

# Stimulating Innovation through Public Procurement: The Level of Awareness among Key Stakeholders

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## Abstract

There is recognition that more systematic efforts to promote innovation are needed to address the economic and societal challenges that public sectors face. Public procurement of innovation has not materialised on a large scale particularly in the developing nations and one of the factors is lack of awareness among the key stakeholders. This call for the rationalization to increase the attention of potential of public procurement as an innovation policy to policy makers, procurement practitioners and academicians. The goal is to investigate the level of awareness of public procurement as an innovation policy tool among the key stakeholders. The study adopted both exploratory and cross-sectional survey designs in investigating the level of awareness. The sample size was 249 and the sample technique used was purposive. The study disclosed that public procurement is recognised as an innovation policy tool by the professionals. This demonstrates that majority of the stakeholders are aware that there is a lot to enjoy when procurement activities are tailored towards promoting innovation. However, it became apparent that the Act used in conducting

public procurement in Ghana is not specifically designed to integrate objectives like innovation and therefore innovation issues are not incorporated in the current public procurement. This is an indication that the public procurement system do not recognised the current public procurement act as a powerful tool to influence innovation processes at its current state. It's for these reasons that effort must be intensified to remove all the bottlenecks surrounding the PPI in Ghana and to make it noticeable and workable. This has to deal with much education to the key stakeholders in the industry. Key stakeholders in procurement industry need to realise that both procurement and innovation is a very significant part of their work, as both may improve the services they provide in the long term.

**Keywords:** Act 663, Public procurement of innovation, Public procurement, Ghana, Innovation

## 1. Introduction

Public procurement is and has, often been used to promote objectives which are secondary to the primary vision of public procurement for instance applying public procurement to sponsor social, economical, industrial or environmental policies (Arrowsmith, Linarelli & Wallace, 2000; Cane, 2004; Turpin, 1989). The volume and size of public procurement activities assist governments in their decisions to deal with whom and when and these choices affect a number of issues. These issues have as stated above broader social, economic and political implications (Labuschagne, 1985; Morris, 1998; Turpin, 1972 as cited in Bolton, 2006). It is in this direction that public procurement with its huge size of percentage of GDP is of exacting importance to Ghana's forward marching to economic and social emancipation.

Current thinking and research clearly indicate that there has been significant and intense attention to procurement and innovation as a secondary objective indicated by examples from key high income countries (African Development Bank & African Development Fund, 2014). The earlier decade has shown substantial efforts to make structural and institutional alterations intended to assist drive innovation through procurement. There have also been serious attempts to modify the conception of how procurement is undertaken to deliver innovation, for various outcomes, including the promotion of new forms of service delivery, as well as the search for efficiencies (African Development Bank & African Development Fund, 2014). The utilization of procurement as a 'tool for government' because of its size and volume is not new, nevertheless it has been conceptualised in diverse ways according to the politics, culture, and socio-economic context of the jurisdiction in question countries (African Development Bank & African Development Fund, 2014). There is the recognition that a key role of innovation not only in industry, but also within government itself and how government could and should harness the theory and practice of innovation to drive wealth creation and environmental sustainability is possible.

The nature of public procurement now is changing (African Development Bank & African Development Fund, 2014) though the changes does not ignore the primary motives of it establishment. It is very urgent for countries to see where and how they can keep at the precursor of new concepts and approaches to public procurement. The developments in the global arena have been echoed by appreciation of the need to modernize public procurement systems by treating public procurement as a strategic government tool that affects directly the economy of a nation and quality of life of its citizens (Bolton, 2006). One typical example of using public procurement as a strategic government tool is the demanding of a systematic mobilisation of public procurement for the good of innovation and competitiveness (Edler, Ruhland, Hafner, Rigby, Georghiou, Hommen, Rolfstam, Edquist, Tsipouri, Papadakou, 2005). It has become clear that strong efforts are needed to mobilise procurement at all state levels for innovative markets (ibid) for an onward socioeconomic development.

Since independence, Ghana has harboured the dream of swift social and economic development using knowledge and tools derived from Science and Technology (S & T) and Innovation (Ministry of Environment, Science and Technology, 2009). In spite of the post-independence push to create the current S & T capacity, there has been no remarkable

progress in ensuring that Science, Technology and Innovation drive socio-economic activities in Ghana. A major cause is the absence of a definitive and prescriptive National STI policy document which defined the vision, goals, objectives and priorities for investment in STI (ibid). Meanwhile Ghana's public procurement accounts for up to 50 to 70% of imports, representing 18.2% to 25.48% of Gross Domestic Product (GDP) and about 80% of non-staff emoluments of Government expenditure (OECD/DAC, 2003) and for that matter in terms of policy tool has the aptitude to drive innovation (Rolfstam, 2008) per its size and the kind of market it generates. If studies have established the influence of public procurement on innovation, won't it be possible to attempt to use public procurement to instigate innovation in our part of the world (developing nations)?

It is in this trend that this study would like to examine the procurement system in Ghana whether stakeholders in the procurement environment are aware of the potency of public procurement to stimulate innovation. This study is to act as conduit to supplement innovation policy in Ghana but in the direction of applying public procurement to inspire the innovation we need as a nation.

