



## LEVERAGING ON TECHNOLOGY INCUBATION PROGRAMME FOR SKILLS ACQUISITION AND JOB CREATION AMONG WOMEN AND YOUTHS IN NIGERIA

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**Abstract:** The study examines the role of the Technology Incubation program in leveraging skills acquisition, and sustainable job creation among women and youths in Nigeria. This study adopted a survey and analysis of existing data research design methods. The population for this study consists of staff and Entrepreneurs of Technology Incubation Centres (TICs). The study population covers two selected (2) Technology Incubation Centres in each Geo-political Zone of the Federation. This study uses both primary and secondary methods of data collection. The primary data consists of questionnaires, interviews, and observation methods. Questionnaires were administered to entrepreneurs/incubate while the staff of Technology Incubation Centres was interviewed and observation was used to complement both the questionnaire and interview. Statistical Package for Social Science such as regression analysis was used for hypotheses testing. Data entered into the package was verified to minimize human data entry errors. The hypotheses were tested at a 5% level of significance. Findings revealed that the programs have trained techno-entrepreneurs and created employment opportunities for women and youths. Employment can be reduced, economic growth stimulated, and social inclusion improved through the implementation of

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such programs. The study revealed that Technology Incubation Programme (TIP) is a worthy program that trained and provided employment opportunities for women and the young population in Nigeria. These hubs provided tech entrepreneurs with the tools needed to succeed. Included in this are resources such as social amenities, mentoring and training programs, and cutting-edge hardware and software. TIP can provide a realistic opportunity for women and young people in Nigeria to increase their employability and acquire new skills. More women and young people will be encouraged to launch and build successful technology-based businesses if more TIP centers are set up and the opportunities they present are better publicized. The study concludes that Government and the management of TIP should pay special attention to technologically important areas including IT, renewable energy, agrotech, e-commerce, and digital marketing. Encourage Networking by setting up opportunities for people to meet and talk to others in their field, as well as investors and future jobs. Internships, jobs, and partnerships can all result from these associations.

**Keywords:** Technology Incubation Programme; Skills Acquisition; Job Creation; Women Youths and Nigeria

## **1. Introduction**

Several policies and programs have been launched by the Nigerian government over the years in an effort to increase employment opportunities in the country. These policies and programs, such as the National Directorate of Employment (NDE), the National Poverty Eradication Programme (NAPEP), the Small and Medium Enterprise Development Agencies (SMEDA), and Better Life for Rural Women, etc., aim to give Nigerians stable sources of income over the long term. Nonetheless, the jobless rate increased from 14.2% in 2016 to 18.8% in 2017, as reported by the National Bureau of Statistics (NBS). It also reveals that the number of Nigerians participating in the labor force climbed from 83.9 million in the second quarter of 2017 to 85.1 million in the third quarter of the same year (Hassaini, Zakari, & Akilu, 2018). Based on these numbers, it's clear that Nigeria's unemployment rate is too high to fix quickly, and that the government will need to develop a comprehensive strategy to reduce it over the long term. The Federal government has started a long-term program called the Technology Incubation Plan to help develop homegrown technological entrepreneurs and boost the economy.

The goals of this entrepreneurship development program include the generation of new income and the creation of new jobs through encouraging the formation of new ventures and speeding up the connections between research and industry. "Incubators use techniques including enhanced access to cash, technical and business management training, contract procurement assistance, developing

networking opportunities through clustering, creating access to a credit facility, export and technology transfer assistance," Ndagi (2017) writes. Each of these offerings is made possible by coordinating efforts and sharing resources with similar groups operating in the same geographic area. Because of their incalculable value to nation building, women and young people should be prioritized for empowerment efforts.

In Nigeria, women and young people's potential is not being fully realized. It is essential to recognize those women and young people's contributions to the country's development process cannot be overstated, and that this can be remedied by providing sufficient funding for technologically innovative programs and agencies in Nigeria. In light of this, the study will investigate the efficacy of leveraging entrepreneurship and the skills acquisition programme in Technology Incubation Centres in creating sustainable employment for women and young people in Nigeria, with the ultimate goal of suggesting viable policy options for the country (Hassan, Zakari, & Akilu, 2018).

Government data from the N.B.S. (2021) Sixty percent or more of Nigeria's labor force is under the age of 34. During the last three months of 2018, the unemployment rate was 53.4% for those between the ages of 15 and 24, and 37.2% for those between the ages of 25 and 34. Unemployment was higher for women (35.2%) than for males (31.8%).

The IMF predicts that the economy of a country with 200 million inhabitants would grow by 1.5% in 2021, down from 1.9% in 2020, and that output will not return to pre-pandemic levels until 2022. Unemployment is expected to rise if the world's population continues to increase at a faster rate than the economy (United Nations, 2021). By 2050, Nigeria is expected to have over 300 million people living in it, making it the third most populous country in the world. In light of this, the study will look at how a combination of entrepreneurship and skill-building programs in technology incubation programme might help alleviate poverty in Nigeria's youth and female populations, with an eye toward recommending effective policy changes.

## **2. Statement of the Problem**

Those in Nigeria who are responsible for creating jobs and lowering poverty levels have significant challenges in doing so. Although Nigeria is rich in both natural and human resources, the country's economic situation has been unstable for almost two

decades, inflicting havoc on the lives of its citizens. In the 1960s, agriculture was the backbone of the Nigerian economy, supplying the government with the majority of revenue and the bulk of the country's foreign exchange profits. However, agriculture has been severely neglected since the 1970s, during the so-called oil boom. As it ended, Nigeria's economy went into a tailspin. The problem is the result of ignoring the economy's basic vulnerabilities, such as the inability to effectively diversify its exports and imports away from crude oil and create a strong agricultural and industrial base (Hassaini, Zakari, & Akilu, 2018).

