CHALLENGES FACED BY TECHNICAL-SKILL-BASED SMEIS IN DEVELOPING ECONOMIES: INSIGHTS FROM SOUTH-SOUTH NIGERIA

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ABSTRACT

The purpose of this paper was to identify the challenges of technical-skill-based small- and medium-sized entrepreneurs and industrialists (TS-SMEIs) in the South-South region of Nigeria. Adopting a mixed methodology, one hundred ninety-eight TS-SMEIs were surveyed. Over thirty focus group discussions consisting of craftsmen and artisan grouped were held. Like in other climes, SMEIs in South-South Nigeria are beset with many challenges including: inadequate institutional support, poor infrastructure, limited access to finance, low level of technology adoption, and insufficient innovation. However, contrary to previously held positions, TS-SMEIs listed lack of workspace as the most important impediment to their business success. Expanding technopreneurship ecosystem in South-South Nigeria will mean addressing many problems that current and potential TS-SMEIs face. We recommend the: provision of access to affordable financial services; building the technological infrastructure; supporting the entrepreneurial process; and building capacity of the TS-SMEIs. Lastly, this study provides an opportunity to gain insight directly from the voice of the TS-SMEIs in South-South Nigeria themselves, to understand better their needs, and make relevant recommendations for improvements. It is envisaged that this will lead to technology driven development of the region.

Keywords: *technical skills; technological entrepreneurship; SMEs; technological innovations; Nigeria*

1. INTRODUCTION

In Nigeria, development is still largely neither broad-based nor inclusive, with widespread in-equalities. Nigeria is host to about 7% of the world's poorest people (The World Bank, 2014). The South-South region of Nigeria, also called the Niger Delta, the focus of this study accounts for 25% of Nigeria's population according to the official 2006 Census figures of Nigeria. In contrast to the massive oil and gas wealth the region contributes to the nation's economy, it is largely rural with over 75% of people living in small towns and villages

(Bubou and Egai, 2012). It remains one of the poorest regions in the country. The situation is such that, during the World Association for Small Medium Enterprises Conference in 2014, Mrs. Arunma Oteh, the Director-General of the Securities Exchange Commission of Nigeria (DG-SEC) publicly expressed her unhappiness at the endemic nature of poverty and unemployment in the Niger Delta in particular, and Nigeria in general (Daily Independent, 2014).

On a positive note, OECD/The European Commission (2013) maintains that entrepreneurship has become an important requirement for achieving sustainable and inclusive growth in Europe (not only in Europe, but elsewhere as well). Arguably, it is in entrepreneurship, especially small- and medium-sized enterprises (SMEs) that lay the solution to problems of inclusiveness and sustainable development. For instance, Brixiová et al. (2014) viewed entrepreneurship as an option for generating sustainable livelihoods and thus maintained that private sector development, including youth entrepreneurship, can be part of the solutions. The reasons are far-fetched. They provide immediate large-scale employment, ensure more equitable distribution of income, encourage decentralization of industries and eradicate poverty and unemployment in an economy (Duru and Ogbe, 2013), and foster economic welfare (Kroon, 2000). SMEs are fundamental part of the economic fabric, particularly in developing countries, playing a crucial role in furthering growth, innovation and prosperity (Dahlberg, 2011). Similarly, much evidence suggests technological entrepreneurship (technopreneurship) and innovation are the twin pillars of socioeconomic development in this modern era (Bubou and Okrigwe, 2011). Hence, the importance of supporting entrepreneurship (especially technopreneurship) for wider economic and societal benefit has been widely acknowledged (Dewick and Hernandez, 2014). This has further necessitated relevant policy reforms and responses in many countries (Okwu et al., 2013a).

Like in many other regions, there are policy, financial, institutional and structural obstacles that are faced by both start-ups and active technical-skill-based (TS) small and medium-sized industries (SMEIs) (TS-SMEIs) in the region under discussion. SMEIs are mostly referred to as small scale industries. Extensive research has been carried out on challenges faced by SMEs, especially the role of finance (Dahlberg, 2011; Ajayi and Jegede, 2014; Bakare, 2014; Tachibana, 2014; Wang, 2014). However, However, very little research is based on developing economies as a whole (Wang, 2014) and it is rare to find works on TS-SMEIs, more so, from the context of a marginalized region in a developing economy, such as Nigeria. Thus, this study intends to serve as a vehicle whereby government, industry, development partners, and individual stakeholders can assess the challenges and issues distinctive to TS-SMEIs in South-South Nigeria.