### *1.1 Public Procurement of Innovation*

Public procurement of innovation is understood as "purchasing activities carried out by public agencies that lead to innovation (Rolfstam, 2014). The fundamental idea of this study is public procurement of innovation which is occasionally referred to as public technology procurement or government technology procurement (Rolfstam, 2008). This practice has been defined as something that occurs when a public agency acts to purchase or place an order for a product, service, good, or system- that does not yet exist, but which could (probably) be developed within a reasonable period of time, based on additional or new innovative work by the organization undertaking to produce, supply, and sell the product being purchased (Edquist, Hommen, & Tshipouri, 2000). It ought to be understood that the idea of innovative public procurement as it is stated here, points to the effects of the procurement process, i.e. whether it renders innovation; not whether the procurement process per se is an innovation (ibid).

This conceptualisation of procurement is based on the design that procurement acts as a bridge between an organisation and its supply base and by harnessing relationships with suppliers, an organisation can stimulate new innovation and adopts existing innovation to leverage quality and productivity (African Development Bank & African Development Fund, 2014) and at the end leads to socioeconomic development outcomes. The main concern of this study as expressed already is to explore from the developing nation's perspective the impact of public procurement on innovation that is the extent to which public procurement generates innovation which is different process innovations within the procurement processes themselves. In other words, this research is concerned primarily with public procurement of innovation, rather than innovations in public procurement.

#### *1.1.1 Problem of the Study*

While there is growing awareness that much innovation currently takes place in the public

sector, it is also recognised that more systematic efforts to promote innovation are needed to address the economic and societal challenges that public sectors face (Bloch & Bugge, 2013). Although, public procurement of innovation has recently attracting attention in all parts of the world (Mani, 2003; Currie, 2005) it's rare to find such literature and policy in developing nations particularly in Ghana. Bloch and Bugge (2013) comment that there is a lack of a common understanding of what public sector innovation is and a lack of a measurement framework that can shed light on innovation processes in public sector organisations. Wiederhold (2012) remarks that there is lack of theoretical work on innovation effects of public procurement to guide an empirical analysis. Edler (2005) argues that instruments that stimulate the demand for innovations had been relatively neglected in national innovation policy mixes. European Commission (2003) confirms that public technology procurement as a demand-side innovation policy instrument is under revival. Cepilovs (2013) suggests that limited attention has been paid to analysing public procurement for innovation in the context of a small state. Demand-side policies in general and public procurement of innovation in particular, have been under-evaluated (Edler et al., 2012; OECD, 2011).

From Procurement of Innovation Platform (2014), public procurement of innovation has not materialised on a large scale and one of the factors is lack of awareness (as cited by CASI Policy Brief, 2014). The OECD (2011) posits that lack of awareness of the potential of innovative public procurement in increasing productivity as well as the lack of support and incentives hinders the consideration of innovative solutions. Edler (2011) identifies lack of awareness and articulation (consumers and policy makers) a set of (market and system) failure– market entry and diffusion hampered. Lcb-Healthcare (2011) writes in their report that in practice, procurement is not recognised as a tool for innovation. The benefits of proactive innovation procurement are poorly understood at all levels in organisations. People, countries entities are simply not exposed to the benefits of more proactive, pro-innovation procurement and what it can achieve. Literature on procurement innovation even in the advance nations suggest how serious this issue of awareness is and in developing nations particularly in Ghana where we are lagging behind economic, social, technology among others. It's therefore the intention of the researchers to contribute to the literature on innovation policy affecting the demand side (Edquist & Hommen, 1999; Edler & Georghiou, 2007) and literature dealing with public procurement of innovation as innovation policy instrument (Geroski, 1990; Dalpe', 1994; Edler & Georghiou, 2007 as cited in Rolfstam, 2008) from the developing nations perspective. This call for the rationalization to increase the attention of potential of public procurement to policy makers, procurement practitioners, academicians among others as an innovation policy tool by using Ghana's public procurement system. Procurement however has increasingly been recognised as not a barrier to innovation, and if used in a sophisticated manner, it can be a driver of innovation (African Development Bank & African Development Fund, 2014).

The general of objective of the study is to contribute to the existing body of knowledge and research in the area of public procurement as innovative policy instrument by specifically investigating the level of awareness of public procurement as an innovation policy tool among policy makers, practitioners, academics and suppliers/contractors in Ghana.

## 2. Literature Review

### 2.1 Theoretical Review

The study focuses on three theories: interactive learning theory developed by Lundvall (1992), evolutionary economic theory developed by Nelson and Winter (1982) and institutional theory developed by North (1991) and Hodgson (2006). Lundvall posits that learning by interacting is fundamental since it transforms the outcomes of learning by doing and learning by using from being local to becoming non-local. Embodying knowledge in new services and products may be seen as an alternative to codification as mechanism of generalizing local knowledge. Evolutionary economic theory developed by Nelson and Winter (1982) deal with the study of processes that transform economy for firms, institutions, industries, employment, production, trade and growth within, through the actions of diverse agents from experience and interactions, using evolutionary methodology. Evolutionary economics analyses the unleashing of a process of technological and institutional innovation by generating and testing a diversity of ideas which discover and accumulate more survival value for the costs incurred than competing alternatives. The evidence suggests that it could be adaptive efficiency that defines economic efficiency. Mainstream economic reasoning begins with the postulates of scarcity and rational agents (that is, agents modeled as maximizing their individual welfare), with the "rational choice" for any agent being a straightforward exercise in mathematical optimization. There has been renewed interest in treating economic systems as evolutionary systems in the developing field of complexity economics and institutional theory developed by Edquist and Hommen (1999).

