been at the center of discussions on favorable innovation policy options. In Europe, for example, the role of public procurement in stimulating innovation was highly emphasized in the Barcelona strategy and the Aho-Report (European Commission, 2003). Promotion of innovation has increasingly become crucial to trade and industry policy (Sundbo, 1998). Countries have launched numerous technology development, strategic development and entrepreneurial programs all with the aim of stimulating innovations. Liu, et. al., (2011) noted that public procurement is among policy tools that China has been implementing in promotion of innovations.

Additionally, Edler and Georghiou (2007) developed taxonomy of innovation tools in which they categorized two main groups of innovation policy measures: 'Supply-side' and 'Demand-side' tools. The taxonomy identifies public procurement as one of the key demand-side innovation policy tools. Public procurement is seen in literature as a demand-side policy measure through which governments can generate new markets for

companies in order to develop new technological capabilities as well as solutions. OECD (2011) reports that in recent years, most OECD countries (developed and developing) have been extensively using demand-side policies such as public procurement to promote innovation. In general, public procurement is increasingly considered as policy instrument for stirring innovations both in developing and developed economies.

Thai (2004) also argues that public procurement has the potential to be used for economic, social and other purposes such as supporting local and domestic firms, assisting minority and woman-owned businesses or environmental protection. In the same token, Karjalainen and Kemppainen (2008) reckon that through public procurement, governments can significantly promote innovativeness. There is quite substantial amount of literature addressing the public procurement's potential for stimulating innovations. The potential mostly arises from the fact that public procurement constitutes a larger proportion of governments' expenditures (Georghiou, et. al., 2003; Georghiou, 2004; OECD, 2011). In more concrete terms, Kattel and Lember (2010) argue that there are several ways that public agencies can stimulate innovations through procurement. The ways include: (i) creation of new markets for products and systems that go beyond the state-of-the-art; (ii) creation of demand-pull by expressing its needs to the industry in functional or performance terms; (iii) provision of a testing ground for innovative products (Rothwell, 1984, p. 166); and (iv) provision of the potential of using public procurement to encourage innovation by providing a "lead market" for new technologies/solutions (ECWG, 2006).

Slavtchev and Wiederhold (2011) conclude that when government purchases are relatively in favor of industries with an above-average innovation potential (that is, high-tech industries), private (Research and Development) is stimulated and, with it, the rates of technological change and economic growth. Ruttan (2006) and Mowery (2008) suggest that if it was not for the government demand, most of the general purpose

technologies developed in the U.S. in the 20th century either would not have emerged or would emerge with a considerable delay. Berggren and Laestadius (2003) attribute development of Nordic telecommunication to the long-term relation between industry and customers from the public sphere.

Evidence and conclusions established by these studies corroborate the conjecture that public procurement can provide an enormous stimulus to innovation. However, most of previous works focused on developed world, where there are significant contextual differences with developing countries. In this case, applicability of these studies to Tanzanian context may not be possible. Additionally, literature is limited on testing the relationship between public procurement and innovation. This research observed this as a knowledge gap that needs to be fulfilled.

Drivers of Innovation for SMEs

Generally, there are numerous studies that explored drivers of firms' innovations. The drivers that are widely discussed in literature include both, demand-side and supply-side drivers. Although the phenomenon of innovation among SMEs is topical and has captured interest of many scholars, a few studies have been recorded on studying the issue from the developing countries' perspective (Zeng, et. al., 2010). Nevertheless, those few studies serve as a useful point of departure for conducting similar studies. Several factors have been indicated in literature as key drivers of innovation among SMEs. Some of them include: cooperation with research and higher education institutes (Liefner, et. al., 2006); interfirm cooperation (Zeng, et. al., 2010); cooperation with intermediary institutions (Doloreux, 2004); and government policy initiatives (Hewitt-Dundas, 2006). Godin and Gingras (2000) emphasize that government policies have an influence on most of forces surrounding the phenomenon of innovation.

With respect to Tanzania, Mahemba and Bruijn (2003) conducted an empirical study on the innovativeness of Small and Medium-sized

Manufacturing Enterprises. Despite the conclusion that SMEs in Tanzania carry out incremental innovations to meet customers' demands, the findings showed that innovations were not linked to R&D or cooperation with technology institutions and altogether SMEs did not acknowledge the importance of having such interactions. However, factors such as cooperation with suppliers, knowledge and skills (education level) of the employees, high degree of communication and cooperation, and location had a strong influence on SMEs innovativeness.

