Research Paper ICI Value : 61.33| SJIF Impact Factor(2019) : 8.045|ISI Value:1.433

Volume - 7, Issue- 8, August 2019 | e-ISSN : 2347 - 9671| p- ISSN : 2349 - 0187

EPRA International Journal of Economic and Business Review -Peer Reviewed Journal

THE NIGERIAN ENTREPRENEURIAL ECOSYSTEM: A FRAMEWORK TO STIMULATE ECONOMIC PERFORMANCE

Ejo-Orusa, Henry PhD

Department of Management, Faculty of Management Sciences, Rivers State University, Port Harcourt, Nigeria.

ABSTRACT

There is much rhetoric among Nigeria's policy makers and economic managers about employment creation and poverty reduction as key development objectives but their understanding of entrepreneurship which is critical for the actualization of these objectives is flawed. Drawing from the available literature, it is contended that 'technological entrepreneurship' is what drives the economy and makes the difference between affluent and impoverished societies and that each country has its own unique entrepreneurial ecosystem which determines the rate, growth and survival of new ventures. Many dimensions of the entrepreneurial ecosystem have now been postulated for some countries and based on the exploration of the Nigerian economy, a conceptual framework consisting of ten dimensions have been identified to encapsulate the Nigerian entrepreneurial ecosystem - National Culture, Education and Human Capital Development, Local Machinery and Equipment Production, Science and Technology Policy, Enterprise Support Networks, Financial Institutions, Scientific and Technological Literacy, Physical Infrastructure, Economic Development Policies and Legal System and Property Rights. The entrepreneurship triangle consisting of technical, management and entrepreneurship skills is also embodied in the construct. Most of the dimensions are observed to be impacting negatively on entrepreneurship and thus stifling the birthing of new ventures. In particular, national culture emerged to be highly anti-industry and the most limiting factor that has also shaped the other dimensions. The attributes of a good Science and Technology Policy and the Enterprise Support Network Model are presented for use in promoting the creative destruction, reinvention and realignment of the dimensions that are impacting negatively on entrepreneurship; a prerequisite for embedding the enterprise culture and increasing the rate and pace of new venture creation in Nigeria.

KEYWORDS: *Entrepreneurial Ecosystem, The Entrepreneurship Triangle, The Enterprise Support Network Model, Technological Entrepreneurship, National Culture*

INTRODUCTION

Entrepreneurs have been in existence from the days people started to create wealth but it was Schumpeter that reignited the interest of economists on entrepreneurship, innovation and indeed economic development. Schumpeter argued against the lack of interest on entrepreneurship by neoclassical theorists and insisted that entrepreneurs were the critical engine of capitalism that cannot be ignored in economic analysis (McCraw, 2007). In Schumpeter's theory, the heroic entrepreneurs use breakthrough innovations to evoke the process of creative destruction that conduce to economic development. Following the original insights of Joseph Schumpeter, entrepreneurship is now widely acknowledged to be the engine of economic growth and it is now generally accepted that innovation, employment generation, wealth creation and poverty reduction depend in large part on entrepreneurship (Schumpeter, 1961; Schumpeter, 1987). Further, it is the entrepreneurs that ensure that societies are equipped to grow, compete and thrive in the technology driven and fast changing globalised business environment of today. Therefore, no economy can be prosperous without maintaining a critical mass of entrepreneurs who have the capacity to build learning organizations, create wealth and unlock the economic development Pandora Box.

Quite rightly, governments all over the world are adopting a number of measures and policies to embed the enterprise culture, train a large pool of entrepreneurs and establish enterprise promotion initiatives to stimulate the birthing of new businesses. Expectedly, entrepreneurship has become so ubiquitous and ingrained in the developmental DNA of the industrialized and some emerging economies and it is the major reason why they can create wealth at will and are prosperous while less developed countries (LDCs) countries such as Nigeria that have not internalized the enterprise culture are technologically backward, economically underdeveloped and

poor. The urgency for the adoption entrepreneurship promotion measures to drive wealth creation, employment generation and poverty reduction takes a new significance for a populous country like Nigeria that has retrogressed from being a middle-income country in the 1970s but is now adjudged to be the poverty capital of the World ahead of India.

Obviously, the situation will get worse unless positive steps are taken. For example, research by David Bloom (2010) entitled Nigeria: The Next Generation demonstrated that Nigeria will be one of the few countries in the world that will have more young people in future when many countries will be experiencing an ageing population. This has the potential to increase the number of young people in the poverty trap and will no doubt pose a threat to national security and the economic sustainability of the country. For instance, youth unemployment has been established as the main cause of the Arab Spring and the driving force behind terrorism in the Middle East (ILO, 2011) and around the world. The young unemployed are already posing serious security challenges to Nigeria as armed robbers, kidnappers, Niger Delta militants, Fulani Herdsmen and deadly Boko Haram terrorists. To reverse this trend, the youths and young graduates have to be equipped to become the entrepreneurs who will create the jobs of the future.

LITERATURE REVIEW: THE ENTREPRENEURIAL ECOSYSTEM

In attempting to use policies to promote entrepreneurship, it must be understood that the concept has its roots in many fields of inquiry including economics and management and insights could be drawn from these areas. The critical importance of the environment is well recognized in these research domains. For example, there is a long-standing tradition in the economic literature to explore the relationship between the macro-environment and economic development. For example, Max Weber (1930) used work ethics and economic behaviour that are shaped and determined by Protestantism to explain why the Industrial Revolution started in Great Britain. Niall Ferguson (2011) on his part used what he referred to as the 'Six Killer Apps' of science, competition, property rights, medicine, consumerism and work ethics to illustrate the unique macro-economic factors that gave the West an edge in industrialization. Many writers have equally focused on other multifarious factors to rationalize the success of some countries that industrialized after Great Britain and similarly the failure of Third World countries in the industrialization arena.

Also, strategy and competition scholars have shown interest on the environment (Porter, 1998; Thomson, Stricklan & Gamble, 2007) and the influence of the environment on organizational performance, commitment and survival is also well documented by management writers (Venkatraman & Prescott, 1990; Covin & Slevin, 1991; Zahra, 1993). Given the fact that organizations are creations of entrepreneurs who come from and operate within a macro-environment, it is also to be expected that the environment will influence the entrepreneurship process. Expectedly, writers on entrepreneurship have quite rightly directed their attention on the environment and a vibrant and flourishing research domain called the 'entrepreneurial ecosystem' has now emerged. The concept of the entrepreneurial ecosystem has its origin in the study of industry clustering and the propagation of national innovation systems that gained prominence in the early 1990s. However, it was an article by Professor Isenberg (2010) which was published in the Harvard Business Review that boosted and consolidated the entrepreneurial ecosystem construct.

However, the use of policy to drive entrepreneurship was boosted by the work of Birch (1979) which demonstrated that job creation in the United States was the function of small and medium sized enterprises contrary to the received wisdom that tended to focus on large organizations. Since then, policy makers all over the world have been showing serious interest in the promotion of entrepreneurship as a means for tackling poor economic performance; particularly rising unemployment and no national or international forum on economic development is now complete without the call for policies to promote innovation, entrepreneurship and job creation. The challenge faced by policy makers then is how to gain better understanding of the entrepreneurship process so that more efficacious policies could be formulated.

Given the fact that entrepreneurs operate in a macro-environment, oportunity recognition, the rate and pace of new venture creation, the extent to which new businesses will grow, flourish, survive or die and indeed entrepreneurial orientation and metabolism in the economy will no doubt be shaped by the social, economic, political and institutional forces and factors that underpin the entrepreneurship process. However, it took the phenomenal success of Silicon Valley in California to draw the attention of researchers and policy makers to the importance of the entrepreneurial ecosystem. Drawing from examples around the world, it was argued that entrepreneurs in each industrial or regional cluster operated within its own ecosystem and that access to a number of factors determined success or failure.

