

TECHNOLOGY INNOVATION FOR SUSTAINABLE MILITARY ENTREPRENEURSHIP DEVELOPMENT IN NIGERIA

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Abstract: Technology innovation in entrepreneurship is a concept of transforming research and potential of scientific institutions into new products and services, which significantly increases benefits to consumers and results in a faster economy growth in the future. The involvement of technology entrepreneurship has triggered an increased implementation of diverse innovations in the military establishment. In the Nigerian military, it is an individual responsibility for the serving personnel to develop both professional and personally. Career planning by military institution in Nigeria is streamlined according to rules and regulations as enshrined in the condition of service within which serving personnel are expected to consolidate their career. The institutional commitment is only structured to build expertise along military lines, hence, the need for serving personnel to engage in entrepreneurship activities in order to attain self-development. The opportunities for self-development are limited in Nigeria military when compared with their counterparts in developed countries given to the nature and condition of work in Nigeria that does not allow serving personnel to pursue personal development. Practice of entrepreneurship within the sphere of military establishment in Nigeria has witnessed inherent challenges limiting involvement of serving military personnel in entrepreneurship. This study therefore attempts to explore challenges and opportunities presented by technology innovation for sustainable military entrepreneurship in Nigeria while drawing the nexus between technology innovation and sustainable military entrepreneurship. The study is anchored on the opportunity-based theory by Peter Drucker. The study concludes that full potentials of technology innovation have the capability for sustainable military entrepreneurship in Nigeria.

Keywords: Technology Innovation, Military, Entrepreneurship, Development, Nigeria.

1. INTRODUCTION

The way and manner technology innovation fuel sustenance of commercial enterprise is domineering. In the twenty first century, technology innovation has remained an essential element in entrepreneurship development in Nigeria. Technology innovation comprises of a mixture of knowledge and skills that are used jointly to construct new solutions. It is essential to mention that innovation is not only driven by technology, on the contrary, it is driven and applied in numerous sectors such as business, leadership, and social change.

At the present time, not all countries are able to provide adequate environment that encourages a thriving innovation ecosystem. Some rank as the most creative places on earth, while others scuffle to be more innovative. Consequently, it is fundamental to support innovation in developing countries. Technology is becoming widespread globally and it has the potential to advance the lives of several people when used in a smart way. It is essential to focus on the role of technology as a tool that can stimulate intellectual empowerment and education for entrepreneurship development.

Essentially, entrepreneurship is seen as the art or science of innovation and engagement in business activities virtuously to maximize profit. The ability to transform new ideas and inventions into a profitable venture is a hallmark attribute of an entrepreneur and sustainable economic development is ensured by such transformation. Consequently, there must be readiness and willingness of an entrepreneur to innovate in order to achieve desired business growth. The dynamic nature of the entrepreneur's environment affects business activities while innovation is considered as core strategic factor for growth and development. Therefore, innovation may also be perceived as one of the coupling mechanisms between different dimensions of the socioeconomic system including technological, social, economic, and ecological. Technology innovation represents a source of new challenges to the resilience of socioeconomic systems; on the one hand, Scholz et. al. (2020) opines that it comes with opportunities, and also brings new risks and unforeseen consequences. It is imperative to deal with the new risks and unforeseen consequences in order to achieve sustainable entrepreneurship development. Concretely, technology innovation is needed to transform countries from reliance on the exploitation of natural resources to technological innovation as the basis for development (Sharma, 2006). Nigeria has imported foreign technology in diverse fields ranging from SMEs, communication, health and educational sectors to public sector management. The involvement of technology entrepreneurship has triggered an increased implementation of diverse innovations even in the military establishment.

In the Nigerian military, it is an individual responsibility for the serving personnel to develop both professional and personally. Naturally, career planning by the military institution in Nigeria is streamlined according to rules and regulations as enshrined in the condition of service within which serving personnel are expected to consolidate their career. The institutional commitment is only structured to build expertise along military lines, hence, the need for serving personnel to engage in entrepreneurship activities in order to attain self-development. The opportunities for self-development are limited in Nigeria military when compared with their counterparts in developed countries given to the nature and condition of work in Nigeria that does not allow serving personnel to pursue personal development. Practice of entrepreneurship within the sphere of military establishment in Nigeria has witnessed inherent challenges limiting involvement of serving military personnel in entrepreneurship. There are several associated factors that hinder technology innovation for sustainable entrepreneurship in Nigeria, which need to be studied. There has been the absence of remarkable indigenous efforts to explore the benefits of technology innovation in military entrepreneurship; it is traceable to failure in the acclimatization process and lack of supporting policies for entrepreneurship and innovation. Generally speaking, the cost of new technologies is relatively expensive for start-up entrepreneurs; other challenges include inability to fully utilize the new technology and uncertainties regarding the profitability of the innovations. Eneji (2018) posits that inadequate technology innovation impacts negatively on quantities of resources (inputs), process and the quality of output. Nigeria's low absorptive capacity and underutilization of existing capacity seem to be caused by lack of technology innovation in entrepreneurship. Thus, this study attempts to explore the challenges and opportunities presented by technology innovation for sustainable military entrepreneurship in Nigeria while drawing the nexus between technology innovation and sustainable military entrepreneurship.