Sjoer and Goossens (2014) in their paper posed the question: 'what problems do these entrepreneurs encounter while becoming sustainable tehno-entrepreneurs and how do we educate them and facilitate their emergence?' Wang (2014) also asked a similar question: "What are the biggest obstacles to the growth of SMEs in developing countries? These questions remain relevant as at when the main research study explicated here was undertaken, as it is today. Our own question thus is: what are the challenges facing TS-SMEIs in a developing country region like Nigeria and how do we tackle those challenges to make them sustainable? In this paper, we attempt to provide answer by exploring the most frequent obstacles faced by the TS-SMEIs in the region and suggested strategies aimed at eliminating barriers to sustainable technopreneurship in Nigeria.

In the subsequent section, we review the theoretical and empirical underpinnings of entrepreneurship, technology-based entrepreneurship, the role of SMEs in economic development, and the obstacles faced by technology-based SMEIs in general and Nigeria in particular. Next, we discuss the methods and materials. Section 4 presents the results, analysis and discussion of findings. Lastly, we conclude with some recommendations.

2. THEORETICAL AND EMPIRICAL UNDERPINNINGS

2.1. Entrepreneurship

Henrekson (2007) enthused: entrepreneurship is an elusive concept that is both analytically intractable and hard to measure. Therefore, getting a grasp both of the concept and practice of entrepreneurship is difficult and has been made more problematic by the many contrasting perspectives of definers and commentators involved with entrepreneurship (Adebayo and Atunwa, 2013). Indeed, there is no generic definition of the concept of entrepreneurship (Adebayo and Atunwa, 2013; Gray, 2002). It thus assumes several definitions in literature. Nevertheless, we will look at a few definitions of entrepreneurship and the entrepreneur. We will start with one of definitions that have been frequently cited in literature, that of Shane and Venkataraman (2000). The pair defined entrepreneurship as a process involving: the discovery, evaluation, and exploitation of opportunities to introduce new products, services, processes, ways of organizing, or markets. They considered entrepreneurship as field of study that undertakes a scholarly examination of how, by whom, and with what effects the above activities are undertaken. Shane and his co-author added that, entrepreneurship does not necessarily require, albeit may include, the creation of new organizations.

Closely following the above is definition by Emery, Zuiches and Flora (2006) who sees entrepreneurship as a process in which entrepreneurs create and grow enterprises to provide new services or products, or adds value to services products. Likewise, Bubou and Egai (2012) referred to entrepreneurship as the process of using private initiative to transform a business concept into a new venture or to grow and diversify an existing venture or enterprise with high growth potential. They maintain that it is also a form of self-employment through business ownership that includes significant elements of risk, control and reward.

In the eyes of Steyn et al. (2013) entrepreneurship transcends different layers or strata – it could be high-end, involving higher levels techno-economic activities defined by creativity, innovativeness in products, services, processes and organizational systems. They maintain this level of entrepreneurialism is possessed by few individuals, typically constituting a minority of a population, though they have a significant impact on large-scale economies, such as national or large geographical regions (the USA, European Community, Japan, Hong Kong and Taiwan).

Somewhere in-between, the entrepreneur is the main actor in the entrepreneurial process. S/he undertakes the activities highlighted in entrepreneurship. S/he hires other factors of production in the market and remains the main or sole residual claimants to the excess value created through the new combination of resources (Henrekson, 2007). The entrepreneur identifies an innovation to seize an opportunity, mobilizes money and management skills, and takes calculated risks to open markets for new products, processes, and services (UNDP 2003). Entrepreneurs are agents who bring about economic change by combining their own effort with other factors of production in search of economic rents (Henrekson, 2007). Tachibana et al. (2014), in their study defined an 'entrepreneur' as an individual; who has established a private manufacturing business; currently owns (or co-owns) and manages (or jointly manages) that manufacturing business; and employs several wage workers other than family members in that manufacturing business. This definition of the entrepreneur is in sync with the explanation of entrepreneurship by Bubou and Egai (2012) who maintain that it includes some forms self-employment.

In citing Woo and others, Jones-Evans (1995) noted that entrepreneurs are not homogenous, but come from diverse backgrounds, exhibiting different management styles, and are motivated by different factors. Yet, to describe each possible combination of these characteristics would be cumbersome and impractical. He went further to note that, with increasing evidence of the relative failure of behavior-based models as indicators of entrepreneurial behavior, the use of typologies as means of examining different types of entrepreneurs has

gained increasing favor in entrepreneurship research. Thus, Davidsson (1988 as cited by Jones-Evans, 1995) concluded that a useful typology of entrepreneurs has a potential of high theoretical- and therefore also practical-value. Consequently, entrepreneurship typologies have become emergent, assuming various names, in some cases, it depends on nature of business, size and scope, or the background or professional calling of the entrepreneurs. For example, entrepreneurship types in literature include, though not limited to: academic entrepreneurship, social entrepreneur, technological entrepreneurship, technical entrepreneur (Jones-Evans, 1995), craft-preneurship, public entrepreneurship, international entrepreneur, global entrepreneur, family entrepreneurship, rural entrepreneurship, internet entrepreneurs, cooperative entrepreneurship, women entrepreneurship, agripreneurs, (e)-entrepreneurship, engineering entrepreneurship, edupreneurs, green micro-entrepreneurs, indigenous entrepreneurs, necessity entrepreneurship, pastor-preneurs, intrapreneur, SMEs, SMEIs. This list is endless and evolving continuously. However, we will briefly discuss only technological entrepreneurship and technical-skill-based entrepreneurship.

