ICT ENTREPRENEURSHIP AND SMALL BUSINESS INNOVATION:
A MECHANISM FOR SUSTAINABILITY

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ABSTRACT

ICT Entrepreneurship plays a central role in virtually all national socio-economic development agenda in the past decade. Although business scholars seem implicitly to assume that ICT entrepreneurs' efforts contribute in some way to small business innovation, innovation remains a sustainable strategic fit in most business domain. Using modern technologies, this article examines the link between ICT entrepreneurship and small business innovation. In particular, the authors develop a conceptual model arguing that regulatory environment on ICT entrepreneurship development influence small business innovation. The paper adds to existing body of knowledge on ICT entrepreneurship and provides bases for more informed decision by offering new constructs, a team-based entrepreneurship activities and experimental activities. We proposed a model of ICT entrepreneurship to form a richer theoretical framework that guides the understanding, explanation and prediction of innovativeness in ICT entrepreneurship.

Keywords: Entrepreneur; Innovation; Information Technology; Communication; ICT entrepreneurship; Regulatory Environment.
Introduction

The relationship between ICT entrepreneurship and small business innovation has accelerated research concern in entrepreneurship development, and in particular, the concept ICT entrepreneurship has attracted a huge research interest over a decade. A number of researchers in business domain has argued the possibility that entrepreneurship development contributes to small business innovation through the competencies it helps to develop in the organization (Morgan and Sanchez 2008 in Amue et al 2013; Timil and Bartus 2006). In fact, ensuring organizations’ success can be considered the ultimate goal of small business innovation efforts in entrepreneurial firms. Much work on the relationship between ICT entrepreneurship development and small business innovation are far from being fully explained. The work of Migisha (2011) posit that ICT is a tool for development, but will only flourish if small tech start-up companies grow and generates new jobs through innovations and that technology is not the only issue, rather, its about entrepreneurship. The views of Migisha (2011) in particular, meets very mixed findings and arguments in the literature (e.g. Adewale Adeniyi-kie 2004; Jackson and Markfish 2010; Marchese and Polter 2010). Again, Kola-Ogunlade (2014) argue that the internet will fundamentally change the way people discover and access opportunities.

Supporting the work of Kola-Ogunlade (2014), ICT entrepreneurs are almost taking over from the traditional entrepreneurs, the evidence of ICT entrepreneurship development can be seen from the successful entrepreneurs at Western countries like United States. The successful ICT entrepreneurs in the United States can be traceable to Google.com, Yahoo.com, Amazon.com and eBay.com. Eduardo (2006) argue that google.com is one of the successful stories of young entrepreneurs who use ICT knowledge. Kofi and Anns (2010) posit that the diffusion and adoption of ICT entrepreneurship in Western business organizations can be regarded as relatively more mature and developed, while its likely impacts on less developed countries’ business networks still need to be properly stimulated, re-engineered and re-evaluated. The purpose of this study therefore examines ICT entrepreneurship development and small business innovation in the context of Nigeria.

Despite the growing awareness and huge potentials of ICT entrepreneurship, only very few are embracing and exploiting its benefits. Thus, our objectives are threefold; first, we examine areas of ICT entrepreneurship in the context of Nigeria. Second, we develop measure of innovation for ICT entrepreneurship sector. Third, we assess the predictive validity of small business innovation on the likelihood to sustain ICT entrepreneurship development. Propositions are made to guide future research and we discuss the implications for sustainability at the organization and public policy levels.

Conceptual Foundation

Entrepreneurship

Previous studies (Syaluda and Amran 2005; Proag et al 2000; Katt 1995) and recent ones (Ismail et al 2009; Kollmann 2006; Eduardo 2006) shows that entrepreneurship is the bedrock for socio-economic development. entrepreneurs are drivers of diversified socio-economic infrastructural development in areas such as employment generation, innovation and flexibility (Banny and Kazie, 2007). Guzta and Jessica (2005) posit that greater percent of economic growth comes from entrepreneurship development. although no universally acknowledge definitions of entrepreneurship’s exist (Uchasaran, 2001). The argument of Uchasaran was supported by researchers (e.g. OECD, 1998; Praag, 1999; Lumpkin and Dess 1996; Bull and Wilard 1993), the most commonest terms identified in the definitions across researchers depend on the research focus on which area.
Entrepreneurship is defined as the expectation of profit by utilizing the resources (Schumpeter 1934; Hayek 1945; Kirzner 1973; Casson 1982; Shane 2003). Entrepreneur can use the resources like funding advisory, low interest loan or government support to run their business. Law and Macmillan (1998) define entrepreneurship as the creation of new business venture, which means the entrepreneurial intention in the source of a person to start up their business. Krueger et al (2000) said the entrepreneurial intent is very important because it is the primary predictor of future entrepreneurial behaviour. Entrepreneurial intention is very important to the study of entrepreneurship development.