Conceptualization of Technology Innovation

Technological innovation is a long-drawn-out concept of innovation. According Naude & Szirmai (2013) innovation represents a well-defined concept; it has a broad meaning to many people, and especially numerous understanding in the academic and business world. Innovation denotes developing new facilities or products in the marketplace in order to satisfy needs or solve problems that were not necessarily in the past. It is the process that reintroduces something that exist or not, or the delivery of something new. Technological Innovation conversely stresses on the technological traits of a service or product. It is imperative to clarify that Innovation is not solely driven by technology; however, for the purpose of this study we focus more on a conceptual discourse of technology innovation. Technological innovation thus, may be a novel or increased product or method whose technological physiognomies are significantly and completely different from before. Practical technological product innovations are new product (product innovations) or processes in application (process innovations) that are sent to promote market engagement. The method is merely appeared to be associate degree innovation if it attains stipulated blessings for the business concerned; these need not essentially be new from the views of alternative enterprise or the market. To the entrepreneur, innovation merely means creativity i.e. the method of improving/inventing an existing/new product. Owing to the expected value the innovation is to provide, Beswick (2010) posit that innovation is a successful use of an idea that adds value to the customer and commercial return for the creator. Oslo Manual (2005) defines innovation to be an activity that produces new or significantly improved goods (products or services), processes, marketing methods or business organization. Technological innovation is the

process where an organization (or a group of people working outside a structured organization) embarks in a journey where the importance of technology as a source of innovation has been identified as a critical success factor for increased market competitiveness (Naude & Szirmai, 2013). "Technology innovation" gives a sagacity of working on technology for the sake of technology. Technological innovation better echoes the reflection of improving business value by working on technological traits of the product or services. Additionally, in an enormous mainstream of products and services, there is not one exclusive technology at the soul of the system. It is therefore the combination, the integration and interaction of different technologies that make the product or service efficacious. The formalized process of technological innovation within an organization can be stated to mean "Technological Innovation Management". This "management" feature denotes the inputs, outputs and constraints to govern the entire process of technological innovation in such a way that it agrees with the organization strategy. In several contexts especially in start-ups and new ventures, Technological Innovation is not usually steered along known pathways within the organization. The Technological Innovation is thus implemented in an anonymous context where the borders and limitations of Technology are not specifically recognized. Hence the entrepreneur is accordingly required to explore the unknown part of technologies. Again, Naude & Szirmai asserted that Technologies are 'rules and ideas that direct the way goods and services are produced while technological inventions are new rules and ideas about what to produce and how to do it. Technological innovations result therefore, when these new rules and ideas find functional use through being applied by entrepreneurs. Technological Innovation is an incessant process, within an internal or external venture, established to create value with innovation. This process starts with an idea and ends with and with the commercialization of a viable product or service which is in response to a proven market demand.

Concept of Entrepreneurship Development (ED)

Entrepreneurship is regarded traditionally as an ability and willingness to enhance, hold and manage a business venture while being prepared for taking risks to get the highest profit (Nenge, 2019). Contemporary trends define entrepreneurship as the world makeover by process of solving its most noteworthy issues by the identification of enterprise opportunities via innovative perspectives and creativity. Entrepreneurship development (ED) is the process directed at entrepreneurs' knowledge and skills enhancement for the purpose of improving their entrepreneurial acumen and self-actualization.