Entrepreneurship studies confirm that each ecosystem is unique with no two ecosystems being the same. Therefore, the ecosystem from one nation state cannot be universalized and uncritically transferred to another environment. In fact, in a heterogeneous society like Nigeria, the ecosystem that works in one part of a country may fail abysmally in other parts of the country. Policy makers should therefore be mistaken to think that they can transplant a full-blown ecosystems from the outside - like creating the next Silicon *Valley. Equally, an ecosystem cannot be created de novo*, therefore an attempt to create one from scatch is an exercise in furtility. A more rewarding approach must be to learn from successful ecosystems and in the words of Schumpeter to invoke the creative destruction of the factors that are limiting entrepreneurship. Put another way, the objective should be to realign, refocus, reframe and reinvent (4R's) the factors behind the particular ecosystem to ensure that they positively support entrepreneurship. Therefore, to the extent that Nigeria's policy makers want to promote entrepreneurship, they must begin to deepen their understanding of the entrepreneurship process in general and that of successful ecosystems and the factors behind their success in particular. They also have to thoroughly understand the ecosystem entrepreneurs are operating in and why transformation is needed. This calls for more research and this paper is a tentative attempt to contribute to filing the lacuna in the knowledge needed to effectively promote entrepreneurship in Nigeria.

There is now a large body of work on the entrepreneurial ecosystem and many dimensions have emerged (Mason & Brown, 2014; Stam, 2015; Cooney, 2012; Gnyawall & Fogel,

1994; World Economic Forum, 2013). Suresh and Ramraj (2012) who studied entrepreneurs in Tamilnadu, India using a case study approach have proposed eight 'support' dimensions - moral, financial, network, government, technology, market, social and environment. A White Paper for Australia and New Zealand by Mazzarol (2014) identified nine dimensions of entrepreneurial ecosystem - government policy, regulatory framework and infrastructure, funding & finance, culture, mentors, advisors & support systems, universities as catalysts, education and training, human capital and workforce and local and global markets. Many dimensions of the entrepreneurial ecosystem have now been postulated, but the common thread running through them is the need to institutionalize good management.

Whilst it is understood that some of the dimensions are universal, there is agreement that there is wide variability between ecosystems with every ecosystem exhibiting some unique characteristics. Just as the tallest tree in the forest and or the most fruitful would not have been there but for the availability of favourable conditions that made it possible for it to germinate, grow and flourish; potentially good ideas alone are not sufficient for entrepreneurial success. Essentially, the entrepreneurial process consists of three phases - innovation, implementation and growth - and the ability to transit from one phase to the next is influenced by a number of factors which must be right. Therefore, better understanding of the entrepreneurial ecosystem is without doubt a useful starting point for modeling and stimulating entrepreneurship in any society. Most of the dimensions identified by various entrepreneurship writers as constituting the entrepreneurial ecosystem for other countries will no doubt apply to Nigeria. Nevertheless, the shape, form and intensity of their application will vary. But perhaps more importantly, there will obviously be dimensions that are uniquely Nigerian perhaps flowing from her historical, economic, political and technological evolution.

THE NIGERIAN ENTREPRENEURIAL ECOSYSTEM: AN EXPLORATORY FRAMEWORK

The conceptualization of Nigeria's entrepreneurial ecosystem is our main focus in the pages below. The excercise will draw extensively from the existing entrepreneurship literature but given the critical link between entrepreneurship and economic development, many of the factors behind Nigeria's economic, industrial and techological backwardness some of which have have been richly explored by other scholars will undoubtedly be part of Nigeria's entrepreneurial ecosystem (Ejo-Orusa, 1997; 2019). Before going further to isolate the factors that constitute Nigeria's entrepreneurial ecosystem, a brief clarification of entrepreneurship as used in this study is in order and we proceed by drawing insights from Joseph Schumpeter who is the grand panjandrum of entrepreneurship.

Schumpeter's theory of economic development is anchored on the heroic entrepreneurs who use breakthrough innovations to invoke the process of creative destruction and ensures that the industrial economy remains reproductive in character. Given the centrality of breakthrough innovations and creative destruction in Schumpeter's theorization, the emphasis is more appropriately on 'technological entrepreneurship'. Thus, those who qualify as entrepreneurs must have the technical mastery to operationalize new products and processes or to modify existing ones and the skills, attributes and competencies they require are horned in the capital goods sector (Rosenberg, 1976; Ejo-Orusa, 2014a) rather than buying, selling, hawking of cheap imported goods and the opening of churches which are the most common new venture businesses in Nigerian. Therefore, the general notion of entrepreneurship as commonly visualized in many Third World Countries is distinct from Schumpeter's technological entrepreneurship which is at the centre of wealth creation and economic development (Ejo-Orusa, 2014a; 2019). In particular, at every point in time, there are forces buffeting entrepreneurs and thus trying to stifle innovation and economic development and without the creative destruction of these forces the economy will not transit to higher economic and technological threshold or experience true paradigm change.

The use of the entrepreneurial ecosystem construct for policy making starts with a critical analysis of the macro-environment and it has three distinct steps:

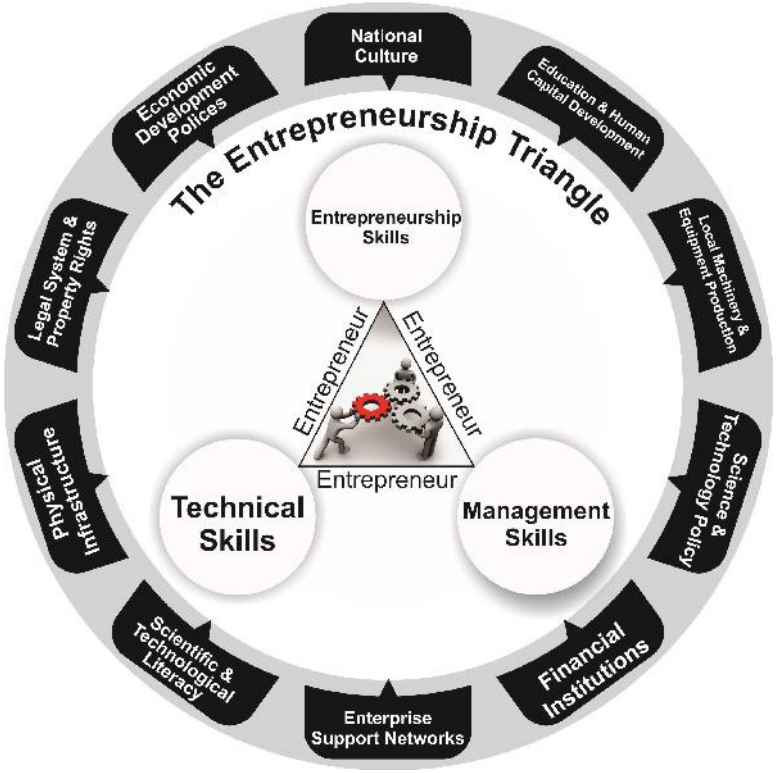
(1) Identifying the components or dimensions of the entrepreneurial ecosystem;

(2) Assessing whether they are impacting positively or negatively on entrepreneurship; and

(3) Realigning and reinventing the dimensions to embed the enterprise culture and to promote entrepreneurship.

