DETERMINANTS OF INNOVATION ACTIVITIES BEING CARRIED OUT BY SMALL AND MEDIUM ENTERPRISES (SMES) IN ARUSHA AND MOSHI - NORTHERN TANZANIA

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ABSTRACT

This paper examined the key determinants of innovation in small and medium enterprises (SMEs) of furniture firms in Arusha and Kilimanjaro regions in Northern Tanzania. Data of the study were collected using questionnaire and in depth interview with SMEs owners/managers and employees. A total of 384 questionnaires were administered to the respondents and snowball sampling was used. This was supplemented with interviews of SMEs owners and Managers of furniture industries. The data collected were analysed using appropriate descriptive and multiple regression analysis with the aid of SPSS. The study reviled that there are factors which were counted for technological and organisational innovation performance of SMEs in the study area. These factors include; Industrial maturity, Investments attractiveness, competition, company size, export orientation, customer needs and Technological opportunities. In conclusion the study found that accessibility to technology and extent of investment in the Research and Development (R&D) are the most important factors that influence innovation activities in SMEs in Northern Tanzania.

Keywords: Technological innovation; Determinants; Small and Medium Enterprises; Northern Tanzania.

INTRODUCTION

The issue of Small and Medium scale Enterprises (SMEs) has received a lot of attention over the years by scholars looking for sustainable development strategy (Adeleye, 2005; Akinbinu, 2001; Lanjouw, 1997). These scholars see SMEs as one veritable means of poverty alleviation; as a dominant employer of labour in developing countries; and as enterprises which operate in a highly competitive market whose labour intensive mode of production is most relevant to development aspirations of many countries.

Despite the fact that the SME had formed the bedrock of most low income countries, it often operates in difficult business environment and weak institutional settings with low access to physical and human capital (Adeleye, 2005; Lanjouw, 1997) observed that many SMEs are unable to maximize their potential due to several factors such as inadequate access to long and short term capital, little knowledge of need for wide and distance market, low turnover/productivity, ignorance on the part of entrepreneurs, reluctance to come into partnership or limited liability companies and lack of modern management practices. In spite of this however, the SMEs has remained veritable tool of growth and development of the economies of the developing countries.

These constraints aside, it is apparent that innovation constitutes one of the key means by which SMEs can overcome these harsh business conditions in bid to thrive and expand into big corporate entities (Sabrahmanya, 2014). In many studies, innovation has been found to be one of the primary movers of long-term success of today's corporate entities in the prevailing competitive markets (Baker, 2002; Balkin, 2000; Darroch, 2002; Lyon, 2002; Utterback, 2001; Vrakking, 1990; Wolfe, 1994). Considering the importance of innovation in relation to a firm's competitiveness, a good number of studies have attempted to establish the main determinants of a firm's innovation capacity (Damanpour, 1991; Kraus, 2012; Patel, 2005; Ravichandran, 1999; Wiley, 2010; Wolfe, 1994). These determinants—both internal and external—act as catalyst of innovation. Traditionally, internal factors include strategy, organisational design, leadership or organisational culture (Damanpour, 1991; Vrakking, 1990). In recent times, organisational learning (Darroch, 2002; Hage, 1999; Hull, 1998; Narver, 1995; Stata, 1989; Takeuchi, 1995) and market orientation (Agarwal, 2003; Han, 1998; Hult, 2004; Sandvik, 2003) have been added to the list of internal factors. External factors, on the other hand, which tend to affect technology innovations, process innovations or their combination include the industry maturity, customer needs and expectations, technological opportunities, investment attractiveness, intensity of competition, company size, origin of ownership and export orientation (Christensen, 2012; Davila, 2006).

Nevertheless, a holistic review of the SMEs sector has shown that despite a lot of interventionist measures that have been put in place by the Tanzanian government, the Tanzania's SMEs are not as productive as the should be especially on furniture industries. The major reason for this obvious poor performance of the SMEs is the lack of competitiveness of the domestic products when compared with their counterpart in developed countries which are imported in the country. Many initiatives have been propose to improve the competitiveness of SME among these is innovation activities which has attracted the attention of not only policy makers, but also researchers and the business community (McAdam, 2008). This initiative is based on the assumption that providing innovative activities with enhance utility may help SMEs strengthen their competitive position at home as well as international markets. (Dangayach, 2005; Nguyen, 2008).

Innovation in the various forms in which it exists is nowadays an important key term to almost any country. Being innovative offers advantages over competitors and is therefore seen as essential for a firm to stay in the business. Innovative companies are prerequisite for a dynamic and competitive economy (McAdam, 2008; Tulus, 2011). Therefore, it may be of particular interest to find out what factors determine innovation. The study of innovation determinants in SMEs in this era of globalization is relevant in this context as a critical factor for sustainability and survival of developing countries' SMEs generally, and particularly Tanzanian SMEs.

Multiple authors (Audretsch, 1988; Jegede, 2012) have researched this issue already for large firms, but for SMEs, not much information on determinants of innovation is known. Besides, since a large share of firms in developing countries particularly in Tanzania consists of SMEs, it may be worthwhile to investigate empirically the factors that influence innovation in Tanzania's SMEs, hence this study.

LITERATURE REVIEW

Introduction

This section focuses on theoretical literature review. It describes the terms, Determinants of innovation activities being carried out by small and Medium Enterprises (SMEs); and their economic contribution; technology and innovation process; creativity and innovation; factors affecting innovation; innovation determinants and process; and innovation indicator of performance.

Small Medium Enterprises (SMEs)

There is no universal definition of what constitutes an SME. After all, different countries varyingly define or describe SME depending on their level of socio-economic development. In fact, the commonly applied criteria in determining SMEs include the number of employees, the sum of investment and sales turnover of a given firm. The Tanzania government, on its part, defines SMEs by taking into account the sector, employment size, and capital invested in machinery that firm uses. In the Tanzania context, SMEs can be as micro, small and medium size enterprises in non-farming activities such as manufacturing, mining, commerce and services (URT, 2003). A micro enterprise is a firm with less than five workers whereas a small firm has a workforce of 5-49 employees and a medium-sized enterprise has 50-99 employees. Under this setup, a firm with 100 workers or more constitutes a large enterprise.

Innovation

Different authors have different opinions about what can be called an innovation. For instance, (Audretsch, 1988) see innovation as a process that begins with an invention, proceeds with the development of the invention, proceeds with the development of the service to the marketplace. According to (Damanpour, 1999), innovation is the adoption of an idea or behaviour, whether a system, policy, program, device, process, product, which are also successful. The third edition of the Oslo Manual (OECD, 2015) defines innovation as "the implementation of a new or significantly improved products (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace, organization or external relations." Also (Maalu, 2011) defines innovation to comprise product or process, continuous or discontinuous, radical or incremental innovations leading to improved or new products. (Maalu, 2011) see 'radical' innovation as new products that result from advances in knowledge/ technology. 'Incremental' innovations include improvement of process or product design, with or without up-grading of machinery and/or acquisition of new machinery. The duo concluded that the most common form of innovation for small firms is non-technological innovation which includes marketing innovation, measured by whether or not the firm has implemented a new design or product packaging, significantly changed the way merchandise is displayed, introduced a new channel for selling goods and services, or introduced a new method of pricing products. For the purpose of this study, the definition given by (Maalu, 2011) is adopted because the definition is the context of SMEs.