The concept of entrepreneurship development encompasses the motivation of persons with high accomplishment orientation, who endeavor for an entrepreneurial livelihood, enabling them to embrace and equally access business opportunities successfully. In Nigeria, Entrepreneurship development represents an indispensable tool, which serves as a relief to unemployment in the country. Entrepreneurship is the central artery of any economy. It is an essential element to economic and social development. The evolution of entrepreneurship development in Nigeria proves that even small-scale business cannot only improve employment rate, eradicate poverty, enhance social infrastructural development but also improve the nation's economy. Ogundele (2007) viewed entrepreneurship as a multidimensional phenomenon. It was found that the processes of emergence, behaviour and performance of indigenous entrepreneurs were separately and in combinations affected not by a single but multiple factors, in ranging degrees. These factors included economic, socio-cultural, ecological, managerial, educational developmental, experiential, technological, structural, ethical and innovative issues. He concluded that any policy designed to change entrepreneurship scenario in Nigeria will require multiple and simultaneous approaches in the development of necessary changes in the behaviour of indigenous entrepreneurs. According to several scholars, (Diochon & Anderson, 2011; Gaddefors & Anderson, 2017; Alvarez & Busenitz, 2001) entrepreneurship is the creation or extraction of value. They viewed entrepreneurship as a change which may include other values other than simply the economic values More tapered definitions have defined entrepreneurship as a process of designing, initiating a new business venture usually in a small scale along with any of its risks to maximize profit. Belicove (2012) asserted that while definitions of entrepreneurship typically focus on the launching and running of businesses, due to the high risks involved in launching a start-up, a significant proportion of start-up businesses have to close due to "lack of funding, bad business decisions, an economic crisis, lack of market demand, or a combination of all of these. A fairly wider definition of the concept of entrepreneurship development entails understanding the activities of an entrepreneur who is seen as an entity with the ability to find and react to opportunities and transform inventions or technologies into products and services. "The entrepreneur is able to recognize the commercial potential of the invention and organize the capital, talent, and other resources that turn an invention into a commercially viable innovation (Audretsch et al., 2002). In this context, the term "entrepreneurship" equally portrays innovative activities on the part of reputable firms, in addition to comparable activities on the part of new enterprises.

The entrepreneur is ordinarily perceived as an innovator i.e. an individual who invents new ideas and enterprise processes. Entrepreneurship is likened to the act of being an entrepreneur, who invariably, takes risk and other initiatives in order to make profit and is also seen as the owner or manager of a business venture or an enterprise. An entrepreneur serves as a manager who supervises the introduction and growth of a business venture or an enterprise. Prive (2012) opined that management skills and strong team building abilities are often perceived as essential leadership attributes for successful entrepreneurs. In the views of Knight (2005) and Drucker (1985) entrepreneurship is a risk-taking venture. Olokesusi (2002) also stated that entrepreneurship is based on propulsive risk bearing actions. Olokesusi has associated the resultant effect to personal discretionary approach to different circumstances and situations. The entrepreneur is eager to spend resources on an uncertain venture and equally prepared to risk all simply because of a new idea. Entrepreneurship is habitually linked with true uncertainty, predominantly when it comprises the creation of an innovative product or service for the market which did not exist previously, rather than when an endeavor creates an incremental enhancement to an existing product or service.

Entrepreneurship Development Process (EDP)

Entrepreneurship development process (EDP) is the means of improving the know-how and skills of an entrepreneur through numerous coaching and training programs. The focal point of the development process is to reinforce and add numeric value of entrepreneurs. EDP assists entrepreneurs engaging in new ventures in crucial aspects related to attainment of goals, advance business and maximization of profit. Again, vital factor of this process is to generally improve the aptitude to manage, improve, and establish a business enterprise while considering the risks associated to it. In simplified terms, entrepreneurship development process entails providing support for entrepreneurs in order to advance their skills with the aid of training and coaching. It inspires them to make best judgments and take utilitarian decisions for all business ventures.

The below stated steps illustrates how to build an operational entrepreneurship development process (EDP) for an entrepreneur to consolidate and introduce new ventures:-

Discover – A new process should begin with renewed ideas and goals, whereby the entrepreneur is able to recognize and adequately analyze a given business opportunity. The scrutinizing of opportunities is a risky undertaking, and an entrepreneur should naturally seek for contributions from other individuals, including channel partners, co-workers, technical persons, customers, etc. to reach a superlative business opportunity.

Evaluation – The evaluation process of an opportunity should be carried out by posing more than a few questions to oneself. Good example of questions asked include whether it is worth engaging and capitalizing on the idea, will it attract the targeted and non-targeted customers, are there competitive advantages and the risk associated with the opportunity? Also, proper scrutiny of the skills and know-how of the entrepreneur in order to ascertain if it matches with the entrepreneurial objectives is required at this step.

Developing a plan – The entrepreneur should construct a comprehensive business plan shortly after identifying a business opportunity. This is a crucial step in a new venture because it sets a standard and the valuation criteria and perceives if an opportunity will be profitable or attain set goals.

Resources – The next step after developing a plan in the process of entrepreneurial development is resourcing. In this step, the entrepreneur identifies the source of fund and how the human resource can be effectively managed. Here, the entrepreneur also attempts to discover other investors for the new business enterprise.

Managing the Business – After the funds are raised and human resources made available, it is essential to kick-start full operation in order to achieve the stipulated objectives. However, a management structure capable of resolving operational issues should be established at this step.

Reaping of Benefits – The last step in this process is reaping of benefits. Here, the future growth and development of the business venture is determined. The actual growth and development of the business is compared with the expected growth and development. This step can also involve initiation of the business security or its expansion.