Therefore, merely identifying the dimensions of the ecosystem is not sufficient. The second, and perhaps more important step, is to determine whether specific dimensions of the ecosystem or their combined impacts are on the whole acting to promote or stifle entrepreneurship. This study focuses on the first two steps but the third step; orchestrating the needed changes is the prerogative of policy makers. But when the first two steps are done properly, it provides policy makers the information and platform they require to effectively implement the needed changes. The whole idea is for policy makers to build on the strengths, reduce the weaknesses, and capitalize on the opportunities and to comprehensively and intelligently tackle the threats to entrepreneurship. An exploratory conceptualization of the Nigerian entrepreneurial ecosystem is presented in Figure 1.1 below.

Figure 1.1: An Exploratory Framework of the Nigerian Entrepreneurial Ecosystem



The ten dimensions in our construct are: National Culture, Education and Human Capital Development, Local Machinery and Equipment Production, Science and Technology Policy, Enterprise Support Network, Financial Institutions, Scientific and Technological Literacy, Physical Infrastructure, Legal System and Property Rights and Economic Development Policies. As a cautionary note, we have to underline the point that our dimensions are not exhaustive but merely designed to serve as an exploratory framework which it is hoped that other researchers will add to, refine and build upon. All the dimensions identified as constituting Nigeria's entrepreneurial ecosystem are important but we obviously cannot fully examine all of them in the limited space available. Therefore, we have prioritized some under-researched dimensions while only a cursory look will be devoted to others.

Further, we now have a large body of useful empirical knowledge together with valuable experience on entrepreneurship promotion from across the world to draw from. Therefore, although our focus in this study is on the entrepreneurial ecosystem, enterprise promotion is not complete without looking closely on the entrepreneurs. Based on reports by leading UK entrepreneurship promoter, NESTA (2008; 2011) and research by entrepreneurship researchers such as Kutzhanova, Lyons & Lichtenstein (2009) and Kelley, Bosma & Amoros (2010) among others; the skill-sets required by entrepreneurs can be broken down into three interrelated and interdependent groups - **technical, management and entrepreneurship -** and we have christened them the 'entrepreneurship triangle' in our construct. These three skill-sets have the biggest direct impact on entrepreneurs and we intend to examine them in this study no matter how brief.

NATIONAL CULTURE AND ENTREPRENEURSHIP: WHY POOR COUNTRIES STAY POOR

Many scholars have demonstrated that culture is an important driver of economic development (Nef, 1958; Morishma, 1982; Roche, 1976; Inkster, 1990; Landes, 2011) and they are all in agreement that modern industry evolved with, and is dependent on its own distinct value system such as culture, myths, rituals and more importantly perception of science and technology. There is also agreement that culture is a critical driving force of entrepreneurship. Unfortunately, research on culture has almost ceased completely due to the political correctness that enveloped the World in the past 50 years. This is most unfortunate particularly given the fact that economic development is a process of creative destruction of precisely the anti-industry factors and forces that stifle creativity, innovation and entrepreneurship in the economy. Going forward, we have to explain what we mean by culture.

Culture is used in this study as a portmanteau to include factors as diverse as beliefs and value systems, religion, social structures, national outlook and psychology and patterns of behaviour. In fact, if one single factor can be singled out as the most important dimension of the entrepreneurial ecosystem, it is culture broadly construed. This is because most of the other dimensions are shaped and determined by culture. Following from this line of thought, it is incontrovertible that Third World countries are poor precisely because of culture, traditionalism, belief systems and values that are anathema to industry (Rostow, 1959). Also, technological entrepreneurship is culture-using, culture-dependent and culture-generating. Culture and technology are continuously reinforcing each other and they are so interwoven that it is difficult to draw the line from where one stops and where the other begins and societies

with weak entrepreneurial metabolism must begin to seriously re-examine their culture because they cannot overcome underdevelopment without adapting to, and borrowing extensively from cultures at the forefront of the current Techno-economic Paradigm.

As a caveat, it should be stressed that there is a great deal of variability between the tribal, ethnic and religious groups that constitute Nigeria and that our views are rather exploratory and designed to encourage debate and to promote the generation of preliminary hypotheses for further research. The general focus in this study will be on broad trends in the entire society. We categorically state that no judgment is made on the desirability or otherwise of any cultural trait. Rather, the arguments that follow derive from the fact that the nature of a society's culture, beliefs and values are relevant to the core issue of the extent to which it is likely to be entrepreneurial, innovative and to transit to modern industrialism. From the history of the Industrial Revolution to the contemporary era of the ICT paradigm, it is established that science and technology flourish in an environment that is characterized by cognitive cultural values such as rationality, curiosity, practicality, disposition to mental work, deductive reasoning, intellectualism, inquisitiveness, motivation to learn and to acquire new knowledge, free exchange of ideas, socio-economic mobility, focus on quality and deep roots in excellence. Rationality as used here relates to the scientific manipulation of the environment and it is the antithesis of superstition and magic. Generally, societies where the above characteristics are entrenched are more successful in economic development precisely because they are much more inclined to think and act in ways that are consistent with the motivational and conceptual requirements for effectively adopting modern industrial ethos, to become scientifically oriented and to develop technological capability.

Societies can be placed on a continuum of cognitive cultural value systems with the U.S., European and the Chinese together with the Chinese-influenced civilizations epitomizing the top end of the continuum. Next in the hierarchy will be the great civilizations of India and other South and Southeast Asia countries influenced by it. In the third group are the Islamic countries of North Africa and West Asia while the societies of tropical Africa fall at the other end of the continuum. Therefore, notwithstanding the fundamental differences between the European and Chinese/Chinese influenced civilizations, it is interesting to note that these societies nevertheless have strikingly similar pro-capitalistic value systems (Morishima, 1982; Ferguson, 2011; Morris, 2010). Interestingly, the above categorization of societies mirrors the economic development pattern of the world. Quite clearly, Nigeria is deficient in all the cognitive values noted above and additionally, Nigeria's cultural values, social structures, modes of behaviour and institutional arrangements have also not adapted to the threshold that engendered the Industrial Revolution which is the First Techno-economic Paradigm (Ejo-Orusa, 2014b). Another related area of concern is Nigeria's tribal focus and the flowering of feudalism. But feudalism is a relic of the pre-Industrial Revolution European society which gave way for the emergence of modern industry. Unfortunately for Nigeria, the State has even legitimized feudalism, thereby making it impossible to embed the enterprise culture.

Entrenched tribal roots also pose problems for entrepreneurship. The extended family system, a fine example of a good form of social organization that falls on its face in the context of modern industry, is a case in point. Whilst this form of social arrangement represents an innovative anti-poverty strategy for a traditional society, it has negative consequences for capital accumulation and entrepreneurship. With relatively more affluent members of society taking direct financial responsibility for the less fortunate ones, their ability to save and invest; basic fundamentals for economic development, is drastically diminished. Further, in a poor country where the average worker does not even earn a living wage, support for hangers-on has the effect of institutionalizing corruption. Perhaps more damaging is the fact that dependence creates a coterie of passive citizens that may never have the drive or motivation to explore new venture creation opportunities.

