The Dynamics of Technological Entrepreneurship: Fostering Entrepreneurial Ventures in Nigeria

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Abstract

his study examines the dynamics of technological entrepreneurship towards fostering entrepreneurial ventures in Nigeria. It is regarded as the driving vehicle that facilitates prosperity in individual firms, regions and nations and serves as an important function that satisfies intellectual curiosity. The study defined technological entrepreneurship as an investment in a project that assembles and deploys specialized individuals that are necessary for job creation and economic development. In the study, we noted that technological entrepreneurs as national assets to be cultivated, remunerated to the greatest extent since they have the ability to change the way we live and work and that their innovations lead to improve the standard of living, create jobs and contribute to the growing of the economy. Entrepreneurship is considered crucial to the dynamic economy because entrepreneurs create employment opportunities not only for themselves but for others and influences country's economic performance by introducing new products, methods and production processes for the market, boosting productivity and competition. They therefore are driven by the need for achievement and the desire to implement various projects. This study has several limitations that revealed possible avenues for further research. The focus in the study was limited to a few concepts which we found to be important for technological entrepreneurship. We concluded the need to further this study in order to obtain long-term effects of the technological entrepreneurship towards entrepreneurial venturing, job creation and economic development.

Keywords: Technological Entrepreneurship, Fostering Economic Development

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Background to the Study

Modern theories of economic growth, technological entrepreneurship has taken the focus stage which has been commercialized by technological entrepreneurs. Many nations are investing in the development of their enterprises and entrepreneurial skills. Most enterprises have started functioning as an important driving force to enhance economic value by creation of networks with entrepreneurial innovative through incubators, scientific and technology parks. This study explores in what ways technological entrepreneurship through the role of entrepreneurial ventures facilitate job creation and economic development in Nigeria. Technology entrepreneur is a person having specific knowledge and expertise vital to carry out technology centred entrepreneurial activities effectively and efficiently.

In recent time, technological entrepreneurship has turn out to be an important global portent. It is progression, distinction and a vital tool to attain competitive benefit at organizational, local and national level (Petti and Zhang 2011). According to Abdullah and Ahcene (2011), technological entrepreneurship is becoming vigorous in the contemporary globalization and liberalization economy as it delivers countless opportunities and empowers effective optimization of the resources to achieve high profit margins. Haque (2007), noted that entrepreneurship means carrying out innovative combinations with old being taken away by the new ones. This concept was later characterized as innovation through the process of creative destraction. Therein (2007) defined entrepreneurship as an action and a procedure linking the discovery of new ideas, creation and utilization of opportunities in order to produce value with the introduction of new products, practices and also creation of new ventures. Cressy (2006), noted that entrepreneurship transforms an innovation into a viable initiative that breeds value progressions in information technology. Most researchers have defined the field of technological entrepreneurship as the intellectual investigation, means and by whom opportunities should be traced in order to generate creative ideas for production of innovative products and services (Braunerhjelon et al 2010).

Dorf and Byers (2005), defined technological entrepreneurship as a style of commercial management and control that basically includes identification, capitalization, technology concentrated profitable opportunity, managing enhanced growth and substantial risk in hanting. Shane and Venkataraman (2004), explored techno-entrepreneurship as the practice of collecting resources, technical systems an entrepreneurial endeavor to follow the opportunities. Aderemi et al (2008) opined that technological entrepreneurship as being desirable to make complete use of knowledge related to science and technology accessible in meeting the market needs as it ultimately make the country more industrious and more competitive Kuratko (2005), noted that entrepreneurship has proven its position as the most compelling economic strength and an efficient tool of advancement across the globe, while Nande and Szirma (2013), expressed that technology based entrepreneurship offer ways in which entrepreneur (Consume resources to exploit emerging technology opportunities. In essence, technological entrepreneurship deals with the exceptional development opportunities for societies in order to educate and propagate local talent, build diversity and maintain sustainable economic health.

Objectives of the Study

Technological entrepreneurship has become an increasingly important global phenomenon. It is perceived as necessary for growth, differentiation and competitive advantage at the firm, regional and national levels. It is needed to propel technological innovation efforts to the market and has the potential of improving state of technological capability in a country. This is because as technological efforts are made, learning takes place. These occur either by doing or observation, thus improving technological capability.