When looking at the overall role of public procurement in promoting SMEs, many writers (Olomi, 2007; Procurement Innovation Group, 2009; Smith and Hobbs, 2001; Zheng, et. al., 2006) have put considerable efforts in the area. All the reviewed studies that addressed this subject have a common view that public procurement can successfully be used to promote SMEs growth and competitiveness. However, most of these studies discuss the potential of public procurement in promoting SMEs growth and competitiveness in a 'general' fashion. None of them specifically established an empirical link between public procurement and innovativeness among SMEs. Procurement Innovation Group (2009) made a theoretical proposition that public procurement has the great potential to promote innovation among SMEs but this contention was not backed-up by empirical evidence. Generally, they emphasized that promotion of innovation is in the best interests of both, the public sector and SMEs: the public sector has the potential to achieve efficiencies, improved productivity, quality, faster response times and reduced whole life costs, while SMEs have the potential to demonstrate their capabilities, establish their credibility in international markets and prove viability of new products or services and to gain authoritative as well as essential reference contacts from the public sector.

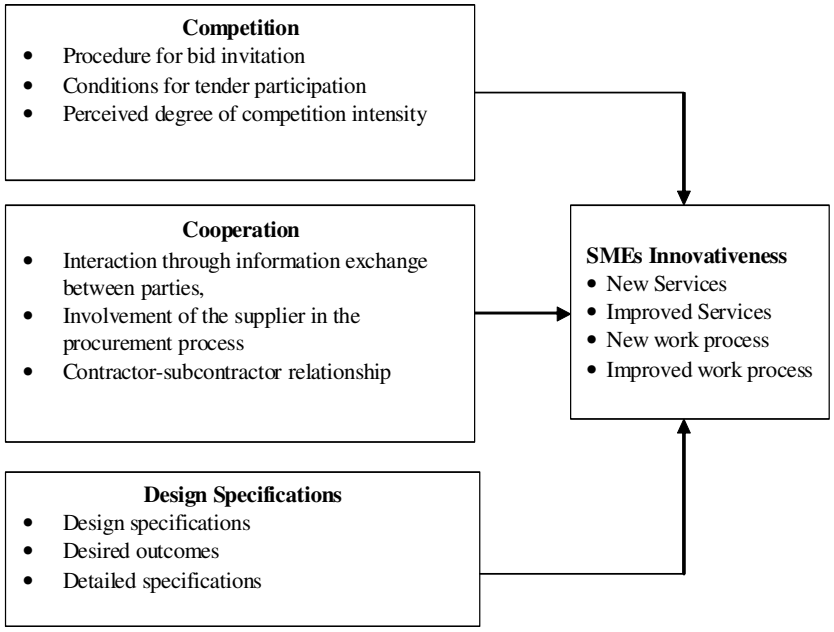
Conceptual Model and Hypotheses

The main constructs of this study were derived from and base on literature review. The research constructs, which reflect the conceptual model of the

study, intended to assess competition, cooperation and design of specifications on their relationship to SMEs innovativeness. SMEs innovativeness, which is the dependent variable, was tested against the independent variables, which included competition, cooperation and design of specifications. These factors were measured by using different indicators. The role of competitiveness was measured by observing the procedure for bid invitation, conditions for tender participation and the perceived degree of competition intensity. Cooperation was measured by observing joint action, interaction through information exchange between parties, early involvement of the supplier in the procurement process and contractor-subcontractor relationship. Apart from observing compliance and involvement of suppliers in design specifications, perceived degree on how design specifications influence innovativeness among SMEs was also considered.

Innovativeness was operationalised by establishing SMEs' ability to invent or improve into new processes, products or services. It was considered with respect to novel or significantly improved goods, services or processes that were invented in the last three years. This approach and the time-frame are in line with Mahemba and Bruijn (2003), Aschhoff and Sofka (2009), as well as Zeng, et. al. (2010). In this case, public procurement was considered as a driver for innovativeness if the respondent indicated that innovation **was** meant to meet the demand of one or more public procuring entities. The items of the constructs were assessed with a point five Likert scale, 1 for strongly disagree and 5 for strongly agree.

Fig. 1: *Conceptual Model*



Source: *Synthesised from the literature*

Study Hypotheses

Competitive: The conventional public-procurement literature assumes that free markets and tight competition are the primary source for innovations (Evenett, 2002; Arrowsmith, 2003; Evenett and Hoekman 2005). Based on neo-classical thinking, Kattel and Lember (2010) noted that competition can stimulate innovation by creating pressures for companies to incessantly innovate and outcompete the competitors and push prices down in the process (higher efficiency, again). These arguments lead to the conclusion that:

H_1: There is a positive relationship between competition and SMEs' innovativeness

Cooperative: Singh (2002) argued that, it is not competition per se that is important in stimulating innovation, Kattel and Lember (2010) added that a maximum level of competition may not be the best solution in particular for developing countries and, instead, a more strategic policy view could be used that would mix competition with cooperation. This view is in line with the inter-organizational relationship theory of the buyer-seller relationship that views cooperation as a source of strategic advantages including creation of a setting for innovation (Petersen, et. al., 2003).The positive impact of cooperation on innovation has been evidenced by so many scholars (for example, Gann and Salter 2000; Ericksson and Pesämaa, 2007) with an emphasis that cooperation is important under conditions of complexity and uncertainty. From these perspectives, it can be hypothesised that:

H_2: The positive relationship between cooperation and SMEs innovativeness

Design of specifications: When public procurement is used to stimulate innovation, it involves procuring products that need additional (research and) development work thereby influences on innovative capacity of providers (See: Rothwell, 1984, Geroski, 1990; Edquist, et. al., 2000; Rolfstam, 2009; Uyarra and Flanagan, 2010). The procuring entities may set deadlines and quality standards that ensure continued improvement. The productivity increases in production/provision of the targeted products. From literature review, it is suggested that a client's specification design has an influence on innovation. In addition, the literature has emphasized on importance of early supplier involvement in design of the contract, and involvement in setting up specifications (Kattel and Lember, 2010; Ericksson and Pesämaa, 2007). Early contractor/supplier involvement in

specifications design has been positively associated with innovativeness as indicated in a case study by Ericksson and Pesämaa, 2007, which calls for further study to generalize the findings. We, therefore, hypothesize that:

$H_{3:}$ Specifications designs have a positive effect on SMEs Innovation

Methodological consideration

This study used quantitative research research approach complemented by a qualitative research approach. Both primary and secondary data were used in this study. Secondary data was collected through desk review of key literature and key documents such as the Public Procurement Legislation, Public Procurement Acts 2004/2011. Local government financial regulations, public procurement unit procedures and other relevant frameworks were used as sources for secondary data. Quantitative primary data were collected via a cross-sectional survey approach by administering structured questionnaires to the sampled SMEs from four regions (Arusha, Dar es Salaam, Mwanza and Mbeya) in Tanzania. The regional choices were based on level of their economic activities, categorised as vibrant compared to other regions.

Focus of the study was in ICT and construction industries because they are in line with findings from Slavtchev and Wiederhold (2011) who concluded that government purchases have a significant impact on industries with innovation potential (for example, high-tech industries). The sample questionaires was as follows: Arusha (35), Dar es Salaam (80), Mwanza (53) and Mbeya (40). The unit of analysis involved SMEs as an organization, and managers at different levels of enterprises were respondents of the questionnaires. Data collection through personal interviews was also conducted in all regions whereby different respondents were interviewed in order to get additional information that was not covered by questionnaires. Information sought included problems and challenges faced by SMEs in procuring public works. The exercise of data collection started with a pilot

study in Dar es Salaam region. The stage was used as means to improve data collection instruments. After the pilot study, main data collection was extended to other regions.

Quantitative data were analyzed by using Structural Equation Modeling (SEM). This is a multivariate statistical technique that can be used for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. The technique is appropriate for data in which a series of regressions can be performed (Hair, et. al., 1998). SEM allowed both confirmatory and exploratory modelling, which means they are suited to both, theory testing and theory development. Qualitative data were analysed by taking interviews reports, which were upgraded to categories of the related findings. Since both quantitative and qualitative data were collected, the analysis took into account an interplay of data from multiple sources. Therefore, the findings presented in the next section reflect the data collected by using both quantitative and qualitative research approach.

Findings

Company Profiles

Company profiles were categorized into the following three main areas: years of operation, type of industry and number of employees. The results showed that 38.9% of surveyed companies have been in operations for a period ranging between 5 and 10 years. This category was followed by the group of companies in the age group of 10 to 15 years which constituted 29.8% of the surveyed companies. Companies that have been in operations for 15 years and more constituted 23.1% of all companies surveyed. Only a few companies (8.2%) were observed to have less than 5 years of operations. With regard to the industry of operations, the results showed that 63.5% of the surveyed companies were categorised as construction companies, 24.5% were telecommunications companies and 8.2% were

in the group of electrical contractors. As indicated in Table 1, other companies including mechanical engineering, information technology and supplies management were also involved in the study.

Table 1: *Type of Industry*

Type of Industry	*Frequency*	*Percent*	*Cumulative Percent*
Construction Industry	132	63.5	63.5
Telecommunication Industry	51	24.5	88.0
Electrical contractor	17	8.2	96.2
Others	8	3.8	100.0
Total	**208**	**100.0**	

Source: *Survey Data*

Results of number of employees in the surveyed companies revealed that 63.9% employed between 5 and 49 workers. The companies employed such number of employees, according to SMEs policy, categorized as a small enterprise. The findings further showed that 13.9% of the surveyed companies employed between 50 and 99 employees while 12.5% employed 100 and above workers. Only 9.6% of the surveyed companies employed between 1 and 4 workers. Cross analysis of number of years in operation and number of employees revealed that companies that have been in operation for a short period of time had less number of employees compared to their counterparts. Results from the study showed that 64.7% of companies that have been in operations for less than five years employed between 1 and 4 workers. The pattern was also observed that as the number of years in operation increases, in this case 88.9% of companies that have been in operation for a period between 5 and 10 employed between 5 and 49 workers. Furthermore, 50.8% and 22.6% of the companies with duration between 10 and 15, employed 5 to 49 and 50 to

99 workers respectively. The conclusion that is coming out is that the older the company the more the ability to employ more people.