Institutional theory according to (North, 1991; Hodgson, 2006) analyse how institutions affect how interaction takes place and its effect on innovation. Institutions are social structures that enable interaction, through means such as language and financial systems, and constrain and focus social behaviour by providing rewards and punishments that give actors incentives to participate in exchange processes and to stick to previous commitments (North & Weingast, 1989; Rosenberg & Birdzell, 1986; Gunnarsson & Rojas, 1995 as cited in Sörvik, 2010). Institutions provide stability in a complex environment, as actors can better predict the behaviour of others (Hodgson, 1988 in Sörvik, 2010). These theories are the underpinning of this study.

### 2.2 Empirical Review

Researchers on innovation (Freeman, 1987; Lundvall, 1992; Nelson, 1993; Edquist, 1997) emphasise that it does not come about in isolation, but in interaction between persons, within firms, but also between firms, and between firms and knowledge-exploring organisations such as universities and research institutes (Coenen, 2006 as cited in Sörvik, 2010) and this reflects the theories mention above. Innovative public procurement is a growing drift in the discussion about technology policy. Lichtenberg (1988) tested the effect of noncompetitive governmental contracts upon company sponsored R&D expenditures. He estimated that 1\$ increase in governmental sales induces 9.3 cents increment in private R&D, while 1\$ increase in non governmental sales induces an increment of only 1.7 cents. This result suggests not only that public procurement has a positive effect on a firm's proclivity to

engage in R&D, but also that the demand pull effect is larger for public procurement than other private contracts (as in Guerzoni & Raiteri, 2012). Likewise Geroski (1990) the role of public procurement in creating demand for new products and process, for making visible an already existing demand, and for providing a minimal market size in the early stage of an innovation. It clearly surfaces that the discussion of innovative public procurement is intrinsically linked with the debate about the role and magnitude of demand as a source of innovation (Guerzoni & Raiteri, 2012).

The demand pull-hypotheses broadly studied in the Sixties and in the Seventies of the last century, were somehow left aside after the disrupting critique by Mowery and Rosenberg (1979) and Dosi (1982) mentioned Guerzoni and Raiteri (2012) which pointed at both theoretical and empirical flaws of the study in the area. A slow, but over time steady work about the demand side approach (Von Hippel, 1988; Malerba et al., 2007; Rogers, 1995; Fontana and Guerzoni, 2008) has given a new twist to this literature stream. Contextually, the resurrection of the demand side took also place both in the literature about industrial policy with the work by Edler and Georghiou (2007) "Public procurement and innovation. Resurrecting the demand side" and at the policy level (Georghiou, 2006; Aho et al., 2006; EU, 2010). Edler and Georghiou (2007) set up a very general framework of discussion, which grounds the need of demand oriented innovation policy in market failures as it is done for supply-oriented ones.

Public procurement of innovation also has been subject to some studies center overtly on management issues. According to Valovirta (2012) the managerial aspects have been most remarkably discussed in few recent studies focusing on risk management in innovation procurement (Tsipouri et al 2010, Kalvet & Lember 2010). The management perspective together with a focus on innovation is also studied in recent work on procurement of complex performance (Caldwell & Howard 2011as cited in Valovirta, 2012). Valovirta posits that incorporating an innovation perspective in the procurement practice requires improving and expanding organisational capabilities and concluded on the study that public procurement of innovation needs to be embedded as an instrument in the broader framework of public service renewal. The study suggests a developing an innovation management approach to the public sector which encompasses public procurement as a central tool in acquiring innovative solutions to improve public services.

On developing nations, Kattel and Lember (2009) on public procurement as an industrial policy tool – an option for developing countries, argue that government procurement should not be seen only as an indirect support measure for development, but also as a direct vehicle for promoting innovation and industries and, thus, growth and development. Using public procurement for development assumes high levels of policy capacity, which most developing countries lack. The study concluded that if public procurement for innovation was to be seen as part of developing countries' industrial-policy portfolio, the accession to the GPA under current circumstances would not help. They sum their work by stating that public procurement as part of industrial policy has a lot more to offer for developing countries than the current discussion demonstrates. Another author on public technology procurement, Rothwell, outlines a situation consistent with life cycle theory, where developing regions are

stuck with ‘traditional’ industries and non- R&D performing branch plants as compared to the more prosperous regions where head offices and R&D departments are situated. Public technology procurement is thus approached from an innovation policy perspective and as an instrument for helping developing regions to become more innovative. Rothwell lists several ways in which public procurement can stimulate innovations: the creation of new markets, creation of demand pull, and providing a testing ground for innovative products. He also discusses their implications for procurement activities. The paper concludes with some points on innovation oriented procurement practices (Rothwell, 1983 as cited in Rolfstam, Hommen, Edler, Tsipouri, & Rigby, 2005). While these studies on public procurement of innovation are highly significant for the topic at hand, they symbolize specific aspects to public procurement of innovation. There is a gap in the literature covering the broader aspects relating to the awareness level and the extent of innovativeness per the capacity of procurement environment in the developing nations to stimulate innovation which this work seeks to address.