Technology Innovation and Sustainable Military Entrepreneurship Development

Technology entrepreneurship is a concept of transforming research and potential of scientific institutions into new products and services, which significantly increases benefits to consumers and results in a faster economy growth in the future. By ensuring effective and synergistic relations where science meets economy (taking into account the wider effect

of the so-called business environment), technology entrepreneurship focuses on implementing innovative solutions and ensuring their market success, as well as on using their applications and distributing their effects in the business environment (Flaszewska & Lachiewicz 2013). In consequence, it has the potential to become one of the key factors in building the innovation potential of modern enterprises. This applies in particular to small and medium companies, which due to their resource shortages possess limited ability to carry out independent research and development activities.

Entrepreneurship is about starting a new business based on a recognized business opportunity as well as operating and maintaining that business. The belief of some people is that entrepreneurship does not need to be taught and therefore, an entrepreneur is born to be so. It should however be noted that for one to be a successful entrepreneur, he/she needs to learn the skills (Griffin and Hammis, 2001). Entrepreneur training is designed to teach the skills and knowledge that is needed to know before embarking on a new business venture. This would enhance necessary identification and avoidance of many pitfalls awaiting the less well trained and vigilant contemporaries. The training may initially be perceived as a cost in terms of time and money but it would eventually be appreciated. The study carried out by Taiwo et al. (2002), on small scale food companies in Nigeria reported that one major sources of technological change in these companies is personnel (operators and craftsmen). The reasons adduced for these were simplicity of the innovation processes to the work force; accurate and adequate information about the system of production; and the involvement of the workforce in the initiation and implementation of any technological changes. Moreover, another research finding showed that the key information sources for manufacturing small and medium firms,, production and innovation are machinery suppliers, exhibition and trade fairs, client firms, publications, repair workshops (foundries, heat treatment shops and others), staff of other firms, and social and professional associations, and consultancy firms within and outside the clusters (Oyeyinka-Oyelaran, 2001). Some researchers observe that increasing profit of organization is because of change in technology. (Verspagen, 1992; Ruttan, 1997). According to entrepreneur perspective innovations mean creativity. "Innovation is a research area within the Marketing and Entrepreneurship Interface is a growing area of enquiry" (Fillis 2000; Fillis & McAuley 2000, Hackley & Mumby Croft 1998).

Entrepreneurship opportunity identification and need to fulfilling innovation. Entrepreneurship and innovation is a key of economic growth, and there is strong relationship between entrepreneurial activity and economic development across the border. Entrepreneurship has also play a vital role in motivation. You can motivate entrepreneurship through culture, family and friend business. Another aspect of motivation is to motivate your employees by giving incentives, bonuses and increase salaries but according to entrepreneurship motivation is a deep meaning that to motivate your family and friend in the field of entrepreneurship u can give new and innovative idea to your friend to start new business and also running your family business with new creative ideas. We cannot understand entrepreneurship until and unless we understand the single who involve in motivation (Venkataraman, 1997). Entrepreneurship is treasured significantly because of its ability to raise productivity using multi-purpose innovation; produce jobs through the formation of new enterprises; bring new life into small-scale business and enterprises; stimulate the development of sector; and ensures dynamics in the economy.

2. THEORETICAL FRAMEWORK

Entrepreneurship theories remain significant to the development of the entrepreneurship field. This study is anchored on the opportunity-based theory by Peter Drucker in 1985. He contends that entrepreneurs flourish at identifying and taking advantage of opportunities produced by social, technological and cultural changes. An opportunity-based theory delivers a wide-ranging conceptual outline for entrepreneurship development. Contrary to the view of the Schumpeterian or Austrian school that entrepreneurs do not cause change but explore opportunities created by a change either in technology or customer preference. The theory posits that the entrepreneur defined by a quest for change, responding to the change, and equally exploring the change as a given opportunity. Drucker's opportunity construct fundamentally entails that entrepreneurs have an eye more for potentials fashioned by change than the problems. In extending the view of Drucker, Stevenson (1990) opined that opportunity-based construct include resourcefulness based on research to determine the differences between entrepreneurial management and administrative management.

It is almost a truism in entrepreneurship research that the entrepreneurial process begins most basically with the discovery and exploitation of profitable opportunities (Shane & Venkataraman, 2000). In a similar perspective, conception of entrepreneurship is seen as the process of creating or seizing an opportunity and pursuing it (Timmons, 1994). Entrepreneurship scholars have also noted that opportunities have distinctive conceptual properties (Venkataraman, 1997). It has gone almost unnoticed that the basic and distinctive nature of opportunities calls for a novel research approach (Eckhardt & Shane, 2003). Nevertheless, the entrepreneurial process originates with opportunities; it also

involves other significant rudiments. Such rudiments include gathering resources, handling a going concern, developing a business venture, etc. The opportunity based theory is not envisioned to apply to those elements, which entail different kinds of phenomena, but only to opportunities in emerging stages.