Entrepreneurs in the early days in Nigeria usually start their business ventures in small capital, low value added, and it takes time to set up the business. This form of entrepreneurs need to raise capital, source for better location, deal with suppliers and other intermediaries, man power problems and others associated issues in setting up their business. In the present, technology helps the entrepreneurs to save time and capital during start-up process in e-business. Information and communication technologies has assist the present day entrepreneurs to excel more than the traditional entrepreneurs. This growing technologies makes the traditional entrepreneurs join into the ICT entrepreneurship (Cheng and Chang, 2004).

ICT entrepreneurship development is becoming the order of present business days. Studies (e.g. Mzekandaba, 2013; Austins and Tygris 2010; Eduardo 2006; Kollmann, 2006) posit that ICT entrepreneurship is more and more important and useful; the evidence of ICT entrepreneurship development can be seen from the successful entrepreneurs at Western countries like United States. The successful entrepreneurs in the United States are google.com, yahoo.com, Amazon.com, eBay.com, Youtube, Facebook and etc. Google.com is one of the successful stories about young adults who have the ICT knowledge gets to involve in ICT entrepreneurship (Eduardo, 2006). Doing business online is much easier and cost saving if compare to traditional ways of doing business (Marks and Albert, 2009). Online business does not require so much man power. Technologies play a supportive role in helping business developed efficiently and effectively (Kollmann, 2006).

ICT entrepreneurship is the establishment of new companies business in the Net Economy (Matlay, 2004). The Net Economy has a direct influence in innovative business development which is based on the electronic information and communication network. The information society is characterized by the rigorous use of the information technologies and the changing from industrial to a knowledge base economy (Evans and Wurster, 1997).

Kollmann (2006) argue that, information sector is shifting from the traditional economic sectors (production, service, agriculture). Electronic data networks and the growth of IT formed the new business dimension calls the Net Economy.

Areas of ICT Entrepreneurship Development

The areas of ICT entrepreneurship development are: The business centres, Graphics Centres, Music Studios, the Internet Centres, Computer Training Centres, Computer Technicians, Web design and hosting, Internet employment agency services, Internet advertisements, Internet tourist and travelling agencies.

The business centres provides services for communication of information to customers. These centres employ between two or three people, the services provided by the business centres changes to include more interesting services which are required by the service unit.
The graphics centres are also another area where entrepreneurs using ICT tools like computers, scanners and other accessories to design graphics. The graphics centres evolves from the traditional business centres and combine the services of the centre.

The internet centres is another way ICT tools can be utilized, these centres provide internet services for people with a minimal cost. The services provided improve the people standard of living and also employ hundreds of individuals directly or indirectly by the entrepreneurs. Computer training centres play a pivotal role in creating jobs and educating the knowledge-based users. The investors in computer training centres are entrepreneurs who also employed many people, this development in the knowledge-based users or service unit are important they are the best trainers.

Web design and web hosting are another area of ICT entrepreneurship development, this form of ICT entrepreneurship include web advertisement and other related web-issues thereby developing the knowledge-base service centres. We can also host other websites through one own domain name. This is developing faster in e-marketing where one can act as agents for other companies outside of your country. One do not need to go to the offices, you can just work at home and your cheque will be deposited accordingly.

Internet employment agency services is another form of ICT entrepreneurship, with increase number of website designers, different innovative ideas are been put in place through the websites. The websites provide job search engines within them. agencies can be organized through the websites, in fact the entrepreneur need not have his own personal website, he could subscribe for space in other websites, acting as agent for the bureaus and organization that have a need. He could provide and connect business to customer as well.