### *2.3 Level of Awareness of Public Procurement as an Innovation Policy Tool*

Public procurement is very indispensable government function that can offer a means for socioeconomic development and some level of social equity, particularly in fragile situations (Annual Statistical Report on United Nations Procurement, 2013). As a result high-performing and transparent procurement systems in the areas of innovation are essential to guarantee cost-effective delivery of goods and services, particularly for the poor, and for helping to ensure equitable and sustainable development in the developing countries. However the awareness level among the range of target audiences particularly the policy makers, academics, procurement practitioners and the general public about the value of public procurement as an innovative policy tool is seriously not recognised. The application of public procurement as an instrument of innovation policy presents brand new challenges to policymakers. Majority had their experiences founded in a universe of supply-side policies which typically sought to address deficiencies in the resources or capabilities available to potential innovating firms (Georghiou, Edler, Uyerra, & Yeow, 2013). Boekholt (2012) on public procurement of innovative solutions: a policy tool for the service sector, suggests a strong need for awareness raising and practical guidance.

There are several scholarly works in reference to lack of awareness of public procurement as innovative policy tool. Rolfstam (2014) posits that there is shifts from efficiency policy towards innovation policy since the millennium shift and further suggests increase exposure and awareness of public procurement of innovation activity. Edler (2012) on demand based innovation policy moving the agenda forward writes that market entry and diffusion of public procurement of innovation is hampered by lack of awareness and articulation (consumers and policy makers). Uyerra (2013) on policy category for organisation and capabilities identified deficiencies like lack of awareness of innovation potential or innovation strategy in organisation and most procurers lack skills in innovation friendly procedures. Lember, Kalvet and Kattel (2013) postulates that lack of awareness exists among officials, policy makers about the correlation between procurement and innovation, and local authorities tend not to be willing to take risks when promoting innovation through public procurement. Lember et al.



(2011) on additional barrier to procurement of innovation identifies lack of awareness and readiness by public authorities to understand markets and technologies. Aschhoff and Sofka (2009) also suspected that public procurement is a promising instrument for firms with limited resources. It is still an argument what is the effect of the size and the concentration of procurement orders on innovation (Dalpe' et al., 1992).

The question from European Commission: Enterprise and Industry (2014) on what holds back the vast majority of public procurers from purchasing innovative solutions? The response rest on lack of knowledge and expertise on: the use of practices that favour innovation, risk management in procurement and market and technological developments. Awareness rising and changing the minds of procurers is essential to overcome the slow and timid application of public procurement of innovation in whole wide world particularly in developing nations like Ghana and to fight barriers and risks associated with the change of procurement culture (Tsipouri, 2012). Though there is lack of awareness of public procurement as innovative policy tool, the situation is very serious in developing countries with it challenges of infrastructure and human resources. It is therefore the desire of the researchers to investigate the level of awareness using the public procurement environment in Ghana.

### **3. Methodology**

#### *3.1 Research Design*

The study adopted both exploratory and cross-sectional survey designs in investigating the level of awareness of public procurement as an innovation policy tool among policy makers, practitioners, academics and suppliers/contractors. Exploratory because the study is about gaining insights and familiarity of public procurement of innovation from developing nation's perspective. It is mostly conducted about a research problem when there are few or no earlier studies to refer to (Cuthill, 2002; Taylor, Catalano & Walker, 2002). Exploratory research is flexible and can address research questions of all types (what, why, how). Cross-sectional also provides a 'snapshot' of the outcome and the characteristics associated with it, at a specific point in time and focus on studying and drawing inferences from existing subjects, or phenomena (Lavrakas, 2008; Barratt, & Kirwan, 2009).

##### **3.1.1 Population**

The population of the study is from the academic field of procurement, procurement entity, and the suppliers/contractors to the procurement entity and the policy makers. The respondents were group into three. The academic field of procurement according to this study composes of lecturers of Takoradi Polytechnic in the Purchasing and Supply Department both core and servicing related subjects and purchasing students from second and third years. The procurement entity composes of the Procurement Unit of Takoradi Polytechnic and the Sekondi-Takoradi Metropolitan Assembly- STMA Procurement Unit, the STMA directors and mangers referring to as the policy makers according to this study. The last element of the population as suppliers/contractors are suppliers or contractors to both procurement units of the entities mentioned above.

### 3.1.2 Sample

Base on the objective of the study the researchers closed the sample at their convenience (purposive sampling) to help fulfill the predetermined purpose of this project. This means that the elements of study were chosen not through the application of statistical methods but because of their perceived information richness. The logic and power of purposive sampling derive from the emphasis on in-depth understanding. This leads to selecting information-rich case for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of this research, thus the term purposive sampling (Patton, 2002). In this case the sample selected for this study includes lecturers of Takoradi Polytechnic in the Purchasing and Supply Department, both core and servicing related subjects and second and third year students of Purchasing & Supply Department, Procurement Unit of Takoradi Polytechnic, the Sekondi Takoradi Metropolitan Assembly Procurement Unit, the suppliers/contractors from both procurement units of the entities mentioned above. The selection of the suppliers of both procurement units was done using simple random sampling. The sample for the study was procurement entity 43, supplier 23 and academics 183 totally up to 249.