In the three months ending in December 2020, the unemployment rate in Nigeria rose to 33.3%, according to a research published by the National Bureau of Statistics. The most recent official data available on the U.S. labor force is from the second quarter of 2020, when it stood at 27.1%. According to Nigerian norms, one-third of the country's 69.7 million labor force is unemployed since they either do not work or work fewer than 20 hours a week. There were also 15.9 million people who were working part-time (less than 40 hours per week). The two recessions that Nigeria has endured in the previous five years have cast a shadow on President Muhammadu Buhari's efforts to implement growth-oriented policies and create new jobs. In a country where inflation for food was over 20% year-over-year in January and where authorities struggle to handle insecurity due to fatal insurgency attacks and kidnappings, unemployment just adds to consumer pressures. Falling oil prices have devastated Nigeria's economy, as they provide nearly all of the country's foreign exchange earnings and half of all government revenue.

In light of this serious problem, the federal government has launched programs to encourage entrepreneurial growth and reduce the country's dependency on oil exports and other imports. Nigeria needs to take steps to alleviate its poverty, and one of those is to develop proper government organizations to encourage business and skill training (Hassaini, Zakari, & Akilu, 2018). From 2007, Technology Incubation Centres in Nigeria have been working to encourage business and skill development. Yet, the unemployment rate in Nigeria was 33.3% in 2021, according to a report published by the National Bureau of Statistics. Furthermore, World Bank (2021) noted, "Rural residents and households living in northern Nigeria were disproportionately affected by pre-crisis poverty in Nigeria. In 2018-19, it was projected that 82.9% of the population was living below the poverty line of \$1.90 per day; of this group, 84.6% resided in rural areas and 76.3% in the North Central, North East, or North West zones.

What necessities this study therefore is the need to find out how Technology Incubation Programme in Nigeria are leveraging on entrepreneurship and skills

acquisition programme to create sustainable job and reduce poverty among women and youths with a view to recommends appropriate policy options for the country.

This study seeks to answer the following research Questions:

- a. How has the Technology Incubation programme leveraged on entrepreneurship to diversify the Nigeria's Economy?
- b. Does Technology Incubation programme leveraged on skills acquisition programme to empowered women and youths in Nigeria?
- c. To what extent has Technology Incubation programme leveraged on entrepreneurship and skills acquisition programme to create sustainable jobs in Nigeria?

The general objective of this study therefore is to examine the role of Technology Incubation programme in leveraging on entrepreneurship, skills acquisition, sustainable job creation and reduce poverty among women and youths in Nigeria, while the specific objectives are:

- a. To find out whether Technology Incubation programme has leveraged on entrepreneurship to diversify the Nigeria's Economy.
- b. To ascertain whether Technology Incubation programme has leveraged on skills acquisition programme to empowered women and youths in Nigeria.
- c. To determine whether Technology Incubation programme has leveraged on entrepreneurship and skills acquisition programme to create sustainable jobs in Nigeria.

The following Research Hypotheses were formulated to guide the study;

Ho<sub>a</sub>: Technology Incubation programme did not significantly leveraged on entrepreneurship to diversify the Nigeria's Economy.

Ho<sub>b</sub>: Technology Incubation programme did not significantly leveraged on skills acquisition programme to empowered women and youths in Nigeria.

Ho<sub>c</sub>: Technology Incubation programme did not significantly leveraged on entrepreneurship and skills acquisition programme to create sustainable jobs in Nigeria.

### **3. Literature Review**

#### **3.1. Technology Incubation Programme (TIP)**

TIP is a programme designed to promote Nigeria's indigenous potentials through value-added and technology-related activities; by way of creating enabling environment for effective linkage amongst technology providers, entrepreneurs and capital (Hassan, Musa, & Muhammad, 2018).

Technology Incubation Programme (TIP) is a process of providing early-stage technology-based companies and entrepreneurs with the support and guidance necessary to expedite their growth and boost their chances of becoming successful. TIPs are intended to provide an environment that is conducive to the creation of new ideas, technologies, and business ventures as well as to the promotion of innovation and collaboration.

Some of the key aspects that may be included in a technology incubator programme according to Hassan, Musa, & Muhammad (2018):

1. **Infrastructure and Facilities:** In order to meet the requirements of entrepreneurs, TIPs often offer a physical workplace and infrastructure that includes office space, lab space, equipment, and high-speed internet.
2. **Mentorship and Guidance** Knowledgeable mentors and advisers are typically available to help companies with mentoring, expertise, and sector-specific information. They provide insights into the trends in the industry, corporate strategy, the development of products, and overall growth.
3. **Opportunities for Professional Networking:** Technology Innovation Programmes (TIPs) provide a forum for startups to engage and collaborate with other entrepreneurs, experts in their respective industries, investors, and prospective clients. In order to facilitate these connections, events such as workshops, seminars, and networking gatherings are frequently organised.
4. **Access to Funding:** Many TIPs have agreements with investors, venture capitalists, or government organisations, which allows them to provide start-up companies with access to funding options to assist the growth of their businesses.
5. **Training and seminars:** Startups who are enrolled in TIPs frequently receive training and seminars on a variety of issues, including legal considerations, intellectual property rights, and company development.
6. **Validation and Testing:** TIPs may be able to assist startups in validating their ideas as well as doing market research and testing to ensure that their products or services

satisfy real market demands. Validation can be accomplished through the use of prototypes.

7. Length of Time: Most of the time, TIPs are time-bound programmes, and their length of time can range anywhere from a few months to a couple of years, depending on the particular programme and its goals.

8. Support Following Graduation and During Post-Incubation Successful startups may "graduate" from the incubation programme, but they may also continue to receive support during the post-incubation phase. This aids in their transition to the market by providing them with ongoing mentoring and access to resources.

A Technology Incubation Programme's major objective is to assist startups in overcoming the first hurdles they confront during their early phases, thereby reducing the risk of failure and fostering an atmosphere that is favourable to the development of innovative ideas and business expansion. The provision of a range of resources, support, and knowledge is the primary contribution that technology incubator programmes (TIPs) provide to the development of an entrepreneurial ecosystem and the acceleration of technological progress.