Innovation determinants and process

This part defines different concepts and discusses how these concepts—innovative intensity and innovation output—may be measured and what aspects tend to affect them. Many publications have applied the systems theory, the process approach, and related new indicators. Innovation indicators may be divided into macro, meso and micro indicators, on the one hand, and input, throughput and output indicators, on the other, including giving nine

cells of indicators (Broersma, 2001). This study focuses on the SMEs and differentiates input, throughput and output indicators. Much literature in on the systems-theoretical approach uses models that integrate four components. These models are based on the (Crepon, 1998). First, a decision to innovate has to be made. Second, a firm's decision to innovate affects the innovative input or innovative intensity. In many studies, the innovation output is determined by the innovative input such as the morphing of input into output. Finally, innovative output affects a firm performance (Figure Below).

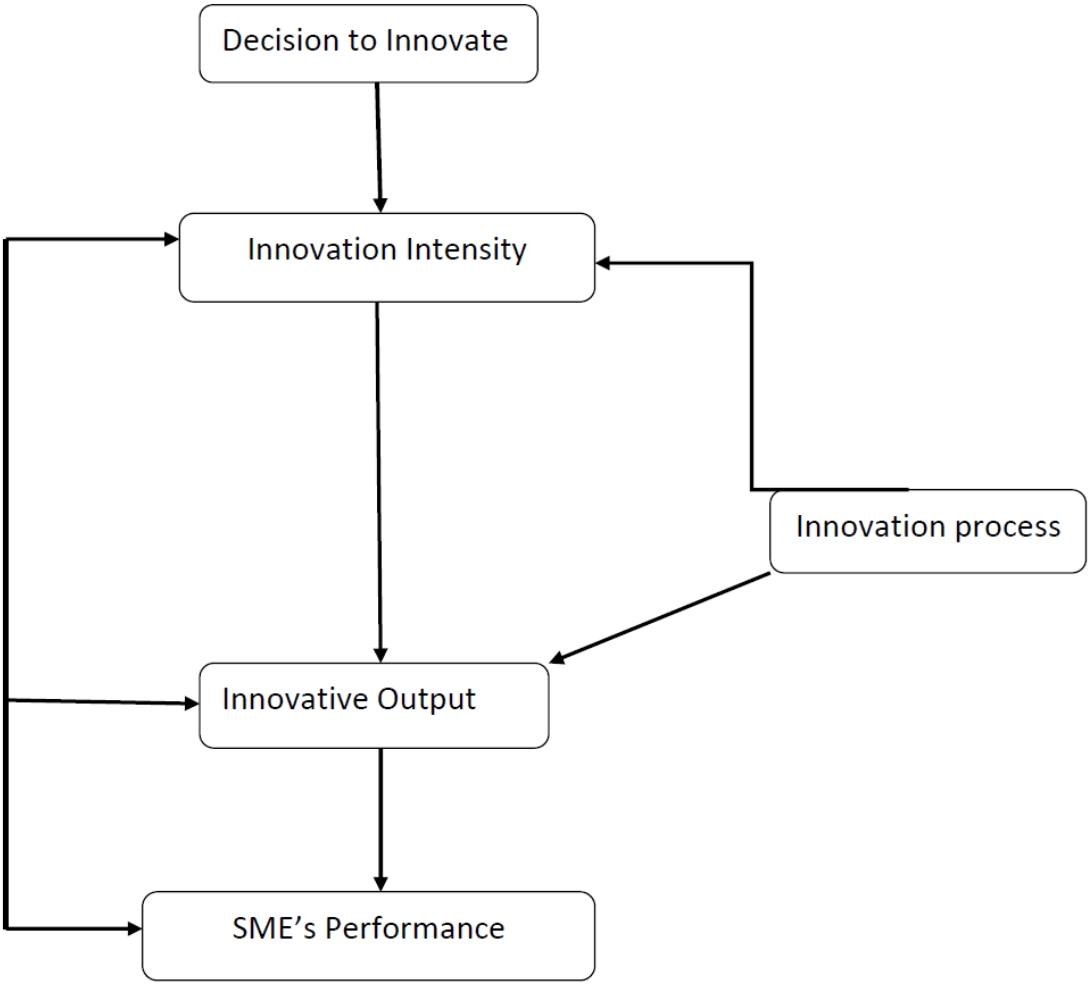


Figure: Innovation, determinants and process relationship (Crepon, 1998).

As Figure above illustrates, the innovation process can have many feedback loops. For example, it can have innovative output that occurs through a firm's performance, which may affect expenditures related to innovation. In fact, the overall economic performance of a company might impact on all three innovations process stages of a given firm. Put differently, growth in the volume of sales might be higher for innovating firms than for non-innovating firms. In consequence, this interrelatedness of the relationships entails testing of the innovation process simultaneously.

Determinants of Innovation in SMEs

Factors that can affect product innovations, business process innovations or their combination are both external and internal. Specifically, this work focuses on maturity in industry, the needs and expectations of customers, technological opportunities available, and the

attractiveness of investments, as well as the stiffness of competition, company size and ownership origin. The study focused on these factors as they are directly related to the research topic.

Industry maturity

Theories of industry evolution work on the assumption that competitiveness shifts from a product to a process innovation as a business entity matures. When a new industry comes into the fold, firms compete depending on their product differentiation. As part of this competition, they tend to invest heavily in new product development. With a maturing market, customer needs tend to become defined in a clear-cut manner, hence making companies shift their competition focus to expenses and the economy of range, and in consequence, they invest more in business processes to boost effectiveness and efficiency (Utterback, 1994). In matured industries, firms tend to give more impetus to business process innovations than to product innovations. In this regard, empirical evidence confirms the impact of industry maturity on the type of innovation that emerges. In a study on Swiss civil-engineering cluster, Vock found that only 29% of the construction firms in this cluster took into account the product innovations that were vital to their economic success (Vock, 2001).

Although both types of innovations are vital in steering the economy of a given country, Swiss construction firms were found to prefer process innovation to product innovation in terms of projected higher returns. The findings of this study show that cluster innovations new to an industry tend to present clear signs of a sector's maturity. The main innovation model and development level assist managers to grasp what types of innovations and initiatives they should consider during different times of their development as well as varying competitive settings (Tushman, 1986). Though this model is not universal, it is more instrumental in production than for service provision defined by dominant standards and product designs and where competitiveness eventually progresses to the price. In any case, new discontinuous technologies can also disrupt this cycle, hence engineering a re-start (Tushman, 1986).

Needs and expectations of clients

The needs and expectations (hereafter: needs) of customers are vital in the innovation processes for optimised effectiveness. Customer orientation and customer satisfaction are useful concepts in quality management. In this regard client-orientated companies are responsive to the customer needs. They also determine their level of satisfaction and strive to enhance the customer satisfaction processes. In product innovation, the approach based on customer needs implores companies to turn to user needs in their innovative efforts, (Hippel's, 1998), also introducing a term of "leading users" in management theory and practice. These leading users are a unique class of users that can provide the tangible knowledge on projected future needs. Such users tend to countenance needs likely to appear in the market months and years after others. Their attitude also tends to be orientated towards expressing future needs as a function of their experience (Hippel's, 1998). Thus, firms can collect valuable information that facilitates the discovery of latent needs. On the other hand, a focus on the existing customers tends to limit a company's innovation aptitude as managers are not keen on serving new users. And yet, focusing on the existing customers is not synonymous with being completely market-oriented (Christensen, 2012).