EDUCATION AND HUMAN CAPITAL DEVELOPMENT: BRAIN-NOT-BRAWN

The history of industrial evolution incontrovertibly demonstrates that to the extent that one single factor can be singled out as the most critical in the entrepreneurship process, it is the quality of human resources broadly construed to include disposition to physical and mental work, scientific and technological literacy, leadership, management capacity and intellectualism. But the quality of a country's human resource base is in large part determined by its culture and corporate history. Particularly important is the fact that knowledge is often embodied in human capital in the form of know-how, labour skills, management expertise and general experience. What then is the quality of Nigerians from the stand-point of entrepreneurship development in particular and transition to modern industrialism in general? A fallacy that is rapidly gaining currency suggests that: *Nigeria is generously endowed with human resources and that Nigerians are hard working and that they have high entrepreneurial metabolism.*

If this assertion is intended to mean that Nigerians are relatively more hard-working and are of superior mental disposition than those from other societies, it most certainly runs against the grain of truth and must be vigorously refuted by all those who love Nigeria. As anyone who has knowledge of the work ethics in Asia, Europe or America will attest, the effective person-hour put in by the Nigerian worker is insignificant by comparison. Nigerians are so lazy that they are always looking for excuses to be out of work. The result is that most Nigerian organizations - private and governmental - are over-manned while Nigerian workers are generally underemployed and need to be closely supervised for effective performance. We can only conjecture that the reality does not support this assertion. Therefore, the behaviourial theory of management which asserts that people like work as much as they do play cannot be generalized or applied to Nigerian workers.

Again, in the techno-economic parlance, working very hard without the use of efficient machinery and equipment and of course the application of creativity and innovativeness may even give rise to negative value. Indeed, even if Nigerians work twice as hard as others, which indeed they do not, they will not increase their productivity; but only their production. Productivity is largely a measure of efficiency and a key determinant of organizational performance and will only increase if workers produce more for the same or less time, effort or resources. Increased productivity is achieved either through better ways of working and or the use of more and

improved technology; conditions that are deficient in Nigeria. Also, whereas most Nigerian commentators erroneously construe the country's large population to equate to a large market or to be synonymous with generous human resource endowment, the size of the market is a function of purchasing power and effective demand while entrepreneurship depends on brain rather than brawn.

The poor quality of Nigeria's human resources is perhaps better seen from the stand-point of the work arena. Workers generally take to the work place their cognitive traits, cultural values, social norms, traditionalism, expectations, frustrations and indeed their entire background. But precision and neatness of finish which are integral parts of some societies and artistic cultures are totally lacking in Nigeria. In consequence, micro-level precision, exactness and excellence which are the basic requirements in industry are not the forte of Nigerian workers. Perhaps more disturbing is the fact that industrial activities such as machinery and equipment production which entrepreneurs depend on to start new venture operations place greater reliance on precision, quality and exactness.

The quality of human resources is not independent of culture and the other anti-industry characteristics explicated in earlier pages. Entrepreneurs are from the same pod as the general population and they therefore exhibit similar anti-industry characteristics.

Expectedly, Nigerian entrepreneurs generally do not perceive the need for quality control, do not have the ability to maintain strict quality standards, are not alert to the technological opportunities for innovation that present themselves within the operating systems neither do they have the technological mastery to exploit such opportunities. They are also grossly inefficient in the use of scarce resources such as manpower, raw materials, finance, machinery, time and information. Put rather differently; they do not have the capability, personality, orientation, expertise, experience, technological alertness and the motivation required to function effectively in a competitive industrial environment. Consequently, made-in-Nigeria goods are generally of high cost and low quality and they therefore cannot compete with imports. This is why cheap consumer goods from China and other emerging countries have overtaken the Nigerian market even in mature technologies and basic consumer goods for which the economy should ordinarily have comparative advantage.

Universities, technical colleges and research establishments are key components of the scientific and technological infrastructure and education and training that is driven by these institutions is a critical factor for improving the quality of human resources in general and in particular for reorienting the cultural values and behaviourial patterns to conform to the needs of industry and for developing new skills, competencies and new ways of working (Schultz, 1971; Myers, 1964; Harrison, 1973). With technology changing rapidly and the world becoming increasingly knowledge based, education is a key determinant of techno-economic development and the general level of educational attainment in a country gives an implicit indication of her technological capability. Formal education is however a recent phenomenon in Nigeria. Education first became a priority in Nigeria after independence in 1960 and the foundation for addressing Nigeria's human resource needs was set by the Ashby Report (1960) which represents the first concerted effort to promote education in Nigeria. The report drew attention to the dearth of educated personnel and a manpower plan was formulated to take Nigeria up to 1980.

Whilst we concede that a lot of progress has undoubtedly been made, serious questions still remain regarding the quality of education. It is probably only in Nigeria where those who train as primary and secondary school teachers are, in the main, the worst performers in the secondary school system. Surely, those who are of below average calibre cannot become the high-quality teachers required to develop the skills needed for competition in the 21st century. The situation is equally drastic for higher education including universities. Universities have exploded so rapidly that they are so thinly funded. The dire strait of Nigeria's educational system is perhaps best captured by the fact that no Nigerian university is rated among the top ten in Africa.

The progress made after independence and the early 1970s to develop education in Nigeria was completely undermined by the anti-intellectual leaders that came after them. Some simple examples will suffice here. Universal Primary Education which was initiated in the 1970s would have ensured that all Nigerians of school age receive formal education. However, no serious attempt was ever made to implement this critical initiative not to talk of expanding it to include the secondary school system. The shortfall between educational provision and the demand for places is so substantial that many young people now spend their critical formative years hawking cheap imported consumer goods on the country's streets, motorways and markets. Even the apprenticeship system that should train the artisans needed by the society has collapsed irreparably. The result is that there is now an acute shortage of skilled carpenters, masons, bricklayers, tillers, plumbers, tailors and mechanics and the shortfall is now met from neighbouring countries of the West African Sub-region. This is a most bizarre situation for a country with high rate of youth unemployment. But any society that is serious about entrepreneurship must give allits young people access to World Class nursery, primary, secondary, tertiary education and of course quality skills acquisition and apprentice training.

The high-handed emasculation of knowledge/learning and intellectual degradation by the Nigerian state is no less sorrowful than the plight of the Eloi in H. G. Wells' 'The Time Machine' which was published about one hundred and twenty years ago (Wells, 1994). The politicians that rule Nigeria are like the sub-human Morlocks who fattened the Eloi - Nigerians general1y - like cattle for preying upon. But the present breed of fat-witted Nigerian Morlocks, in keeping with their parasitic nature do not bother, neither do they have the capacity to create the wealth necessary for their next consumption. Unfortunately, this tragic comedy of epic proportions is taking place in the world's eighth most populous country and a major oil exporter. Add to all these, the fact that most of the teachers and lecturers are neither proficient nor motivated and that students are not interested in the quest for knowledge but merely want to acquire certificates and we begin to realize that Nigeria cannot develop highly skilled and technologically adroit citizens that will constitute the pool of technologically savvy entrepreneurs that will create the jobs of tomorrow and stamp-out poverty.

SCIENTIFIC AND TECHNOLOGICAL LITERACY

To the extent that there is modern science, technology

and the industrialization that goes with it in Nigeria, they have not been endogenously determined. These have been forced upon Nigeria as part of her colonial heritage. Not only is Nigeria's literacy rate low, the level of scientific and technological literacy which is a basic requirement for technological entrepreneurship is abnormally low. In consequence, Nigerians are still mystified by science, technology and industry and these are yet to become integral components of the value system of the contemporary Nigerian society. The country is failing woefully in the achievement of intellectual and material progress because instead of accepting science and technology as a way of life, Nigerians have remained fundamentally superstitious and animistic. The Christianization and Islamization of Africa and the proliferation of universities and other scientific and technological infrastructure have not significantly changed how Africans relate to the natural world and there is an unparalleled level of superstition, irrationality and scientific naivety even among supposedly university educated Nigerians.