### **3.2. Implementation of Technology Incubation Programme in Nigeria**

The program is structured in three phases – pre-incubation, incubation and post-incubation phases. During the six-month pre-incubation period, if the owner of the invention or business has not registered it, he/she will be encourage to register it and perfect the product to the point that it will be acceptable to consumers. The centre usually encourages entrepreneurs/incubatees not to have their husband/wife as managing director and the daughter/son as the director so that in case of any eventuality, the business will continue (NBTI, 2018).

The centre encourages them to invite friends, bankers and knowledgeable people that can contribute to the business so that if anything happens to the owner, it will continue. After the six months, the person will prepare a feasibility report and a business plan based on what he/she has developed. The business plan will be evaluated by the technical advisory committee made up of professionals from NAFDAC, SON, Export Promotion Council, etc and approved by the Director-General of National Board for Technology Incubation.

The committee will evaluate the business plan and feasibility reports and if they pass, the pre-Incubatees now have the option of staying with us for three years as

resident Incubatees or non-resident Incubatees for five years if they have a place outside the centre which is adequate for their production and the product will be certified by NAFDAC or SON (NBTI, 2018).

That is why the centre purposely selected them to be part and parcel of the development of the product from scratch to the point of certification and acceptability. The pre-incubatees receive a lot of guide so that they will not just produce things that will not be acceptable to the consumer. After the three years, if we certify their products as good and acceptable, and the patronage is great, then we recommend them to the state government which is a stakeholder (alongside institutions of higher learning, research institutions, non-governmental small business organizations and financial institutions). "The government will in turn provide an industrial park for them, built or ready to be built. These graduates now become post-incubatees. It is from the industrial park that they will start to pay tax, electricity bill, water rate etc. We open them up to international trade fairs, exhibitions, seminars, conferences etc., so that their businesses can survive. The centres also link them up with financial institutions like National Economic Reconstruction Fund where they can benefit (NBTI, 2018).

### **3.3. Skill Acquisition**

Skill acquisition refers to acquisition of skill through learning in which results in long-lasting improvements in an individual's ability to perform a particular task. With constant repetition, the task may eventually become automatic, requiring little cognitive oversight (Hassan, Musa, & Muhammad, 2018). Any activity that must be learnt and honed through practice might be considered a skill (Gobet & Campitelli, 2007).

Skill acquisition refers to the process of learning and developing new abilities or expertise in a particular area or field. It involves acquiring knowledge, techniques, and practical experience that enable an individual to perform tasks or solve problems effectively within that domain. Skill acquisition can occur through formal education, training programs, practice, and real-life experiences (Ericsson, 2008).

Skill acquisition refers to the process by which an individual acquires new abilities, knowledge, or expertise in a particular area. It involves the development and improvement of specific skills through learning, practice, and experience (Hassan, Musa, & Muhammad, 2018). Skills can encompass a wide range of abilities, including cognitive, physical, social, emotional, and creative skills (Musa, 2020).



The process of skill acquisition typically involves several stages (Hassan, Musa, & Muhammad, 2018):

1. Unconscious incompetence: At this stage, an individual is unaware of their lack of skill in a particular area.
2. Conscious incompetence: Here, the person becomes aware of their deficiency in a specific skill or domain.
3. Conscious competence: As learning and practice take place, the individual becomes proficient in the skill, but it requires conscious effort and concentration to execute it successfully.
4. Unconscious competence: After extensive practice and experience, the skill becomes second nature to the person, and they can perform it effortlessly and instinctively.

The skill acquisition process can vary depending on the complexity of the skill, an individual's innate abilities, the amount of practice and feedback received, and other factors like motivation and dedication. Different learning methods, such as formal education, training programs, self-directed learning, or mentorship, can facilitate skill acquisition. Continuous learning and deliberate practice are essential for maintaining and improving acquired skills over time.

#### **4. Job Creation**

Job creation is the ability of entrepreneurs to create job opportunities through innovation, invention and production of goods and services (Hassan, Musa, & Muhammad, 2018).

Job creation refers to the process of generating new employment opportunities in an economy or a specific industry. It is a critical aspect of economic growth and development as it helps reduce unemployment, improve living standards, and contribute to overall prosperity (Davis, & Haltiwanger, 2014). Governments, businesses, and various economic stakeholders often focus on promoting job creation to support their growth objectives. Here are some key factors and strategies related to job creation (World Bank, 2019):

1. Economic Growth: Job creation is closely linked to economic growth. When an economy expands, businesses experience increased demand for goods and services, leading to the need for a larger workforce. Policies that stimulate economic growth,

such as investments in infrastructure, research and development, and entrepreneurship, can result in new job opportunities.

2. **Entrepreneurship and Innovation:** Startups and small businesses play a significant role in job creation. Entrepreneurial ventures can introduce new products, services, and technologies, which can lead to job opportunities in the industry. Governments often encourage entrepreneurship through funding, tax incentives, and supportive policies.

3. **Industry Development:** Development in specific industries can spur job creation. Governments may target specific sectors, such as technology, renewable energy, healthcare, and manufacturing, with policies designed to attract investment and create jobs within those industries.

4. **Education and Skills Training:** A skilled workforce is crucial for job creation. Governments and organizations invest in education and skills training programs to enhance the employability of individuals and ensure they are equipped to meet the demands of the job market.

5. **Trade and Globalization:** Trade and globalization can create jobs by opening up new markets for businesses and allowing them to expand their operations. At the same time, they can also lead to job displacement in certain sectors, highlighting the importance of adaptation and retraining programs.

6. **Public Investment:** Governments can stimulate job creation by investing in public projects, such as infrastructure development, construction, and public services. These investments not only create jobs directly but can also have positive multiplier effects on the broader economy.

7. **Support for Small and Medium-sized Enterprises (SMEs):** SMEs often have a significant impact on job creation, especially in emerging economies. Governments and financial institutions may offer loans, grants, and other support mechanisms to help SMEs grow and generate employment (European Commission, 2021).