### 3.1.3 Research Instrument

Data was collected from the various selected samples using survey questionnaires containing structured questions. The questionnaires were prepared thematically on the basis of the research objective. The questionnaire is divided into two segments. The first section; section A, deals with personal information of the respondents, while section B captures information in addressing the research objective.

### 3.1.4 Reliability Test

The Cronbach's alpha analyzed is used to test the reliability of questionnaires delivered to the respondents of the study to obtain their views and opinion of the statement. The result of Cronbach's alpha is 0.817. According to this result, it shows the questions/statements issued to the respondent are more reliable for this measurement of public procurement of innovation.

## **4. Results and Analysis of the Study**

This section of the study discusses the data analysis and interpretation processes. After gathering all the completed questionnaires from the respondents, the data was coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS) version 20 for windows. Descriptive statistics (frequencies and percentages) were computed for the objective.

#### 4.1 Demographic Features

Table 1. Biodata of respondents

| <b>Attributes</b>                 | <b>N</b> | <b>Frequency</b> | <b>Percentage</b> |
|-----------------------------------|----------|------------------|-------------------|
| <b>Gender</b>                     | 249      |                  |                   |
| Male                              |          | 127              | 51                |
| Female                            |          | 122              | 49                |
| <b>Age</b>                        | 249      |                  |                   |
| 18-24                             |          | 137              | 55                |
| 25-32                             |          | 71               | 28.5              |
| 33-40                             |          | 30               | 12                |
| 41-48                             |          | 9                | 3.6               |
| 49-56                             |          | 2                | 8                 |
| <b>Affiliation</b>                | 249      |                  |                   |
| Procurement entity                |          | 43               | 17.3              |
| Supplier                          |          | 23               | 9.2               |
| Academic                          |          | 183              | 73.5              |
| <b>Education</b>                  | 249      |                  |                   |
| SHS                               |          | 12               | 4.8               |
| Diploma                           |          | 189              | 75.9              |
| Degree                            |          | 30               | 12.0              |
| Postgraduate                      |          | 18               | 7.2               |
| <b>Professional Qualification</b> | 249      |                  |                   |
| CIPS                              |          | 121              | 48.6              |
| CILT                              |          | 73               | 29.3              |
| CISCM                             |          | 37               | 14.9              |
| Other Specify                     |          | 18               | 7                 |
| <b>Professional qualification</b> | 249      |                  |                   |
| Procure/supply chain management   |          | 202              | 81.1              |
| Non procurement                   |          | 47               | 18.9              |

Source: field survey 2015.

Table 1 showing the bio data of the respondents shows that out of the total respondents surveyed there were 127 males representing 51% with the female compatriots 122 with 49%. In terms of age majority of the respondents were within the age range of 18-24 with 55% closely followed by 25-32, 33-40 with 71% and 30% respectively. From the trend its evident that majority of the respondents find themselves in the economically active sector. With respect to affiliation a heavy majority of 73.5%, of the respondents were affiliated to academic institutions with a minority of 9.2% being suppliers. Looking at the educational background of the respondents, a greater percentage of 75.9 were diploma certificate holders, the degree and post graduate also had a considerable representation. Professional qualification in terms of (CIPS, CILT, and CISCM) about 48.6% had CIPS certificates,

followed by CILT and CISCIM with 29.3 and 14.9% respectively. In the same vein, respondents with procurement related qualification as many as 202(81.1%), with a minority of 18.9% having no procurement background.

Table 2. The act used in conducting public procurement in Ghana is not specifically designed to integrate other objectives like innovation

|                  | <b>Frequency</b> | <b>Percent</b> | <b>Valid Percentage</b> | <b>Cumulative Percentage</b> |
|------------------|------------------|----------------|-------------------------|------------------------------|
| Not at all Aware | 97               | 39             | 39                      | 39.0                         |
| Slightly Aware   | 44               | 17.7           | 17.7                    | 56.6                         |
| Somewhat Aware   | 23               | 9.2            | 9.2                     | 65.9                         |
| Moderately       | 33               | 13.3           | 13.3                    | 79.1                         |
| Extremely Aware  | 52               | 20.9           | 20.9                    | 100.0                        |
| <b>Total</b>     | <b>249</b>       | <b>100</b>     | <b>100</b>              |                              |

Source: field survey 2015.

Table 2 touching on the awareness that the public procurement act use in conducting procuring activities in Ghana do not specifically designed to integrate other objectives like innovation, 97 of the respondents representing 39% opted for not at all aware. On the other hand, slightly aware stood 44 representing 17.7%, somewhat aware had 23 respondents representing 9.2%, moderately aware got 33 representing 13.3% and extremely aware had 52 representing 20.9%. The summation of slightly aware to extremely aware suggest that majority of the stakeholders are aware that the act is not specifically designed to integrate objectives like innovation. This is not in consistent with the EUR Lex (2001) on integrating social considerations into public procurement. The EU is making it possible to integrate various social considerations into public procurement in the best way probable and in this way contribute to sustainable development—a notion which combines economic growth, social progress and respect for the environment.