Entrepreneurship actually starts with the formation of opportunities which is domain of the entrepreneur (Shane, 2000; Katz & Shepherd, 2003) while opportunity exploitation is a process hinged on the entrepreneur's decision – is archetypally the jurisdiction of the organization which, through its capabilities, turns opportunities into market outcomes (Whittaker et al., 2009). Joining the entrepreneur and the organization together is reactive to Gartner's (1985) call for multi-level, multi-dimensional entrepreneurship research. The opportunity processes can be studied based on three dimensions: opportunity formation; opportunity decision; and opportunity exploitation. These three dimensions agree largely to Shane & Venkataraman's (2000) vital research questions regarding entrepreneurship: (1) why, when, and how opportunities for the creation of goods and services come into existence? (2) why, when, and how some people and not others discover and exploit these opportunities? and (3) why, when, and how different modes of action are used to exploit entrepreneurial opportunities. In order to fully comprehend Opportunity Based theory, these three dimensions must be scrutinized accordingly.

Applying the Opportunity Based theory to military entrepreneurship development, it proposes more that its research focus should not be limited to the "opportunity exploitation" aspect but to why, when, and how entrepreneurial opportunities are formed and the decision is taken to trail the opportunities even within the military sphere. A central archetype in economics has been that opportunities are "out there" to be discovered by an alert entrepreneur (Gaglio & Katz, 2001; Alvarez & Barney, 2007). Kirzner's (1997) concept of discovery is the result of entrepreneurial alertness that is the attitude of receptiveness to available but previously unnoticed opportunities. However, opportunities are not merely discovered; they are thus, created (Endres & Woods, 2007). Venkataraman's (2003) creative view postulates that entrepreneur's activities are the necessary basis of these opportunities. Alvarez & Barney (2007) argued that opportunities are not assumed to be objective phenomena formed by exogenous shocks to an industry or market. Rather, opportunities are created, endogenously by the activities, responses, and depiction of entrepreneurs exploring ways to introduce new products or services. Entrepreneurial opportunities often have to be "created" by using the entrepreneurial imagination to embody human aspirations in concrete products and markets (Venkataraman & Sarasvathy, 2001).

In the world today, we live in an era of technology and global economy wherein rivalry has become knowledge-based. There are therefore various potential imaginable future inventions based on the informed reflections by the entrepreneur. The entrepreneur is expected to utilize the full potentials created by the identified changes. For the reason that entrepreneurship entails identification of business opportunity and acquiring and deploying the necessary resources required for its exploitation. Sustainable military entrepreneurship development can be assured with the recognition of the potentials of technological innovation. Hence, technological innovation should form the center-stage in military entrepreneurship development in Nigeria. Moreover, there has been a growing interest in the correlation between technological innovation and entrepreneurship development.

Impact of Technology Innovation on Sustainable Military Entrepreneurship Development

Technology Innovation has helped to grease the wheels of entrepreneurial creativity and it is a source of innovation for entrepreneurs. The distinguishing feature of technology innovation is that it enables open innovation in innovation ecosystem. Technological innovation provides opportunities for the entrepreneurs to establish new business or venture and form competitive advantage as incumbents' sources of benefit decay. Technological innovation correspondingly creates levels of uncertainty and risk for incumbents because of the imperfectly anticipated outcomes. An impact of technology innovation may not be known until it is rather late for incumbents expending older knowhow to compete efficaciously with new competitors; wagering too early on a given innovation may endanger an incumbent's existence if that technology turns out not to become overriding. Therefore, fundamental technologies and technological innovation can impact organizational populations' competitive dynamics and evolution overwhelmingly. Ecological research relating technology cycles to population dynamics, although limited in scope, yields compelling support for this assertion (Baum 1996). Even though past research characteristically treats technological change as exogenous, studying how ecological processes shape technological change can deepen our comprehension of technology cycles by examining the dynamics of organizational support for new technologies.

