



ISSN: 2350-0328

**International Journal of Advanced Research in Science,
Engineering and Technology**

Vol. 11, Issue 3, March 2024

Information Technology and Entrepreneurship (The Building Block of a Digital Society)

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ABSTRACT: Entrepreneurship has had a special role in the development of emerging technologies; however, these technologies also have great impact on entrepreneurship and have created a sense of modern entrepreneurship. An entrepreneur is manager of business enterprise who makes money through risk and initiative. Nowadays, using the internet and its resources creates great opportunities; Netpreneurship is the ability to run a business on the Internet. It requires just the little IT devices and Connectivity. A Netpreneur, as long as he has a service which the market requires can set up a viable business with his "Intellectual Capital" as the main input and the "Connectivity Infrastructure" as the only physical input. Internet is perhaps the greatest revolution in science and technology that our generation can imagine. It has brought in many benefits to the society, cultural, economical and political. The Netpreneur is a premium member in the community, somebody who provides service to the community including employment. In this article, we x-ray benefits of, and opportunities in information technology a person can tap to become netpreneur.

I. INTRODUCTION

Schumpeter (1939) emphasized that entrepreneurship is the main engine of economic growth. Based on this view many researchers have attempted to explain the causal relationship between such growth and technological development [16]. Solow [17] introduced the residual approach to measure the contribution of technological development to productivity growth [17]. He found that approximately 70 percent of productivity increase is attributed to technological change. Hence, technology is considered to be the main driver of economic growth. Indeed, researchers suggest that ideas and innovations serve to grow total factor productivity (TFP) [5], which in turn raises worldwide income per capita, transforms production processes, and modifies the way in which a business runs. Entrepreneurship is a phenomenon of tremendous societal importance, and it is quite appropriate that in the globalization era, particularly, when we are speaking about culture, immigration and tourism [5]. Internal and external information and communication processes at enterprises across almost every industrial sector have been increasingly supported by electronic information technologies. The fundamental advantages of such technologies ensure that this trend will continue in the future. The constant development of technology in the accompanying Net Economy has had a significant influence on various possibilities for developing innovative business concepts based on electronic information and communication networks and realizing these by establishing a new company (e-ventures) [8]. Against this background, the term "e-entrepreneurship" describes the act of establishing new companies specifically in the Net Economy. This article refers to the term "e-Entrepreneurship" as reference companies that operate only on internet. It is quite evident that we are on knowledge era and those who are desirous of becoming an e-entrepreneur need to do a lot of exercise prior to venturing into online business. Because, online business requires systematic and in-depth study, as entrepreneurs have to administer their companies in different virtual places, having different customers, suppliers and competitors [5].

II. ENTREPRENEURSHIP

According to Hissich and Peters [3], entrepreneurship consist of the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, intelligence, and social risks and receiving the resulting rewards of monetary and personal satisfaction and independence. According to Nafziger [13], the entrepreneur can be viewed in at least four ways:

- (i) As the coordinator of other production resources– land, labor, and capital;
- (ii) As the decision maker under uncertainty;



- (iii) As the innovator; and
- (iv) As the gap filler and input completer.

Entrepreneur

An entrepreneur is an owner or manager of a business enterprise who makes money through risk and initiative. Jean-Baptiste, a French economist [4], is believed to have coined the word "entrepreneur" in the 19th century - he defined an entrepreneur as "one who undertakes an enterprise, especially a contractor, acting as intermediary between capital and labour". Jelassi, and Enders [4] identified four entrepreneurial characteristics such as:

- i.** The ability to identify potential venture opportunities better than most people;
- ii.** A sense of urgency that makes them action oriented;
- iii.** A detailed knowledge of the keys to success in the industry and the physical stamina to make their work their lives;
- iv.** Access to outside help to supplement their skills, knowledge and abilities.

Functions of the Entrepreneur

Kilby [5] identifies thirteen entrepreneurial functions:

Exchange relationship

- 1. Seeing markets opportunities (novel or imitative);
- 2. Gaining command over resources;
- 3. Marketing the product and responding to competition;
- 4. Purchasing inputs [7].

