Article

Effect of Technology Incubation Programme on Entrepreneurship Development in Nigeria

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Abstract

The lack of appropriate performance appraisal and evaluation of incubatees of technology incubation programmes in relation to entrepreneurship development in Nigeria is a major gap that needs to be bridged. This study examined the effect of selected technology incubation programme variables such as training, financing and marketing on entrepreneurship development in Nigeria. A closed-ended questionnaire was used for data collection from the quota-sampled population of the six (6) geo-political zones of Nigeria. Descriptive statistics were used to analyse the data while multiple regression was used to test the hypotheses. The results revealed that technology incubation training has a significant effect on entrepreneurial ability in Nigeria; there is a significant and positive effect of technology incubation financing on entrepreneurial funding portfolio; there is no significant impact of technology incubation marketing programme on entrepreneurial turnover; and technology incubation has no significant impact on entrepreneurial propensity. The study recommended that the National Board for Technology Incubation (NBTI) expand the training modules to capture pre, post and virtual incubatees; to facilitate access to risk funds, cheap capital and encourage establishment of venture capital; to improve on its marketing programme to encompass all marketing needs of incubatees beyond trade-fair participation. However, trade-fairs participation has a significant but limited effect on entrepreneurial turnover, while a technology incubation programme has no significant impact on entrepreneurial propensity, as only six (6) out of the twenty-nine (29) respondents started new venture from the incubation centers which are industrial training students and staff of the incubatees.

1. INTRODUCTION

1.1 Background of the Study

Over the years, entrepreneurship have developed and metamorphosed into a global phenomenon. The concept of entrepreneurship as an organized knowledge came into being about hundred years ago. Though the economists from Adam Smith to Marshall were talking about it but without assigning the name of entrepreneurship. They used the terms as employer, the master, the merchant and the undertaker for carrying out different entrepreneurial activities now comprising of entrepreneurship. It was Cantillon, who first brought out the term entrepreneur (Murthy, 1989) and entrepreneurship was recognized in economic literature.

It is also globally recognized today that entrepreneurship is the major factor of the socio-economic advancement of the western world because it is innovating and imitating. The role played by entrepreneurship in the development of western

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countries has made developing countries very much conscious of the importance of the programme for rapid economic development.

To fast track, the level of development in developing countries, the need for both qualitative and quantitative entrepreneurships cannot be over emphasized. Qualitative entrepreneurship implies the stress on innovation, while quantitative implies the stress on imitating entrepreneurship. Both of them form the pillars of technology, industrial and economic development for the western world (Adeyemi, 2006). Entrepreneurship is the process of working out specific activities as an entrepreneur. The best of these activities are that of innovation and technology inclined entrepreneurship development and industrial development.

Entrepreneurship according to Reynold et al. (2001) as contained in Global Entrepreneurship Monitor, is a global multi-faceted phenomenon with significant difference between countries but has positive relationship between technology and economic growth that contribute towards the wealth and social development of a nation under the given technological, industrial and political framework. According to Song (2001), the competitiveness of any economy depends on how efficiently all the resources in the process of production are utilized and how efficiently these are marketed; hence the entire chain of production and marketing has to be efficient. Many of the items produced by small-scale entrepreneurs are becoming redundant because of the change in consumers' choices, preferences and also due to a change in new technology. The entry of foreign products/services has given consumers a wide choice of hi-tech and good quality products at competitive prices. This implies that the process of the production has to be cost efficient and meets quality needs of the consumers. This improvement can be achieved through the use of the latest technology; hence, the need for change in technology is more relevant for startup entrepreneurs.

Entrepreneurship is therefore concerned with what an entrepreneur actually does which include utilization of resources in managing an enterprise and assuming the risks and maximizing profits from the business venture. It is a very dynamic process of both the entrepreneur and individual in the society (Tende, 2011). He further posits that successful entrepreneurship requires the entrepreneur to possess certain managerial skills which include the ability to conceptualize and plan effectively, manage other individuals and time effectively and to learn new techniques in handling business operations and ability to adopt to change and to handle changes in their environment.