Generally, small business entities have limited leeway when it comes to enhancing their innovative endeavours beyond the existing clientele. Also, the study that was carried out in the Netherlands on the role customers play in small firms' radical product innovations (Verhees, 2004). They tested and validated the hypothesis that the existing clients' expressed needs for radical product innovations impact positively on radical product innovation acquisition in small sized ventures. In the case of expressed needs of potential customers, on the other hand, the hypothesis was null and valid. However, in compliance with terminology, small tested firms cannot be defined as, indeed, market-oriented in terms of radical product innovations (Narver, 1995; Verhees, 2004).

Technological opportunity

The debate on the significance of technological opportunity against market orientated demand can be traced back to a period when the emphasis was on the fact that entrepreneurs are led by technological opportunities (Schumpeter, 1934). The "technology push", on the other hand, suggests that technological change tend to be defined not by demand but by how appropriate a technology is when it comes to industrial application (Schmookler, 1966; Schumpeter, 1934). (Cohen, 1995; Godenberg, 2001), support this approach and so does empirical evidence. Dimensions of technological opportunity are: technological importance, which refers to what constitutes the expected technological contribution of an invention; technological performances, which refers the level on which an invention works better than alternatives or fulfils functions that have not been previously provided; and technology feasibility, which has to do with the possibility of technological correctness and completeness of an invention.

Attractiveness for investments

The capacity to control and benefit from innovations is pivotal when it comes to investing meaningfully in innovations. Only when a firm expects to gain from innovations will it be bent on innovation. In this analysis, it is pertinent to establish the difference between product and process innovations to determine which of the two types is more "innovative" than the other or which one of the two has more failures in the market than the other (Oxera, 2005). In this regard, there are two principal questions to take into account:

a) What type or innovation is more innovative, especially, which type of innovations might generate more innovations?
b) How similar or dissimilar are the market failures these types of innovations face and to what extent?

It is apparent that both product and process innovations do have potentials for innovation. However, the difference comes in because product innovations have a direct bearing on the welfare whereas process innovations appear due to attempts to boost efficiency and/or process efficiency or to facilitate the innovation of a product. On the whole, researchers have not developed a mathematical apparatus nor there empirical evidence confirming that either of the two types has the capacity to bring about more innovations than the other. In consequence, no conclusion has been reached on which of the two types is more innovative than the other (Oxera, 2005).

Competition intensity

A limited number of works exists in literature on the theme of intensity of competition and the choice between product and process innovation. In fact, the literature available largely

considers the overall innovation activities (that is, the sum of the product and process innovation). Generally, market concentration serves as a stimulus to innovation (Schumpeter, 1943). Conversely, there are those who have established the reverse proposition that more competitive environments tend to provide a greater incentive for firms to innovate and gain a competitive business edge (Arrow, 1962). Later researchers introduced a game theory, considering one or two competition regimes:

1) Where companies compete in quantity (output levels) (Crouton, 2014) and
2) Where the competing base is a price (Bertrand, 2015).

One of the latest additions on this topic is a model that integrated both regimes (Haworth, 2014). Between product or process innovations and the innovator is a company that provides high-quality products. For Crouton, a competitor chooses a process innovation; and for Bertrand a competitor chooses product innovations. However, it is different scenario for firms that deliver poor quality. In this situation, then the competitor chooses product innovation under Crouton or process innovation under Bertrand.

Although this and other similar models are backed up by strong mathematics, they are very general in nature. In other words, had they possessed a richer structure, they would be so specific enough and not so general. Indeed, practical guides ought to show managers the strategic effects of different types of innovations depending on the competition intensity, which also needs some empirical evidence (Saburin, 2003). A study on the Canadian food industry established that when faced with a modest competition of 6-20 competitors, the possibility of product innovations grows as compared to a situation with a small number of competitors of five or less, or one with an intensive competition of more than 20 competitors. The possibility of coming up with product innovation only is 58 percent for firms with modest competition compared to 48 percent for those with high competition and 38 percent for those with small competition (*ibid*.). On the other hand, the possibility of innovations is the highest for the group with the biggest number of competitors when it comes to process innovations. Business entities operating in highly competitive markets tend to account for 12 percent more business process innovations than companies that operating in less competitive markets.

Company size

The returns on process innovations tend to grow proportionally with the company size whereas the returns on product innovation remain constant. This explains why product number growth tends to have a more significant positive impact on process innovations than product innovations. Accordingly, as a firm grows, it decides on embarking on business process innovations. With regard to product innovation, it entails taking into account only a company's size; as such it is difficult to predict whether smaller or bigger firms will be more innovative (Klepper, 1996; Petsas, 2005). According to (URT, 2003), the size of SMEs and large enterprises have been classified as follows:

Income categories of SMEs in Tanzania

CATEGORIES OF SMEs IN TANZANIA

Category	**Employees**	**Capital Investment in Machinery (Tshs)**
Micro enterprise	1 – 4	Up to 5 mil
Small enterprise	5 – 49	Above 5 mil to 200 mil.
Medium enterprise	50 – 99	Above 200mil to 800mil.
Large enterprise	100+	Above 800mil.

Sources: **(URT, 2003)**

Innovation indicators and performance

Generally, business innovation is treated as neither fixed nor permanent process as it is a continuous learning process; after all, both technology and the ability of firms are ever in a state of flux (Malecki, 1991). Being a specific tool of entrepreneurs, innovation requires means for exploiting change as an opportunity for a different business or a different service in form of a discipline that can be acquired, learned and practised (Drucker, 1985). Innovation entails learning and fosters knowledge creation through which new problems can be defined, hence leading to the generation of new knowledge geared towards solving these problems. On the whole, there are several learning processes of new technology, including formal R&D (Lam, 2013; Malecki, 1991; Rosenberg, 1982). The Organisation for Economic Co-operation and Development (OECD) defines R&D as creative work executed on a systematic basis to enhance stock of knowledge and develop new applications (OECD, 2015). In the field of marketing where firm have keen interest in competitors and customers to keep abreast of modern trends and analyse the needs, demands and desires of their customers, R&D is generally vital. Moreover, R&D is significant in fostering improvements and innovation over the long-term (Malecki, 1991).

On the other hand, R&D is generally expensive and there are entry barriers that new and existing small firms grapple with. In small business ventures, informal learning processes occur via the monitoring of information and technological capabilities, publications, technology associations, watch-and-learn processes, and personnel mobility, all innovation indicators. In addition, progressive firms in terms of innovation derive knowledge from clients and suppliers in addition to generating it internally (Fransman, 2008). In this regard, a customer can request for the imitation of an imported product but in a rather simplified and improved format to suit the local context. Furthermore, learning by doing or using is a source of major opportunities that enable technological advancements (Dosi, 1984; Dutton, 1985). Altogether these mechanisms widen the scope of information-gathering activities a company needs. However, these informal activities are difficult to measure and identify; in fact, they are mainly embodied in people and organisations. In Tanzania, on the other hand, a number of bottlenecks that constrain technological innovation exist. These constraints include a problematical governance and business operational context. Such constraints are attributable to a number of factors such as lack of effectiveness and apathy in the execution of government actions a number of policy plans notwithstanding. In consequence, the reform process has slowed down. Indeed, this is not surprising primarily because many policy areas have been hit by this limited approach to policy implementation. Further compounding the problem is the inadequate nature of the supportive infrastructure. Indeed, the poor regional and feeder roads, frequent power disruptions and underdeveloped telecommunication network tend to compromise the state of innovation in Tanzania (Aubert, 2007). Also, the situation has been aggravated by the country's still weak banking system in terms of providing credit to businesses. In addition,, the capital markets prevailing in the country are either too young or almost non-existent.