Technological entrepreneurship: Technology plays a major role in introducing new products into the market in some streams of businesses; in such cases, new technological innovation or product is commercialized (Afolabi et al., 2013). In fact, technopreneurship probes the relationship between entrepreneurship and technological innovation, and examines how entrepreneurs explore and exploit organizational resources and technological systems by crafting strategies to pursue opportunities in a process of technology development Shane and Venkataraman (2000 as cited by Lui et al., 2005). Similarly, Jones-Evans (1995), referred to technopreneurs as technical entrepreneurs, and defined them as the founder and current owner-manager of a technology-based business, i.e. primarily responsible for its planning and establishment, and currently having some management control of the organization.

Technical-skill-based SMEs: According to Brixiová et al. (2014), researchers as well as practitioners alike have argued the existence of a link between human capital, skills in self-employment and productive entrepreneurship. Adebayo and Atunwa (2013) defined craft entrepreneur as a person who exploits and utilizes her/his personal skills without expanding the business, and attempt to make a living by privately selling their trade or the products they produced. In this paper, we refer to TS-SMEIs as technical-skilled based small businesses undertaking by skilled craftsmen and artisans. We equally support the line of thinking of Jones-Evans, as we align our definition of technical-skill-based SMEIs to include such craftsmen and artisans as owner-managers of their technical-skill-based enterprises. Adebayo and Atunwa (2013) further

distinguished craftsmen entrepreneurs whose expertise is based on traditional skills and those whose expertise is in scientific or highly technological. Equally, we narrow of definition by avoiding referring to them as technopreneurs, because, even though, they are technology-based entrepreneurs in some ways, they seem to operate more in low-tech industries and are not seen to be undertaking any R&D activities.

According to Schwalje (2011), the major corollary of skill-biased technological change is: technology-skill complementarities theorizes that pairing skilled workers with capital has productivity enhancing effects that could contribute towards development. Interestingly too, the skill that is more proximal to venture creation process according to Abdullah (2002) is technical skill as it encompasses specific domains of business and commercial knowledge, including traditional functional areas. Thus, for the purposes of this study, certain technical skill sets linked to some technical-skill-based SMEIs were highlighted and investigated. They include those shown in Table 1.

Table 1. Technical skills

Vocation/Trade/Skills	
Metal Works/Welding/Fabrication	Masonry
Auto-Mechanics	Vulcanizing
Woodwork & Joinery/Upholstery	Painting
Air Conditioning & Refrigeration	Boat & Ship Building Technology
Plumbing/Fitting	Ceramic Technology
Scaffolding & Rigging	Foundry
Electrical Works	Horticulture & Landscaping
Fitting & Machining	etc

Source: Research data (2013).

2.2. Conceptualizing small businesses

Another term for SMEs is MSMEs (country (Elmansori and Arthur, 2013). The added that the definition of SMEs varies by country. SMEs also widely referred to include a wide range of businesses which differ in their dynamism, technical advancement and risk attitude; many of whom are relatively stable in their technology; market and scale; and yet, others are more technically advanced, filling crucial product or service niches (Dahlberg, 2011). SMEs equally differ from larger companies by personalized management with little devolution of authority (Saunila, 2016). However, the conceptualization of small businesses seems to be context dependent. For example, the classification of businesses differs across regions, national boundaries and international organizations (Adeola-Omole, 2013). No unified definition of SME exists; rather the definition depends on the nature of industry/industrial capacity (Oduntan, 2014) or level

of development of the country the country (Adelaja, 2002; Oduntan, 2014). It also depends on the authority proffering the definition and the basis for the definition (Okowa, 2008). Adelaja stated that in most developed market economies like the US, UK and Canada the definition criterion adopted a mixture of annual turn-over and employment levels. Likewise, Kotelnikov (2007) added that, the technical definition varies from country to country in the Asia-Pacific region but is usually based on employment, assets, or a combination of the two. He maintained that, in some countries, the definitions are even sector-dependent.