Instead of looking to science and technology for solutions to problems relating to medicine, industry and management as is the norm in more successful industrial economies, Nigerians generally resort to magic, witchcraft and religion with the result that spiritualism is adversely affecting economic development. It should be noted that Islam and the ritualized Christianity of the traditional Nigerian genre and the animistic world view underpinning them, conduce to the entrenchment of socio-economic characteristics that are much more of the anti-capitalist hue than the Catholicism of Weber's thesis. Further, misology is the norm in Nigeria and knowledge is generally perceived to be a function of age while the position in society is denoted by wealth and tribe rather than learning and expertise. This cultural value system conduced to a lack of interest to acquire knowledge and to search for new and better ways of doing things.

Also, the capacity for problem solving which is one of the important characteristics of successful entrepreneurs is critically lacking in Nigeria. Reverend Andre' Scheffer, a Minister of the Dutch Reformed Mission Church in Africa arrestingly captured the unpardonable aversion of Africans to problem solving in a conversation with Nelson Mandela in prison thus: *'Whenever there is a problem we have to find a solution. But whenever you blacks have a problem you have an excuse'* (Mandela, 1995, p.538). This prognosis is also applicable to Nigerians. But a society where the people are not able to learn, apply and reward knowledge or develop the capacity for problem solving will never produce the large pool of technologically oriented entrepreneurs needed to embed the enterprise culture.

LOCAL MACHINERY AND EQUIPMENT PRODUCTION

Innovation is central to Schumpeter's entrepreneurship and this takes place more in the capital goods sector. But paradoxically, this sector which is critical for entrepreneurship, wealth creation and economic development and also the hub for technological change in the manufacturing industry and the medium via which an economy acquires and improves its technological capability is virtually nonexistent in Nigeria. In fact, no matter the nature and form of technological innovation; whether it is a new product or process; improvement to an existing product or process, it will require new, improved or modified machines that conform to defined technical specifications and capital goods firms have to design and produce them. It therefore follows that the presence of local machinery and equipment producers is a precondition for technological entrepreneurship (Ejo-Orusa, 1997; 2014a). The dearth of local machinery and equipment producers means that even when inventions or innovations have been theoretically conceived in the economy, they remain of little economic significance because of lack of people with the capacity to resolve the technical and mechanical bottlenecks associated with them and to produce the machines and equipment required by entrepreneurs to start new venture operations of manufacturing new products and or processes for the market (Ejo-Orusa, 2019).

We therefore notice that despite the commonly recounted creativity and high entrepreneurial metabolism of Nigerians, the lack of local machinery and equipment producers that can design and produce simple machines and equipment on demand to kick-start production is seriously militating against small business start-ups and growth that will help to exploit the latent economic opportunities, generate employment, create wealth, increase foreign exchange earnings and add value to the economy. Thus, the development of technological entrepreneurship and technological learning-by-doing depend on local machinery and equipment producers. But when you import machinery and equipment, you merely receive the hardware, and so the operatives who will use them miss out on the critical knowledge, technical skills and the organizational know-how which can help them to improve their competence or to become technological entrepreneurs. Also, even infrastructure such as electricity which is very critical to entrepreneurs cannot be adequately provided in a large country like Nigeria without vibrant local machinery and equipment producers to augment imports. Therefore, the absence of a vibrant local machinery and equipment production means that the rate and form of technological innovation and indeed of new venture creation within the economy is very limited; a vicious cycle that perpetuates and reinforces technological dependence, passivity and poverty.

SCIENCE AND TECHNOLOGY POLICY: KEY ATTRIBUTES

The central focus of Science and Technology Policy (STP) is the making of decisions that have technological and industrialization implications in such a manner as to allocate resources in the most optimal manner that can accelerate the rate of industrialization. Not only should STP address all the dimensions of the entrepreneurial ecosystem, it should also vigorously explore ways of building local technological capability through Research and Development (R&D) centres, local universities, technical colleges and specialist engineering consultants. These components of science and technological infrastructure are change agents and they should be redesigned to be less academic and more practical in orientation and encouraged to promote the development of skills that can be deployed to solve pressing industrial problems including those associated with imported technologies such as inappropriateness of production techniques, local repairs of machinery and equipment, technological dependence, adaptations and modifications to suit local factor endowments. Any good STP must also demonstrate knowledge of ICT plus new and emerging technologies and develop mechanisms to internalize them because this is easier when technologies are evolving than when they have been fully entrenched (Ejo-Orusa, 2014b). The STP should embody deep understanding of the entrepreneurial ecosystem as well as the specific

dimensions and crafted as an integral part of a comprehensive development strategy aimed at the structural transformation and diversification of the economy and the use of science and technology as agents for economic growth and social development.

Science and Technology Policy should aim to open new possibilities for the economy bearing in mind the potential contributions that science and technology can make in the development of latent resources and the more productive use of known resources. The policy should also clarify the areas to be prioritized and also establish the links between the knowledge-generating and the knowledge-using components of society. Further, the emphasis should not only be on the level of expenditure alone; but perhaps of greater importance may be on the areas in which R & D is carried out, their relevance to economic growth and of course the distribution of resources between fundamental research, applied research and engineering development. Essentially, STP should address the entire gamut of the development and application of existing knowledge; augmented as may be found necessary by indigenous research or by importation from other countries and embrace the whole chain of research, development, and invention through to adaptation, innovation and diffusion. Drawing from successful entrepreneurship and innovation promotion initiatives (Bodas & von Tunzelmann, 2008) and our search for a framework to realign and reinvent some of the dimensions of the entrepreneurial ecosystem impacting negatively on entrepreneurship, some attributes of a good Science and Technology Policy have been formulated as in Table 1.1 below.

Table 1.1: Attributes of a Good Science and Technology Policy

1.	Integrated with national development plans.
2.	Mobilization and strategic reallocation of resources to support national priorities and critical areas like ICT, local machinery production etc.
3.	Specialization, alignment of technology with local resource endowments and focus on areas of comparative advantage.
4.	Instilling a pro-industry national culture that promotes innovation, entrepreneurship and excellence.
5.	Adoption of the best initiatives and policies from ecosystems and STPs across the world.
6.	Clearly define innovation goal-posts, road map and objectives for the economy.
7.	Development of clearly focused Enterprise Support Network Model.
8.	Intensive use of universities, technical colleges, R & D establishments and specialist engineering consultants.
9.	Development of specialist research institutions, networks, incubators and ideas hatching centres.
10.	Promotion of interaction and organic link between institutions.
11.	Integrated manpower development focusing on technical, managerial and entrepreneurship skills.

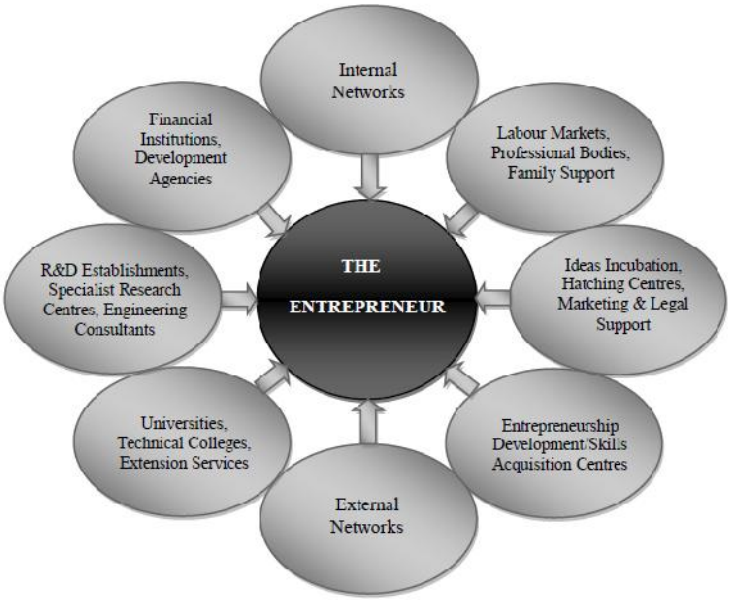
The clear objective of STP is to deploy science and technology for the purpose of solving societal problems including: promotion of effective and efficient utilization of resources, raising productivity throughout the economy, production of goods and services needed by the masses at reduced costs, transformation of agriculture, provision of social and physical infrastructure, promotion of job creation, reduction of poverty and raising of the standard of living in the society. Obviously, the making of STP is complicated by the fact that the estimation of social costs and benefits is difficult plus of course the general lack of skilled personnel with the capacity to make quality and informed decisions and a shortage of local scientists to carry them out. Therefore, STP should prioritize the training and distribution of scientist, engineers, technologists and technicians.