Technological innovation over the last century has led to an evolution among how individuals are able to communicate and interact with one another. Prior to these advancements, social engagements were heavily reliant on proximity as it

was necessary to be in the same physical location to communicate in real-time. However, developments in social engagement technologies have allowed for a facilitation and decentralization of this communication and delivered the ability to connect to anyone at any time with relatively little effort. Prior to the introduction of the Internet, if an individual wanted to discuss a favorite past time with a friend or debate a pressing civil issue, meetings would have to be arranged by ensuring that not only was a location available, but that others were also able to join and were not burdened by conflicting commitments. Now, the Internet, mobile phones, and other related technologies allow for the discussion of such topics with the use of social networking sites (e.g., Facebook, Twitter) and other messaging platforms such as Internet-based forums or text messaging. Whether an individual is available at a specific time is no longer vital for social engagement as online discussions may be read and contributed to at one's leisure (i.e., asynchronously). Technological innovations play progressively distinguished role within the growth of leading industrial economies. As a result, governments are shifting their attention from science and technology policy to attention on analysis and innovation policy. Models of the innovation method have evolved over time and are currently ready to take under consideration the various factors outside the firm that have an effect on the power to introduce and therefore the rewards from it. Innovation may be a socio-economic method that ends up in the ascertained exponential growth in worth or performance of high priority capabilities. The divergence of innovative capability in several societies is understood in terms of social capital and public policy. National systems of innovation replicate these variations.

Technological innovation is linked to economic function through which new technologies are compered into production and consumption. It involves identifying new technological prospects, unifying the human and financial resources necessary to convert them into beneficial products and processes, and sustaining the requisite ventures. This is important because technological innovations have played a vital role in expediting radically enhanced standards of living. Scherer (2001) asserted that innovation is responsive to changes in demand and supply conditions.

Challenges and Prospects of Technology innovation in Entrepreneurship Development

Entrepreneurial development occurs within a framework of factors that instigate the system environment, usually external or internal factors. A critical perspective in the entrepreneurial development and growth is firms' ability to adapt to its strategies to a rapidly changing system environment, to which the entrepreneurs' role is critical to the success or failure of such an enterprise (Amadasun, 2003). Onugu (2005) posits that entrepreneurship has played and continues to play significant roles in the growth, development and industrialization of many economies globally. In Nigeria, serving military personnel have performed below expectation in terms of their involvement in entrepreneurial activities due to a permutation of challenges ranging from attitude and mind-set of entrepreneurs themselves via environmental related factors, instability of governments and frequent government policy changes. These constraints especially characterize sub-Saharan Africa, where business creation "is typically more difficult than in other parts of the world" (Rivera-Santos, et al. 2015).

The sustainability of military entrepreneurship development in Nigeria has been affected immensely by the challenges as discussed below;

i. The Cost of New Technologies

A major constraint of adopting technology innovation in entrepreneurial activities is high cost of new technologies. The cost of new technologies is relatively expensive for start-up entrepreneurs and this has impacted negatively on entrepreneurship development. The serving military personnel who are expected to ensure self-development via engagement in entrepreneurial activities are faced with the challenge of accessing adequate technologies required for enhanced achievement. The inability to access new technologies is a major challenge for technology innovation for sustainable military entrepreneurship development. Entrepreneurs are engage in business in order to make profit. Where the expected return from a venture is lower than the opportunity costs, it serves as a disincentive for the entrepreneur. Due to collapsed infrastructural facilities and cost of acquiring new technologies, whereby entrepreneurs have to spend huge sums to provide certain basic infrastructure and technological tools, it makes the costs of engaging in business to be expensive with an adverse implication for profitability.

ii. Lack of Supporting Policies for Entrepreneurship and Innovation

The problem with military entrepreneurship development in developing countries such as Nigeria is really not the scarcity of entrepreneurs but somewhat inadequate policies and institutional environment. A serious challenge that entrepreneurs face in Nigeria is the level of competition from foreign producers. The local entrepreneurs are not protected; the situation

is worsened by the apparent lack of faith in the Nigerian Patent Law which many entrepreneurs feel offers them little protection against piracy. There is lack of sufficient policies advancing the development of entrepreneurship within the military sphere that would create an enabling environment and platform for serving military personnel to thrive. Naude, et. al (2011) pointed out that there is reasonable relationship between motivation, entrepreneurship and development. They also opined that for innovation and invariably entrepreneurship to thrive government in developing countries should come to terms with the relevance of innovation in the development of their economies. However, the Nigerian Armed Forces has been conducting training for the retiring military personnel on pre-retirement entrepreneurial and vocational training programme course at the Nigerian Armed Forces Resettlement Centre. This course is to equip the retiring personnel with the necessary skills and knowledge for their engagement in entrepreneurship. More of these courses and training should also involve the serving personnel and not majorly the retiring personnel. This therefore, calls for implementation of innovation friendly reforms and policies in the military in order to encourage the sustainable development of entrepreneurship.

iii. Inability to fully utilize the New Technology and uncertainties regarding the Profitability of the Innovations.