Aggarwal et al. (2012) posit that products, processes etc., which depend on technology, are considered one of the most important factors of industrial entrepreneurship development. He further said technology is mainly sought in the form of processes and products knowhow but the different sources from which technology forms into the industrial and sub industrial sectors are government institutions, local suppliers, foreign suppliers, research and development (R&D) Institutions, industries, etc. Technology identification, acquisition, transfer, adoption and upgrading are some of the key issues in relation to technology management relevant to entrepreneurship development.

In the past two to three decades, the growth of technology incubation around the world has been phenomenal as there are over 7,000 incubation centers around the world. The pace at which the incubation centers are spreading and expanding across the globe is because it has been identified as the backbone of entrepreneurship development and sustainability.

Technology incubation programmes as an entrepreneurship development tool generally having the economic development goals of creating jobs, building wealth by fostering the formation of new businesses, fast-tracking research to industries linkages etc. In accomplishing these goals, incubators use strategies such as increasing access to capital, the one stop shop approach, technical and business management training, contract procurement assistance, creating networking opportunities through clustering, export assistance and technology transfer assistance. These services are provided through collaboration with other economic development and entrepreneurship development organization within the same region.

Incubation programme was introduced to Africa in 1988 by United Nations Development Programme (UNDP) to test run the concept on pilot scheme in four (4) countries of Ivory coast, Nigeria, Equatorial Guinea and Zimbabwe. In 2008, the incubation programmes has spread across Africa with approximately about one hundred incubation centers. Nigeria has about forty-four (44) incubation centers, South Africa with about thirty-six (36) while the rest of the other countries house the remaining twenty (20).

Technology Incubation Programme in Nigeria began since 1988 with feasibility study for the establishment of pilot centers at Lagos, Kano and Aba. This is to ascertain the viability of Technology Incubation Centers in these commercial cities. This study led to the establishment of Lagos Centre in 1993, Kano in 1994 and Aba in 1995. The success of these three pilot centers facilitated the establishment of Minna, Nnewi and Cal-

abar in 1998. Meanwhile, by 2005 there were seventeen (17) incubation centers in Nigeria but as at 2012 there are about forty (40) incubation centers in the country with about two hundred and eighty-seven (287) entrepreneurs and six thousand two hundred (6,200) job created. (NBTI, 2013)

The integrated entrepreneurship development approach of technology incubation centers in Nigeria has seen to the successful grooming, fostering and nurturing of potential entrepreneurs/enterprises to a creative technology value added budding entrepreneurs and enterprises. This shows that technology incubation is an independent variable while the entrepreneurship is the dependent variable which means technology incubation is not an end to means but a means to an end as technology incubation centers are only facilitating entrepreneurship development through a structured entrepreneurship development programme within the technology incubation centers.

Technology incubation and entrepreneurship are closely linked, in that the process of incubation aid in entrepreneurship development. Most policies of technology incubation are aimed at fast-tracking entrepreneurship development as government and institution provides incubates with the necessary supports that stimulate their interest and nurture their ideas into big entrepreneurs.

Research methodologies used to assess the impact of incubators on new venture performance can be divided into: (1) studies that compare firms on and off incubators (control group concept), (2) studies that follow a comparative evaluation approach (benchmarking), and (3) studies that focus on an in-depth investigation of certain tenants, incubators or regions (in-depth studies).

The control group concept is based on a comparison between a sample of high-tech firms located in technology incubators and a control sample of off-incubator firms along a series of performance dimensions (Colombo and Delmastro, 2003; Dee et al., 2012). However, the results of such studies are limited to application to incubators for the following reasons:

Control group studies underlie a strong selection bias making it difficult to distinguish to what extent a tenant company's success can be attributed to incubators services or to the selection process of the incubator. Many of the studies focus on science parks whose tenants may be more physically dispersed and as such the researchers are actually observing the impact of wider regional factors on new venture performance. The performance measures used (e.g. revenue growth, employment growth, survival rate etc.) have their limitations with re-

gard to assessing the success of young ventures. Benchmarking studies follow a comparative evaluation approach, analysing comparative characteristics and metrics of different incubator programmes with similar core objectives and relate the performance outcomes to the activities of the incubator in order to identify best practice. Examples of studies that sought to develop benchmarking frameworks include Campbell et al. (1985), Smilor and Gill (1986), Hisrich (1988), and Allen and McCluskey (1990). More recent works that have sought to provide varying emphases on different components of the incubator model (Hackett and Dilts, 2004; Dee et al., 2012).