Table 2: *Number of Years in Operations and Number of Employees*

		Number of Employees				
		1 - 4	5 - 49	50 - 99	100+	**Total**
Number of Years in Operation	Less than 5	11	5	1	0	17
		64.7%	29.4%	5.9%	.0%	100.0%
	5 to 10	6	72	3	0	81
		7.4%	88.9%	3.7%	.0%	100.0%
	10 to 15	2	36	14	10	62
		3.2%	58.1%	22.6%	16.1%	100.0%
	More than 15	1	20	11	16	48
		2.1%	41.7%	22.9%	33.3%	100.0%
Total		**20**	**133**	**29**	**26**	**208**
		9.6%	**63.9%**	**13.9%**	**12.5%**	**100.0%**

Source: *Survey Data*

Hypotheses Tests

Before using the output of SEM, it is required to test whether or not the data used fit the model produced. This would assist the researcher to answer an important question: "is it a good model to use?" The objective of answering this question was to determine whether or not the associations among the measured and latent variables in the estimated model adequately reflected the observed associations in the data (see also Weston and Gore, 2006). To achieve this objective, multiple indices are available to assess the model fit. They included absolute fit measures, incremental fit measures and parsimonious fit measures (Hair, et. al., 1998). Absolute fit measures assess the difference between observed and model-specified covariances, whereas incremental fit measures assess the proportionate improvement

in the fit by comparing a target model with a more restricted nested baseline model (Tsigilis, Koustelios and Togia, 2004). On the other hand, the parsimonious fit measures adjust the measures of the fit to provide a comparison between models with differing numbers of estimated coefficients in order to determine the amount of fit achieved by each estimated coefficient (Hair, et. al., 1998).

The chi-square (χ^2) test is normally used as a first step to measure the model fit. Because the null hypothesis for the overall model fit states that *the model fits the data,* the probability (p) value of should be insignificant. However, with large samples, trivial differences between the sample and the estimated population covariance matrices are often significant because the minimum of the function is multiplied by $N-1$ (Ullman, 2007). It is argued that significance of may be caused merely by the sample size, making the retention of the null hypothesis for large samples almost impossible (Mueller, 1996; Smith, 2001). Results of this criticism led to application of an alternative method for overall model fit by using χ^2 which is the ratio between χ^2 value and its degrees of freedom termed as the normed chi-square (Hair, et. al., 1998). By using this ratio, the model will be fit if the normed χ^2 is in the ratio 2:1 or 3:1 (Carmines and McIver, 1981).

χ^2

Other indices that are commonly used for model fit include the Goodness of Fit Index – GFI (Bentler, 1990), the Root Mean Square Error of Approximation – RMSEA (Browne and Cudeck, 1993; Steiger, 1990 and Steiger and Lind, 1980), the Comparative Fit Index (CFI), the Normed Fit Index – NFI, the Tucker-Lewis Index – TLI (Bentler and Bonett, 1980), the Relative Fit Index – RFI and the Incremental Fit Index – IFI (Bollen, 1989). The Root Mean Squire Residual – RMR, the Adjusted Goodness of Fit Index – AGFI, and the Parsimony Goodness of Fit Index – PGFI (Ullman, 2007) also measure indices, which are widely used. Although there is a number of other indices that can be used to decide

whether the model fits the data used or not, the study is restricted to RMSEA and Baseline Comparisons (NFI, RFI, IFI, TLI &CFI) measures because they are recommended and used for most analyses in social sciences and business related researches (Ame, 2005; Boomsma, 2000, Hu and Bentler, 1999; MacCallum and Austin, 2000, Ullman, 2007; McDonald and Ho, 2002).

In order to make a decision using RMSEA, Browne and Cudeck (1993) proposed that when the RMSEA value is less than 0.08, it indicates an acceptable fit. Hu and Bentler (1999) recommend for RMSEA values below 0.06. It was also established that any value greater than 0.10 is indicative of poor fitting models (Browne and Cudeck, 1993). On the other hand CFI values greater than 0.95 indicate good fitting models (Hu and Bentler, 1999). Values of other indices that assure the good model fit are NFI, IFI and TLI all with values greater than 0.95; RFI, GFI, AGFI, and PGFI all with values close to 1, and small values of RMR (Tanaka and Huba, 1989; Bentler and Bonett, 1980; Ullman, 2007; Hu and Bentler, 1999 and Bentler, 1989).