Also, given the fact that research scientists do not generally work effectively under the stifling bureaucratic environment of the type prevalent in many LDCs, STP should be designed to reduce bureaucracy within and between the knowledge-generating and knowledge-using establishments to the barest minimum. It should also consciously aim to improve the key learning related variables such as the number of people involved in productive and technologically intensive work, promote linkages among the knowledge, skills, competenciesand sectors of the economy and stimulate the learning rates of the workforce across the economy (Ogbimi, 2015). The development of entrepreneurs and technically-minded managers and the internalization of good management throughout the economy should also be key objectives. Finally, as with any good plan, STP should have built-in flexibility, continuous appraisal and adjustments as needed in the light of actual performance, new opportunities, threats and ideas.

ENTERPRISE SUPPORT NETWORKS

Due to the acknowledged contributions of entrepreneurship to economic growth, many countries have established enterprise support networks to promote innovation and new venture creation. Whilst, each enterprise support network will obviously be designed to focus on some specific issues, most are involved in training, coaching and mentoring trainees and equipping them with entrepreneurial mindsets, marketable skills and competencies that will empower them to become adroit in new venture recognition and creation. The Enterprise Support Network Model is presented in Figure 1.2 below as a framework for promoting entrepreneurship.

Figure 1.2: The Enterprise Support Network Model



Enterprise Support Networks should complement the formal educational system, promote human capital development, improve access to knowledge, finance and markets, nurture and grow ideas through incubation and to turn creative ideas, designs, inventions and innovations into products, processes and services. Also, they should empower prospective entrepreneurs with specific skill-sets and competencies and help to domesticate the entrepreneurship culture. All the eight components of the Enterprise Support Network Model are important for the promotion of entrepreneurship and other researchers are encouraged to deepen understanding about them and for clarifying and generating other dimensions. However, the Entrepreneurship Development Centres and specialized Skill Acquisition Centres should drive the development of skills in areas that are critical for entrepreneurship and where there might be comparative advantage or skill shortages.

OTHER DIMENSIONS

To conclude our exploration of Nigeria's entrepreneurial ecosystem, we have collapsed the four dimensions of economic development policies, physical infrastructure, legal system and property rights and financial institutions together. This is not to suggest that they are in any way less important than the other dimensions. On the contrary, the country's economic development strategy can be used to alter all facets of the economy and society including all the dimensions of the entrepreneurial ecosystem explicated in this study and is therefore the most critical factor for entrepreneurship promotion. The formalization of an economic development strategy for Nigeria can be traced to the First Six Year Plan of Nigeria: 1962/68 which institutionalized the import substitution as the industrialization strategy (Stolper, 1966; Berger, 1975; Fransman, 1982; Power, 1966; Bruton, 1970). All the other economic development policies that followed including the Fourth National Development Plan of 1981-85 and the Structural Adjustment Programmes and Stabilization Measures that came in the 1980s were variants of the import substitution strategy. The strategy deployed protection, tariffs and import licenses to replace imported consumer goods with local production.

Apart from the initial boost to industrialization occasioned by import substitution, the strategy has been inefficacious for economic development. To the knowledge of the present writer, there is no country where import substitution has led to sustainable industrialization but the poverty of Nigeria's economic development policies comes to the fore in the context of stimulating entrepreneurship. Import substitution inhibits entrepreneurship in three major respects: i) the industries that are birthed by import substitution are inefficient, high cost, uncompetitive and confined to the domestic market; ii) it tends to concentrate local firms on mature industries that have exhausted their technological dynamism and consequently do not significantly contribute to the development of technological capability broadly construed to include entrepreneurship and learning-by-doing and iii) perhaps more importantly, the import substitution strategy does not encourage local machinery and equipment production and thus stifles innovation and entrepreneurship.

Next, the ease and cost of doing business impact more directly on entrepreneurs than other groups in the society and physical infrastructure such as roads, railways and electricity are therefore very important for entrepreneurship. Nigerian entrepreneurs are not only in competition locally, but also internationally and they need world class infrastructure to be competitive. But the deplorable state of Nigerian roads is legendary and the railway infrastructure has not increased significantly from what was inherited from the British colonial administration. No economy can function effectively and efficiently without good transport network and it has been documented that the emergence of cheap and efficient transportation was critical for the Industrial Revolution and for the industrialization of the United States of America in particular (Fogel, 1964). An efficient transport network is important for the enlargement of the market, reduction of the price of goods and services through lower handling costs and for bringing inputs cheaply to producers.

Further, no matter the type of business the entrepreneur wants to purse, electricity is very important. But unfortunately, Nigeria's grid power which stands at about 7,500 MW is grossly inadequate for a country of over 180

million people. This problem is made worse by the fact that the capital goods sector that is critical for the development of the electricity infrastructure is almost absent in Nigeria and thus the possibility of increasing supply is very limited (Ogbimi, 2015). More particularly, poor electricity supply means that new venture creation opportunities require additional resources for alternative energy provision; a serious limiting factor for entrepreneurs who need all the capital they can get in the early stage of starting new ventures. Access to finance is another driver of entrepreneurship and many specialist funding institutions have evolved in some societies in response to the needs of entrepreneurs but such institutions are conspicuous by their absence in Nigeria. Therefore, no matter how brilliant the ideas of Nigerians may be, lack of funding may still frustrate progress through the phases of the entrepreneurship process to actual commercialization.

Also, not only is it generally very difficult to secure loans in Nigeria, the financial institutions are more interested in short-term speculative lending to traders, importers and contractors rather than medium and long-term lending which is critical to entrepreneurs when pursuing new venture opportunities. Additionally, the abnormally high lending rate of 20% and above makes it difficult for most new investments to pass the viability tests. Further, the matter is made worst by the fact that the Land Use Act which vests all the land in a State on the Governor means that those who are just starting their entrepreneurship journey find it very difficult to provide acceptable collateral which is a basic requirement by financial institutions for lending. To redress the situation, 'special vehicle' financial institutions should be established to support innovative ideas that have potential economic significance, the interest rate should also be significantly reduced to what is obtainable in other parts of the world and more importantly the anti-investment Land Use Act must be abrogated so that entrepreneurs can use their landed properties as collateral to raise money for investment. These simple changes will greatly boost entrepreneurship and economic development.

THE ENTREPRENEURSHIP TRIANGLE

The three skill-sets that constitute the entrepreneurship triangle in our model is a composite of the level of human capital development in the economy and they are determined, shaped and conditioned by the entrepreneurship ecosystem. Therefore, the attempt to promote entrepreneurship should critically address the specific components that constitute each of the skill-sets. Entrepreneurship training is skill intensive, practice oriented and requires sensible and well thought-out initiatives. For example, education and training in the universities, technical colleges and Entrepreneurship Development Centres should be used to build the technical, management and entrepreneurship skill-sets. The level, type and nature of training required for the development of each skill-set, and indeed the specific skill within each area will be dependent on the level of human capital development in the country. Further, to address some of the limitations on the skill-sets will require the improvement of the capacity to intelligently learn from successful initiatives and to adapt/ modify them where necessary to suit local conditions and to build on them.