There is the absence of remarkable indigenous efforts to explore the benefits of technology innovation in military entrepreneurship in Nigeria. The inability of serving military personnel to fully utilize the available new technology is a major challenge for technology entrepreneurship as well as the uncertainties regarding the profitability of the innovations. Regardless of the prominence of innovation in the economic development of the society, there is still a lack of comprehension of the process through which innovations develops and commercialize entrepreneurial activities, which invariably stimulates economic growth. The lack of know-how in this expanse matching the technology with the appropriate market and making the needed adjustments is a fundamental challenge of entrepreneurship in Nigeria. It is hard to utilize full potential of innovative ideas in Nigeria because technology goes hand in hand with innovation and the reason why it's hard to implement innovative ideas is because technology is not in advanced stage which can be linked to poor quality of education. Therefore, education plays a crucial role in entrepreneurship development and provides a gateway to tackle future challenges through innovative ideas. This would provide the required knowledge to better understand the profitability of innovations and benefits of adopting technology entrepreneurship.

iv. Inadequate access to market information

Majority of entrepreneurial activities in Nigeria are based mostly on intuition and hope, rather than moved by research results of market needs (Oshionya, 2008). According to Osemeké (2012) one of the greatest problems of entrepreneurship development is lack of information base, and this makes researching ideas difficult and unwieldy. The lack of access for serving military personnel to market information hinders military entrepreneurship in Nigeria.

3. CONCLUSION

The impact of technology innovation in both economic and social life results from the role of innovation concerning developing newness and variety in the human activity. In the deficiency of technology innovation processes, sustainable entrepreneurship will be extremely affected. Consequently, technology innovation is crucial for sustainable growth and development. Innovative entrepreneurs who record successes in innovation activities are flourishing at the expense of the fewer competitors involved in innovation. Sustainable military entrepreneurship is significantly related with technology innovation, and the deficiency of the former is caused by the inadequacy of the latter. The challenges affecting Sustainable military entrepreneurship in Nigeria if critically evaluated and attainable measures proffered will invariably enable technology innovation to thrive in the military sphere. This study emphasize that full potentials of technology innovation has the capability for sustainable military entrepreneurship in Nigeria.

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The authors declare that there is no financial or personal relationship that may have inappropriately influenced the writing of this article in any way.

Ethical consideration

This article followed all ethical standards for carrying out research without direct contact with human or animal subjects.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency/institution of the authors.

REFERENCES

- [1] Amadasun, B.A. 2003. Entrepreneurial roles and factors affecting entrepreneurship. *Journal of Professional Administration*. 5(2).
- [2] Alvarez, S. A. and Barney, J. B. (2007). "Discovery and creation: Alternative theories of Entrepreneurial Action." *Strategic Entrepreneurship Journal* 1: 11-26.
- [3] Alvarez, S.A., Busenitz, L.W. 2001. The Entrepreneurship of Resource-Based Theory. *Journal of Management*. 755(27).
- [4] Andersen, O. (1993). "On the internationalization process of firms: A critical analysis." *Journal of International Business Studies* 2: 209-228.
- [5] Andersson, S., Gabrielsson, J. and Wictor, I. (2004). "International activities in small firms: Examining factors influencing the internationalization and export growth of small firms." *Canadian Journal of Administrative Sciences* 21(1): 22-34.
- [6] Audretsch, D.B., A.R. Thurik, I. Verheul and A.R.M. Wennekers (eds.), 2002, *Entrepreneurship: Determinants and Policy in a European - US Comparison*, Boston/Dordrecht: Kluwer Academic Publishers
- [7] Belicove, M. E. (2 August 2012). "How to Properly Close Your Business".
- [8] Diochon, M., Anderson, A. R. (2011). "Ambivalence and ambiguity in social enterprise; narratives about values in reconciling purpose and practices". *International Entrepreneurship and Management Journal*. 7 (1): 93–109. doi:10.1007/s11365-010-0161-0. hdl:10059/613. ISSN 1555-1938.
- [9] Drucker, P. D. (1985). *Innovation and entrepreneurship*. New York, HarperCollins.
- [10] Eckhardt J., & Shane, S. (2003). *The Individual-Opportunity Nexus*. Handbook of entrepreneurship research: An interdisciplinary survey and introduction. Z. J. Acs and D. B. Audretsch (Eds.). Boston, Kluwer Academic Publishers.
- [11] Endres, A. M. and C. R. Woods (2007). "The case for more "subjectivist" research on how entrepreneurs create opportunities." *International Journal of Entrepreneurial Behaviour & Research* 13(4): 223-234.
- [12] Eneji, M.A., Nnandy, D.K., Gukat, O.B, & Odey, F.A (2018) Technology Innovation and Sustainable Entrepreneurship Development in Nigeria: Stakeholders' Impact Assessment in Central Nigeria. *Journal of Economics, Management and Trade* 21(3): 1-16.
- [13] Flaszewska S., Lachiewicz S. (2013), *Przedsiębiorczość technologiczna we współczesnej gospodarce*, in: S. Lachiewicz, M. Matejun, A. Walecka (eds.), *Przedsiębiorczość technologiczna w małych i średnich firmach. Czynniki rozwoju*, Wydawnictwo WNT, Warszawa.
- [14] Gaddefors, J., Anderson, A. R. (2017). "Entrepreneurs and context: when entrepreneurship is greater than entrepreneurs". *International Journal of Entrepreneurial Behavior & Research*. 23 (2): 267–278. doi:10.1108/IJEBR-01-2016-0040. hdl:10059/2299. ISSN 1355-2554.
- [15] Gaglio, C. M. and J. A. Katz (2001). "The psychological basis of opportunity identification: Entrepreneurial alertness." *Small Business Economics* 16(2): 95-111.
- [16] Gartner, W. B. (1985). "A framework for describing the phenomenon of new venture creation." *Academy of Management Review* 10: 696-706.