Adebayo and Atunwa (2013) referred to the small business owner as an entrepreneur who takes responsibility for owing and running her/his own venture. And that the business may be small for one of two reasons: either that the owner may wish to limit its size because it is still in its early stages of growth or because of the limited capital. But here, we adopt Adelaja (2002) and Okowa (2008) presentations of SMEs in the Nigerian context. The Small and Medium Industries Enterprises Investment Scheme (SMIEIS) defines SME as any enterprises with a maximum asset based of N200 million excluding land and working capital and with a number of staffs employed not less than 10 or more than 300 (Adelaja, 2002). Some classifications of Micro- Small and Medium-Sized Entrepreneurs (MSMEs) are provided in Table 2.

Table 2. Classifications of SMEs

Employment – Based Classification (Number of employees)			
Organization	Micro-Enterprise	Small Enterprise	Medium Enterprise
IFC	< 10	10 – 50	50 - 100
EC	<10	<50	250
CBN	-	< 50	< 100
NASSI		< 40	-
NASME	10	50	100
Accenture	-	< 50	< 500
Asset – Based (Excluding Real Estate) Classification			
IFC	-	< USD 2.5M	< =N=150.0M
EC	≤ €2M	≤ €10M	≤ €50M
CBN	< N1M	< N40M	< N150M
NASSI	-	< N50M	< N200M
NASME	< N1M	< N50M	< N150M
FMI	-	< N50M	< N200M
NERFUND		< N10M	

CBN: Central Bank of Nigeria; EC: European Commission; IFC: International Finance Corporation; FMI: Federal Ministry of Industry; NASME: National Association of Small Enterprises; NASSI: National Association of Small-Scale Industries; NERFUND: National Economic Reconstruction Fund. Source: Adapted from (Adelaja, 2002; Adeola-Omole, 2013; Okowa, 2008)

2.3. SMEIs and economic growth

Henrekson (2007) maintains that entrepreneurship is about individuals and organizations – whether they are new, old, large or small – that actively contribute to renewal and change in the economy. There is ample evidence revealing the significant role entrepreneurship plays in the growth and transition of economies (Dewick and Hernandez, 2014), as entrepreneurs find and grow new business (Tachibana, 2014). Citing McMillan & Woodruff's work, Tachibana continued that entrepreneurs were far more important in developing economies and those in transition than industrialized ones because they introduce the market system itself into their countries. This is more so when SMEs reduce unemployment and rather create new employment opportunities the people (Canbulut and Hícusenmez, 2009).

From a globalized perspective, the SME sector is seen to be serving as the backbone of the economy in high-income countries, the sector is less developed in low-income countries (Dahlberg, 2011). Dahlberg refers to an Organisation for Economic Co-operation and Development (OECD) reports which claims that more than 95% of enterprises in the OECD area are MSMEs. The same report mentions MSMEs as accounting for almost 60% of private sector employment, making large contribution to innovation, as well as supporting regional development and social cohesion. Elsewhere, MSMEs are said to account for 98% of employment creation and growth in Indonesia, while they also contribute 81% and 78% to the economies of Japan and Thailand respectively Gono (2006). This shows that, MSMEs are the main institutions of all economies and the key source of economic growth, dynamism and flexibility in both industrialized countries as well as in developing and emerging economies (Canbulut and Hícusenmez, 2009). The author claimed that in an emerging economy such as Turkey, SMEs accounts for almost 99.8% and 76.7% of enterprises in the service sector and total employment respectively. According to Wang (2014), a summarized 2003 data from the Chinese National Bureau of Statistics indicated that SMEs accounted for 99.4% of all enterprises in China and contributed to 59% of GDP and 60% of total sales.

Most importantly, according to Jones-Evans (1995) and Elmansori and Arthur (2013) available empirical evidence suggests that small technology-based companies are contributing significantly to both technological innovation and employment in high-technology industries.

2.4. Problems of confronting SMEIs

Despite their vital contributions to national economies, SMEs are confronted with significant obstacles which impede their development (Wang, 2014). In

fact, countless factors constrain entrepreneurship across developing countries (Brixiová et al., 2014). Dahlberg (2011) supported the above assertion by maintaining that SMEs in developing countries face a financing gap that undermines economic prosperity, as nearly half of SMEs in those countries rate access to finance as a major constraint. Wang's (2014) study that explored the World Bank's Enterprise Survey also discovered access to finance as the biggest obstacle to the growth of SMEs in developing countries. Likewise, Canbulut and Hícusenmez's (2009) and Elmansori and Arthur (2013) study in the Turkish and Libyan economies respectively identified finance as the biggest challenge faced by SMEs in that country.