Benchmarking studies indicate that the incubator concept seems to provide a nurturing environment for the development of technology start-ups. However, most benchmark studies treat incubators as a 'black box' focusing mainly on outcome (e.g. survival rate, revenue growth rate, jobs created), which does not it self explain and some incubators appear to perform better than others. As a consequence, most studies lack a detailed characterization of the value adding components of the incubation process. In-depth studies of incubator impacts focus on detailed investigation of a certain aspect of incubation through surveys or case studies on a selected sample of incubators or incubatees. In contrast to the control group concept and benchmarking approaches, in-depth studies often take an internal perspective to investigate the research question. Thus, the focus of these studies lies on the incubator or incubatees level. Examples of in-depth studies include entrepreneurial ability, propensity, funding portfolio, incubates turnover and opportunity in the process of venture creation by technology incubators. (Knopp, 2007; Dee et al., 2012)

1.2 Statement of the Problem

Many incubators are either wholly or partly publicly funded. In the competition to attract public funds many incubators need regularly to demonstrate 'success' which can lead to over-reporting successes and under-reporting failures especially when self-reporting. It was further concluded that direct measures, such as survival, revenue growth, profit growth or occupancy rate have their limitations and do not seem to be useful in assessing the performance of incubators or incubatees. Nevertheless, practitioners frequently use them in many academic studies and as key performance indicators (Hackett and Dilts, 2004 as contained Dee, N. et al., 2012).

Lack of appropriate performance appraisal and evaluation variables of incubatees of technology incubation programme

in relationship to entrepreneurship development programme in Nigeria is a serious challenge to the promotion and development of technology value added entrepreneurs.

Most of the studies do not consider the importance or the role that is played by such variables as entrepreneurial ability; funding portfolio, entrepreneurial turnover and entrepreneurial propensity in the process of venture creation and development by technology incubators. The analysis of these variables can facilitate identification of weak areas that will hinder building a virile venture. An in-depth analysis of these entrepreneurship dependent variables of entrepreneurial ability, funding portfolio, incubates turnover and entrepreneurial propensity vis-à-vis technology incubation independent variables of training, financing, marketing and incubation programme are the main focus of this study.

1.3 Research Questions

Based on the above conception, this study addressed the following research questions.

i. To what extent does technology incubation training influence entrepreneurial ability in Nigeria?

ii. How does technology incubation financing affect entrepreneurial funding portfolios in Nigeria?

iii. How does technology incubation marketing programme impact on entrepreneurial turnover in Nigeria?

iv. What is the impact of technology incubation programme on entrepreneurial propensity in Nigeria?

1.4 Objectives of the Study

The general objective of this study is to examine the effect of the technology incubation programme on entrepreneurship development in Nigeria and the specific objectives are:

i. To examine the effect of technology incubation training on the entrepreneurial ability in Nigeria;

ii. To identify the effect of the technology incubation financing on entrepreneurial funding portfolio in Nigeria;

iii. To verify the impact of technology incubation marketing programme on entrepreneurial turnover in Nigeria; and

iv. To investigate the impact of technology incubation programme on entrepreneurial propensity in Nigeria

1.5 Research Hypotheses

This study addresses the following four (4) hypotheses:

Hypothesis 1:

[H01]: Technology incubation training has no significant and positive effect on entrepreneurial ability in Nigeria.

Hypothesis 2:

[H02]: Technology incubation financing has no significant and positive effect on entrepreneurial funding portfolio in Nigeria.

Hypothesis 3:

[H03]: Technology incubation marketing programme has no significant and positive impact on the entrepreneurial turnover in Nigeria.

Hypothesis 4:

[H04]: Technology incubation has no significant and positive impact on entrepreneurial propensity in Nigeria.