**Measures of ICT Entrepreneurship**

Our measures of ICT entrepreneurship may not be consistent with some previous research on entrepreneurship in the context of ICT. Our measures for this study include, entrepreneurial skills development, team-based entrepreneurial activities and experimental activities.

**Entrepreneurial Skills Development**

Skills development is the intended output of education and training efforts and it is an enabler for growth. As an entrepreneur, the growth of your business and the establishment of a legacy are paramount. Development of skills enhances the capability of employees to improve the company’s efficiencies in the employee’s specific sphere of influence, and thus ultimately improving the bottom line revenue of the company. Employee individual capability development skill is fundamental to the success of the entrepreneurial business. Skills development, therefore can be defined as what we do to improve productivity in the workplace and the competiveness of our businesses and to improve the quality of the life of workers, their prospects of work and their mobility. As an entrepreneur, you need to unpack each of these so that you can define what skills to developed. (Elphick-Moore, 2012). Interpersonal dynamics measure ICT entrepreneurial skills development. review your competitive position, identify what you do that differentiates you from your competitors.
Team-Based Entrepreneurial Activities

This is another dimension of ICT entrepreneurship development. Entrepreneurship has typically been described in terms of the drama of venture start-ups, leveraged buy-outs, act of risk and personal vision. Team-based entrepreneurship focuses on the management within a small but highly successful division. The success of team-based entrepreneurship is shown to result from a unique approach to both market and organizational challenges. Team-based is related to the concept of cross-cultural studies of entrepreneurship. It is an important development for understanding entrepreneurial activities by employees in profit-seeking firms. Accessible and comprehensive team-based entrepreneurship is necessary for small business innovation strategy.

Experimental Activities

This is another measure of ICT entrepreneurship development. Experimental activities like testing and prototyping, access to resources, coaching and sharing experience with other entrepreneurs, including serial entrepreneurs and successful founders (Migisha, 2001).

Small Business Innovation

Bassey et al (2005) argued that everyone can innovate. Incorporating innovation in your business can help you save time and money and give you the competitive advantage to grow and adapt your business in the marketplace. Small business innovation generally refers to changing or creating more effective processes, products and ideas, and can increase the likelihood of a business succeeding. Businesses that innovate, create more efficient work processes and have better productivity and performance. Santos and Kelly (2010) argued innovation mean implementing new ideas, creating dynamic products or improving ones existing services. Innovation is a catalyst for the growth and success of the business and help adapt and grow in the marketplace. Mabel (2006) posit that innovation does not mean inventing, innovation means changing one business model and adapting to changes in your environment to deliver better products or services. Successful innovation should be an in-built part of your business strategy and the strategic vision, where you create an environment and lead in innovative thinking and creative problem solving. Businesses that innovate create more efficient work processes and have better productivity and performance.

Indicators to Measure Innovation Performance

For the purpose of this study, the measures of small business innovation includes: (1) Innovations transfer (2) Improved time to market for new innovations (3) Average prototyping speed (4) Budget spent on R and D.

ICT Entrepreneurship Development

Studies by Melfrad and Piffaz (2004) revealed that successful entrepreneurship development in ICT depends on the relevance of ICT infrastructure, Technical skills and User time and therefore organizations with higher levels of technological capability show the likelihood to innovate. Technology her relate to ICT infrastructures, internet skills and e-commerce know-how. ICT infrastructure provides a platform upon which e-commerce is built. Internet skills offer the technical know-how needed to develop entrepreneurial applications (Manny et al, 2008; Zhy et al, 2002; Zhu and Kraemer, 2002). By implications, technology capability goes beyond physical assets to include intangible resources which perhaps generate competitive advantages for entrepreneurs. Entrepreneurial skills development and team-based entrepreneurial activities are the primary determinant of ICT entrepreneurship development in an organization. However, experimental activities in terms of testing and prototyping, access to resources, coaching and experience sharing is a key constructs that determine ICT entrepreneurship development.
a. **Entrepreneurial Skills Development (ESD)**