Lack of innovative dynamism has been identified as another stumbling block hindering technological innovation. Tanzania has witnessed a strong economic growth in recent years, which has been contributed by heightened Foreign Direct Investment (FDI). Indeed, Tanzania has benefited from a relatively higher FDI than in neighbouring countries; and yet, its effect on technology growth and innovation has remained modest (Aubert, 2007). In fact, the Tanzania's rather low R&D/GDP ratio of a measly 0.25 percent is attributable to this lack of

innovative dynamism. Moreover, there is no specific mechanism in place to foster the transfer of knowledge and technology through FDI.

The third impediment to technological innovation has to do with innovative policies that come up short of the requirements. In other words, there was an urgent need for a deliberate policy based on the liberalisation and privatisation principles geared towards fostering a hands-off approach on the part of the government to drive the public R&D institutes towards marketing their competencies and technologies. Generally, resources for science and technology (S&T) tended to be trimmed without providing any requisite incentives that could allow entrepreneurs to exert more innovative efforts (Aubert, 2007). These resources were also trimmed without necessarily investing in public goods or putting in place appropriate regulations to ensure and encourage an enabling environment that could catalyse innovations in terms of competition, quality promotion, and protection of property rights.

The fourth hurdle to technological innovation stems from lack of dissemination of new technologies nationwide. Generally, people lack awareness of new technologies either imported from abroad or developed in the country. In this regard, Aubert established that several investors in Tanzania have capitalised on the technology of interlocking bricks designed and tested to make bricks from local materials and compressed without cement (Aubert, 2007). This innovation originated in South Africa but has since been perfected in Tanzania, for example, by the Housing R&D Centre, to suit the local context and business environment. On the other hand, there is no scheme in place to help individuals or communities either to deploy or buy the brick-making machine. Moreover, there was lack of a mechanism for informing potential users about the technology to ensure they became aware of its existence and its potentiality. Moreover, there was generally lack of information on inputs, markets, technology availability and cost. As a result, smallholder entrepreneurs failed to select, acquire and apply appropriate technology that could develop boost their expertise, develop their enterprises and build on their innovativeness.

The fifth setback to technological innovation has to do with lack of sustainable services geared towards upgrading technologies from SME-supporting institutions due to financial constraints. (Aubert, 2007) observes that when initially setting up SMEs, the existing support institutions such as institutes, centres and organisations tried to provide local entrepreneurs with workshops nationwide so that they could test their ideas, repair their machinery, and try emerging technologies. However, these workshops gradually vanished in the absence of sustainable funding and adequate interest coupled with an obvious lack of political will on the part of the government machinery (Aubert, 2007).

Contextually, the concept of performance relies on both the users and the purposes for which the information was being deployed (Lebas, 1995). Generally, performance has to do with previous achievements; however, performance can also constitute the capacity for future successful endeavours involving the execution of an action that facilitate the achievement of set objectives and targets (Lebas, 1995). Also, performance is evident in production outcomes such as business profits, sales, assets, growth and survival.

Contribution of SMEs to the Tanzania economy

SMEs contribute 30-35% to Tanzania's gross domestic product. The sector consists of more than one million business activities in which 3-4 million persons, or about 20-30% of the labour force was engaged. Between 1990 and 1996, SMEs expanded for income and

employment generation, particularly in the aftermath of the adoption of economic reforms that provided room for self-employment and private sector growth. This growth could have been higher had the business environment and the Tanzania government policies put in place deliberate incentives to boost this sector.

According to the 1991 National Informal Sector Survey, micro-enterprises employed about 20 percent of the labour force. A 1996 NIGP-ESRF study on micro and small enterprises confirmed that these micro-enterprises were concentrated in petty businesses, with the informal sector and women being important actors among these SMEs. In fact, women were increasingly starting business enterprises, mostly in urban areas to raise income. National industrial statistics only keep record of those formal SMEs employing more than 10 people, leaving undocumented a large group of small business ventures.

In Tanzania, and the East African region, entry into small business entrepreneurship has been simplified, hence providing more opportunities for setting up more SMEs. However enabling growth of SMEs has posed a major challenge. As such, the government and its development partners should collaborate to evaluate these efforts and take remedial measures. Towards this end, the Tanzania government has also been examining the contribution of SMEs to socio-economic and political reforms embarked by the country over the years as stipulated in the Five Year Development Plan 2011/12 - 2015/16 (FYDP), with the overriding goal being "to improve the business environment so as to increase economic growth and finally reduce the prevalent poverty level" (Economic Survey 2009, United Republic of Tanzania [URT]).