Results of different clusters of fit indices on the output of the initial hypothesised model indicated that the models did not fit the data used because two indicators of SMEs' innovativeness (new services and improved processes) were observed to measure the same aspect. These results call for model re-specifications in order to improve the model fit. It is important to mention that, in some cases, model re-specification has received criticism. For example, Brannick (1995) argued that re-specification should not be done at all. However, if theoretical justifications for modification exist, alternative models should have been proposed in advance rather than making posterior changes. Despite of this criticism, re-specification in the social sciences is common because *priori* models do not always fit the data (Christopher, et. al., 2004). Also, according to Hair et al. (2007), when this approach is used, the researcher proposes

the model and improves it through modification of the structural and/or measurement model. In other words, the researcher uses the SEM not only to test the model empirically but also to provide insights into its re-specification. Although these are performed, it should be noted that model development strategy puts emphasis on a series of model re-specification to improve the model fit while maintaining accordance with the underlying theory. While re-specification of the model was done to two indicators of SMEs innovativeness, the theoretical underpinning presented under the conceptual model was maintained in order to explain the existing relationship between the public procurement framework and SMEs innovativeness. In this case, the output presented maintained the original assumptions that underlined the used theories.

From Tables 1, 2 and 3, RMSEA indices are 0.049, 0.050 and 0.046, respectively, which indicates that the models produced fits for the data that were used. This is according to the cut-off point provided by Browne and Cudeck (1993), which recommended the RMSEA value less than 0.08, and that of Hu and Bentler (1999) that recommended for a RMSEA value below 0.06. Other indices as provided in the Tables that revealed CFI, NFI, IFI and TLI all have values greater than 0.95 and RFI value is close to 1. The values of these indices according to different writers like Tanaka and Huba (1989), Bentler and Bonett (1980), Ullman (2007), Hu and Bentler (1999) and Bentler (1989), suggest that the associations between independent and dependent variables in the estimated models adequately reflect the observed associations in the data. In due regard, it can be concluded that the overall fit measures provide a good picture supporting adequacy of the models in explaining the relationship between independent and dependent variables such that results of the models can be used for further analysis.

Table 1: *Model Fit: Relationship between Competition and SMEs Innovativeness*

Baseline Comparisons

Model	*NFI Delta1*	*RFI rho1*	*IFI Delta2*	*TLI rho2*	*CFI*
Default model	.948	.926	.982	.974	.982
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	*RMSEA*	*LO 90*	*HI 90*	*PCLOSE*
Default model	.049	.013	.076	.500
Independence model	.305	.288	.322	.000

Source: *Survey Data*

Table 2: *Model Fit: Relationship between Cooperation and SMEs Innovativeness*

Baseline Comparisons

Model	*NFI Delta1*	*RFI rho1*	*IFI Delta2*	*TLI rho2*	*CFI*
Default model	.971	.955	.990	.984	.990
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	*RMSEA*	*LO 90*	*HI 90*	*PCLOSE*
Default model	.050	.000	.086	.467
Independence model	.396	.374	.418	.000

Source: *Survey Data*

Table 3: *Model Fit: Relationship between Design and SMEs Innovativeness*

Baseline Comparisons

Model	*NFIDelta1*	*RFI rho1*	*IFI Delta2*	*TLI rho2*	*CFI*
Default model	.974	.959	.992	.987	.992
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

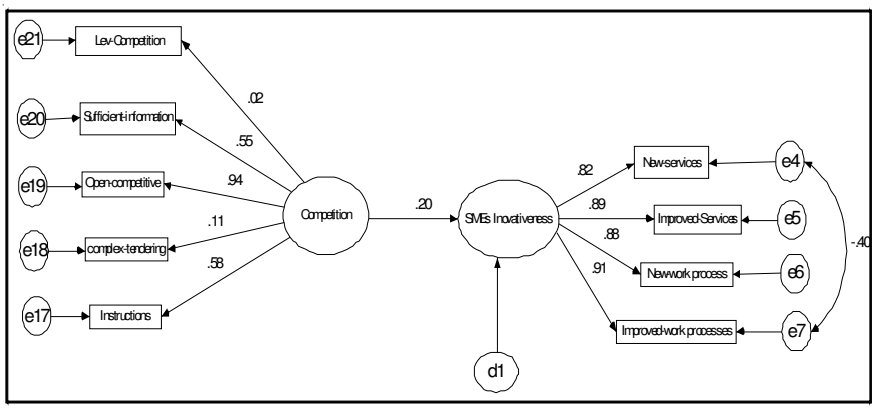
Model	*RMSEA*	*LO 90*	*HI 90*	*PCLOSE*
Default model	.046	.000	.083	.530
Independence model	.407	.385	.429	.000

Source: *Survey Data*

Hypothesis One (H_1)Test

The hypothesis states that *there is a positive relationship between competition and SMEs' innovativeness.* The objective of testing this hypothesis was to assess the effect of competition on SMEs' innovativeness. In order to measure the SMEs' innovativeness, the following four indicators were used: introduction of new services, improvement of existing services, introduction of new process and improvement of work processes. On the other hand, completion was measured by five indicators, including perceived level of competition and provision of fair and sufficient information to all firms intending to tender for the works. Other indicators were open competitive to all players, complex tendering process and equal provision to instructional manual to all bidders. Figure 2 shows that there is a positive relationship between competition and SMEs' innovativeness. The value of 0.20 means that when competition goes up by a unit of standard deviation, innovativeness among MSEs goes up by 0.20 standard deviation. The positive regression weight leads to acceptance of the hypothesis that *"the competition has a positive influences on SMEs' innovativeness*."