Political administration

- 5. Dealing with the public bureaucracy (concessions, licenses, taxes, and so fourth);
- 6. Managing human relations in the firm;
- 7. Managing customer and supplier relations [8].

Management control

- 8. Managing finances:.. Managing production (control by written records, supervision, coordinating input flows with customer orders, maintaining equipment);

Technological

- 9. Acquiring and overseeing plant assembly;
- 10. Minimizing inputs with a given production process– industrial engineering;
- 11. Upgrading processes and product quality;
- 12. Introducing new production techniques and products [7]

III. TYPES OF ENTREPRENEURS

The literature has distinguished among a number of different types of entrepreneurs, for instance:

Social entrepreneur

A social entrepreneur is motivated by a desire to help, improve and transform social, environmental, educational and economic conditions. The social entrepreneur is driven by an emotional desire to address some of the big social and economic conditions in the world, for example, poverty and educational deprivation, rather than by the desire for profit [18]. Social entrepreneurs seek to develop innovative solutions to global problems that can be copied by others to enact change. Social entrepreneurs make significant and diverse contributions to their communities and societies, adopting business models to offer creative solutions to complex and persistent social problems [18]

Serial entrepreneur

A serial entrepreneur is one who continuously comes up with new ideas and starts new businesses. In the media, the serial entrepreneur is represented as possessing a higher propensity for risk, innovation and achievement [1].

Life style entrepreneur

A lifestyle entrepreneur places passion before profit when launching a business in order to combine personal interests and talent with the ability to earn a living. Many entrepreneurs may be primarily motivated by the intention to make their



ISSN: 2350-0328

International Journal of Advanced Research in Science, Engineering and Technology

Vol. 11, Issue 3, March 2024

business profitable in order to sell to shareholders [14]. In contrast, a lifestyle entrepreneur intentionally chooses a business model intended to develop and grow their business in order to make a long-term, sustainable and viable living working in a field where they have a particular interest, passion, talent, knowledge or high degree of expertise. A lifestyle entrepreneur may decide to become self employed in order to achieve greater personal freedom, more family time and more time working on projects or business goals that inspire them [6]

Theory-based Typologies

Recent advances in entrepreneurship research indicate that the differences in entrepreneurs and heterogeneity in their behaviors and actions can be traced back to their founder's identity. For instance, Amit & Zott [1] have recently shown that based on social identity theory, three main types of entrepreneurs can be distinguished [1]: Darwinians, Communitarians and Missionaries. These types of founders not only diverge in fundamental ways in terms of their self-views and their social motivations in entrepreneurship, but also engage fairly differently in new firm creation [1].

21st century entrepreneurs

- i. Mark Zuckerberg (Internet), USA
- ii. Drew Houston (Internet), USA
- iii. Jack Dorsey (Internet), USA
- iv. Kevin Rose (Internet), USA
- v. Larry Page & Sergey Brin (Internet), USA
- vi. Elon Musk (Internet)

IV. REVIEW OF LITREATURE

The most significant influence on an individual's decision to become an entrepreneur is work place peers and the social composition of the workplace. The ability of entrepreneurs to innovate relates to innate traits such as extroversion and a proclivity for risk-taking. Schumpeter [15], the capabilities of innovating, introducing new technologies, increasing efficiency and productivity, or generating new products or services, are characteristics of entrepreneurs. Entrepreneurs are catalysts for economic change [2]. Research has found entrepreneurs to be highly creative with a tendency to imagine new solutions by finding opportunities for profit or reward. There is a complexity and lack of cohesion between research studies that explore the characteristics and personality traits of, and influences on, the entrepreneur. Most studies, however, agree that there are certain entrepreneurial traits and environmental influences that tend to be consistent. Although certain entrepreneurial traits are required, entrepreneurial behaviours are dynamic and influenced by environmental factors [15]. However, it should also be noted that there are approaches that appear highly critical against valorized conceptions of entrepreneurs. For example, there are views that attribute pertinent conceptions to scholarly prejudices, such as un realistically voluntary preconceptions on how a "normal" economic agent ought to behave [11]. Psychological studies show that the psychological propensities for male and female entrepreneurs are more similar than different. Perceived gender differences may be due more to gender stereotyping. There is a growing body of work that shows that entrepreneurial behavior is dependent on social and economic factors. For example, countries which have healthy and diversified labor markets or stronger safety nets show a more favorable ratio of opportunity-driven rather than necessity-driven women entrepreneurs. Empirical studies suggest that men entrepreneurs possess strong negotiating skills and consensus forming abilities [11].