### **Women's Empowerment**

It is possible to describe women's empowerment as the process of enhancing women's feeling of self-worth, ability to make their own decisions, and the right to influence societal change for themselves and for others.

### **Youth empowerment**

Youth empowerment is a process in which children and young people are taught to take ownership of their own life and make decisions for them. In order to accomplish

this, they must first confront their situation and then take action in order to enhance their access to resources as well as modify their consciousness through their beliefs, values, and attitudes.

In many ways, it is synonymous with female empowerment, which is a fundamental human right that is also essential to the achievement of a more peaceful and prosperous world.

### **Technology Incubation Centres (TICs)**

Technology Incubation Centres (TICs) are centres established to assist in the implementation of National Policy on Technology Incubation in Nigeria.

## **5. Empirical Review**

Ndagi (2017) examined the impact of Nigeria's Technology Incubation Policy and Programme on the growth of the entrepreneurial spirit in the country, with a focus in particular on the work done at the Technology Incubation Centre in Minna. We used an exploratory case study technique as our methodology, and we based our analysis on secondary data. The findings include a variety of community improvement projects, the creation of one thousand four hundred ninety-one employment, the addition of value to the products of nine different entrepreneurs, as well as the establishment of forty-three new businesses. The study suggests a number of things, including recognising technology incubation as a type of entrepreneurship development programme, promoting and developing technology incubation as a means of accelerating the development of entrepreneurship in Nigeria, and harmonising technology incubation with entrepreneurship development agencies across the country, among other things.

According to the findings of a study that was carried out by Ohiani, Baba'umma, and Musa (2019), the primary goal of the National Policy on Technology Incubation is to find funding to support the development of businesses in order to assist new businesses in commencing their operations in Nigeria by establishing links between management, financial capital, technology, labour, and resources to build commerce..

According to the findings of another study that was carried out by Abdullahi (2005), the primary objective of the Technology Incubation Programme is to raise funds in order to supply essential infrastructure. The Technology and Innovation Programme (TIP) is a genuine institutional structure for the commercialization of

research and development results from academic institutions, specialised research centres, and other inventive activities aimed at boosting the economic and technological development of a nation.

According to the findings of another study carried out by Muhammad, Ibrahim, and Musa (2019), the purpose of the National Policy on Technology Incubation is to enable and exploit indigenous potentials for innovation and technology development in Nigeria by partnership with other sister's agencies.

A study that was carried out by Ezeji and Okorie (2019) investigated the significance of skill acquisition on the expansion of national economies. According to the findings of the study, Nigeria's social and economic problems will be significantly alleviated if the country's population is provided with sufficient vocational training in the relevant skills, raw materials, machineries, and equipment. It is only with the help of experienced men that raw resources can be harnessed, processed, and ultimately turned into finished goods. Countries such as the United States, Britain, Germany, and Japan have been successful in rehabilitating drug addicts, school dropouts, and several poor individuals, all of whom have eventually made substantial contributions to the growth of high volumes of production in their respective economies. These countries have implemented quality skills acquisition programmes.

In a similar vein, a study that was carried out by Ogundele, Akingbade, and Akinlabi (2012) on the influence of skill acquisition training on the decrease of unemployment through youth empowerment and social welfare service found that the trainees' fortunes had greatly improved at the local and community level.

Ogunlela (2012) makes use of both secondary data and oral interviews in order to investigate the influence that the National Directorate of Employment Programmes has had on graduate employment and unemployment in the state of Kaduna, which is located in Nigeria. According to what he discovered, the effect that NDE has had on graduate employment in the state of Kaduna has not been very favourable, and there is still a lot of work to be done. To yet, only modest achievements in the field of the generation of graduate employment have been reported, which calls for a comprehensive reevaluation of its programme in order to revamp the system.

This position is similar to that of Ohize and Muhammed (2019), who believed that nongovernmental organisations had the potential to play an important part in the process of training and acquiring new skills. This is evident from the success story of project YES, as findings revealed that the programme has helped to the economic uplift of the youngsters by providing them with the acquisition of occupational skills

and counselling services targeted at reorienting their views towards self and social development. The success story of project YES makes this point abundantly clear.

According to the findings of Akpama, Esang, Asor, and Osang (2011), the development of vocational skills led to a considerable reduction in the amount of poverty experienced by young adults who participated in skills acquisition initiatives. The field of study known as entrepreneurial studies is an interdisciplinary field of study that focuses on the skills necessary to launch a new enterprise or vocation. Because Nigeria is rapidly becoming a largely youthful society with a high rate of unemployment, it is imperative that the country develop its youth in entrepreneurship skills through technical vocational education and training in order to combat the alarmingly high levels of unemployment that the country is currently experiencing.

## **6. Theoretical Framework**

In the 20th century, British economist John Maynard Keynes developed the Keynesian economic theory. This theory was named after him. During the 1930s, as a response to the depression that had followed, it emerged as a theory that offered explanations for the economic collapse as well as proposals for how to bring about a recovery. This theory was known as Keynesian economics.

A central assumption of Keynesian economics is that government involvement is required to keep the economy stable, particularly during downturns and depressions. This idea lies at the heart of the Keynesian model. The idea runs counter to a central principle of traditional economics, which states that defects in the market will, over time, work themselves out on their own.

The following are some of the most significant aspects of Keynesian economics:

According to Keynes' theory, the amount of money that people spend collectively in an economy, often known as aggregate demand, is what truly gets things moving. He asserted that fluctuations in aggregate demand could be the root cause of high unemployment rates and economic stagnation.

Keynes believed that when the economy was in a downturn, the government spending should be increased and/or taxes should be decreased in order to raise aggregate demand. This was something that should be done in order to stimulate the economy. In reaction to this increase in government spending, there would be

an increase in demand for products and services, which, in turn, would stimulate output, employment, and economic growth.

The idea of the "multiplier effect," which asserts that an increase in government expenditure will have a disproportionately significant influence on GDP growth, was introduced by Keynes. Keynes is credited with coming up with this idea. Increasing investments in infrastructure, for example, would lead to an increase in demand for building materials and other businesses linked with construction, in addition to the provision of employment opportunities for people seeking employment in the construction industry.