Figure 2: *Path Diagram on Relationship between Competition and SMEs Innovativeness*



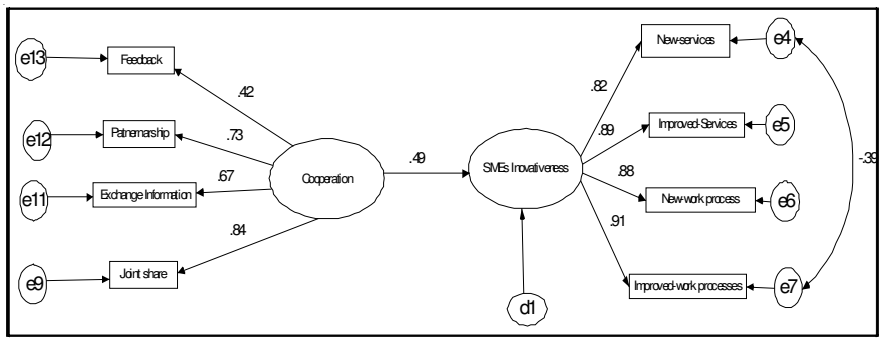
Source: *Output of Survey Data*

Hypothesis Two (H_2) Test

The hypothesis states that, *there is a positive relationship between cooperation and SMEs' innovativeness.* The objective of testing this hypothesis was to assess the effect of cooperation between supplier and procuring entity on SMEs' innovativeness. In this case, cooperation was measured by the following four indicators: provision of feedback, partnership, exchange of information and joint share in different activities and processes that do not go against to the procurement act. Figure 3 shows that there is a positive relationship between cooperation and SMEs' innovativeness. The value of 0.49 means that when cooperation goes up by a unit of standard deviation, the innovativeness among MSEs goes up by 0.49 standard deviations. The positive regression weight leads to

acceptance of the hypothesis that *"the cooperation has positive influences on SMEs innovativeness*."

Figure 3: *Path Diagram on Relationship between Cooperation and SMEs Innovativeness*



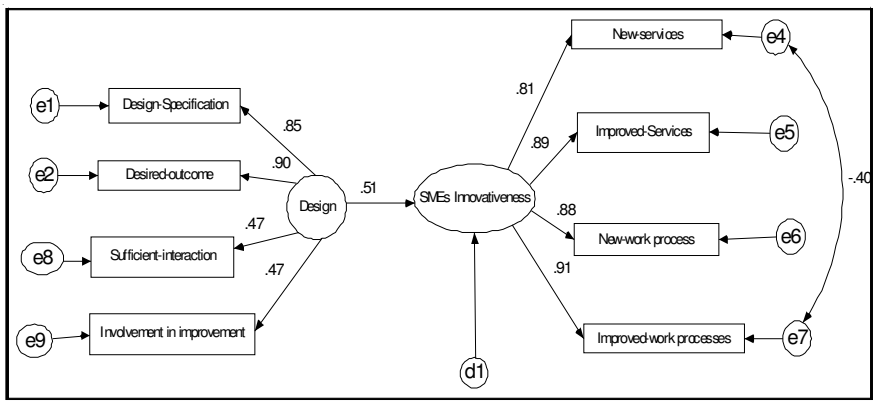
Source: *Output of Survey Data*

Hypothesis Three (H_3) Test

The hypothesis states that *there is a positive relationship between design of specifications and SMEs' innovativeness.* The objective of testing was to assess the effect of SMEs involvement in design specifications on innovativeness. In other words, assessment of how collaborative design of procured item specifications deemed to be important factors that can trigger innovation among SMEs. Figure 4 show that there is a positive relationship between competition and SMEs innovativeness. In due regard, the design of specifications was measured by using four indicators. The indicators included involvement in specifying the design of the works

tendered, desired outcomes, involvement in improvement process and sufficient interaction on all process of procurement. The value of 0.51 in Figure 4 indicates that when competition goes up by a unit of standard deviation, innovativeness among MSEs goes up by 0.51 standard deviations. The positive regression weight leads to acceptance of the hypothesis that *"the competition has positive influences on SMEs innovativeness.*"

Figure 4: *Path Diagram on Relationship between Design and SMEs Innovativeness*



Source: *Output of Survey Data*

Challenges of Public Procurement Framework in Stimulating SMEs' Innovativeness

Despite the fact that cooperation, competition and design specifications were positively contributing to SMEs' innovativeness, respondents admitted to encounter some challenges in tendering especially for public entities. Challenges included difficult conditions set by procuring entities, conditions for biding, delay in payments, bureaucratic process and corruption.