2. LITERATURE REVIEW

2.1 Concept of Entrepreneurship

In today's world where technological change, liberalization, outsourcing, and restructuring rule, the subject of entrepreneurship has gained greater interest. The discussions centered on what actually constitutes entrepreneurship and how far it extends. The term entrepreneurship is derived from the French word *entreprendre* – to undertake. This suggests that, the concept of entrepreneurship is the process of undertaking activities concerned with identifying and exploiting business opportunities while assuming its associated risks. Entrepreneurship is about a kind of behaviour that includes initiative taking, reorganizing economic activities and the acceptance of its risks (Shapero, 1982). It is important to note that entrepreneurial activities are universal and can therefore be promoted even in societies that manifest low entrepreneurship activities.

Small enterprises in particular are central in achieving sustainable growth. They constitute about 90% of the business population in North America and they account for newest jobs in the country (Kuratko and Hodgetts, 1998). Entrepreneurship involves taking chances, but new businesses do not emerge by accident (Egelhoff, 2005). They are usually founded as a result of motivated entrepreneur gaining access to resources and finding niches in opportunity structures. Hence, entrepreneurship could be seen as the process of identifying and exploiting unique business opportunities that stretch the creative capacities of both private and public organizations. Sue and Dan (2000) argue that entrepreneurship is influenced by genetic power, family background and economic environment. Since economic environment could support or suppress entrepreneurship, governments world over undertake

development of macro economic policies that focus mainly on providing access to resources and support services to individuals and organizations that display a flair for expanding their business horizons.

Small-scale businesses tend to add jobs faster than big companies because they are highly adaptable, innovative and responsive to new business and market challenges (Rauch and Frese, 2000). Thus, supporting entrepreneurs becomes a critical policy issue especially since those new businesses that do survive tend to expand employment and growth of the nation's economy. The important question to be asked is why too few young businesses grow in meaningful ways? Bruno et al. (1987) maintains that there are three categories of reason for high business failures: product/market problems, financial difficulties and managerial problems. This suggests that the responsibility for creating and growing new businesses does not rest entirely on government. Individuals and organizations are required to analyze key success factors in business environment and take personal responsibility for survival and growth of their own ventures. On its part, government is expected to provide adequate infrastructure and friendly policy guidelines.

2.2 Concept of Technology Incubation

There are several definitions and approaches to business and technology incubation. Conceptually, 'incubation' is a more diligent and planned process than clustering or 'co-location' and therefore needs careful attention to the problems of prospective occupants, extending well beyond providing infrastructure and office services (Adelowo et al., 2012; Kiridena, 2001). According to the National Business Incubators Association (NBIA), "Business Incubation catalyses the process of starting and growing companies, providing entrepreneurs with the expertise, networks and tools they need to make their ventures successful. Incubation programmes diversify economies, commercialise technologies, create jobs and create wealth".

The term incubator, which is more widely known with the life-giving support to premature babies or phenomenon to enable them survive the critical early period of life, is what has been adapted to economic development and regeneration. Therefore, economically, definition of Incubation/Incubators varies with their services, their organizational structure and in the types of clients they serve. Technology Incubation has different goals which include job creation, new venture creation, wealth creation, value addition to clients' products, process

and services and transferring technology from universities and major corporations to entrepreneurs/enterprises (Smilor and Gill, 1986). According to Lalkaka (2000), business incubation is a means by which visions of new businesses are turned into reality with reduced risks. Incubators aspire to have a positive impact on a community's economic health, by maximizing the success of emerging companies (Cassim, 2001). Business incubators have proved effective in many parts of the world. According to Rice and Matthews (1995), only 10 business incubators existed in the United States in 1980. There were nearly 500 by 1995, and a new incubator has been opening every week. The technology incubators generally focus on nurturing technology-intensive enterprises and knowledge-based ventures.

The technology incubation system (TIS) is variously represented by entities such as Techno-polis, Science Parks, Research Parks, Technology Parks, Technology and/or Business Incubators. These entities operate as separate organisations but are mostly integrated with other players in the innovation system. The terms Science Parks, Research Parks and Technology Parks as well as Technology Incubators (TIs), Technology Innovation Centres (TICs) and Technology Business Incubators (TBIs) are used interchangeably in many countries depending on the level and type of interaction between R&D community, venture funding and industry.