In the fourth place, according to the principles of Keynesian economics, the government should take measures to slow down the economy during times of economic expansion. These measures could include increasing taxes and reducing spending. Nevertheless, when the economy is in a slump, the government ought to take steps that are expansionary in order to kickstart the growth process.

Keynes proposed that interest rates are a significant component of the amount of capital that is put into investments. It was his contention that people would rather keep their money safe and secure in a bank account during times of economic instability rather than put it at risk by investing it. It is absolutely necessary for the central bank to have the ability to lower interest rates in order to stimulate economic activity and encourage private investment.

Throughout the middle of the twentieth century and beyond, the ideas of John Maynard Keynes had a significant impact on both the theoretical foundations of economics and their application in the real world. It made it possible for governments all over the world, especially during times of economic crisis, to pursue aggressive fiscal and monetary policies. This was particularly helpful. Some of the criticisms that have been raised against Keynesian economics include worries about the long-term effects on public debt as well as the consequences that greater government expenditure would have for inflation. In spite of the fact that numerous economic theories and models have been developed throughout the course of time, policymakers continue to dispute about which methods of economic management are the most effective.

Although Keynesian economics focuses primarily on the economy as a whole, it does have some influence on other aspects of economic development, like technical advancement and human advancement.

In periods of economic downturn, Keynesian economics advocates for increased public spending and other fiscal measures like increasing taxation as a way for the state to become more involved. This is done to encourage government investment in research and development activities, which are absolutely necessary for the advancement of technology. In the long run, increasing one's level of investment in research and development (R&D) may increase one's level of productivity, gross domestic product growth, and international competitiveness.

Additionally, it helps bridge skills gaps: when the economy is in a downturn, the unemployment rate tends to rise. Keynesian economics proposes that in order for the government to stimulate economic growth, it should increase the amount of money it spends and the number of jobs it creates. These efforts can include programmes that help individuals gain the essential skills to fill unfilled positions in industries with a strong demand for such abilities, such as those in the technology industry. One example of an industry that has a high need for individuals with those talents is the technology industry.

According to the principles of Keynesian economics, one of the most effective ways to stimulate economic expansion is to raise levels of aggregate demand. Consumers frequently wind up spending more of their own money as a result of new products and services that are made feasible by technology breakthroughs. Because of this, the progression of technology may contribute to an increase in GDP through an increase in consumer expenditure.

The Keynesian economic theory places a significant emphasis on a concept known as the multiplier effect. This suggests that an early increase in government spending could lead to a larger increase in economic activity. There is a possibility that increased investment by the government on research and development for technical improvements may have a multiplier effect on the economy by giving rise to new industries, vocations, and markets.

A person's human capital can be developed through a process that includes the acquisition of new skills. The Keynesian theory of economic growth places a significant emphasis on human capital. An increase in national productivity and a country's ability to go forward technologically may result from an investment in education, training, and the development of skills.

While Keynesian economics provides a useful framework for analysing the effects of government action on the economy, it is important to keep in mind that the actual occurrence of technological innovation and the acquisition of new skills is influenced

by a wide range of factors, including the current economic climate, political will, and the efficiency with which policies are executed. Policies regarding technology and skills may also be impacted by various economic theories and conceptual frameworks.

## 7. Methodology

This study adopted correlational field study (survey) and Analysis of existing data research design method. Correlational field study (survey) involves the use of questionnaires to gather data in order to answer the research question(s) and/or analyse specific hypothesis. Survey design method also makes use of interview (face to face and telephone) and observation to generate primary data for the study. This method requires the measure of several independent variables and one or more dependent variables, while, analysis of existing data will be used to obtain data from the works of past researchers and official records.

The population for this study consists of staff and Entrepreneurs of Technology Incubation Centres (TICs). The study population cover two selected (2) Technology Incubation Centre in each Geo-political Zone of the Federation.

Purposive sampling technique was used to select two states from each geo-political zone.

The target population of the study will be drawn from Ekiti and Lagos State in South West, Kwara and Niger states in North Central, Kaduna and Kano states in North West, Anambra and Abia states in South East, Edo and Cross River states in South-South and Adamawa and Taraba states in North East.

Total number of Entrepreneur's strength in all the 29 Technology Incubation Centres in Nigeria stood at 742. A sample of 412 populations will been taken from the total number 742 population which represent 55% of the total population.

Since the population of the study is known therefore we use the Yamane (1973) to determine the sample size as follows;

$$n = \frac{N}{1 + N(e)^2}$$

Where n = Sample Size

N = Total Population

e = Error Term



$$n = \frac{742}{1 + 742 (0.05)^2}$$

$$n = \frac{742}{1 + 742 (0.0025)^2}$$

$$n = \frac{742}{1 + 1.855}$$

$$n = \frac{742}{2.855}$$

$$n = 260$$

Therefore, the required sample size is 260.

The choice of Entrepreneurs as a target Population was based on the fact that, they are the main beneficiary of Technology Incubation Programme. Interview were conducted on the staff of TICs to compliment the questionnaires. The choice of TICs Staff is due to the fact that, every staff at least supervise one or more entrepreneurs and they record all their activities monthly. These Populations was taken from the National Board for Technology Incubation Strategic plan, 2014 - 2018:44).

In addition to the questionnaire to be administered, interview were conducted on the staff of the TICs who are they technocrat charge with the responsibility of implementing the Technology Incubation Policy in Nigeria.

This study use both primary and secondary method of data collection. The primary data consist of questionnaire, interview and observation methods.

Questionnaire was administered entrepreneurs/incubatees while, staff of Technology Incubation Centres will be interview and observation were used to complement both the questionnaire and interview. All the study variable scales were measured using Likert scale rated vary from 1 to 3 (Strongly Agreed, Agreed, Disagreed Strongly Disagreed and undecided).