Although, the situation in developed regions does not seem better, SMEs generally lack capital for start-up and expansion. Thus, empirical studies of mainstream economics have focused on the impacts of credit constraints on entrepreneurship in developed economies (Hurst and Lusardi 2004 as cited by Tachibana, 2014). Nevertheless, the constraints are countless and include: foreign exchange volatility; low purchasing power parity; lack the capacity to conduct research and development needed to commercialize ideas and grow businesses; weak business structures; poorly defined legal and regulatory frameworks; poor marketing channels; difficulties in adapting to environmental changes; insufficient management resources; finance, human resources and technology; and absence of supportive institutional structures (Gono, 2006). Others are: lack of institutional support (Wang, 2014), lack of a qualified work force, high cost of imported technology and R&D, lack of information on market and export opportunities, quality and standardization issues, and dearth of entrepreneurial culture (Canbulut and Hícusenmez, 2009).

The Nigerian case is not different from other emerging and developing countries. For example, despite the hue and cry about SMEs' relevance to Nigeria's sustainable development, The Nigerian case is not different from other emerging and developing countries. Okeke and Eme (2014) described that the Nigerian entrepreneur as one having the initiative to start new ventures, but lacked the skills, tools, and support to succeed. They maintain that SMEs in Nigeria were faced with challenges like – corruption, economic instability, and a lack of infrastructure and management capacity. Likewise, Okwu et al. (2013b) are dismayed with all the various government policies, programs and incentives, notwithstanding, the MSMEs in the country are operating in unfavorable environment. They authors cite the Nigeria's Vision 2020 National Technical Working Group (NTWG) on SMEs Report of 2009 as identifying certain exogenous and endogenous factors that constitute problems to SMEs' performance and relevance that included: inadequate institutional support, poor infrastructure, limited or no access to external finance, weak corporate

governance, poor business partnership culture, low human capital formation, low level of technology adoption, and insufficient innovation.

Equally, recent data from the National Bureau of Statistics and Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) indicate 73.24% of the topmost priority of assistance needed by MSMEs is finance (NEDEP, 2015). Yet, the same data reveals – only a lowly 4.2% of the 17.2 million MSMEs could access loans or overdrafts from financial institutions, with start-ups finding it almost impossible to access funds from banks. However, NEDEP list some of the challenges facing SMEs in Nigeria to include: a) very low access to affordable finance; b) poor access to business development service (BDS); and c) inadequate infrastructure/high cost of doing business. Some other constraints to full industrial capacity utilization in Nigeria according Ajayi and Jegede (2014) include: high costs of funds and equipment; unpredictable and inconsistent government policies; low purchasing power of consumers; low quality of manufactured goods; inefficiencies of customs and ports administration; dumping of cheap finished product on the Nigeria markets; inadequate legal framework and non-patronage of locally produced goods by government and its agencies. Okwu et al., (2013a) claim that because of the above and other debilitating problems, only about 5% of SMEIs in Nigeria are into manufacturing.

3. METHODS AND MATERIALS

3.1. Study method

A mixed methods research approach was employed as we adopted empirical social science research methodologies, such as focus group discussions (FGD), semi-structured interviews (in-depth interview protocol) (IIP) through key informants, as well as qualitative and quantitative surveys, using a structured questionnaire. It was a mixed methodology approach that also included extensive desk review of secondary literature. Mixed methodology was adopted because it will provide a better understanding of the research problem.

We considered the nine Niger Delta states – Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers as our study area. However, three of the nine states – Bayelsa, Delta and Rivers States made up the sample. They serve as case studies. These states were selected based on their peculiarities and geographical contiguity. While the main study included three sets of questionnaires for administration to graduates respondents, non-graduates (technical-skill-based SMEIs), and organizations either providing training or some form of support or even both, for the purposes of this paper, we will concentrate only on the TS-SMEIs.

Adopting a purposive sampling technique, we contacted various trade associations of artisans and craftsmen with different technical-based SMEs from the three selected states for the FGDs. The FGDs involved 408 discussants grouped into 10 clusters of their technical trades. Some of these groups included auto-mechanics and their associated groups, welders, riggers, fitters, metal works and fabricators, grinders associations, electricians, electronics and computer repairers, wood workers and joiners, furniture makers, etc. The IIP protocol had five key informants spread across different strata of the development community. The informants were made up of key experts/ technocrats, former and present serving government personnel and opinion leaders from South-South Nigeria that may be working or may have worked in the area and considered knowledgeable of happenings in the region.

3.2. The instruments

A semi-structured questionnaire made up of three sections was developed for the survey. It was meant to, among other things: evaluate the challenges faced by technical-kill-based SMEIs; find out the institutional support received by the SMEIs; and determine the role of basic and technological infrastructure to a technology-led development in the South-South region. The questionnaire designed to capture data relating to demographic information of the respondents, academic qualifications, type of technical skills possessed by respondents, hence the nature of the business; information relating to the type of support – financial support by way of loans/grants/tax rebate/subsidies, starter packs, training, technical and market informational support, infrastructural facilities that respondents have received; and the challenges they encounter while running their businesses. The research instrument was validated via a pilot test that was conducted in one of the states to test the reliability, clarity of purpose and adequacy of the designed instrument. All questionnaires for were administered face-to-face.