Entrepreneurial skills defines the intended output of education and training efforts using applications will increase job related productivity, effectiveness and performance within the firm’s context (Larry and Best 2011). Entrepreneurial skills development is one of the determinants of ICT entrepreneurship development that provides diagnostic insights into small business innovation. Entrepreneurial skills development has direct effects on small business innovation in terms of number of innovation transferred, total funds, invested in innovation projects and improved time to market for new innovations. The development of entrepreneurial skills paves way for small business innovation. Ballam and Festus (2007) did a similar work in explaining the construct of entrepreneurial skills development into employee’s specific sphere of influence which helps in improving the bottom line revenue of the company, thus provides more specific insights into understanding development of entrepreneurial skills. Yi et al (2006) further expanded entrepreneurial skills development by the use of internet technology in the development process and proposed that internet technology is positively related to development in entrepreneurial skills. Therefore, the following propositions are formulated below:

P1: Entrepreneurial skills development will have significant positive effects on number of innovations transferred.

P2: Development of entrepreneurial skills will have significant positive impacts on improved time to market for new innovations.

P3: Entrepreneurial skills development will have significant positive effects on average prototyping speed and budget spent on research and development within the various participating firms as a percentage of turnover.

b. **Team-Based Entrepreneurial Activities**

Team-based entrepreneurial activities measures the prospective management within a small but highly successful division. Team-base entrepreneurship is a drama of venture start-ups, leveraged buy-outs, acts of risk and personal vision. Alex Steward argued that entrepreneurship is both collective, a team-based activity and individual, a leader-made creation. The success of team-based activity is shown to result from a unique approach to market and organizational challenges- “running hot” by seizing opportunities in serving a difficult market upon which the business must then depend. They first look at the market and at the employees as an internally nurtured team, then he describes running hot in a discussion of work action, management authority and the transformational capabilities necessary for the company to succeed.

For innovation to flourish, the business culture needs to be supported by team-based entrepreneurial activities. The concept is meant to represent all aspects of developing an outlook that fosters and encourages innovation at all levels of entrepreneurial business, with particular attention paid to education. Within this direction are measures designed to bring the idea of innovation to a wide public, and to provide services to those already engaged in creating the “next big things”. Team-based entrepreneurial activities has direct and positive impacts on changing or creating more effective processes, products and ideas since improvement in team-based activity contributes positively to performance and improved performance per se defines team-based entrepreneurial activities. Several studies have assess and determine the impacts of team-base activity on creating more effective processes, products or services but their findings met mixed conclusions
(Albertson and Moris, 2011). However, studies by Marvin and Koterz (2012) supported the positive link between team-based activity and creation of more effective processes. Since Santos and Kelly (2010) posit innovation as a means of implementing new ideas, creating dynamic products and improving existing services. Therefore, team-based entrepreneurial activities is a strong determinants of ICT entrepreneurial development. Team-based activity is related to creativity, we therefore make the following propositions:

P4: Team-based entrepreneurial activities will have a significant positive effect on implementing new ideas, creating dynamic products and improving existing services.

P5: Team-based entrepreneurial activities will influence the number of innovation transferred.

c. Experimental Activities

Experimental activities measure some aspects of the service idea with customers, stakeholders or professionals in order to improve the solutions before they are realized (service design tools, 2009). Testing and prototyping is a measure of experimental activity, before getting to the costly development of a new or improve service, low fidelity models are often used to prototypes and test the ideas quickly and cheaply. The tools used for service prototyping can go in the direction of evocative simulations. Prototyping could support a service design process as it happens in the traditional product design, if you use an analogy from the product world, a prototype can just be a foam block to guage the size of the product.

Coaching and mentoring is another measure of experimental activities. Mentoring is a long term relationship that meets a development need, helps develop full potential and benefits all partners, mentor, mentee and the organization at large. Audrey (2005) argue that mentoring is a protected relationship in which learning and experimentation can occur, potential skills can be developed, and in which results can be measured in terms of competencies gained. Suzanne (2008) posit that mentoring is a supportive learning relationship between a caring individual who shares knowledge, experience and wisdom with another individual who is ready and willing to benefit from the exchange to enrich their professional journey. The purpose of mentoring and coaching is to help in changing something for the better, to improve performance, to develop leadership qualities, to develop partnership skills, to realize their vision or whatever. Mentoring and coaching is strongly link to changes and adapting to changes in one’s environment to deliver better product, process and ideas. This link has a positive effects, we therefore advanced the following propositions; thus

P6: Mentoring and coaching as an experimental activities will have a significant positive effects will have a significant positive effects on changing or creating more effective processes, products and ideas.