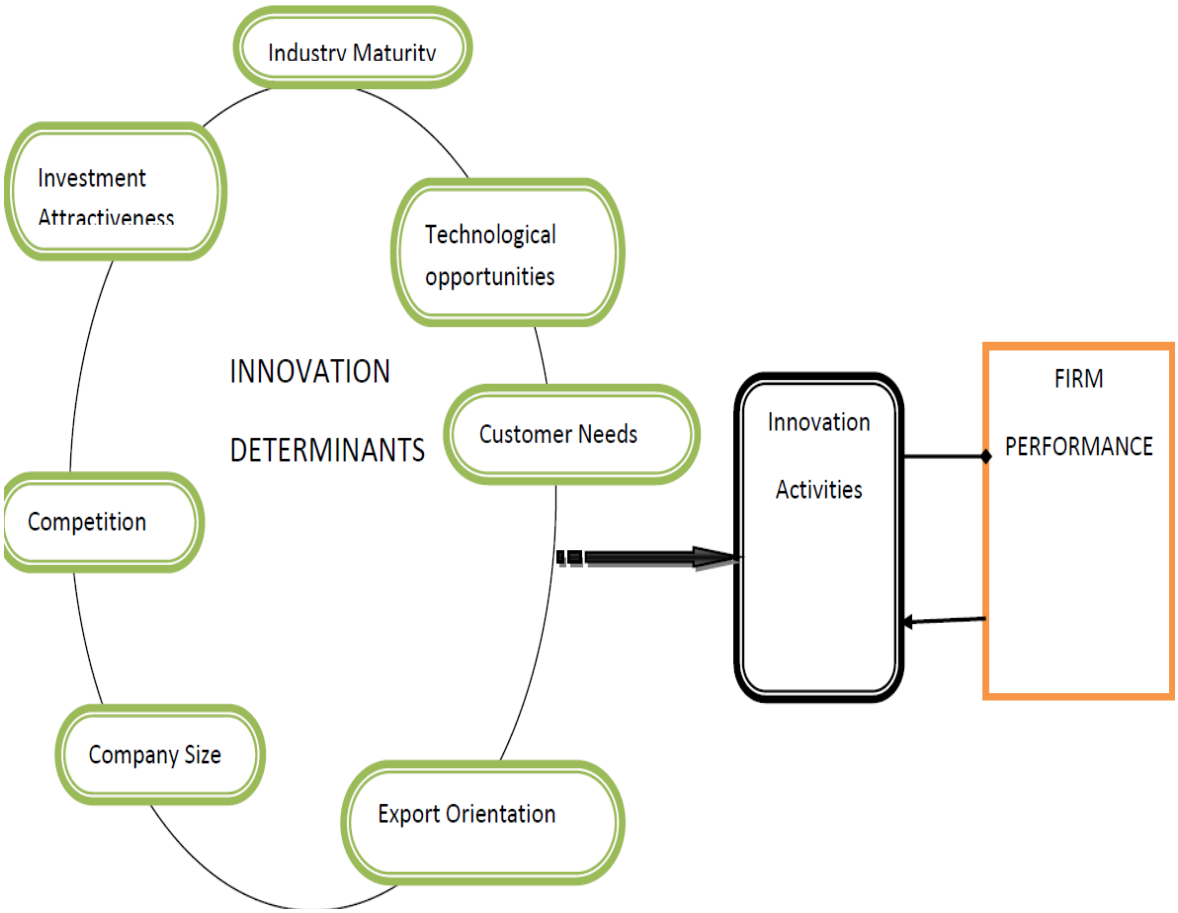
Initiatives taken by SMEs have enjoyed benefits and faced challenges as well. As such, there was an urgent need for the government and other stakeholders to create an enabling environment to catalyse prosperity as spelt out in the National Strategy for Growth and Reduction of Poverty (NSGRP) or MKUKUTA as it is known by its Kiswahili acronym, the Tanzania Development Vision 2025 and the Five Year Development Plan—Phase One. Globally, there are many definitions of Small and Medium Enterprises (SMEs). Sometimes, they are called Micro, Small and Medium Enterprises (MSMEs) depending on a given economy and country of origin. Although there is so far no common definition in almost all East African Community countries comprising Kenya, Tanzania, Uganda, Burundi and Rwanda, all these countries use the same characteristics of capital investment, turnover and number of employees to define SMEs.

What has not been in question is the vitality of these SMEs in fostering socio-economic development. In this regard, (Mhando, 2012) points out:

It is well understood that, ensuring the future vitality of the small business sector requires a policy approach that cogently links across a series of front burner issues facing the country. SMEs are the bedrock of the country's economy. They predominate in productive activities and it is thus important to enable them to prosper and expand even more, thus creating the growth and jobs that the economy desperately needs.

In Tanzania, economic reforms have been implemented since the mid-1980s. These reforms entailed shifting from a centrally and administratively managed and public sector-led economy to a market-driven and private sector led economy. Under these changes, financial sector reforms were instituted as part of these broader economic reforms. These financial sector reforms involved decontrolling interest rates, restructuring the existing public sector banks and allowing entry of private banks.

1.1 Conceptual Framework



Innovation activities as independent variable (regressor)

This variable should be present to arrive at the dependent variable. In this regard, the achievement of the objectives of the study depends on how one takes into account this variable. As the current study, this variable is classified as ***"innovation activities".*** It should be reiterated here that several scholars (Damanpour, 1989; Gopalakrishnan, 1998; Wolfe, 1994) have conceptualised innovation has been conceptualised in a variety of ways. To begin with, the concept has been treated as a process, a result, or both. At the end of the day, there are several types of innovation that come up in the literature available. Innovation can also be a form of adopting an idea or conduct, which in the real sense could comprise a system, policy, programme, device, process, product or service considered new by the organisation adopting it.

Performance as a dependent variable (regressant)

This variable serves as primary objective of the study. It relies on the independent variable(s) to be accomplished. In this study, the dependent variable is **"Performance"** identifiable or can be established through models such as business profits, sales, assets, growth and survival. Performance is a growth interest area for both academics and practitioners (Amaratunga, 2002; Marr, 2003; Thorpe, 2004). This concept of performance generally depends on a given context as both the users and the purposes of the information tend to influence its orientation (Lebas, 1995). Generally, performance focuses on previous feats; however, performance can also be treated as the capacity for future successful execution of an action likely to translate

into the achievement of set the objectives and targets (Lebas, 1995). In this study, as already mentioned elsewhere, two variables—profitability and growth of the SMEs—have been used to measure performance, taking into account both the speed and yearly growth at in a three-year period, that is from 2010 to 2014 and a portion of 2015.

Study Methodology

To get the study sample, the researcher used non-probability sampling taking into account the nature of the population under study. In many cases, non-probability sampling is deployed when elements are selected for the sample without considering the mathematical guidelines. This approach is mainly applied in qualitative studies. Generally, researchers tend to assume that they can get a representative sample using their sound judgment, which will ultimately result into "saving time and money" (Black, 2010).

Specifically, in this study snowballing sampling technique was used to come up with the required sample. When using *Snowball sampling***,** a researcher usually begins start with one participant he/she is certain qualifies to serve as a respondent and then let this participant suggest the next or more potential respondents; the next respondents would also do the same until a saturation point has been reached. This process is chain-like or can be taken as a snowball rolling downhill (Hair, 2006). In this study, the researcher did not know specific people dealing with furniture but was generally aware that there were people involved in the sector. The researcher visited the Arusha City and Moshi Municipal Council to locate the sites where these furniture firms were operational. During the discussion with the city and municipal authorities responsible for furniture firms, they admitted that they did not know their location as they following statement illustrates: "*We confess that there are those groups of furniture firms but we don't know exactly their location and their number" (Arusha City and Moshi Municipal authority officer).*

In the absence of a known sampling frame and official records indicating where these firms were located in the two study areas, the researcher opted to use the snowball sampling method because the population of furniture firms tend to be hidden from official view and tend to maintain a low profile. On the other hand, they tend to have strong networks of those working in this industry and also tend to be highly dependent on each other. Indeed, many of them were found to know each other, hence making snowball sampling appropriate. Snowball sampling was also applied appropriate in this study for the following reasons:

(i) Many of them were not officially registered and, hence, have to hide to escape the local authorities.
(ii) Many of these firms did not have valid licences for them to conduct their businesses.
(iii) The majority of the hidden firms tend to use unauthorised materials such as timber from (hard wood) that are not used without permissions from the Ministry of Natural Resources.
(iv) Many of the furniture firms remained hidden in a bid to evade taxation as the proprietors considered the taxes they were expected to pay to be too high and to them paying taxes meant incurring losses in their operations.
(v) Many of these furniture firms remained hidden because there was no official system which recognises them.

DISCUSSION OF FINDINGS

Introduction

This part presents the findings on the determinant of innovation. It begins by defining the term "innovation". To innovate one has to apply knowledge particularly in creative activities. As such, innovation depends on an understanding one has of the resources, tools, technologies, materials, markets, and needs pertaining to the situation at hand. Indeed, furniture firms in the study area cannot innovate without comprehending what constitutes innovation in that industry. As a term, "innovation" can mean differently things, depending on the discipline, trade and even society. With reference to the current study, different furniture dealers were found to have different understanding of what the term "innovation" entails and its application in the furniture sector.