The world of the entrepreneur is becoming more dynamic and the teaching of entrepreneurship has consequently changed significantly in the last two decades and is still changing. However, while the traditional teaching and training methods may still be relevant for the development of technical and management skill-sets, entrepreneurship skills are unique and the development of appropriate skills require the adoption of special and innovative approaches. Consequently, many leading entrepreneurship researchers and educators (Gibb, 2010; O'Hara, 2011; Henry, Hill & Leitch 2003) have proposed for a shift away from conventional academic and theoretical approach of the traditional educational system with its focus on functional subject areas to an alternative 'appropriate' model for entrepreneurship education. This model advocates for emphasis on behavioral attributes like capacity for creativity and innovation; personal maturity which is exemplified by self-awareness, accountability, emotional intelligence, ways of thinking, communicating, organizing, seeing, doing things and learning; the effectuation process and the entrepreneurial mindsets, cognitive adaptability; strategic thinking and management of change; scenario planning and intuitive decision making; dealing with uncertainty and complexity; network management and learning-by-doing and re-doing (Sarasvathy, 2006; Haynie, Shepherd, Mosakoski & Earley, 2010; McGrath & MacMillan, 2000, World Economic Forum, 2009).

Quite clearly, these behavioral attributes that constitute the entrepreneurship skills are qualitative in nature, mutually-inclusive and fundamental for increasing entrepreneurial metabolism and for embedding the enterprise culture It is hoped that improving them will empower entrepreneurs to recognize new venture opportunities, to foster new creative solutions, to act effectively on them and to create new businesses and in fact to become more prolific in new venture creation. The challenge is how to teach and learn the positive skills and 'un-learn' the negative ones that are stifling entrepreneurship. The prevailing consensus is that mentoring, particularly peer-to-peer mentoring and coaching in an incubation type environment represent useful approaches from successful initiatives from across the globe (Kutzhanova *et al*, 2009).

Also, successful and active entrepreneurs who can provide real life examples of successes and mistakes and psychologists; particularly cognition experts are useful facilitators for such programmes. This is the way to proceed and entrepreneurship training institutions and Entrepreneurship Development Centres in particular have to first train-the-trainers needed for what will obviously be a massive transformation initiative. As people acquire expertise on the skill-sets that constitute the entrepreneurship triangle, they will have improved capacity to overcome some of the problems flowing from the ecosystem and to succeed in their entrepreneurship journey. When the pool of successful entrepreneurs has reached the tipping point, new venture creation will become the norm and the society will become reproductive in character and begin to achieve economic development on a continuous basis.

THE WAY FORWARD

First, one important lesson from the above *tour de horizon* of the Nigerian entrepreneurial ecosystem, particularly dimensions such as culture and scientific and technological literacy which are generally inherited from the country's historical background is that they are broadly anti-industry and are therefore making it difficult to domesticate the enterprise culture. Unfortunately, the illusion of Nigerians and indeed other LDCs is to pretend that they can retain their anti-industry culture and values and yet build viable industrial economies. Perhaps as a backlash from slave trade, colonialism

and imperialism, Nigerians are trying very hard to discard Western cultural norms and to reinvent inferior substitutes merely to be seen to be different. But capitalist development is unfortunately a Western phenomenon and is circumscribed by its own unique value system with its roots also solidly anchored in Western culture. The result is that Nigeria is in a crisis of socio-institutional and cultural non-adaptation of significant proportions. This is precisely why the so called 'high entrepreneurial metabolism' of Nigerians does not and cannot translate to the birthing of new ventures, wealth creation, employment generation and poverty reduction. This situation must be tackled comprehensively as a precondition for the flourishing of entrepreneurship in Nigeria.

Secondly, most of the dimensions of the entrepreneurial ecosystem in our conceptualization are the creations of policy makers and Nigeria's economic managers since independence. However, drawing from the Nigeria's poor economic performance, it is indisputable that these dimensions are impacting negatively on entrepreneurship and that they cannot propel a backward, large and traditional society that has not fully transited to the First Techno-economic Paradigm to the ICT or Fourth Techno-economic Paradigm (Ejo-Orusa, 2014b). Nigeria's policy makers and political leaders must therefore aim not just to leapfrog to the ICT Paradigm, but to the Fifth Techno-economic Paradigm which is already unfolding. But first, they have to clearly understand that the conditions for embedding the enterprise culture are absent in Nigeria and that the level of innovation, entrepreneurship, new venture creation, wealth creation and indeed economic development will continue to be low unless there is creative destruction of the prevailing anti-industry factors. Therefore, concrete steps should be taken to realign and reinvent the anti-industry dimensions that constitute Nigeria's entrepreneurial ecosystem. In particular, local machinery and equipment production and export promotion should be key priorities of the economic development policies. Also, close attention should be given to the use of Science and Technology Policy and the Enterprise Support Network Model proposed in this paper to promote entrepreneurship.

Thirdly, the dearth of quality artisans in some trades in Nigeria is of epidemic proportions and the resultant effect is that the country has become dependent on workers from the neighbouring countries of the West African Sub-region. Therefore, specialist Entrepreneurship Development and Skills Acquisition Centres should be established to develop technical skills in the following areas: building and civil works (draughtsmanship, bricklaying, masonry, tilling, roofing, plumbing, electrification, carpentry and furniture making); mechanical engineering (machine tool production, metal working and fabrication, structural and underwater welding, refrigeration, air conditioning); lifestyles (fashion design and dress making, shoe making, catering, synthetic hair making, soap, cream and perfumery); automobiles (mechanics, panel beating, electrical); ICT (programming, software and hardware engineering, website design); Many other technical skills that are critical for the effective functioning of the economy should be identified for attention. While many trainees will obviously secure employment with other organizations, it is expected that some of them will use the new skills they acquire to start their entrepreneurship journey.

Further, the attributes of a good Science and Technology Policy presented earlier are not exhaustive but a close examination reveals one fundamental truth that is not understood by policy makers in Nigeria and many Third World Countries. Science and technology policy is not the preserve of scientists, technologists and engineers, but a socio-economic process that focuses on building the capacity to effectively address societal problems, improve economic competitiveness and to create wealth. It is essentially a multidimensional and multidisciplinary process that calls for social engineering, mastery of economic history and theory, good management and transformational leadership and it requires the collaboration of scientists, engineers, technologists, economists, economic historians, lawyers, management and policy experts and social scientists broadly construed.

Finally, the dimensions of entrepreneurial ecosystem and the Enterprise Support Network Model presented in this study are exploratory and more research is needed to redevelop and refine them. Also, well thought-out policy instruments should be developed and used to address the weaknesses and threats in the ecosystem and convert them to strengths and opportunities in the shortest possible time. Further, the scientific, technological and physical infrastructure should be upgraded and serious attention should be given to the promotion of ICT plus new and emerging technologies. Access to finance and to markets should also be improved and the industrial policy should be redesigned to be export oriented and to support, grow and nurture the indigenous capital goods sector to become dynamic and capable of producing the machinery and equipment which entrepreneurs need to start new businesses.