In an interview with a quantity surveyor of one Construction Company in Dar es Salaam, it was revealed that some of public procurement entities posed unnecessary difficult conditions that may be impossible for small enterprises to meet. He pointed out that:

> "Sometimes, the public entities set difficult conditions like the requirement of having a certain level of annual/monthly turnovers, which are not related to the tendered work. ... They may require the bidding companies to have a turnover of 4billion while the tendered work has a maximum value of 400million."

Accordingly, these conditions disqualify many companies, especially small enterprises in bidding for works that are available in public entities. In other words, emerging and small enterprises with limited capital and small amount of annual sales will be eliminated by such conditions. This is contrary to expectations of new entrepreneurs who start their businesses with anticipation of receiving support from public entities to enhance their growth. This was also noted in interviews with management of a firm in Mbeya where the respondents admitted that:

> "While we are trying to be more innovative in our daily services delivery, the government does not give support to local firms to invest in new technology.... Normally, we see many projects, even smaller ones given to foreigners and we are left competing private based projects."

Further discussions on challenges faced by SMEs in tendering process revealed that delay in payments was also discouraging small enterprises in bidding for project announced by public organisations. The enterprises should be ready to tie up operating capital for unknown periods when providing services to public entities. In this case, the companies are required to have very big capital for them to operate their activities, which is not the

case for small and emerging enterprises. These results were revealed in interviews with an operation manager of one of surveyed institutions who mentioned that:

> "For most of the time there is a delay in payments. The government entities do not honour payments for the services offered according to the agreed schedules. Sometimes, you may receive even the third Local Purchasing Order (LPO) before receiving the payments of the first LPO. In terms of time, it may take even more than six months before receiving payments for the offered services, depending on availability of funds."

The interview with the owner manager of one company in Arusha also revealed that:

> "If you have good relationship with finance department, your payments will be effected on time. They can even call you to inform that your cheque is out before time. However, without close relationship with finance people, you will keep on following your payments for a long time before receiving the money."

Delay in repayments indicates that small enterprises will hardly be able to bid for the tenders announced by public institutions. While in general, innovation is encouraged to the small and growing enterprises, failure to pay these enterprises would not encourage them from bidding to the tenders announced by public institutions because they have very limited capital.

Although knowing the supplier or clients may be considered an added advantage in business undertakings, some of the officials in public institutions misused such opportunity. This came out clearly in interviews conducted with owner of a firm in Mwanza who disclosed that:

> "There is tendency of giving tenders by using what they call 'technical know who' instead of 'technical knowhow'. In this case, if the clients do not know you it can be difficult for you to penetrate in the tendering process. Such tendency is a sign of corruption and lack of openness in tendering process."

The same findings were also observed during data collection in Mbeya region as one of the respondents pointed out that:

> "Some of us have never succeeded in any bidding. This is mainly happening because there are some government officials who set the winners before the bidding, such pattern is highly connected with corruption. They call it '10%."

Bureaucratic process and little involvement of SMEs were also considered as procurement challenges that hinder SMEs innovations. The results revealed that there was a tendency of public institutions to take a very long time between the period of calling for tender and implementation of tendered work. The unnecessarily long process disappoints young enterprises, which require quick circulation of money in order to cover their daily expenses and make profit. The bureaucratic process was not only observed in offering tenders but also in the process of implementing some activities of the project. This was admitted by the engineer of one company in Dar es Salaam that:

> "Public procurement practices are full of bureaucracy, which involve unnecessarily long process. Time taken from tendering until award may be too long and sometimes you may forget that you have tendered for a certain work. In this case you may be called to do a work that you have already forgotten to have tendered."

With regard to little involvement of SMEs, results revealed that procuring

entities prepare almost everything without involvement of tendering firms. There is limited involvement in design of specifications and also procedures of executing the work tendered. Without active involvement in the process, the tendering firms would not have an opportunity to comment on terms and conditions of implementing tendered activities. It is from these arguments that the manager of one company in Mwanza complained that:

> "There is less involvement of SMEs in the procurement process. The whole process is that of a "master-servant" nature, and that the procuring entities do everything including setting the terms and conditions in which the bidding companies had to abide by."

Apart from these challenges, additional observations revealed that public institutions sometimes ignored the quality of delivered services. In due regard, some respondents claimed that public entities relied much on the lowest cost offered by the firms and neglected other factors such as service quality. This impacts the procuring institutions and is also considered as misuse of public resources. Limited emphasis on the quality of offered services goes against the procurement act, which was set in order to enhance delivery of high quality services to the procuring entity. It is from this point the Act was developed so as to ensure application of fair, competitive, transparent, non-discriminatory and value for money procurement standards as well as practices (URT, 2011).