From the Table 3 when the respondents were asked whether they are aware that public procurement act does not define separately the purchase of innovative product or services, 94 of the respondents representing 37.8% chose not at all aware. Yet slightly aware got 43 representing 17.3%, somewhat aware had 36 representing 14.5%, moderately aware were 26 representing 10.4% and extremely aware had 50 representing 20.1%. From the data above its clear that the majority of respondents are fully aware that the public procurement act does not define separately the purchase of innovation products or services. This is contradictory to Rolfstam (2014) assertion that, there has been an increase exposure and awareness of public procurement of innovation activity for the professional in the industry. This may be due to difference in development of countries in both private and public experiences in procurement activities. However to Procurement of Innovation Platform which seems to in consistent to the finding that PPI occurs when public authorities act as a launch customer for innovative goods or services. Procuring of innovative products and services are typically not yet available on a large-scale commercial basis.

Table 3. Public procurement act does not define separately the purchase of innovative product or service

|                  | <b>Frequency</b> | <b>Percentage</b> | <b>Valid percentage</b> | <b>Cumulative percentage</b> |
|------------------|------------------|-------------------|-------------------------|------------------------------|
| Not at all aware | 94               | 37.8              | 37.8                    | 37.8                         |
| Slightly aware   | 43               | 17.3              | 17.3                    | 55.0                         |
| Somewhat aware   | 36               | 14.5              | 14.5                    | 69.5                         |
| Moderately aware | 26               | 10.4              | 10.4                    | 79.9                         |
| Extremely aware  | 50               | 20.1              | 20.1                    | 100                          |
| <b>Total</b>     | <b>249</b>       | <b>100.0</b>      | <b>100.0</b>            |                              |

Source: field survey 2015.

Table 4, touching on innovation issues not incorporated in the guidelines, it is quite noticeable the stillness nature of innovation issues in the Act 663, 2003, Ghana procurement act. This was confirmed by 23.7% of the respondents saying they are extremely aware, with 9.6% being moderately aware and 8.4% being somewhat aware. Again, 19.7% were also slightly aware of this issue totaling 61.4% of the respondent leaving only 38.6% not at all aware. This 38.6 % being minority of the respondent are the people working as professional but not in authority in their work places by observation. These group of minority that made this account of not at all aware that innovative issues are not incorporated in the guidelines for conducting public procurement are mostly the junior staff in these public institutions and once is not incorporated in the guidelines it become a very high risk for it to be used (EC, 2006). This is in contrary to the practice of European Commission where public procurement has been recognised politically, economically and socially by the European Council as a tool for increased innovation. Their idea is to see greater uptake of PPI and an increase in the development of innovative companies. For the Commission to support the public demand of innovation, it has put in place a series of policies and initiatives to make innovation a cornerstone of European public procurement and it is this Africa and Ghana as a whole need to emulate.

Table 4. Innovative issues are not incorporated in the guidelines conducting public procurement

|                  | <b>Frequency</b> | <b>Percentage</b> | <b>Valid percentage</b> | <b>Cumulative percentage</b> |
|------------------|------------------|-------------------|-------------------------|------------------------------|
| Not at all aware | 96               | 38.6              | 38.6                    | 38.6                         |
| Slightly aware   | 49               | 19.7              | 19.7                    | 58.2                         |
| Somewhat aware   | 21               | 8.4               | 8.4                     | 66.7                         |
| Moderately aware | 24               | 9.6               | 9.6                     | 76.3                         |
| Extremely aware  | 59               | 23.7              | 23.7                    | 100                          |
| <b>Total</b>     | <b>249</b>       | <b>100.0</b>      | <b>100.0</b>            |                              |

Source: field survey 2015.

Table 5 on the issue of Ghana's procurement environment not recognized public procurement as a powerful tool to influence innovation processes, not at all aware had 28.9%, slightly aware with 22.1%, somewhat aware stood 9.6%, moderately aware got 13.3 and extremely aware had 26.1%. This is an indication that majority of stakeholders in the procurement environment do not recognised public procurement as a powerful tool to influence innovation processes. Meaning that the practitioners are not aware and they would not be any attempt for them to instill innovation into their practices. This will also means that the people who are directly beneficial of the procurement activities in this area would not going to get any socioeconomic development and some level of social equity which would guarantee cost-effective delivery of goods and services, particularly for the poor, and for helping to ensure equitable and sustainable development in Ghana (Annual Statistical Report on United Nations Procurement, 2013).

Table 5. Ghana's procurement environment has not recognized public procurement as a powerful tool to influence innovation processes

|                  | Frequency  | Percentage | Valid percent | Cumulative percent |
|------------------|------------|------------|---------------|--------------------|
| Not at all aware | 72         | 28.9       | 28.9          | 28.9               |
| Slightly aware   | 55         | 22.1       | 22.1          | 51.0               |
| Somewhat aware   | 24         | 9.6        | 9.6           | 60.6               |
| Moderately aware | 33         | 13.3       | 13.3          | 73.9               |
| Extremely aware  | 65         | 26.1       | 26.1          | 100                |
| <b>Total</b>     | <b>249</b> | <b>100</b> | <b>100</b>    |                    |

Source: field survey 2015.

With Table 6, when the respondents were asked whether they were aware that public procurement environment in Ghana does not have the capacity to stimulate innovation, they gave an affirmative responses where 63 of the respondents opted for extremely aware representing 25.3%, 27 of them representing 10.8% were moderately aware and 50 representing 20.1% were slightly aware. It is only 74 of the respondent representing 29.7% who were not aware that public procurement environment in Ghana does not have the capacity to stimulate innovation. That means majority of the professional are aware that the current public procurement environment in Ghana does not have the capacity to stimulate innovation. The reason being that, in Ghana there has been no notable progress in ensuring that science, Technology and Innovation drive socio-economic activities. The major cause being the absence of a definitive and prescriptive Nation STI policy ((Ministry Of Environment, Science and Technology, 2009).