Secondary data will be sourced from documented materials such as Entrepreneur's monthly progress report form, National Policy on Technology Incubation in Nigeria, National Board for Technology Incubation Strategic Plan (2014 -2018). Academic Journals articles on TIP, Text books on Public Policy Formulation and Implementation, conference materials/articles, others materials will source from National Board for Technology Incubation library in Abuja, National library of Nigeria, Centre for Entrepreneurship Development (CED) Abuja and internet.

### Techniques of Data Analysis

In the analyzing data collected, the study used the mixture of qualitative and quantitative techniques. The descriptive statistics will be to present demographical data with the aid of graph, table and chart and quantitative or inferential statistics will be used to analyze the data.

Statistical Package for Social Science such as regression analysis will be used for hypotheses testing. Data entered into the package will be verified to minimize human data entry error. The hypothesis will be tested using at 5% level of significance.

Model for analyzing Regression are:

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

$\hat{Y}$  = dependent variable (Job Creation and Poverty reduction in Nigeria)

$\beta_0$  = Constant

$\beta_1, \beta_2, \beta_3$  = are the slope on y - axis

$X_1, X_2, X_3$  = are the independent variable

e = Error term

Implementation of Technology Incubation Policy is an independent variable (cause) while the Job creation and poverty reduction is the dependent variable (effect) which means Implementation of Technology Incubation Programme is not an end to means but a means to an end as technology incubation centers are only facilitating entrepreneur's ability to create jobs through a structured entrepreneurship development program.

**Table 9. The role of Technology Incubation Programme for skill acquisition programme in Technology Incubation Centres in Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strong agree	139	36.2	36.2	36.2
Agree	82	21.4	21.4	57.6
Disagreed	117	30.5	30.5	88.1
Strong Disagree	44	11.5	11.5	99.6
Undecided	10	2.6	2.6	100
Total	384	99.7	100.0	

Source: Questionnaire Data, 2023

From the data obtained, it was revealed that 139 respondents representing 36.2% Strong agree that Technology Incubation Programme has played a significant role in the provision of skill acquisition to Nigerians youths and women. 82 respondents, representing 21.4% agreed. 117 respondents, representing 30.7 disagreed, 44 respondents, representing 11.5 strongly disagreed, while 10 respondents representing 2.6% could not Technology Incubation Programme has played a significant role in the provision of skill acquisition to Nigerians youths and women. The study revealed that the implementation of the Technology Incubation Programme has enhanced Job creation as a result of effective technology start up and development programme in Nigeria.

**Table 9. Government Financial Support for skill acquisition programme in Technology Incubation Centres in Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strong agree	108	28.1	28.1	28.1
Agree	86	22.4	22.4	50.5
Disagreed	134	34.9	34.9	85.4
Strong Disagree	47	12.2	12.2	97.6
Undecided	9	2.3	2.3	100
Total	384	99.7	100.0	

Source: Questionnaire Data, 2023

The data obtained, revealed that 108 respondents, representing 28.1% of the strongly agreed that Government Financial support has enhanced skill acquisition programme in Technology Incubation Centres in Nigeria. Government Financial support are various Loans and Grants from the Central Bank of Nigeria (CBN), National Economic Reconstruction Fund (NERFUND), Youth Enterprise with Innovation in Nigeria (YOUWIN), Presidential Standing Committee on Invention and Innovation (PSCII), Bank of Industry (BOI), Bank of Agriculture (BOA) has assisted skill acquisition programme in Technology Incubation Centres in Nigeria; 86 respondents, representing 22.4% agreed. 134 respondents, representing 34.9 disagreed, 47 respondents, representing 12.2 strongly disagreed, while 9 respondents, and representing 2.3 % could not Government Financial support has enhanced skill acquisition programme in Technology Incubation Centres in Nigeria. Result of above table collaborated with the document obtained from the National Board for Technology Incubation Abuja which stated the number of invention and innovation that have received loan/Grant with their products and number of skill created. The data are presented below:

**Table 10. Selected invention and innovation that have received loan/Grant with the period under review**

S/N	Institutions	Form of financial support	Amounts (₦)	Incubatees	Number of People trained
	Grant	NCDMB	10 Million	Solpawa Bioremediation Product Ltd	5
	PSCII	Grants	1 Million	CeePlast Industries LTD	12
	PSCII	Grants	500,000 Thousand	Infornet & Eximpt Magmt Co.	7
	You/Win	Grants	9.8 Million	Petros Palma	2
	NERFUND	Loans	1.5 Million	Gelaz Ventures	4
	NERFUND	Loans	2 Million	Tony Best Shoes	52
	NERFUND	Loans	600,000 Thousand	Henderson Construction & Trading	17
	NERFUND	Loans	1,200 Million	Kowa Da Nasa Technical	8
	PSCII	Grants	650,000 Thousand	Betta Products Ltd	19
	BOI	Loans	8 million	Green White Green Nig. Ltd	31
	CBN	Loan	1.5 million	A/T Limited	47
	CBN	Loan	1.2 million	Al-Nasir Potter	26
	CBN	Loan	2 million	Christom Nig. LTD	42
	CBN	Loan	1.3 million	Ade Polythene	9
	CBN	Loan	1 million	Icon Rael	49
	CBN	Loan	500 Thousand	Sarah Special	94
	CBN	Loan	1 million	Hanstring Engineering Coy	38

Source: National Board for Technology Incubation Annual Report, 2014-2022

Nigeria Content Development and Monitoring Board (NCDMB) granted the sum of N10,000,000 million to Solpawa Bioremediation Product Ltd for soil remediation in areas devastated by oil spillage; Standing Committee on Inventions and Innovations (PSCII) granted the sum of N1,000,000 million to CeePlast Industries LTD for recycling waste to wealth; Standing Committee on Inventions and Innovations (PSCII) granted the sum of N500,000 thousand to Infornet & Eximpt Magmt For the development of yeast from natural plants. CBN YOUWIN granted the sum of N9.8 000 to Petros Palma for the manufacturing of diesel sludge extractor; NERFUND gave the sum of N1.5 Million as loan to Gelaz Ventures for the extraction of liquid potash from unripe plantain peels; NERFUND gave the sum of N1.5 Million as loan to Tony Best Shoes for the manufacturing of quality leather shoes and bags;