Conclusions and Implications

The importance of SMEs in economic development all over the world and, in particular developing countries, has garnered interest of different stakeholders. Thus, promoting SMEs has always been one of the initiatives taken by both developed and developing countries in their quest for economic prosperity. This study examined the role of public procurement framework in stimulating SME's innovativeness. It focused on ICT and

construction industries because these industries have a significant impact on industries with innovation potential (example, high-tech industries); which is in line with study objectives. By using a sample of 208 firms collected from Dar es Salaam, Arusha Mwanza and Mbeya; three identified variables, namely, competition, cooperation and specifications designs were observed to have a positive effect on SMEs' innovativeness. In other words, an increase in competition, cooperation and involvement in specification designs in tendering processes results into an increase in innovation among the SMEs. Through the hypotheses testing, it is concluded that the three indicators positively impacted the innovation of SMEs. Specifically, relationship between design and SMEs' innovativeness recorded the highest regression weights among the three independent variables.

Results from this study corroborate with findings from previous studies, which observed that several factors have been key drivers of innovation among SMEs. They include cooperation among stakeholders, competition and join design of specifications (Liefner, et. al., 2006, Zeng et al. 2010, Doloreux, 2004, Hewitt-Dundas, 2006, Godin and Gingras, 2000). Thus, government policies, through its institutions, have an influence on most forces surrounding the phenomenon of innovation. This is true because cooperation between tendering groups (bidder and procuring entities) is an important element that enhances information sharing and therefore, possibility of producing innovative ideas and services. Likewise, involvement in the process of designing specifications exposes the bidders in new ideas which are considered as a source of innovation. On the other hand, competition creates hardship environment of which without being innovative, the firms will be moved out of market.

Despite the observed positive impacts of the examined three indicators, respondents highlighted different challenges they encountered in the tendering process in public institutions. They included difficult conditions like very high turnover, which cannot be achieved by most SMEs. Additionally, the

findings also revealed that delay in payments of already delivered services hindered the small enterprises with limited capital in smooth running of their businesses. In due regard, tying capital was among factors that discouraged many businesses in tendering for works called by public entities. Another challenge observed by enterprises intending to bid for tenders announced by public institutions is limited transparency. It was observed that some tender boards selected the service provider by considering the concept of "technical who" instead of "technical knowhow." Some qualified and capable enterprises were not given the tenders although they deserve. The issue of corruption was also mentioned as one of the challenges in dealing with public institutions especially in the tendering process. This challenge was observed not only before getting the tender but also after getting the tenders as some of the staff from finance section may delay the payments until they have been promised to receive some amount after the payment (kick-back.)

The observed challenges raise important implications that need to be addressed in order to achieve effective public procurement framework that will stimulate SMEs' Innovativeness in Tanzania. In due regard, the study has the following recommendations to improve public procurement framework:

- Findings showed that much efforts on public procurement are considered at the point of tendering only. Thus, it is recommended that emphasis should be throughout the process until the end of project. Thus, all agreements during project execution should be honoured so that all parts benefit according to the contract.

- Findings also showed that cooperation and design specifications have positive impact on SMEs' innovations. However, there were complaints on little involvement of SMEs in the tendering process. This may limit the advantage of SMEs to be innovative by participating in the process of designing the work specifications. Therefore, more involvement of SMEs is needed in procurement process.

- Another recommendation is based on conditions that are posed by public institutions, which hinder small and emerging enterprises in winning tenders announced by public institutions. Thus, public institutions should consider case by case especially for small and emerging local institutions in order to build their capacity as well as enhance their growths.

- Quality of service offered is an important aspect that needs to be considered by public institutions in order to realise value for money offered. Tender offering should be given to competent firms without using the concept of technical know-whom. The issue of giving tenders to lowest bidders may create a problem especially when the assessment is not properly done. The ability to execute the project, which entails quality of the service offered should be the heart of selecting the company that will win the tender rather than other factors.

- An unnecessarily long process and delay in payments were observed as disappointing factors among bidders. Therefore, public institutions should have a clear plan that will enable smooth implementation of different activities of project as per pre-specified schedules of implementation. This should include on time payment of works performed by bidders.

Recommendations for Further Research Works

The recommendations of this study draw attention of important areas that need further studies in order to enhance the role of public procurement framework on SMEs' innovativeness. As indicated in the study findings, the highlighted challenges can be closely related to good governance and procurement systems. Issues of accountability, transparency and stakeholders' involvement are important good governance aspects that bring partial outcomes in public procurement systems. Therefore, there is need to conduct a study that will assess the role of good governance on the public procurement process. This study highlighted how good governance process can eliminate some of the observed challenges in order to enhance SMEs' innovativeness.

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