REFERENCES

1. *Berger, M. (1975). Industrialization policies in Nigeria. Munchen: Weltforum Verlag.*
2. *Birch, D. A. (1979). The job generation process. Report Prepared for the U.S. Department of Commerce, Economic Development Administration. Cambridge, MA: MIT Programme on Neighbourhood and Regional Change.*
3. *Bloom, D. E. (2010). Nigeria: The next generation report. PGDA Working Papers 6210.*
4. *Bodas, F. I. M., & von Tunzelmann, N. (2008). Mapping public support for innovation: A comparison of policy alignment in the UK and France. Research Policy, 37(9), 1446-1464.*
5. *Bruton, H. J. (1970). The import substitution strategy of economic development. Pakistan Development Review, X(20). 123-146.*
6. *Cooney, T. (2012). Entrepreneurship skills for growth-orientated businesses. OECD LEED Report for the Workshop on Skill Development for SMES and Entrepreneurship, Copenhagen.*
7. *Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. Entrepreneurship Theory and Practice. 16 (1) 7-25.*
8. *Ejo-Orusa, H. A. (1997). Development myopia: Technology and the wealth of nations. Zipidi Press.*
9. *Ejo-Orusa, H. A. (2014a). The capital goods sector: Missing link in Nigeria's techno-economic development debate. International Journal of Advanced Research in Statistics, Management and Finance, 2(1), 209-237.*
10. *Ejo-Orusa, H. A. (2014b). The new techno-economic paradigm and economic catch-up: Lessons for Nigeria. International Journal of Advanced Research in Social Engineering and Development Strategies, 2(1) 124-145.*
11. *Ejo-Orusa, H. (2019). Crossing the poverty chasm: Prescriptions for Nigeria's industrialization. Journal of Economic and Business Review, 7(8), 17-27.*

12. *Federal Republic of Nigeria, (1981). Fourth national development plan: 1981-85.*
13. *Ferguson, N. (2011). Civilization: The West and the rest. London: Penguin Books.*
14. *Gibb, A. A. (2010). Towards the entrepreneurial university - NCGE, Birmingham.*
15. *Gnyawali, D., & Fogel, D. S. (1994). Environments for entrepreneurship development: Key dimensions and research implications. Entrepreneurship Theory and Practice, 43-62.*
16. *Harrison, F. H. (1973). Human resources as the wealth of nations. Oxford University Press.*
17. *Haynie, J. M., Shepherd, D., Mosakowski, E., Earley, P. C. (2010). A situated metacognitive model of entrepreneurial mindset. Journal of Business Venturing, 25, 217-229.*
18. *Henry, C., Hill, F., & Leitch, C. ((2003). Entrepreneurship education and training. Aldershot: Ashgate.*
19. *ILO, (2011). Youth unemployment in the Arab world is a major cause for rebellion. Geneva: International Labour Organization.*
20. *Inkster, I. (1990). Japan as a development model: Relative backwardness and technological transfer. Studienverlag Brockmeyer.*
21. *Isenberg, D. J. (2010). How to start an entrepreneurial revolution. Harvard Business Review, 88 (6), 41-50.*
22. *Johnstone, C. (1982). MITI and the Japanese miracle: The growth of industrial policy, 1929 -1975. Stanford University Press.*
23. *Kelly, D., Bosma, N., & Amoros, J. E. (2010). Global entrepreneurship monitor: 2010 Global Report, MA: Babson College, Wellesley.*
24. *Kutzhanova, N., Lyons, T. S., & Lichtenstein, G. A. (2009). Skill-based development of entrepreneurs and the role of personal and peer group coaching in enterprise development. Economic Development Quarterly, 20, 10.*
25. *Landes, D. (2011). The wealth and poverty of nations. London: Abacus.*
26. *Mandela, N. (1995). Long walk to freedom: The autobiography of Nelson Mandela. Abacus Books*
27. *Mason, C., & Brown, R. (2013). Entrepreneurial ecosystems and growth-oriented entrepreneurship. Background paper prepared for the workshop organized by the OECD LEED Programme and the Dutch Ministry of Economic Affairs. The Hague, Netherlands.*
28. *Mazzarol, T (2014). Growing and sustaining entrepreneurial ecosystems: What they are and the role of government policy. White Paper WP01-2014, Small Enterprise Association of Australia and New Zealand.*
29. *McGrath, R, G., MacMillan, T. C. (2000). The entrepreneurial mindset: Strategies for continuously creating opportunities in the age of uncertainty. Cambridge, MA: Harvard Business School Press.*
30. *McCraw T. (2007). Prophet of innovation: Joseph Schumpeter and creative destruction. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.*
31. *Morishima, M. (1982). Why Japan succeeded? Western technology and the Japanese ethos. Cambridge University Press.*
32. *Morris, I. (2010). Why the West rules for now: The patterns of history and what they reveal about the future. London: Profile Books Ltd.*
33. *Myers, A. (1964). Education, manpower and economic growth. McGraw-Hill.*
34. *Nef, J. U. (1958). Cultural foundations of industrial civilization. Cambridge University Press.*
35. *NESTA (2008). Barriers for developing entrepreneurial graduates. UK: NESTA.*
36. *NESTA. (2011). Barriers to Growth: The views of high growth and potential high-growth businesses. UK: NESTA.*
37. *O'Hara, B. (2011). Entrepreneurship in Ireland. Dublin: Gill and MacMillan.*
38. *Ogbimi, F. E. (2015). Why Nigeria cannot achieve regular power supply. The Guardian, March 30, 50-51.*
39. *Porter, M. (1990). Competitive strategy: Techniques for analyzing industries and competitors. New York: Free Press.*
40. *Power, J. H. (1966). Import substitution as an industrialization strategy. The Philippine Economic Journal, 5 (2). 167-204.*
41. *Roche, M. (1976). Factors governing the scientific and technological development of a country. Scientia, CX1, 75-84.*
42. *Rosenberg, N. (1976). Perspectives on technology. Cambridge University Press.*
43. *Rostow, W. W. (1959). The stages of economic growth. Economic History Review, 12(1), 1-16.*
44. *Sarasvathy, S. (2006). Effectuation: Elements of entrepreneurial success. Edward Elgar Publishing.*
45. *Schultz, T. W. (1971). Investing in human capital. The Free Press.*
46. *Schumpeter, J. (1961). The theory of economic development. Oxford University Press. (Original work published in German, 1911).*
47. *Schumpeter, J. (1987). Capitalism, socialism and democracy. Unwin Paperbacks. (Original work published in Britain 1943).*
48. *Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique. European Planning Studies 23 (9), 1759-1769.*
49. *Stolper, W. (1966). Planning without facts: Lessons in resource allocation from Nigeria's Development. Cambridge Mass: Harvard University Press.*
50. *Suresh, J., & Ramraj, R. (2012). Entrepreneurial ecosystem: Case study on the influence of environmental factors on entrepreneurial success. European Journal of Business and Management, 4 (16), 95-100.*
51. *The Ashby Report. (1960). Investment in education, Lagos: Federal Republic of Nigeria.*
52. *Thomson, A., Stricklan, A. J., & Gamble, J. E. (2007). Crafting and executing strategy: The quest for competitive advantage. McGraw-Hill.*
53. *Venkatraman, N., & Prescott, J. E. (1990). Environmental strategy alignment: An empirical test of its performance implications. Strategic Management Journal, 11, 1-23.*
54. *Weber, M. (1930). The protestant ethics and the spirit of capitalism. The Free Press. (Translated from German by Talcott Parsons).*
55. *Wells, H. G. (1994). The time machine. J. M. Dent. (First published in 1895).*
56. *World Economic Forum, (2013). Entrepreneurial ecosystems around the globe and company growth dynamics. Davos: World Economic Forum.*
57. *World Economic Forum, (2009). Educating the next wave of entrepreneurs. A Report of the Global Education Initiative, Switzerland.*
58. *Zahra, S. A. (1993). A conceptual model of firm behavior: A critique and extension. Entrepreneurship Theory and Practice, 17 (4) 5-21.*