Relevant research thus comes from countries in Europe and North America. Several studies analyse the aims, structures and spatial impact of technology incubation centres and similar initiatives. In some countries, lengthy and comprehensive impact evaluations have already been conducted. With respect to technology incubation centres, Germany, United Kingdom, Sweden and the whole of the European Union (European Commission, 1996; Massey et al., 1992;) may still be the best researched countries. More or less comprehensive evaluations are found in other countries such as the USA (Luger and Goldstein, 1991).

In this research work, the term technology incubator is taken to mean a controlled environment-physical or virtual-that cares, and helps new ventures at an early stage until they are able to be self-sustained through traditional means while technology incubation apply generically to all the organizational forms for promoting technology-oriented SMEs respectively. The organizational format of technology incubations also varies and could generally be categorized as public or not-for-profit incubators, private incubators, academic-related incubators and public/private incubators, which are referred to

as hybrid in most literatures. Also, technology incubations may thus have a wide range of goals and objectives giving rise to different forms of incubators specializing in accessing diverse resources.

2.3 Role of Incubators in Entrepreneurship Development

Incubators are available in various types rendering a range of long and short-term assistances and they help in the establishment of new enterprise in one way or the other. Many of these provide only guidance, technical assistance and consulting to entrepreneurs and offer business development services. ICT incubators are major examples of these Incubators where clients access to appropriate rental space, shared basic business services and equipment. Few incubators assist only in developing new ideas and arrange for venture capital funding. Incubators are sometimes known as Business Accelerator as it accelerates start-ups by providing quick knowledge, support services and resources (Lewis et al., 2001).

Highly adaptable incubators have differing goals, including diversifying rural economies, providing employment for and increasing wealth of depressed inner cities, and transferring technology from universities and major corporations (Smilor and Gill, 1986). Incubator clients are at the forefront of developing new and innovative technologies — creating products and services that improve the quality of our lives in communities around the world.

Essentially, the incubation programme is to assist and support the transformation of selected, early stage businesses with high potentials, into self-sufficient, growing and profitable enterprises (Lewis et al., 2001). By reducing the risks during the early period of business formation, the incubation sustains the new enterprises that might otherwise fail due to lack of adequate support. In doing so, the incubation programme contributes to the economic growth by creating jobs and offering other socio-economic benefits. According to Adelowo et al. (2012), technology incubation programme can therefore be seen as an economic development tool designed to accelerate the success of high technology entrepreneurial enterprises through the provision of an array of technology business support resources and services in a controlled work environment.

Lewis et al. (2001) sees technology incubation programme as an innovative system designed to assist entrepreneurs and inventors in the development of new technology -based firms. It seeks to link talents, technology, capital and know-how effectively, in order to accelerate the development of new businesses, and thus speeds the commercialization of technology. It is a facility that helps the early stage growth of technology-based enterprises by providing shared facilities such as space, office services, and business consulting services.

This concept, which constitutes a very potent economic development tool has generated great desire and has undergone extensive development in the USA and many other countries such as India, Japan, China, Korea, Israel, Germany, France etc. in the context of new global trend of engendering real sector development through small and medium scales businesses.

Technology incubation programme as a tool for economic development makes provision of job creation, employment opportunities targeting unemployed university graduates, retrenched public sector employees, retired research institution employees, retired private sector employees, and established industrialists desiring to expand or diversify their businesses (Lalkaka, 2000).

Promotion of small and medium scale development is yet another contribution of technology incubation programme on the economy, that is, it assists in incubating knowledge-based skilled and unskilled workers, start-ups into commercially viable products/services by providing specialists in various area of endeavors, skilled training, guidance, critical support services, such as invention and innovation, financing, laboratory, library, networking/ ICT, quality control workshop support services to all tenants or small and medium scale businesses at each centre, and a conducive environment (affordable, well-equipped workspace) to entrepreneurs.