The objectives of this study tend to identify the factors that dominate the technological entrepreneurship literature, provide definitions of technological entrepreneurship and identify its distinguishing aspects relative to economics, entrepreneurship and management. The study argued that technology entrepreneurship is an investment that assembles and deploys speeclined individuals and heterogeneous assets to create and capture value for the enterprise.

The definitions found in the literature suggest that technological entrepreneurship involve:

- 1. Operating Small business owned by individuals and societies
- 2. Finding problems or applications for a particular technology
- 3. Launching new ventures, introducing new applications or exploiting opportunities that rely on scientific and technical knowledge
- 4. Working with others to produce technology change

The definitions emphasize the importance of technological entrepreneurship in enabling specialized individuals to develop combinations of assets and their attributes in order to create and capture value for the firm through collaboration, exploration and experimentation. These definitions could assist in improving the firm's performance, increase its relevance and established it as a domain of inquiry.

Conceptualization of Technological Entrepreneurship

In its study, we attempted to shed light on an important aspect of its role of entrepreneurial venture in its job creation and economic development in Nigeria. One major issue this study address is, what is the significance of technological entrepreneur for economic development, does it add an important influence to other factor to promote economic development. It is important to restate that Adam Smith the classical economist in his work assigned no significance to entrepreneurial venture in economic development instead extolled he rate of capital formation as an important determinant of economic development. Adam Smith regarded every person as the best judge of his own interest who should be left to pursue his own advantage. According to Adam Smith, each individual is led by an invisible hand in pursuing his/her interest. He advocated the policy of Laissez-Faire in economic affairs. Ricardo in his theory of economic development identified only three factors of production, namely, machinery, capital and labour, among whom the entire produce is distributed as rent, profit and wages respectively. Ricardo appreciated the virtue of profit in capital accumulation, noted that profit leads to saving of wealth which ultimately lead to capital formation. In both the classical theories of economic development, there is no room for entrepreneurial venture. Economic development seems to be automatic and self-regulated. Inspite of the classical theories concepts, Schumpeter (1934) visualized the entrepreneur as the key figure in economic development because of his role in introducing innovations. Husain (2005) described entrepreneurship as one of the two necessary conditions for economic development. Parker (2009) noted that entrepreneur as among the prime movers of innovations. Vallieval (2001), described entrepreneurship as a necessary dynamic force. The role of entrepreneurship in economic development varies from economy to economy depending upon its material resources, industrial climate and the responsiveness of the political system to the entrepreneurial functions. In Nigeria entrepreneurship did not emerge out of industrial background, most entrepreneurs are not innovator but initiator, who copy the innovative entrepreneurs of the developed world. In essence, entrepreneurship serves as a catalyst of economic development, stimulate equitable redistribution of wealth, income and even political power in the interest of the country. They also promote capital formation by mobilizing the idle saving of the public and provide immediate large scale employment.

Technological entrepreneurship is regarded as the vehicle that facilitates prosperity in individuals, firms, regions, and nations (Bailetti 2012) noted that the study of technological entrepreneurship serves an important function beyond satisfying intellectual curiosity. Bailette (2012) defined technological entrepreneurship as an investment in a project that assembles and deploys specialized individuals an heterogeneous assets that are intricately related to advances in scientific or technological knowledge for the purpose of creating and capturing value for the firm. that Bailetti (2012), noted that the definition of technological entrepreneurship are based on four elements;

- 1. Ultimate outcomes, value creation and culture are identified as two outcomes of technological entrepreneurship because its sources that create value and the sources that capture may not be the same over the long run.
- 2. Target of the <u>u</u>ltimate outcomes.
- 3. Mechanism used to deliver the ultimate outcomes.
- 4. Inter-dependence of the mechanism with scientific and technological advances.

Bailetti opined that the individuals involved in a project are influence by advance in relevant scientific and technology knowledge. The definition further emphasis that technological entrepreneurship is about creating and capturing value for the firm through projects that combine specialists and assets to produce and adopt technology. In essence the definition clarifies that technology entrepreneurship is not about the general management practices used to operate small business owned by engineers or scientific or just about small business.