Key Determinants of Innovation Activities

	STATUS					
Determinants Of Innovation:	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	Total (%)
IM	3.0	9.0	3.1	44.1	40.8	100
IA	5.5	8.2	30.4	27.4	28.5	100
CO	3.0	10.0	16.8	30.2	40.0	100
CS	3.8	4.7	27.4	30.4	33.7	100
EO	5.8	2.5	14.0	12.1	65.6	100
CN	3.3	2.4	3.8	45.8	44.7	100
TO	3.0	2.7	3.1	30.7	60.5	100

Note: IM – Industrial Maturity; IA – Investment Attractiveness; CO – Cmpetition; CS – Company Size; EO – Export Orientation; CN – Customer Need, and TO – Technological Opportunity

The study in a table above indicates some of the determinants/factors behind innovations were identified by the respondents. The two last rows of the table labelled **Agree** and **Highly agree** show that almost all the determinants were accepted by the respondents at different levels of sensitivity as represented in percentages. **Export orientation** (65.8%) and to **Adopt new technology** (60.5%) were the most highly rated key determinants of innovation. **Industrial Maturity** (40.8%) was indicated to be one of the strongest factors that can potentially lead to innovation for those entering the furniture industry. Furniture firm owners need to be innovative to capture the market and have a competitive edge in addition to staying afloat financially in business. On the other hand, some of the respondents (47%) also pointed out the need for **Competition** as one of the reasons/factor which is also believed to stimulate innovation in the business. Furthermore, 44.7 percent indicated meeting **Customer needs** as another factor behind innovation in the furniture industry.

There was also a need to innovate to be differentiated from others operating in that sector as well as the need to have unique products in the market place. Some 33 percent of the

respondents indicated that, the company size of the furniture firms stimulated innovation of the products to become unique in terms of products and services they provided to the customers. Similarly, the Tanzania government was advised to create an enabling environment—**"Investment Attractiveness"**—that would enable SMEs to invest in the furniture industry and, hence, boost economic growth at both the personal to the national level. This factor was indicated by 28.5 percent of the respondents.

Many respondents understand what constitutes innovation and what innovation does to help them perform well in their respective business in the furniture industry. They reported that without innovation, they would fail to survive in the competitive market they operate in. In this regard, the results show that two-thirds of the firms in the furniture sector under review were involved in developing new products or services. The respondents were asked questions about the newness of their products in a bid to get a real picture of the innovative character of these products and services. Because of stiff competition in the furniture firm, breakthroughs in new technology, customer orientation, increase of new firms, innovation was found to be one of the factors that helped these SMEs in the furniture business to compete with their competitors and overcome the constraints that could otherwise have impeded their trade. The firms in the study sample undertook diverse innovative activities. Most frequently, they mentioned making improvements of the current furniture products or services in addition to improving their own furniture production processes as innovative activities. Evidence from the innovative activities they were engaged in suggests that there is a positive relationship between innovation and performance. It appears that innovative firms, whether out-put oriented, all round or process-oriented, tend to register better performances when it comes to turnover growth, employment growth and profit improvement than those that shy away from innovation.

The determinants/factors that the respondents identified to be behind innovation were various. In chapter four, Table 8 (Key Determinants of Innovation), the last two rows of the table labelled **Agree** and **Highly agree** show that almost all the determinants were accepted by the respondents at different levels of sensitivity as represented in percentages. **Export orientation** (65.8%) and to **Adopt new technology** (60.5%) were indicated to be the most prevalent key determinants of innovation. The table also presents a group of determinants whoe scores are more or less similar in range. For example, 40.8 percent of the respondents see **Industrial Maturity** as one of the strongest factors that can translate into innovation as a large number of people entering the furniture industry require such maturity before becoming innovative enough to survive both the competition and stay afloat. Inevitably, furniture firm owners need to be innovative to capture the not only the market but also to stay ahead of their competition. On the other hand, some of the respondents (47%) also identified **Competition** as one of the reasons/factors which stimulates innovation in the business. Other determinants of innovation that the respondents mentioned included **Customer needs,** which was cited by about 44.7 percent of the respondents. What the study established in this regard is that there is a need to innovate for the firms to be differentiated from others operating in the furniture industry or for them to have unique products in the market, which can accord them a competitive edge.

Other respondents (33.5%) indicated that, company size or furniture firms can also stimulate innovation of the products and, hence, make the furniture firm in question unique in terms of the products and services it delivers to the customers. Another 28.5 percent of the respondents wanted the Tanzania government to create an enabling environment to achieve what can be dubbed as **"Investment Attractiveness"** for SMEs to invest and, hence, attain

economic growth at both the personal level for the SME owners and operators to the national level advances in this sub-sector can also impact on the wider national economy.

Apart from the data that the respondents provided, it was observed that innovation can help to reduce expenses by producing beautiful and durable products using the existing raw materials and, more specifically, the unwanted materials that can be recycled and re-used to produce interesting products that are attractive to both local customers and tourists, who tend to go for exotic natural products. In other words, innovation helps to generate higher profits once buyable goods are produced for the consumers and placed on the market.

Further formation was collected from furniture firms owners. During in-depth interviews, the furniture firms' owners also indicated the need for innovation. The following statements capture and reflect their views on this dimension:

Innovation is required so as to capture or obtain the market; innovation aids in differentiating products from others; innovation leads to increase in product quality; innovation is important as it enables furniture firms to win over the competition; and innovation is needed for firms to adopt new technology (IDI with owners of firm in Moshi municipality).

I wish our local firms to increase innovation as they will capture the market and attract customers and eventually this may lead to their becoming exporters of furniture. I think innovation may help them to compete with price fluctuations and stabilise their market if they work as a team and collaboratively (IDI customer from Arusha City).

Other factors that influence innovative capacity

The respondents in the furniture firms were also asked to indicate other factors/determinants that influence innovation. The findings are as follows:

Co-operation

With regard to co-operation in the context of innovation, 94 percent of the respondents indicated that co-operation was vital whereas a small minority (5.6%) indicated otherwise. Co-operation is generally a vital aspect for firms that embrace innovation as core to their development and expansion. The study considered respondents in the furniture industry to establish whether co-operation among workers and owners within firms was considered to be of importance and whether it was practice that was in existence. The implication is that co-operation boosts innovation and enhances performance.

External networking

When it comes to the issue of external networking as one of the indicators of innovation, 62.7 percent of the respondents indicated that external networking was important whereas 36.7 percent of the respondents said that external networking was not important as it was not easy for firms dealing in production of similar goods to co-operate; instead they competed for markets, raw materials, customers and other implements. On the other hand, 0.6 percent of the respondents were not sure about the importance of networking. Generally, external networking involves co-operation between or among firms. This networking allows firms to share ideas as they belong to one industry and deal with the same market. Further information on external networking emerged during the in-depth interviews with the key informants thusly:

There are many factors that influence us to innovate. External factors such as technology and competitors have pushed us to innovate. Also, the customers in one way influence us to innovate. Then there are constraints that we face in the firm that push us to innovate to solve them. For example, price fluctuation has been one of constraints in my firm as prices of materials fluctuate so much and, thus, force us to increase the price of the products but increasing the price does not make us capture the market immediately. Introducing or adopting innovation, producing attractive products, on the other hand, has proven to increase our market share and ease our problems. There are many constraints that innovation has helped us to solve (IDI with owner of firm in Arusha City).