The in-depth interview had nine questions, and five key informants spread across different strata of the development community were interviewed. Among the key informants were a former Minister of Science and Technology, and a serving Member of State House of Assembly who is Chairman of the House Committee on Youth, Conflict Resolution and Employment Generation. Others were a Lecturer who had been an active community development officer in one of the oil majors in the region, and lastly, a one-time representative of one of the oil majors who currently serves as an Overseer on the Board of the Niger Delta Development Commission. A technology-based entrepreneur who was once a craft man but now owns a firm that is consultant to other oil majors and providing training to youths of NDR was also interviewed.

The FGD guide also contained nine questions. In all, 30 focus group discussions were held in the three states.

4. RESULTS AND DISCUSSIONS

4.1. Demographic information

Table 3 shown below provides demographic information about the respondents.

Table 3. Demographic information of respondents

Gender			
		Frequency	Percentage (%)
Male		154	77.8
Valid	Female	37	18.7
	Total	191	96.5
Missing		7	3.5
	Total	198	100.0
Age			
Valid	15-20	9	4.5
	21-25	38	19.2
	26-30	52	26.3
	31-35	44	22.2
	36-40	23	11.6
	41-45	11	5.6
	Above 46	16	8.1
	Total	193	97.5
Missing		5	2.5
Total		198	100.0
Educational level			
Valid	None	8	5.2
	Primary	29	18.8
	Secondary	77	50.0
	Technical College	22	14.3
	HSC-A level	12	7.8
	Total	148	96.1
Missing		6	3.9
Total	154	100.0	

4.2. Survey results

A total of 198 technical-skill-based SMEIs, representing 66 each for the three states were selected for the survey during the main survey that took place from November 2011 to June 2012. When asked to state how important the following

basic infrastructure – power supply, workspace, roads, telecommunications and water supply were to their productivity, 59.8% of the respondent rated power supply as important, 71.3% of them rated workspace as important, 68.3% of respondents rated roads as important to their productivity, 63.3% rated telecommunications as important, while a paltry 16.3% rated water supply as important to their productivity.

On questions relating to institutional support received, 33 respondents, accounting for about 17% said they received some form training from either government, private institutions or by NGOs. Less than 3% of respondents claim they have received financial support by way of grants/ and or starter packs, loans, tax rebate, or subsidies. Only 3 persons claimed they got some support from incubation center. Lastly, about 5% of respondents claimed that they received some positive technical and market information concerning their businesses.

4.3. Focus-group discussions and in-depth interviews

Most of the discussants in all the focus groups agreed that they like their practice but are faced with one challenge or the other. Most of them also stated without hesitation that they are yet to get support from any quarters, whether government, NGOs, or multilateral organizations. Interestingly, contrary to the common believe the finance was the biggest problem of the SMEIs, most of the technical-skilled SMEIs maintains that, their biggest challenge was availability of workspace.

For instance, some of the discussants in both Delta and Rivers States said; *"our occupation is threatened because we do not have places to work anymore".*

In support of the earlier speaker, another auto-mechanic from the Auto-Mechanic group in Delta State remarked thus; *"when we help backfill swampy areas to do our jobs, and once the piece of land we're working in is strong enough, the landlords will evict us to convert the land for building purposes".*

Also, a welder from one of the FGDs in Rivers State decried the absence of work space thus; *"we do not have a place to do our work, like they have a mechanic village in Bayelsa State".*

They found it hard to remain in a particular workshop as they often lose the plots of land to the Landlords or are evicted by local authorities for environmental concerns. The discussant in Delta State said they were to get an industrial area or any Mechanic village where they can easily practice their trade.

The in-depth interviews provided insights for some policy implications. For instance, there was an identified need for a regional innovation system which should endeavour that SMEIs are nurtured and groomed in technology-based enterprises, and give them all the necessary support that will enable

them to compete both locally and globally. To this end, interviewees advocated for the provision of support systems including trainings, financial support, infrastructural facilities, the development and maintenance of technology incubation centres, industrial parks, science parks, mechanic villages.

5. RESULTS AND DISCUSSIONS

Our survey results and focus group discussions revealed that: lack of workspace, inadequate access to finance, lack of institutional supports, and lack of patronage from government, lack of both basic and technological infrastructure, etc. constrain the businesses of technical-skill-based SMEIs in South-South Nigeria. The in-depth interviews provided insights for some policy implications. Key informants identified need for a regional innovation system which should endeavour that SMEIs are nurtured and groomed in technology-based enterprises, as well as giving them all the necessary support that will enable them to compete both locally and globally.