NERFUND gave the sum of N 600,000 thousand as loan to Henderson Construction & Trading for the manufacturing of milling of farm produce machines; NERFUND gave the sum of N1.2 Million as loan to Kowa Da Nasa Technical for the manufacturing of tricycle, acha treashing, agricultural and industrials machines. Central Bank of Nigeria YOU WIN granted the sum of 1.5 Million to A/T Limited for the fabrication of machines; Central Bank of Nigeria YOU WIN granted the sum of 1.2 Million to Al-Nasir Potter for the manufacturing of ceramic; Central Bank of Nigeria YOU WIN granted the sum of 2 Million to Christom Nig. LTD for the soya nutri-meal production; Central Bank of Nigeria YOU WIN granted the sum of 1.3 Million to Ade Polythene for the production of low density polythene for the package of hospital drips; Central Bank of Nigeria YOU WIN granted the sum of 1 Million to Icon rael for the manufacturing of industrial stabilizers; Central Bank of Nigeria YOU WIN granted the sum of 500,000 thousand to Sarah Special production of plantain, yam and wheat flour and Central Bank of Nigeria YOUWIN granted the sum of 1 Million to Hanstring Engineering Coy for the manufacturing of heat exchanger.

**Table 9. Technology Incubation Programme and Job creation in Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strong agree	108	28.1	28.1	28.1
Agree	86	22.4	22.4	50.5
Disagreed	134	34.9	34.9	85.4
Valid Strong Disagree	47	12.2	12.2	97.6
Undecided	9	2.3	2.3	100
Total	384	99.7	100.0	

*Source: Questionnaire Data, 2023*

From the data obtained, it was revealed that 36 respondents representing 9.4% of the sample population strongly agreed that the implementation of the Technology Incubation Programme have enhanced Job creation in Nigeria. 292 respondents representing 76.0% agreed that that the implementation of the Technology Incubation Programme have enhanced Job creation in Nigeria and this was achieved as result of effective technology starts up and development programme in Nigeria, 44 respondents representing 11.5% disagreed, 12 respondents representing 3.1% strongly disagreed. The study agreed that that the implementation of the Technology Incubation Programme has enhanced Job creation a as result of effective technology starts up and development programme in Nigeria.

The questionnaire responses corresponded with the document retrieved from the National Board for Technology Incubation which also shows that the implementation of the Technology Incubation Programme have enhanced Job creation in Nigeria and this was achieved as result of effective technology starts up and development programme in Nigeria

**Table 10. Implementing Technology Incubation Programme in support of Job creation in Nigeria**

Years	Total Numbers of Jobs Created
2018	1102
2019	1326
2020	634
2021	831
2022	1037
<b>Total</b>	<b>4,930</b>

Source: NBTI, 2022

The document retrieved from the National Board for Technology Incubation shows that a total of 4930 jobs were created in Nigeriabetween 2018 - 2022.

**Table 11. Technology Incubation Programme and Job creation in Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strong agree	54	14.1	14.1	14.1
Agree	275	71.6	71.6	85.7
Disagreed	42	10.9	10.9	95.6
Strong Disagree	13	3.4	3.4	100
Undecided	-	-	-	-
Total	384	99.7	100.0	

Source: Questionnaire Data, 2023

From the data obtained, it was revealed that 54 respondents representing 14.1% of the sample population strongly agreed that the Implementation of Technology Incubation Programme has enhanced and supported wealth generation in Nigeria. 275 respondents representing 71.6% agreed that that the Implementation of Technology Incubation Programme has enhanced and supported wealth generation and this was achieved as result of effective technology starts up and development programme in Nigeria, 42 respondents representing 10.9% disagreed, 13 respondents representing 3.4% strongly disagreed. The study agreed that Implementation of Technology Incubation Programme has enhanced and supported wealth generation in Nigeria.

The questionnaire responses corresponded with the document retrieved from the National Board for Technology Incubation which also shows that the Implementation of Technology Incubation Programme has enhanced and supported wealth generation in Nigeria and this was achieved as result of effective technology starts up and development programme in Nigeria.

**Table 12. Implementation of Technology Incubation Programme in support of wealth generated in Nigeria**

Years	Total amount Generated
2018	₦5.4 Million
2019	₦8.7 Million
2020	₦2.1 Million
2021	₦2.3 Billion
2022	₦2.6 Billion
Total	₦4, 25000,000 Billion

Source: NBTI, 2022

The document retrieved from the National Board for Technology Incubation shows that a total of ₦4, 25000,000 Billion were generated in Nigeria between 2018 and 2022.

## 8. Findings

Finding from the study shows that, the Technology Incubation Programme (TIP) have aided and developed technology-based startup businesses and entrepreneurs in Nigeria. The programme fostered and created creative ideas and products that possibly contributed to the diversification of Nigeria's economy by giving them with access to critical resources, mentoring, infrastructure, and money. This was accomplished by providing them with essential resources. TIP have diversified the economy of the country by providing a Conducive Environment for entrepreneurs to experiment their products. The TIP provided a conducive environment for entrepreneurs that stimulated the development of creative ideas and technology. The programme helped encourage the development of new solutions that might solve local as well as global concerns and generate new economic possibilities by providing support to entrepreneurs working in a variety of technical disciplines. The TIP has fostered the development of new jobs. Technology-based startups have generated new employment opportunities across a variety of industries, particularly those that are knowledge-intensive. TIP has contributed to the creation of new jobs and lessens the nation's dependency on government jobs. The

finding is in line with the study conducted by Ndagi (2017) whose finding also revealed that Technology Incubation Policy/Programme played a significant role on entrepreneurship development in Nigeria. This position was further by Ohize and Muhammed (2019) Technology Incubation Policy and Skill Acquisition. Similarly, study conducted by Ogundele, Akingbade, and Akinlabi (2012) on the contribution of skill acquisition training on unemployment reduction through youth empowerment and social welfare service has significantly improved fortune of the trainees at local and community level.