Owners' knowledge, skills/competencies

Knowledge is one of the most significant aspects in the furniture sector. The rationale behind this view is that innovation is not easy when one is dealing with something that one is not familiar with or aware of in the first place. After all, one has to understand something to innovate something. Thus it was pertinent to study this aspect from the perspective of the respondents. The findings have been presented in Figure below:

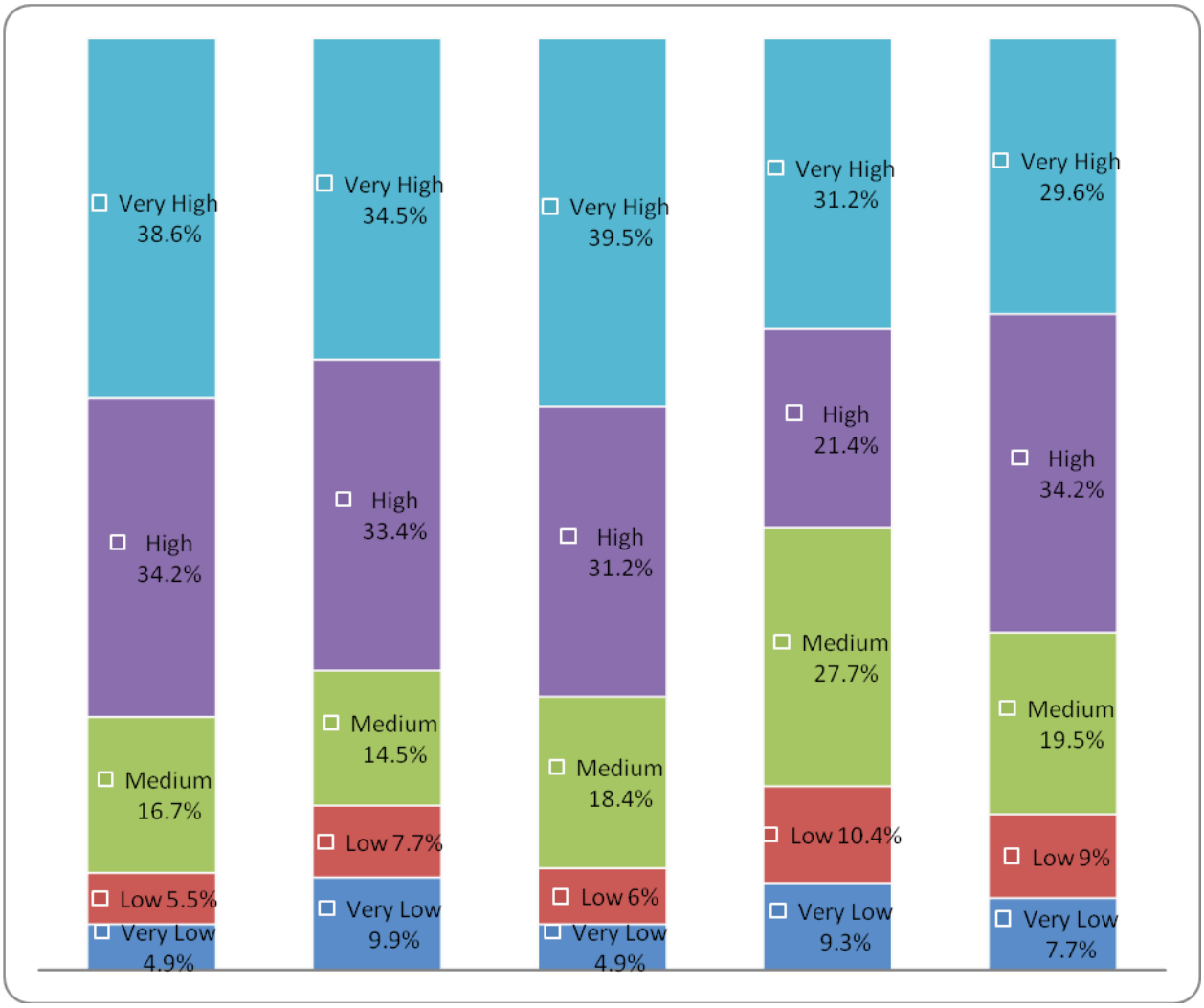


Figure: Owners'knowledge, skills/competencies

According to the data presented in Figure above, some 38.6 percent, 34.5 percent, 39.5 percent, 31.2 percent and 29.6 percent of the respondents, respectively, had a very high knowledge on the products they produce as well as those of their competitors, their

costomers, the challenges they face and the technology opportunities/challenges, respectively. On the other hand, it was reported that there was quite few number of furniture firm owners who had very low knowledge on the products they produce, their competitors, the customers, the challenges they face and the attendant technology.

Table: Analysis of variance - ANOVA

ANALYSIS OF VARIANCE **(ANOVA)**

	Sum of Square	Mean Squares	F
Model 1: Dependent Variable: Growth of Business by increasing Capital			
Regression	54.67	9.11	8.0**
Residual	407.74	1.14	
Total	462.42		
Model 2: Dependent Variable: Business Net Profit			
Regression	146.27	24.38	33.39**
Residual	261.35	0.73	
Total	407.62		
Model 3: Dependent Variable: Business growth in terms of new projects/branches (Assets)			
Regression	67.52	11.25	9.65**
Residual	417.70	1.18	
Total	485.22		
Model 4: Dependent Variable: Increase of Sales over 5 years from 2010 - 2015			
Regression	324.79	54.13	148.83**
Residual	130.21	0.36	
Total	455.0		
Model 5: Dependent Variable: Increase in Customer base			
Regression	47.39	7.90	10.15**
Residual	278.47	0.78	
Total	325.85		
Model 6: Dependent Variable: Market Share			
Regression	205.52	34.25	34.47**
Residual	355.80	0.994	
Total	561.33		

** Indicate significance of the value ($p < 0.001$)

Six models were formulated to define performance (see table abave). Model 1 $\left(R^2 Adj = 0.12, F(357,6) = 8.0, p < 0.001\right)$, Model3 $\left(R^2 Adj = 0.13, F(357,6) = 9.60, p < 0.001\right)$, and Model 5

$\left(R^2 Adj = 0.15, F(357,6) = 10.15, p < 0.001\right)$ suggest a weak contribution to the models and, hence, support that "Performance" cannot be defined in terms of Growth of business by increasing capital, Business growth in terms of new projects/Branches and increase in customer base. But the findings were different in models 2 and 6: $\left(R^2 Adj = 0.36, F(357,6) = 33.39, p < 0.001\right)$ and $\left(R^2 Adj = 0.37, F(357,6) = 34.47, p < 0.001\right)$ respectively, where the relationships and contributions of the predictor variables became strong. Model 4, on the other hand, $\left(R^2 Adj = 0.72, F(357,6) = 148.83, p < 0.001\right)$ indicates that the effect/contribution of the predictor variables became very strong, suggesting that "Performance" was highly noticeable following the increase in sales volume in the five-year period (2010 - 2015) under review.