Table 6. Public procurement environment in Ghana does not have the capacity to stimulate innovation

|                  | Frequency  | Percent      | Valid Percent | Cumulative Percent |
|------------------|------------|--------------|---------------|--------------------|
| not at all aware | 74         | 29.7         | 29.7          | 29.7               |
| slightly aware   | 50         | 20.1         | 20.1          | 49.8               |
| somewhat aware   | 35         | 14.1         | 14.1          | 63.9               |
| moderately aware | 27         | 10.8         | 10.8          | 74.7               |
| extremely aware  | 63         | 25.3         | 25.3          | 100.0              |
| <b>Total</b>     | <b>249</b> | <b>100.0</b> | <b>100.0</b>  |                    |

Source: field survey 2015.

The data from Table 7 indicates that 45 of the respondents representing 18.1% were not aware that public procurement as an innovation policy tool. However, 41 representing 16.5% slightly aware, somewhat aware were 34 representing 13.7%, moderately aware had 46 representing 18.5% with extremely aware gotten 83 representing 33.3%. This shows public procurement is recognised as an innovation policy tool. Per the data on affiliation of respondents' majority were from the academic field whose understanding to that effect is not surprising. Nevertheless the minority of the affiliation who are actually on the ground support and confirm what LCB-HEALTHCARE (2011) revealed in their report that in practice, procurement is not recognised as a tool for innovation. Also from Georghiou, Edler, Uyarra, and Yeow (2013) comment that awareness level among the range of target audiences particularly the policy makers, academics, procurement practitioners and the general public about the value of public procurement as an innovative policy tool is seriously not recognised and is very dangerous for the countries development. Their study emphasised that this is where policy makers should turn their focus to and start doing something about it. And Boekholt (2012) also suggests a strong need for awareness raising and practical guidance.

Table 7. Public procurement as an innovation policy tool

|                  | Frequency  | Percentage | Valid percent | Cumulative percent |
|------------------|------------|------------|---------------|--------------------|
| Not at all aware | 45         | 18.1       | 18.1          | 18.1               |
| Slightly aware   | 41         | 16.5       | 16.5          | 34.5               |
| Somewhat aware   | 34         | 13.7       | 13.7          | 48.2               |
| Moderately aware | 46         | 18.5       | 18.5          | 66.7               |
| Extremely aware  | 83         | 33.3       | 33.3          | 100                |
| <b>Total</b>     | <b>249</b> | <b>100</b> | <b>100</b>    |                    |

Source: field survey 2015.

Table 8 on the awareness level of stakeholders that public procurement is a major instrument by which government of Ghana can encourage and stimulate innovation in the economy; not at all aware were 10.4% meaning that public procurement is not a tool to encourage and

stimulate innovation. Nonetheless, slightly aware had 14.1%, somewhat aware stood at 11.6% moderately aware got 20.1% and extremely aware were 43.8%. This demonstrates that majority of the stakeholders are aware that public procurement has an advantage of achieving positive social and economic impact. This confirmed the European Commission (2007) focus that considers public procurement to be one of the key policy instruments relevant to the creation of lead markets.

Table 8. Public procurement is a major instrument by which government of Ghana can encourage and stimulate innovation in the economy

|                  | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| not at all aware | 26        | 10.4    | 10.4          | 10.4               |
| slightly aware   | 35        | 14.1    | 14.1          | 24.5               |
| somewhat aware   | 29        | 11.6    | 11.6          | 36.1               |
| moderately aware | 50        | 20.1    | 20.1          | 56.2               |
| extremely aware  | 109       | 43.8    | 43.8          | 100.0              |
| <b>Total</b>     | 249       | 100.0   | 100.0         |                    |

Source: field survey 2015.

With the opportunities to tailor our procurement practices towards promoting innovation; the data is quite thrilling where extremely aware stood for 107 representing 43%, moderately aware were 40 representing 16.1%, somewhat aware with 30 representing 12%, and slightly aware had 45 representing 18.1%. Notwithstanding there were 27 respondents in the minority representing 10.8 were not at all aware that there is opportunities to ensue when we direct the public procurement practices towards promoting innovation. This reveals that majority of the stakeholders are aware that there is a lot to enjoy when procurement activities are tailored towards promoting innovation. Public procurement is and has, often been used to promote objectives which are secondary to the primary vision of public procurement for instance applying public procurement to sponsor social, economical, industrial or environmental policies (Arrowsmith, Linarelli & Wallace, 2000; Cane, 2004; Turpin, 1989). Summary on Table 9.

Table 9. Opportunities to tailor our procurement practices towards promoting innovation

|                  | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| not at all aware | 27        | 10.8    | 10.8          | 10.8               |
| slightly aware   | 45        | 18.1    | 18.1          | 28.9               |
| somewhat aware   | 30        | 12.0    | 12.0          | 41.0               |
| moderately aware | 40        | 16.1    | 16.1          | 57.0               |
| extremely aware  | 107       | 43.0    | 43.0          | 100.0              |
| <b>Total</b>     | 249       | 100.0   | 100.0         |                    |

Source: field survey 2015.