The Technology Innovation Programme (TIP) lessen the country's overdependence on the oil dependent economy and have stimulated growth in non-oil sectors by providing funding to technology-based businesses across a variety of industries. These industries included fintech, agritech, healthtech, and e-commerce.

Technology incubation programme have bring in investments from both domestic and international sources in Nigerian start-up businesses. The Technology Innovation Plan (TIP) has attracted the attention of investors searching for attractive possibilities in the country by highlighting the potential of enterprises driven by technology. The expansion of these new businesses has further propelled an increased in investment, which, in turn have contributed to the economic diversity in the country.

The TIE provided chances for mentorship and networking were company owners are provided with the information and skills necessary to establish enterprises successfully compete in the marketplace.

Innovative goods and services that were produced by some entrepreneurs received funding from the Government which has enabled Nigerian enterprises to access worldwide markets and diversify their income sources.

Skills development and new employment opportunities in the tech industry benefit greatly from the TIP (Technology Incubation Programme). The goal of these programmes is to help tech entrepreneurs in their early stages by providing them with financing, tools, mentorship, and a supportive environment. The following are some of the ways in which TEPs contribute to skill development and the expansion of the labour market:

Entrepreneurs and their teams have improved their skills through training and workshop opportunities presented by TIP programmes. The knowledge and experience gained from TIP programme has helped them become more technically



proficient, business savvy, and entrepreneurial. As a result, these have improved their marketability and competitiveness in the technology sector.

Entrepreneurs created jobs because, as their businesses grow, they need to hire more people to keep up with demand. This results in the creation of new jobs, since companies can now afford to hire experts in fields like software development, marketing, operations, and sales.

Fourth, the influence of successful TIP alumni can spread, encouraging others to enter the business world or enter a sector related to technology. They can set an example for other would-be business owners, while also fostering a community-wide emphasis on innovation and the development of new jobs.

5. Collaborative Industry Projects: Many industry-specific TIPs aim to facilitate joint ventures between new businesses and more seasoned enterprises and academic institutions. By sharing their knowledge and experiences, participants in this exchange may gain access to innovative tools and methods that might help them advance in their fields.

Increasing the economy of the area in which the TIP is active is the sixth benefit. When businesses, especially new ones, succeed, they boost the economy as a whole by creating jobs and paying taxes.

7. Specialised training for a certain field or area of technology is provided by a few TIPs. By focusing on the needs of a certain industry, participants can acquire the specialised knowledge that will make them more marketable to employers.

## **9. Conclusion and Recommendations**

Technology Incubation Programme has impacted on the economy of Nigeria through diversification. These factors that promote diversification include the support of the government, the efficiency with which the program's implementation is carried out, as well as the tenacity and creativity of the participating entrepreneurs. The Technology Incubation Programme is a vital tool for encouraging innovation, professional growth, and the creation of new tech-related jobs. Growth in both the technology sector and the economy as a whole has contributed to TIPs because of the conducive environment they provide for entrepreneurs.

Initiatives that promote economic growth, creativity, and gender equality in Nigeria have been revolutionized by the use of technology incubation

programmes for the training and employment of women and young people.

## **10. Recommendations**

- i. Government and the management of TIP should pay special attention to technologically important areas including IT, renewable energy, agritech, e-commerce, and digital marketing. Encourage Networking by setting up opportunities for people to meet and talk to others in their field, as well as investors and future jobs. Internships, jobs, and partnerships can all result from these associations.
- ii. Government and the management of TIP should provide access to Finance; Make it easier for people with good business ideas to get grants and microloans. Help new businesses get off the ground by teaming up with banks and microlending agencies. Government and the management of TIP should create targeted initiatives that address the unique difficulties women and young people in Nigeria are confronted with. Recognise and remove cultural, societal, and institutional hurdles that prevent women from pursuing careers in technology.
- iii. Government and the management of TIP should utilize public-private partnerships. Encourage partnerships between public agencies, businesses, and NGOs to share knowledge, information, and resources. This will make the incubation programmes easier to expand and maintain.
- iv. Government and the management of TIP should Incorporate business management and entrepreneurship education within the incubation programmes. As a result, people will be able to launch their own busins, boosting the economy and providing employment opportunities.
- v. Government and the management of TIP should emphasise the achievements of women and young people who have benefited from the programme. This will show the benefits of technology incubation and encourage more people to get involved.
- vi. Graduating programme participants should be provided with continuous resources and assistance to ensure their continued development and success. Knowledge sharing and teamwork are both aided by alumni networks and online communities.

## **11. Contribution to Knowledge**

It has been noted that the leadership of many training facilities is unaware of the impact its entrepreneurs are having on the economic independence of women and young people in Nigeria. The research will show the management of the Technology Incubation Centre how their entrepreneurs have helped to advance the status of women and young people in Nigeria and beyond.

As a result of this research, policymakers have a better understanding of how to support beneficiaries in developing their inventive talents in preparation for the launch of their own businesses.

The study's findings used as a guide by other government organizations with comparable responsibilities to better organize training programs for the beneficiaries. The findings from this study provided useful information for policymakers and academics. The goal of the Technology Incubation Program (TIP) is to hasten the establishment of new businesses and the rapid commercialization of R&D and innovation by facilitating the efficient linking of people, technology, capital, and know-how.

The results of this research shed light on the role that technology incubators play in empowering women and young people in society, particularly those who live in the communities in which these facilities are located. The findings of this research are significant because they used by the Technology Incubation Centre to develop policy and programming that assisted incubatees in developing the inventive abilities necessary to found successful businesses.

The study found that providing young people and women with the opportunity to develop technologically innovative abilities through entrepreneurial innovation training led to increased economic independence and reduced economic inequalities. Through this research, Nigerians will learn that the goal of technology incubators is to facilitate the rapid creation of new businesses, the efficient commercialization of R&D and innovation, and the generation of a large number of new jobs.

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