Despite these weaknesses of SMEIs' strategic importance has already been established in empirical works, some of which include: ability to grow employment rates faster than larger organisations and they also foster the development of entrepreneurial skills and innovation (Al-Mubaraki and Aruna, 2013). Others are: income distribution and poverty reduction.

Consequently, we recommend that: technology infrastructure such as industrial parks, science/technology parks, technology-business incubators, should be established to fast-track the socio-economic development of the region. Such facilities will provide both workspace and other services like training/mentorship, stable power, broadband internet, etc. Since lack of access to finance remains one the greatest problems of SMEIs, stakeholders should collaborate to set up technology venture capital funds primarily for the funding of viable technology-based enterprises. We also recommend the formulation of a regional science, technology and innovation policy that properly articulates the role of TS-SMEIs in regional development.

Findings from this study may have valuable implications for entrepreneurship scholars, policy makers and educators. Considering the importance of SMEIs to economic development of a region, understanding the problems of SMEIs in a marginalised regional context could provide useful information to scholars, policy makers and development partners in fashioning the right strategies and policy mechanism that will be geared towards a technology-led regional development.

REFERENCES

Abdullah, M.A. (2002). Entrepreneurs and their influence on the usage of information technology in SMEs: evidence from Malaysia. *Journal of Small Business and Entrepreneurship 16*(2), 60-76.

Adebayo, O. and Atunwa, H. (2013). Entrepreneurship skill and background of those that have tendency to set-up their own businesses. *IJAFS 4*(1&2), 411-420.

Adelaja, A. O. (2002). The importance of small and medium scale industries in a developing/ underdeveloped economy: Nigeria case study. In Proceeding of the 6th Africa-USA International Conference on CD-ROM, pp. 1-17.

Adeola-Omole, O.S.B. (2013). An empirical investigation telephony impact on business performance and regional development: evidence from small businesses in Nigeria. PhD dissertation retrieved on March 24, 2015 from: http://openair.rgu.ac.uk.

Afolabi, A., Radhakrishnan, S. and Sundaresan, V. (2013). Measuring the economic contribution of entrepreneurship in a region. Technology and Innovation Management Programme, Carleton University. DOI: 10.13140/2.1.1391.5206.

Ajayi, A. and Jegede, C.T. (2014). Constraints of small and medium scale enterprises in Nigeria. *International Journal of Research, 1*(7), 569-576.

Al-Mubaraki, H. and Aruna, M. (2013). Technology innovation for SME growth: a perception for the emerging economies. *Journal of Economics and Sustainable Development, 4*(3), 156-162.

Bakare, G.B. (2014). Manufacturing SMEs and macroeconomic indicators: empirical evidence from Nigeria. *Quarterly Journal of Business Studies, 1*(1), 45-54.

Brixiová, Z., Ncube, M. and Bicaba, Z. (2014). Skills and youth entrepreneurship in Africa: analysis with evidence from Swaziland. African Development Bank Group, Working Paper Series No. No 204– July 2014.

Bubou, G.M. and Egai, N.A. (2012). Entrepreneurship development and poverty reduction in the Niger Delta', In O. Ukaga, O. Ukoha and S.I. Ibaba (Ed.), Natural Resources, Conflict, and Sustainable Development, (pp.79-96). New York, London: Taylor and Francis.

Bubou, G.M. and Okrigwe, F.N. (2011). Fostering technological entrepreneurship for socioeconomic development: a case for technology incubation in Bayelsa State, Nigeria. *Journal of Sustainable Development, 4*(6), 138-149.

Canbulut, M. and Hícusenmez, E. (2009). Common problems of SMEs in Turkey: an empirical research in Ízmír. In: A. Katrinli, ed., Proceedings of the International Entrepreneurship Congress: SMEs and Entrepreneurship, Ízmír: Ízmír University of Economics, pp. 50-57.

Dahlberg. (2011). Report on support to SMEs in developing countries through financial intermediaries. The Dahlberg SMEs Briefing Report. Retrieved on March 21, 2015 from: http://eudevdays.eu/sites/default/files/dalberg_sme-briefing-paper.pdf.

Daily Independent (2014). 'Empowering SMEs for Development. Retrieved on March 26, 2015 from: http://dailyindependentnig.com/2014/05/empowering-smes-development/.

Dewick, P. and Hernandez, I. (2014). Entrepreneurship, institutional variety and economic development. *Innovation and Development, 4*(1), 111-127.

Duru, I.U. and Ogbe, A.A. (2013). Relationship between microfinance banks and financing of small scale enterprises in Lokongoma District of Kogi State, Nigeria. *International Journal of Economic Development Research and Investment, 4*(3), 71-81.