The concept of technological entrepreneurship aims at developing innovativeness of small and medium enterprises. The concept is based on such theoretical foundations as the notions of intellectual- entrepreneurship (Kwiat Kowaki 2000) academic entrepreneurship (Poznanska 2014), issues of transfer and commercialization and technology management of knowledge and high tech enterprises (Kovdal 2014). The concept of technological entrepreneurship is of benefit to small and medium sized enterprises which have already attained some level of development and are planning on increasing competitiveness and

expansion in the market by introducing products and services based on modern technologies. The concepts indicate that technological entrepreneurship could be used to stimulate the development of innovativeness. Entrepreneurial venture is one of the key strategies of organizations that are seeking to acquire and sustain competitive advantage in global markets. Bailetti (2002), miles and covin (2002), noted that entrepreneurship is a process that consists of revitalizing existing companies, revenue growth, profitability, enhancement and pioneering the development of new products, services and processes. Davidson (2005), noted that entrepreneurship is about the process of discovery and exploitation of opportunities to create future goods and services. In essence, entrepreneurial ventures help generate new wealth, and is important for number of reasons, from promoting social change to driving innovation. Entrepreneurs are thought of as national assets to be cultivated, motivated and remunerated to the greatest possible extent. Enterprises have the ability to change the way we live and work and if successful, their innovations tend to improve standards of living and in addition to creating jobs/wealth, contribute to the growing of the economy.

Stearns (2003), noted three significant motivational elements of the technological entrepreneurs, namely individually, opportunities utilization and value creation. Adereni et al (2008) placed technological entrepreneurship as being desirable to make complete use of knowledge related to science and technological entrepreneurship as being desirable to make complete use of knowledge related to science and technology in meeting the market needs. According to previous studies, technological entrepreneurship originated in design development, creation, trading and commercialization of cutting edge new products and processes. Indeed, in the 21st century, the growth of knowledge based economy has produced new global structures with technological entrepreneurship playing imperative role in the global economy. It has compelling economic strength and an efficient tool of advancement across the globe. In nurturing potential entrepreneurs, education plays a vital role. It has been recognized as one of the crucial factors that help the youth to understand and cultivate entrepreneurial ventures (Gorman et al 1997). Notwithstanding, technological entrepreneurship is the platform that accelerates the diffusion of successful technological innovation in the economy. It boosts economic growth by introducing innovative technologies, products, and services it cannot flourish in an over-regulated economy. It provide new job opportunities in the short and long term and very importantly to economic development.

The conceptual review shows the different effects of technological entrepreneurship in fostering entrepreneurial venture. We considered that as a potential source of sustainable competitive advantage through the technical skills in technology and the ability to manage the new technologies. This review noted that technological entrepreneurs are more motivated than other entrepreneurs as regards starting projects and putting their innovative ideas into practice, thereby tend to be driven by the need for achievement and self realization and the desire to implement their projects.

The benefits to society is greater in economies where entrepreneurs could cooperate flexibly, develop their idea and reap the rewards. To attract productive entrepreneurs, governments at all levels need to cut red rape, streamline regulations and prepare for the negative effects of layoffs in incumbent firms that fail because of the competition.

Entrepreneurship Ventures, Job Creation and Economic Development

In this study, we argued that Technological entrepreneurship is an investment to create and capture value for the enterprise. What distinguishes it from other entrepreneurship type is the collaborative effort of individuals toward production of new products.

Technological venture is defined as the setting up of new enterprises by individuals or corporations to exploit technological innovation (Phan et al 2004). Dorf et al (2007) defined technological entrepreneurship as a style of business leadership that involves identifying high potential, technology-intensive commercial opportunities, gathering resources such as talent, capital, managing rapid growth, and risk using principled decision making skills. Aderemi et al (2008) positioned technological entrepreneurship as being needed to make full use of the knowledge of science and technology available in meeting market needs, thereby making the firm more productive and more competitive internationally. To them, technological entrepreneurship is initiated and culminated in design development, production, engineering and commercialization of innovative new products and processes.

Cooper (1978) emphasizes on the features of technological entrepreneurship which include:

- 1. High potential opportunity
- 2. Technology intensive opportunity
- 3. Unique technology capable of driving new business
- 4. Role of technological entrepreneurship in social and economic development
- 5. High risk of failure
- 6. Longer time to market

Technological entrepreneurship is described as a technology intensive opportunity which involves process of problem solving, raising and safeguarding the quality of life identifying potential market, improving the quality of products in other to improve the competitiveness of the firm with the expectation of saving in process cost. One of the measures of success for technological entrepreneurs deal with the extent to which they are able to develop and bring to market innovative new products. Zahra et al (2007), noted the contributions of technological entrepreneurship to job creation, economic, social development and growth. The authors stated that technological entrepreneurship generate wealth for their owners and create jobs.