2.4 Overview of NBTI and Technology Incubation Centers

The National Board for Technology Incubation (NBTI) is a veritable institutional mechanism for commercialization of Research and Development (R&D) results. It is an integrated support programme designed to assist budding entrepreneurs in the development of new technology-based firms, both startup and fledglings. It seeks to harness new talent in order to accelerate development of new companies and speedy commercialization of (R&D) and innovation. It also helps in value orientation by creating an environment for changing the attitude towards personal initiative, creativity innovation, risk-taking and entrepreneurship. Technology Incubation Programme in Nigeria began since 1988 with feasibility study for the establishment of pilot centers at Lagos, Kano and Aba. This is to ascertain the viability of Technology Incubation Centers in these commercial cities. This study led to the establishment

of Lagos Centre in 1993, Kano in 1994 and Aba in 1995. The success of these three pilot centers facilitated the establishment of Minna, Nnewi and Calabar in 1998. Meanwhile, by 2005 there were seventeen (17) incubation centers in Nigeria but as at 2012 there are about forty (40) incubation centers in the country with about two hundred and eighty-seven (287) entrepreneurs and six thousand two hundred (6,200) job created. (NBTI, 2013)

2.5 Training and Entrepreneurial Ability

Training according to Alaska Department of worker and Workforce Development is teaching, or developing in oneself or others, any skills and knowledge that relate to specific useful competencies. Training has specific goals of improving one's capability, capacity, productivity and performance. It forms the core of apprenticeships and provides the backbone of content at institutes of technology (also known as technical colleges or polytechnics). In addition to the basic training required for a trade, occupation or profession, observers of the labor-market recognize as of 2008 the need to continue training beyond initial qualifications: to maintain, upgrade and update skills throughout working life. People within many professions and occupations may refer to this sort of training as professional development.

The purpose of training and management development programs is to improve employee capabilities and organizational capabilities. When the organization invests in improving the knowledge and skills of its employees, the investment is returned in the form of more productive and effective employees. Training and development programs may be focused on individual performance or team performance. The creation and implementation of training and management development programs should be based on training and management development needs identified by a training needs analysis so that the time and money invested in training and management development is linked to the mission or core business of the organization (Watad and Ospina, 1999).

To be effective, training and management development programs need to take into account that employees are adult learners (Forrest and Peterson, 2006). Knowles's (1990) theory of adult learning or "Andragogy" is based on five ideas: (a) adults need to know why they are learning something, (b) adults need to be self-directed, (c) adults bring more work-related experiences into the learning situation, (d) adults enter into a learning experience with a problem-centered approach to learning, and (e) adults are motivated to learn by both ex-

trinsic and intrinsic motivators. Having a problem-centered approach means that workers will learn better when they can see how learning will help them perform tasks or deal with problems that they confront in their work (Aik and Tway, 2006).

At different stages of their careers, employees need different kinds of training and different kinds of development experiences. Although a business degree might prepare students for their first job, they will need to gain knowledge and skills through education and experience as they progress through their career. Peters (2006) suggests that there are four stages of management education with different learning outcomes:

1. Functional competence, an understanding of finance, accounting, marketing, strategy, information technology, economics, operations, and human resources management;
2. Understanding context and strategy and how organizational processes interrelate, to make sense of societal changes, politics, social values, global issues, and technological change;
3. Ability to influence people, based on a broad understanding of people and motivations; and
4. Reflective skills, to set priorities for work efforts and life goals.

Therefore, to maximize the effectiveness of training and development, organizations must constantly assess their employees' current training and development needs and identify training and development needs to prepare employees for their next position. This requires that organizations recognize that different employees will have different needs and that these needs will change over time as these workers continue in their careers.

Ability may refer to Aptitude, a component of a competency to do a certain kind of work at a certain level while skill, is the learned ability to carry out a task with pre-determined results often within a given amount of time and energy.