Elmansori, E. and Arthur, L. (2013). Obstacles to innovation faced by small and medium enterprises (SMES) in Libya. In A. Ahmed (Ed), World Sustainable Development Outlook 2013 – Sustainable Development: New Multi-Disciplinary Approaches and Methodologies, Brighton: World Association for Sustainable Development, pp. 181-194

Emery, M, JJ Zuiches and CB Flora (2006). Rural entrepreneurship development program and the National Coalition for Rural Entrepreneurship. Iowa State University, North Carolina State University, USA

Gono, D. (2006). Developmental SME Projects Intervention to Support the Youth, Women and other Disadvantaged Groups – Supplement to the First half 2006 Monetary Policy Review Statement, Reserve Bank of Zimbabwe. Retrieved on December 10, 2014 from: http://www.rbz.co.zw/inc/publications/legaldept/rbzpdfs/developmentalsmeprojects.pdf.

Henrekson, M. (2007). Entrepreneurship and institutions. IFN Working Paper, No. 707.

Jones-Evans, D. (1995). A typology of technology-based entrepreneurs: a model based on previous occupational background. *International Journal of Entrepreneurial Behaviour and Research, 1*(1), 26-47.

Kotelnikov, V. (2007). Small and Medium Enterprises and ICT, Bangkok: United Nations Development Programme – Asia-Pacific Development Information Programme (UNDP-APDIP) and Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT).

Kroon, J. (2000). Entrepreneurship Start Your Own Business. Cape Town: CTP Book Printers.

NEDEP. (2015). About the programme', the National Enterprise Development Programme. Retrieved on March 22, 2015, from: http://nedep.boinigeria.com/about-the-programme/.

Oduntan, K.O. (2014). The role of small and medium enterprises in economic development: The Nigerian experience. In Proceedings of the International Conference on Arts, Economics and Management (ICAEM'14), pp. 75-78, Dubai: UAE.

OECD/The European Commission (2013). The Missing Entrepreneurs: Policies for Inclusive Entrepreneurship in Europe. Paris: OECD Publishing.

Okeke, M.I. and Eme, O.I. (2014). Challenges facing entrepreneurs in Nigeria. *Singaporean Journal of Business Economics, and Management Studies, 3*(5), 18 – 34.

Okowa, W.J. (2008). Secrets of successful SME entrepreneurs: simple specific, proven methods to ensure entrepreneurial success. Paper delivered at the 9th Advancement and Continuous Educational Program of the Institute of Chartered Economists of Nigeria, June 6, 2008, Abuja: Nigeria.

Okwu, A.T., Obiakor, R.T. and Obiwuru, T.C. (2013a). Relevance of small and medium enterprises in the Nigerian economy: a benchmarking analysis. *International Journal of Management Sciences, 1*(5), 167-177.

Okwu, A.T., Bakare, G.B. and Obiwuru, T.C. (2013b). Business environment, job creation and employment capacities of small and medium enterprises in Lagos State, Nigeria: a descriptive analysis. *Business Management Dynamics, 3*(2), 97-110.

Saunila, M. (2016). Performance measurement approach for innovation capability in SMEs. *International Journal of Productivity and Performance Management, 65*(2), 162 – 176.

Schwalje, W.A. (2011). The emergence of global skills gaps: the need for a Twenty First Century conceptual model of national skills formation. A lecture presented at the International Human Resources Conference and Exhibition in January 2011, Dubai, United Arab Emirates.

Shane, S. and Venkataraman, S. (2000). 'The promise of entrepreneurship as a field of research'. *The Academy of Management Review, 25*(1), 217-226.

Steyn, J., Rampa, M. and Marais, M. (2013). Participatory development of ICT entrepreneurship in an informal settlement in South Africa. The Journal of Community Informatics, Vol. 9, No 4, retrieved on April 10, 2014 from: http://ci-journal.net/index.php/ciej/rt/printerFriendly/969/1057.

Sjoer, E. and Goossens, M. (2014). Becoming a sustainable techno-entrepreneur. In Proceeding of the 14th World Conference on Continuing Engineering Education, June 27 – 29, 2014. Stanford University: US.

Tachibana, T. (2014). How one becomes an 'entrepreneur' in a transition economy: the case of manufacturers in Laos. *Development Studies Research: An Open Access Journal, 1*(1), 186-201.

The World Bank. (2014). Ending poverty requires more than growth, says WBG. Retrieved on January 10, 2015, from: http://www.worldbank.org/en/news/press-release/2014/04/10/ending-poverty-requires-more-than-growth-says-wbg.print.

UNDP (2003). Human Development Report 2003—Millennium Development Goals: A compact Among nations to end human poverty, Oxford: Oxford University Press.

Venkataraman, S. (2004). Regional transformation through technological entrepreneurship. *Journal of Business Venturing, 19*, 153–167.