Nwafor (2007), emphasizes that technological entrepreneurs have the potential of improving state of technological capability, while Atzeni (1998), noted "that technological entrepreneurship is the platform that accelerates the diffusion of successful technological innovation in an economy, the diffusion in turn greatly enhance the quality of life of the citizenries. In recent times, technological entrepreneurs have become catalysts of change in a market economy. They spur efficient use of resources and facilitate transactions between partners with different preferences and endowments (Atzeni 1998). Central to entrepreneurial behaviour is the rate of acceleration, generation, dissemination and application of innovative ideas. In Nigeria for instance, the high level of entrepreneurship is important in reducing the adverse socio-economic impact by creating new employment. It is observed that a society with strong entrepreneurial culture(s) have positive influence on the rate at which new enterprises

are created and their chances of survival and growth as well as the fate of already existing enterprise (Atzeni 1998). Specifically, entrepreneurship is the vehicle on which innovation is at the heart of entrepreneurship.

As noted by Othman et al (2006), technological entrepreneurs were considered as champions of some sort that convert ideas into products and services and ultimately create wealth and reduce unemployment. Iloki (2006), noted that technological entrepreneurship is a driving force for socio-economic growth in the global economy and a vital ingredient for effective national or regional innovative system. A study of technological entrepreneurship altitude in Nigeria Tertiary Institution indicated preference for technological entrepreneurship but much fewer of them had actually practical entrepreneurship. The major constructs identified were poor funding, inadequate preparation through training and institutional weaknesses expressed in the inadequacy of government support to young and aspiring entrepreneurs (National Centre for Technology Management 2008).

Information emerged from the study shows that individuals whose parents were either selfemployed or business owners to be more likely to become entrepreneurs than those from families without such entrepreneurial experience. Such a family background is said to transport knowledge, skills, self confidence and also positive attitudes towards entrepreneurship, thus facilitating entry of their children into intreprenuership.

In addition, the study noted that student's entrepreneurial propensity in Nigeria revealed that most students involved in entrepreneurship were motivated by personal interest and parental influence. The influence of parents and desire to make money are important motivating factors.

Studies have shown that entrepreneurial interest among Nigerian students appear very high. In this instant, government policies on entrepreneurship should pay attention to other factors that could promote entrepreneurial venturing among the youths.

In nurturing potential entrepreneurs, education plays a vital role. Entrepreneurial education has been recognized as one of the crucial factors that help the youth to understand and cultivate entrepreneurial attitudes (Gorman et al 1997). There is a need to understand how to develop entrepreneurial skills among students while still in school, their knowledge of and attitude towards entrepreneurship do influence their inclination to start their own business in the future. In addition, there exists empirical evidence supporting entrepreneurial education as an intervention tool for impacting adult attitudes towards entrepreneurship. For instance, entrepreneurship education has been found to be an important component of economic strategies for fostering job creation (McMillan et al 1986). It is believed that effective youth entrepreneurship education prepares young people to be responsible, enterprising individuals who become entrepreneurs or entrepreneurial thinkers and contribute to economic development. Entrepreneurial education programmes assist individuals create value through the recognition of business opportunity, development of personal competences necessary to mobilize the resources that might bring the opportunity into reality.

Atzeni (1998), found in his study a significant relationship between student's exposure to entrepreneurial education and their interest in starting their own business. Entrepreneurial ventures are important to economic development it is observed that the benefits to society might be greater in economies where entrepreneurs operate flexibly, develop their ideas and reap the reward. Entrepreneurs accelerate structural change by replacing established firms and raises the productivity of firms. In spite of these, few people have the drive to become entrepreneurs because of substantial risk of failure and the costs involved. Entrepreneurship cannot flourish in an over regulated economy, to attract productive entrepreneurs, government need to cut red tape, stream line regulations and prepare for a negative effect of layoffs in firms that fail because of the competition.

From Nigeria situation, we found that entrepreneurs are important when the economy is doing badly, when the unemployment is high and the economy is contracting or stagnating. In this situation, dynamic entrepreneurship could help turn the economy around by developing novel products or increasing competition, new firms can boost demand which in turn create new job opportunities and reduce unemployment. In fact, entrepreneurs are the fresh blood that keeps economies healthy and flourishing even as some individual firms fail.