P7: Testing and prototyping as a form of experimental activities will influence average prototyping speed.

P8: Sharing experience with serial entrepreneurs and successful founders will significantly influence small business innovation.
d. Regulatory Environment

The link between regulatory environment, ICT entrepreneurship development and small business innovation is enormous. ICT entrepreneurs’ propensity to innovate is shaped and reshaped by the regulatory environment. Strong correlation exists between the moderating role of regulatory environment on ICT entrepreneurship and innovation. Regulatory environment to make the economy more receptive to innovation and entrepreneurship. There should be regulations for supporting entrepreneurs’ operations, financing and exit. The regulatory environment should target firms to develop flexible hiring laws conducive for start-ups and the modernization and enforcement of intellectual property law, competition law and consumer protection law. The regulations will create an enabling environment for ICT entrepreneurs to operate. It will enable them to develop their intellectual property knowing that, it will be strictly protected by law. Regulatory environment moderates the influence of ICT entrepreneurship on small business innovation. The moderating effect is significantly positive, we propose as follows:

P9: Regulatory environment will significantly moderate the effect of ICT entrepreneurship development on creating more effective processes, products and ideas.

IMPLICATIONS FOR BUSINESS AND POLICY MAKERS

The contributions of this research attract both business and policy makers implications. The paper provides entrepreneurs in the ICT sector with a broader bases for making better decisions. In figure 1, it is shown that all the dimensions of ICT entrepreneurship individually influence innovation drivers. Measures of ICT entrepreneurship lead to development of skills and entrepreneurship activities. The quest to develop entrepreneurial skills will lead to changing or creating more effective processes, products and ideas and will increase the likelihood of business success. Therefore, the idea of successful business as a result of innovation is borne out of the development of entrepreneurial skills.

Mentoring and coaching which results from experimental activities provides personal experience sharing online materials search. Apparently, the outcome of mentoring and coaching activities produces one of three-favourable outcome, when the actual results equals predetermined expectations; unfavourable when actual results falls short of predetermined expectations; delighted when actual results surpasses the predetermined expectations. Organizations always avoid the second outcome and emphasize on mentoring
and coaching that produces satisfaction and delight. Relationship marketing support this assertion on accounts that it costs so much to acquire new entrepreneurs than it is to retain them, a delighted entrepreneur is a good asset to an organization in terms of diffusing his experience in creating effective processes, products and ideas. Finally, the outcome of mentoring and coaching as an experimental activities which is a dimension of ICT entrepreneurship. Mentoring improve management’s competitive positioning. Mentoring and coaching predicts experience acquisition encourages innovativeness.

Future studies are accelerated to improve on the constructs of ICT entrepreneurship model put forward by this study. However, certain factors influence ICT entrepreneur in their innovative processes even in developed economies, the Nigerian government and other multinational companies are encouraged by our study to aid in awareness creation. Various media should be used in a coordinated fashion to promote the emergence of local role models for ICT entrepreneur and innovation. This could be done in connection with the awarding of prizes for innovation or on the occasion of major achievements and benchmarks realized. Such an effort could be instrumental in generating interest for ICT entrepreneur and innovation among young generations. Foreign investors and potential partners to invest in Nigeria’s ICT entrepreneurship sector. Government should encourage entrepreneurial development in ICT not because there is limited resources but for the strategic position of ICT entrepreneurship in economic building. Countries such as Egypt, Rwanda and South Africa among others have also experienced limited resources in entrepreneurship development, breakthrough in ICT as marketplace or e-marketplace and ICT’s reflection on Gross Domestic Product and prepare grounds for ICT entrepreneurship readiness for the knowledge economy. This paper presented ICT as socio-economic driving force of entrepreneurships development through cost-effective operations as against the traditional methods.

With Nigerian government supports, public and private funding from foreign investors and potential partners, ICT entrepreneurs will enjoy near equal playing grounds with their counterparts, commitment by this various stakeholders groups to implement the strategy, including dedication of resources to embrace the partnership model and its components will lead to outstanding performance.
REFERENCES