V. E-ENTREPRENEURSHIP

Internet is perhaps the greatest revolution in science and technology that our generation can imagine. It has brought in many benefits to the society, cultural, economical and political. It is in the interest of the society that the benefits which the internet technology promises should be harnessed to the betterment of the society [14]. One of the most important aspects of internet is its ability to connect people through the communication network irrespective of their physical locations. The benefit flowing out of this is the ability to bring about a collaboration of people for a common task without physically bringing them together into an office. Virtual offices are therefore a reality of the day [6]

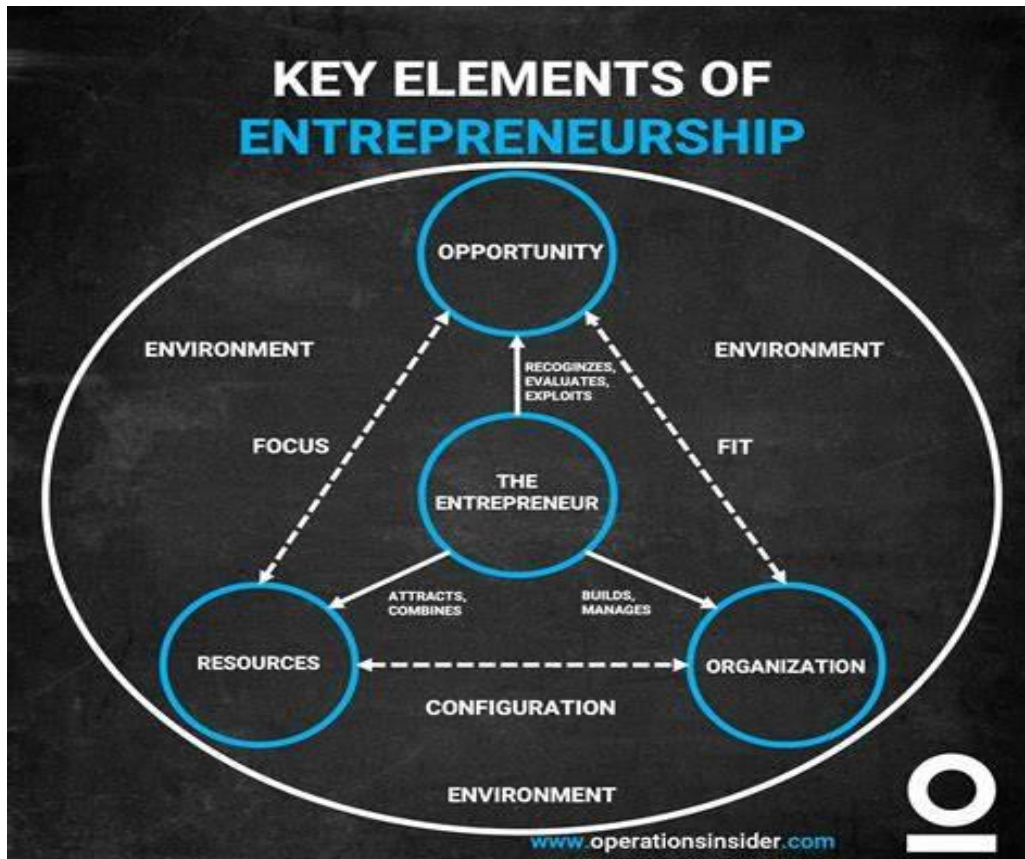


Figure 1: Key elements of Entrepreneurship [23]