Today, Chinese government are encouraging and facilitating entrepreneurship and have discovered that entrepreneurial ventures once viewed as a threat to the established system are crucial for maintaining economic competitiveness for achieving long term success. It is important to mention different types of entrepreneurs that contributed to job creation and economic development. First, innovative entrepreneurs, who bring new products and process to the market and introduce new services, marketing techniques or business structures. Second, replicative entrepreneurs, who enter existing market with unique selling propositions. Third, opportunity entrepreneurs, who engages in entrepreneurial venturing to become more independent or increase their income. Fourth, necessity entrepreneurs, who doing so to maintain their income when there are no other options for work.

All these different types of entrepreneurs contribute to job creation, economic development of a nation, develop new products or process innovation and open up new market. By establishing new businesses, entrepreneurs intensify competition for existing business, whereby consumers benefit from the resulting lower prices and greater product variety. Entrepreneurs share certain traits, such as creativity and high tolerance for the uncertainty that

Entrepreneurs share certain traits, such as creativity and high tolerance for the uncertainty that comes with developing new products. Bowen (2008), four personality characteristics that are particularly important to become an entrepreneurs include the following:

- 1. Willingness to bear risks
- 2. Openness to experiences
- 3. Belief in their ability to control their own future
- 4. Extraversion

Bailetti (2015), noted that entrepreneurs are significantly more likely to have these traits for the following reasons:

1. The success of each investment, particularly in innovative activities are unpredictable, every entrepreneurial decision is risky and success is never assured.

- 2. People who are open to experience who seek new experience and are eager to explore novel ideas are creative, innovative and curious. These attributes are vital for studying a new venture.
- 3. People who are assertive, ambitious, and energetic and seek leadership roles tend to be sociable, enabling them to develop social network more easily and to forge stronger partnership with clients and suppliers.

These personality traits affect a person's decisions to become an entrepreneurs, different trait affect the success of entrepreneurship and the decision to abandon or persevere in the new endeavor. Empirical research revealed that the most important personality characteristics influencing entrepreneurial success deals with the levels of acceptability, levels of need for achievement, levels of locus of control and medium levels of risk. Studies in Germany and in the United Kingdom have shown survival rates for new ventures in innovative industries (Helmers et al 2010).

Research Limitations

This study has several limitations that revealed possible avenues for further research. The focus of this study was limited to a few concepts which are important for technological entrepreneurship, however, future research opportunities may therefore be possible it should be necessary to replicate this study in order to observe the long-term effects of the technological entrepreneurship toward the entrepreneurial venturing in developing new innovations. Empirical analysis is needed to establish the relationship between entrepreneurial firms and economic growth. This study did not exhibit adequate understanding of the kind of economic environment that influence innovative entrepreneurs. This is an important issue since the quality of start-ups, their persistence, growth rate and innovation influences their effect on the economy.

Research Implications

This study has important implications for many enterprises in Nigeria. We noticed the importance of planning as necessary for obtaining successful strategy. The contributions of planning are often to quantify in practice with an important gap between research and practice. Planning activities require substantial resources in terms of managerial time and budget. The process should provide benefits beyond the resources needed to sustain it in order to make a positive contribution to organizational effectiveness (Segars and Grover 1998).

Conclusion

In this study, we noticed that technological entrepreneurship in Nigeria faces many challenges to operate successfully. The major hurdles include ICT policies, inadequate infrastructure to provide business, skilled human labour and technology. In general, entrepreneurs are thought of as national assets to be cultivated and remunerated to the greatest possible extent, they have the ability to change the way we live and work and their innovations are likely to improve standards of living, creating wealth and jobs and contribute to the growth of the economy.

From the study, we observed that technological entrepreneurship is important for a number of reasons, from promoting social change to driving innovation. Through offering unique goods

and services, entrepreneurs break away from tradition and reduce dependence on obsolete systems. This result in an improved quality of life, improve morale and greater economic freedom. In addition, entrepreneurs contribute to drive change with innovation where new and improved products enable new markets to develop.

Nonetheless, this study has shown that technology entrepreneurship has made an exceptional impact in economies and business environment. It is considered as a main drive for the country to create advance in socio-economic and enhance the technology start-up culture within Nigeria and other developing countries. In concluding, technological entrepreneurship has become a vital force in the contemporary globalizing environment as it delivers numerous opportunities and empowers effective optimization of the resources which ultimately lead to increase in profit.

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