Correlation Analysis, Reliability and Validity
Table: Correlation Coefficients (r) and levels of strength

	M1	M2	M3	M4	M5	M6
Correlation Coefficient (r)	0.34	0.599	0.373	0.845	0.382	0.607
Level Of Strength	Weak	Moderate	Weak	Very Strong	Weak	Strong

Table 13 indicates the strength of relationships between dependent and independent variables (where M1, M2, M3, M4, M5 and M6 are representation of models 1, 2, 3, 4, 5 and 6, respectively). It shows that, in M1 there is a very strong relationship between an increase in sales volume or revenue within a five-year time interval (2010 - 2015) and predictor variables such as Mixing of Wood and Metal (WM), Same products but different outlook (SPD), Introducing New furniture using new Material (INM), New Technology (NT), Engaging in all Furniture (EF), and Site Work (SW), which is r = 0.845. This outcome is also supported by the adjusted R-square = 70.9%, which justifies the variations explained by the predictors to the dependent variable (Increase in sales).

A similar observation is observable in M2 and M6. In other words, there is a strong relationship between Market share and predictor variables such as Mixing of Wood and Metal (WM), Same products but different outlook (SPD), Introducing New furniture using new Material (INM), New Technology (NT), Engaging in all Furniture (EF), and Site Work (SW) which is r = 0.607. This result is also supported by the adjusted R-square of 36% and 37%, respectively, which justify the variations the predictors explain of the dependent variable (Market Share).

In M1, M3 and M5, therefore, the existing relationship strength is weak with their adjusted R-square of 12%, 14% and 15%, respectively. This observation implies that the chosen

predictor variables are not determinants of their respective dependent variables and, hence, some adjustments are recommended in further studies.

DISCUSSION

Many respondents understand what constitutes innovation and what innovation does to help them perform well in their respective business in the furniture industry. They reported that without innovation, they would fail to survive in the competitive market they operate in. In this regard, the results show that two-thirds of the firms in the furniture sector under review were involved in developing new products or services. The respondents were asked questions about the newness of their products in a bid to get a real picture of the innovative character of these products and services. Because of stiff competition in the furniture firm, breakthroughs in new technology, customer orientation, increase of new firms, innovation was found to be one of the factors that helped these SMEs in the furniture business to compete with their competitors and overcome the constraints that could otherwise have impeded their trade. The firms in the study sample undertook diverse innovative activities. Most frequently, they mentioned making improvements of the current furniture products or services in addition to improving their own furniture production processes as innovative activities. Evidence from the innovative activities they were engaged in suggests that there is a positive relationship between innovation and performance. It appears that innovative firms, whether out-put oriented, all round or process-oriented, tend to register better performances when it comes to turnover growth, employment growth and profit improvement than those that shy away from innovation.

The determinants/factors that the respondents identified to be behind innovation were various. In findings, the Table (Key Determinants of Innovation), the last two rows of the table labelled **Agree** and **Highly agree** show that almost all the determinants were accepted by the respondents at different levels of sensitivity as represented in percentages. **Export orientation** (65.8%) and to **Adopt new technology** (60.5%) were indicated to be the most prevalent key determinants of innovation. The table also presents a group of determinants whoe scores are more or less similar in range. For example, 40.8 percent of the respondents see **Industrial Maturity** as one of the strongest factors that can translate into innovation as a large number of people entering the furniture industry require such maturity before becoming innovative enough to survive both the competition and stay afloat. Inevitably, furniture firm owners need to be innovative to capture the not only the market but also to stay ahead of their competition. On the other hand, some of the respondents (47%) also identified **Competition** as one of the reasons/factors which stimulates innovation in the business. Other determinants of innovation that the respondents mentioned included **Customer needs,** which was cited by about 44.7 percent of the respondents. What the study established in this regard is that there is a need to innovate for the firms to be differentiated from others operating in the furniture industry or for them to have unique products in the market, which can accord them a competitive edge.

Other respondents (33.5%) indicated that, company size or furniture firms can also stimulate innovation of the products and, hence, make the furniture firm in question unique in terms of the products and services it delivers to the customers. Another 28.5 percent of the respondents wanted the Tanzania government to create an enabling environment to achieve what can be dubbed as **"Investment Attractiveness"** for SMEs to invest and, hence, attain economic growth at both the personal level for the SME owners and operators to the national level advances in this sub-sector can also impact on the wider national economy.

Apart from the data that the respondents provided, it was observed that the furniture firms in the two study areas had ample evidence to support their claims of being innovative. Evidence reveal how innovation can help to reduce expenses by producing beautiful and durable products using the existing raw materials and, more specifically, the unwanted materials that can be recycled and re-used to produce interesting products that are attractive to both local customers and tourists, who tend to go for exotic natural products. In other words, innovation helps to generate higher profits once buyable goods are produced for the consumers and placed on the market.

A chair made of waste-wood to reduce waste materials via innovation

Flowers' vase made from a trunk of a tree capped with innovative decorations for home/hotel/lodge settings

CONCLUSION

SMEs make a greater contribution in the country's economy by creating jobs for the teeming army of youth, increasing self-employment, employing unskilled labour, realising better human well-being, and thus decrease unemployment problem. This PhD study has managed to come up with several key determinants of innovation, which are thought to drive the innovative side. In fact, the study found that almost all determinants are being accepted by the respondents at different levels of sensitivity. **Export orientation** and to **Adopt new technology** accounted for the most cases of innovation at 65.8% and 60.5%, respectively. Other determinants as **Industrial Maturity** (with 40.8%) were also see as among of strongest

factors leading to innovation considering that a number of people enter the furniture industry and need to gain industrial maturity. In this regard, furniture firm owners need to be innovative to capture the market. On the other hand, some of the respondents (47%) also identified **Competition** as one of the reasons/factor than can stimulate innovation. The study also found other determinants such as **Customer needs** identified by about 44.7% of the respondents as valuable. Firms have to innovate to stand heads and shoulders above with others by providing unique products in the market. Other respondents (33.5%) indicated that, company size or furniture firms may stimulate innovation of the products and, hence, become unique in terms of the products and services they provided to their clients. Similarly, the Tanzania Government ought to create an enabling environment that would ensure **"Investment Attractiveness"** for SMEs to invest and innovate. Once this comes into being, the furniture firms could contribute to economic growth at both the personal and national level. In all, 28.5 percent of the respondents shared this view.

These findings are not unusual. They are in contention with the findings of previous studies. For instance, (Jegede, 2012) found that the technological factors that accounted for the innovation performance included the educational qualifications, training and prior work experience of the heads of technical department, number of R&D staff and training, innovation and, R&D investmement. According to them Also (Abereijo, 2007) find that innovative abilities was significantly related to some internal and external factors which include higher academic degree, education in science or engineering, relavant working experience in large corporation/multinationals and univesity/research institute of the founder/manager, the extent of investment in the reseach and development, and on employees training, and exposure to research institutes. Besides, the study conducted by (Suresh, 2009) reveals that firm size, owner ability, personality traits and ethinicity were found to have a stronger positive effect on process and organizational innovations. Moreso, the findings are consistent with (Haruna, 2013) that established that there was a significant relationship between company charactaristics such as educational profile of staff and owners, and some indicators of innovation. The study concludes that the extent of investment in the R&D, government support, and access to foreign inputs are crucial factors in innovation activities of the Tanzanian SMEs in furniture industry.

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