- [17] Katz, J. A. and D.A. Shepherd (2003). "Cognitive approaches to entrepreneurship research." *Advances in Entrepreneurship, Firm Emergence, and Growth* 6: 1-10.
- [18] Kirzner, I. (1997). "Entrepreneurial discovery and the competitive market processes: An Austrian approach." *Journal of Economic Literature* 35: 60-85.
- [19] Knight, Frank Hyneman (2005). *Risk, Uncertainty and Profit*. Cosimo, Inc. ISBN 978-1-59605-242-0.
- [20] Naude, W. & Szirmai, A (2013) *Technological, Innovation, Entrepreneurship and Development*. The European business review.
- [21] Nenge, K (2019) *Meaning of entrepreneurship, its development and use for the economy*
- [22] Onugu, B. (2005). *Small and medium enterprises in Nigeria: problems and prospects*. Business Day Newspaper,
- [23] Osemeke, (2012). *Entrepreneurial development and interventionist agencies in Nigeria*. *International of Journal of Business and Social Science*. 3(8).
- [24] Oshionya, B. 2008. *Entrepreneurship development: an inaugural lecture delivered at shell petroleum port harcourt, Nigeria*.
- [25] Oslo Manual (2005). *Guidelines for Collecting and Interpreting Innovation Data*, 3rd ed., Organisation for Economic Co-Operation and Development, Eurostat.
- [26] Oyelaran-Oyeyinka, B. (2001). —*Networks and Linkages in African Manufacturing Cluster: A Nigerian Case Study*. Discussion Paper Series No. 2001-5 of the United Nations University, Institute for New Technologies (UNU/INTECH) The Netherlands
- [27] Prive, T. (19 December 2012). "Top 10 Qualities That Make A Great Leader".
- [28] Rivera-Santos, M., Holt, D., Littlewood, D., & Kolk, A. (2015). *Social Entrepreneurship in Sub-Saharan Africa*. *The Academy of Management Perspectives*, 29 (1), 72–91.
- [29] Shane, S. (2000). "Prior Knowledge and the discovery of Entrepreneurial Opportunities." *Organization Science* 11(4): 448-469.
- [30] Shane, S. and S. Venkataraman (2000). "The promise of entrepreneurship as a field of research." *Academy of Management Review* 25(1): 217-226.
- [31] Scherer, F.M. (2001) *International Encyclopedia of the Social & Behavioral Sciences*.
- [32] Scholz, R.W.; Czichos, R.; Parycek, P.; Lampoltshammer, (2020) T.J. *Organizational vulnerability of digital threats: A first validation of an assessment method*. *Eur. J. Oper. Res.*, 282, 627–643.
- [33] Stevenson, H. H. and J. C. Jarillo (1990). "A paradigm of entrepreneurship: Entrepreneurial management." *Strategic Management Journal* (Special issue) 11: 17-27.
- [34] Taiwo, K. A., Oladepo, O.W., Ilori, M. O. and Akanbi, C.T. (2002). *A Study on the Nigerian Food Industry and the Impact of Technological Changes on the Small Scale Food Enterprises*. *Food Review International*, Vol. 18, No. 4, pp. 243-261.
- [35] Timmons, J. A. (1994). *New venture creation* (4th ed.). Burr Ridge, IL, Irwin.
- [36] Venkataraman, S. (2003). *Foreword to a general theory of entrepreneurship: The individual-opportunity nexus. A general theory of entrepreneurship: The individual-opportunity nexus*. Cheltenham, U.K., Edward Elgar.
- [37] Venkataraman, S. and S. D. Sarasvathy (2001). *Strategy and entrepreneurship: Outlines of an untold story*. Virginia, Social Science Research Network Electronic Paper Collection: 34.
- [38] Whittaker, D. H., P. Byosiere, Momose, S., Morishita, T., Quince, T., and Higuchi, J. (2009). *Comparative entrepreneurship: The UK, Japan and the shadow of Silicon Valley*. Oxford, Oxford University Press.