Entrepreneurship as against e-Entrepreneurship

An entrepreneurship consists of the process of creating something new and assuming the risks and rewards. E-Entrepreneurship is defined in a variety of ways. E-Entrepreneurship, according to Kollmann [20], is the act of “establishing a new company with a creative business concept within the Net Economy, which offers its goods and/or services based on a purely electronic production of value, using an electronic platform in data networks.” Essentially, the advancement of information technology was the only thing that enabled this value offer to be made. “Founder or Manager of an Internet-based business” is another term for an Internet entrepreneur [21]. Unlike several aspects of online business, where people engaged in different forums for purchasing and selling, E-Entrepreneurship allows individuals to use a variety of platforms, from the web to mobiles, to connect with online communities to improve business transactions. This allows stakeholders to connect online, get input from trusted colleagues, exchange market insights, and get price discounts on custom-designed goods [22]. E-Entrepreneurship has radically changed the way both producers and consumers make decisions by being a revolutionary business concept within the business mind of society. It has resulted in the development of a digital business network and a revolutionary business concept focused solely on online resources. Essentially, the advancement of information technology was the only thing that enabled this value offer to be made. There are numerous research studies from various contexts to understand the value of E-Entrepreneurship [21][22]. However, until recently, the market effects and opportunities of E-Entrepreneurship were not seriously addressed. Furthermore, E-dynamics Entrepreneurship’s and dynamic flow-process were overlooked. Businesses that are completely executed on the Internet have had a lot of success, and now the infrastructure has improved to provide a direction for the growth of online entrepreneurship where individuals can be the creators of online businesses or manage them. As a result, the E-Entrepreneurship network encourages people to engage in Internet-based businesses.

Trends in Entrepreneurship

In this Virtual work environment, any individual with a Computer connected to the Internet can be part of a global office as if he is sitting along with his colleagues in the office. This can be called the concept of “Virtual Employment”. Virtual



ISSN: 2350-0328

International Journal of Advanced Research in Science, Engineering and Technology

Vol. 11, Issue 3, March 2024

employees can use their skills such as Apps Design, Web Designing, Editing, Teaching, Learning and many other faculties for and on behalf of a Virtual Employer. Similarly, a single Computer owner can interact with the whole world of Consumers and do business with them. This has given a boost to the concept of "Netpreneurship"[9].

VI. NETPRENEUR (The Building Block of a Digital Society)

"Netpreneurship" is the ability to run a business on the Internet. It requires just the "Computers, Devices and Connectivity". A Netpreneur, as long as he has a service which the market requires can set up a viable business with his "Intellectual Capital" as the main input and the "Connectivity Infrastructure" as the only physical input. A Netpreneur can be a self employed individual or one who predominantly employs several virtual employees. Those Netpreneurs who can afford their own computer and connect to the Internet (net) and carry on business can be called the Self Employed Netpreneurs (SENs) [19]. Those Netpreneurs who have more resources and engage "Employees" either for physical world services such as marketing, order fulfillment etc but carry on the main business activities on the Virtual Environment, are the Small and Home Office (SAHO/SOHO) establishments [10]. By definition, any computer network of less than 5 Computers as a SAHO Computer network. Extending the same definition, any business with 5 or less number of physical employees can be defined as SAHOs. Larger establishments including Call centers and Medical Transcription units etc fall into the category of IT enabled Service Establishments beyond the limited scope of SAHOs [20]. These bigger units have strength of their own and are outside the scope of present discussion. An enterprise cannot go smaller than one single individual namely the "Entrepreneur". In this sense, the "Netpreneur" is like the smallest building block in the "Business Network". The Netpreneur is a premium member in the Community. He provides service to the community including employment. To the extent he provides services outside the community, he adds wealth to the community by his Export activity [19]. He is a person therefore who needs to be encouraged by the Community for its own benefit. The more the Netpreneurs in the society, the better it is for the community. Netpreneurs add up to build other higher value added economic units in the society either joining hands with other similar Netpreneurs or with other Brick and Mortar entities. Prosperity springs when an environment is created where such Netpreneurs flourish, enter into mutually

beneficial partnerships and enjoy the benefits of a connected society [10]