#### *4.2 Summary of Findings*

From the analysis of the data, it became apparent that the Act used in conducting public procurement in Ghana is not specifically designed to integrate objectives like innovation. This is inconsistent with the EUR Lex (2001) on integrating social considerations into public procurement. It also became clear that the majority of respondents are fully aware that the current public procurement act does not define separately the purchase of innovation products or services.

On innovation issues not incorporated in the guidelines, it was quite noticeable the silence nature of innovation issues in the Act 663 2003, Ghana procurement act which the study revealed that innovation issues are not incorporated in the current public procurement. There was also an indication from the majority of stakeholders that the public procurement system do not recognised the current public procurement act as a powerful tool to influence innovation processes at its current state.

The study also revealed that majority of the professional are aware that the current public procurement regime in Ghana does not have the capacity to stimulate innovation. The reason being that, in Ghana there has been no notable progress in ensuring that science, Technology and Innovation drive socio-economic activities. The major cause being the absence of a definitive and prescriptive Nation STI policy (Ministry of Environment, Science and Technology, 2009).

The study disclosed that public procurement is recognised as an innovation policy tool by the professionals. This demonstrates that majority of the stakeholders are aware that public procurement has an advantage of achieving positive social and economic impact. Additionally, the study revealed that majority of the stakeholders is aware that there is a lot to enjoy when procurement activities are tailored towards promoting innovation. This is a confirmation to (Arrowsmith, Linarelli & Wallace, 2000; Cane, 2004; Turpin, 1989) that public procurement is and has, often been used to promote objectives which are secondary to the primary vision of public procurement for instance applying public procurement to sponsor social, economical, industrial or environmental policies.

#### **5. Conclusion**

The purpose of this study is investigating the level of awareness of public procurement as an innovation policy tool among policy makers, practitioners, academics and suppliers/contractors in Ghana. In effect create awareness and interest in public procurement of innovation and add to public procurement of innovation literature from developing nations' perspective. Public procurement has emerged as a potentially powerful tool to propel innovation and efficiently contribute to the economic development of the nation. A policy tool that the scientific communities as well as many governments are currently rediscovering and making use to build their economy. The same cannot be said about Ghana per this study. Though the key revelations that public procurement is recognised as an innovation policy tool and the key stakeholders are aware that there are opportunities to enjoy when procurement activities are tailored towards promoting innovation, the public procurement system do not

recognised the current public procurement act as a powerful tool to influence innovation processes at its current state. The major reasons are that the act lacks the capacity to stimulate innovation and it is not specifically designed to integrate objectives like innovation. It's for these reasons that effort must be intensified to remove all the bottlenecks surrounding the PPI in Ghana and to make it noticeable and workable. This has to deal with much education to the key stakeholders in the industry. This will help open the country's economy and also assists suppliers both in and out of the country in testing the market and raises the awareness of the existence of demand for the envisioned innovative services or products as well as to speed up the process of market diffusion. In using public procurement to drive innovation, the key stakeholders must integrate different economical social, political and ecological goals. The procuring entities and practitioners must appreciate the strategic values of public procurement hence improve it by broadening their training and revising the act in the direction of integrating other objectives like innovation. Practitioners in procurement industry need to realise that both procurement and innovation is a very significant part of their work, as both may improve the services they provide in the long term.

The study acknowledges that its results cannot be generalized to other developing nations owing to the specific public procurement regime to Ghana; it is thought that the recommendations can be targeted to improve on the awareness level of public procurement of innovation among the developing nations.

## **6. Recommendation**

For the purpose of creating awareness of stimulating innovation through public procurement it is an ideal to put together a coherent policy competent enough to capturing innovation where public procurement policy, R&D policies and innovation policies will be connected together. It is also advisable to develop Ghanaian own strategy with it guiding principles for the public procurement of innovation to suit the Ghanaian economy.

The public procurement act must be amended to address the integration issues of innovation by introducing the demand for innovation in the procurement regime regulating the activities of the industry. Public Procurement Authority should place into their regulation a minimum level of budget expenditure for PPI. This will help in creating the awareness and facilitate its implementation in Ghana. The public procuring practitioners or the entities rarely procure products for the purpose of promoting innovation; it is therefore recommended that the entities are encouraged to integrate their operation with the sake of recognising and promoting innovation.

There must be regular provision of trainings for procurers on PPI. This is to broaden their horizons in procurement of innovations and also to help them to put up their best when it comes to public procurement of innovation practices. Building the capacity of the entities and practitioners is a key success factor of public procurement of innovation. It is imperative that PPA organizes training sections for the key stakeholders both in public and in the private sector on procurement innovation tendering process. There should be an establishment of a network of experts that could educate relevant stakeholders in the procurement industry on all topics relevant to PPI. This will go along way of strengthening our economy and is also a

way of contributing to the home growth policy which is being instituted to build our economy.

## 7. Further Studies

Compared to traditional public procurement which is mainly for ready-made goods and services, public procurement of innovative products entails more risks, which need to be identified and managed. So far, little is known whether and how entities, economic players with growing importance address the question of risks in public procurement for innovation. Therefore, the researchers recommended that additional empirical research be done on the risk in public procurement in innovation in developing nation in order to ascertain some of the issues that can militate against public procurement of innovations.

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