Figure 2: The building block of digital transformation [25]

SAHO Service Providers

While a typical Self Employed Netpreneur possesses his own minimum infrastructure of a Computer connected to the Internet, at the micro level, a Netpreneur can also run his business from a "Cyber Cafe" with shared facilities. It is in this sense that the "Cyber Cafes" are actually "Business Enablers" and have a great role to play as "E-Bridge Centers" in an economy short of Money Capital. The Cyber Cafes as well as Service Integrators (eg: SAHO Network) who collate the services of the Netpreneurs fall into a separate layer of second level business units who are service providers to the Virtual Employees, Netpreneurs and SAHO players [11]. Because of this direct relationship, these SAHO Service providers also belong to the industry surrounding Netpreneurship. In a society like Nigeria starved of Money Capital but rich in Intellectual Capital, it is necessary for the benefit of the society to harness the individual Netpreneurship through aggregation. Such an aggregated entity will have economies of scale besides the strength of diverse resources. The society therefore needs to nurture the SAHO industry in whatever manner necessary [12].

1) Benefits of small office home office SAHO

There are many benefits of small office home office. The one is the public gathering on roads and offices. When a person work from home he do not use vehicle that save the fuel and reduce pollution. The time wastage in the traveling from home to office is vanished. So the person can spent more time on the job and increase his income. You have more time

to spend with your family when working from home [12]. So you remain stress free with your family. It is more comfortable to work from home than in a corporate office. You have no fixed time to do fixed tasks. You can spare time and also give extra time to your job. The resources for working can be chosen by you. The best thing is that you are your own boss; you can take your own decision. Your health and living style can be improved by doing work from your home [12].

2) Equipments required to setup a SAHO

The basic equipments are computer, switch, router, modem, printer etc. If you have any financial transaction type business then a firewall is also required for security purpose. We suggest the minimum equipments for SAHO as shown in the image below [24].

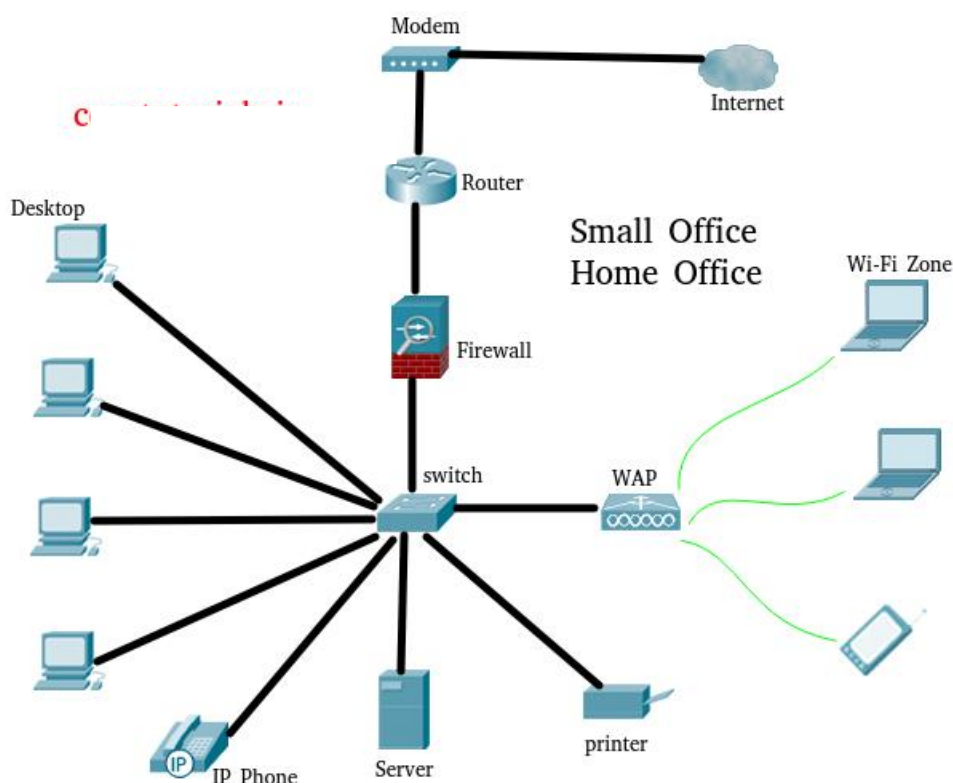


Figure 3: SOHO office components architecture [24]

There is a single internet connection from any ISP. After that a router is placed to route the data according to NAT and PAT. It means the data sent to the correct user who requests for data. After the router, a firewall is placed for filtering the incoming and outgoing data in the network. There is a Server available in the network which can be used for multiple services like domain controller, DHCP server etc. There is a Wireless Access Point to provide connectivity on Wi-Fi to the devices [24]. Apart from these equipments, there is a printer and IP phone. This setup is believed to be sufficient for working from home for 10 employees.

3) Configuration of router and network

The internal segment of LAN is allotted the network ID 192.168.1.0/24. The connectivity between the router and firewall is of network ID 10.10.10.0/30. The routing protocol in the router can be defined accordingly. You can use static routing or RIP for this small office home office.

**.VII. RECOMMENDATION**

- a) Every State in Nigeria should recognize that internet based business networking is a good business model having a potential to harness the individual computer based skills of the members of the society and provide an "Employment Opportunity" to many of them. In order to ensure that the industry is not spoiled by a few scammers, there is a need for some kind of regulation which is skewed more towards "Voluntary Compliance" rather than being "Restrictive".
- b) It is therefore suggested that at every state government level, the ministry of labour and employment should create a "Netpreneurship Cell" or "e-Entrepreneurship Development Cell", (EEDC) which would work as an apex monitoring body of the scheme for development of Netpreneurship for public good. (If the State Government so decides, it can be under the ICT department)
- c) This EEDC will provide a voluntary "Registration Facility" for different categories of people who would like to participate in the ICT-based SAHO industry. The categories might be,
 - i. Virtual Employment Seekers (VES)
 - ii. Self Employed Netpreneurs (SENs)
- d) SAHO business units (Units with less than 5 work units engaged in any IT related business). Small Cyber Cafes may also fall in this category. SAHO Service Providers who use the VES/SENs in aggregation. (Large Cyber Cafes will also fall under this category)
- e) The Cell should develop "Good Business Practices" for each of these stakeholders in the industry for voluntary compliance.
- f) Provisional Registration should be open to any stakeholder who subjects himself voluntarily to the suggested norms. Provisional Registration should be converted into "Accreditation" after some checks and inspections that may be prescribed on a periodical basis.
- g) Similar Netpreneurship Cells developed in different States should form a "Unity" and exchange their experiences.
- h) The Government can look at passing on any ICT related business to this network on a priority basis to support such a voluntary workforce of self employed Netpreneurs. These "Accredited Netpreneurs" will be the building blocks of the era of ICT based home enterprise in the Country. This project of building such a network should be an E-Governance Project for the Ministry of Labour and Employment in conjunction with Ministry of Communication and Digital economy.

VIII. CONCLUSION

Every business in this world is born out of Entrepreneurship. Entrepreneurship has been the sprouting ground for various discoveries, inventions, innovations, products and processes. In that wise, Netpreneurs in Nigeria will add up to build other higher value added economic units in the society either by joining hands with other similar Netpreneurs or with other "Brick and Mortar" entities. Prosperity reigns when an environment is created where such Netpreneurs flourish, enter into mutually beneficial partnerships, have fully supports of government and enjoy the benefits of a connected society. ICT will, however, be the catalyst to increase the growth of our economy in Nigeria and also to provide the real benefits that the Internet offers as a business opportunity for the society.

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ISSN: 2350-0328

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