Bottomley (1983) is of the opinion that, the workplace is necessarily a place of learning. This is a truism, although the workplace can also expose the learner to negative attitudes and practices that may not augur well for the organization and even the general society. The workplace is indeed a fertile ground for general learning but more importantly, learning of specific skills associated with specific workplaces. Entrepreneurship is the ability to "create and build something from practically nothing. It is initiating, doing, achieving and build-

ing an enterprise or organization, rather than just watching, analyzing or describing one. It is the knack of sensing an opportunity where others see chaos, contradiction and confusion. It is the ability to build a founding team to complement your own skills and talents. It is the know-how to find, marshal and control resources and to make sure you don't run out of money when you need it most. Finally, it is the willingness to take calculated risks, both personal and financial, and then to do everything possible to get the odds in your favour (Timmons, 1999). Entrepreneurial ability is a factor of production, or one of four resources employed by businesses to produce goods and services. Entrepreneurial ability is measured by how well the entrepreneur combines resources, makes decisions, innovates and how well they take risks. Entrepreneurs have to come up with ideas for new products and make decisions that direct the company. An important concept related to entrepreneurial ability is normal profit. Normal profit is treated as an economic cost and is the next best alternative line of work for the entrepreneur. Ability is an acquired or natural capacity or talent that enables an individual to perform a particular job or task successfully.

2.7 Financing and Funding Portfolio

Financing is largely an exercise in the equitable allocation of a project's risks between the various stakeholders of the project. Indeed, the genesis of the financing technique can be traced back to this principle. Roman and Greek merchants used project financing techniques in order to share the risks inherent to maritime trading. A loan would be advanced to a shipping merchant on the agreement that such loan would be repaid only through the sale of cargo brought back by the voyage (i.e. the financing would be repaid by the 'internally generated cash flows of the project', to use modern project financing terminology).

Financing according to Aruwa (2004) has remained one of the key managerial problems decision that keep confronting business enterprises in Nigeria today. For the SMEs, the accessibility to funds and the cost of raising them have remained issues limiting the in-capitalisation requirements leading to premature collapse of the enterprises. He further posits that, in Nigeria, the formal financial institutions have been organised to finance SMEs through venture capital financing; in the form of a SMIEIS fund. Venture capital financing supplements or takes the place of credit facilities that the conventional banks are unwilling to give. The provider of the funds may initially part with the funds as a loan, but specifically with the

idea of converting the debt capital into equity at some future period in the enterprise. The return from such investment should be high to compensate for the high risk. Venture capital may be regarded as an equity investment where investors expect significant capital gains in return for accepting the risk they may lose all their equity (Golis, 1998).

Turnover is defined as the ratio of the total of all purchases in a portfolio over some period of time to the average value of the portfolio over that period of time.

2.8 Marketing and Turnover

Marketing is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives (Lusch, 1985). It is the conceptualization and delivery of customer satisfaction; marketing management is the process allocating the resources of the organization toward marketing activities. Thus, a marketing manager is someone who is responsible for directing expenditures of marketing funds. Another approach or orientation to managing the marketing function can be called Sales (or Promotion) orientation. In this approach, marketing is seen as serving the same function as with personal selling and advertising, and marketing is primary job in the organization is to sell, sell, sell. (Kotler, 2009).

The marketing management cycle is composed of five basic steps. First, Planning is the process of examining and understanding the surroundings within which the organization functions. For example, environmental scanning is the process of studying and making sense of all the things that might impact the firm's operation that are external to the firm. This would include studying and gaining an understanding of such things as: competition, legislation and regulation, social and cultural trends, and technology. Both present and developing trends in each of these areas must be identified and monitored.

Second, Implementation is the process of putting plans that have been made into action. It is the transition from expected reality to existing reality.

Third, Monitoring is the process of tracking plans and identifying how plans map to changes that take place during program operation when more information is acquired. Correction is the stage in which we take action to return our plan to the desired state based on feedback obtained in the monitoring stage. If we find that return to the planned state is not practicable, we may adjust our planning outcomes. Thus, Monitoring and Correction may be considered two stages be-

cause after plans are put into action, one must continually monitor performance and make adjustments to the plan based on the feedback gathered through these monitoring activities. In summary, the marketing management cycle composed of planning, implementing, monitoring, and correcting.

To formulate effective marketing programs an organization needs to create and follow a marketing plan. A marketing plan is a document that describes the activities in which the organization intends to engage in a coming time period, usually one-year. However, there are often situations in which an organization will have a medium-term marketing plan (two to five years) and a long-term marketing plan that covers plans for a five-year period or greater.

While there are many different approaches to preparing a marketing plan, the following conditions should exist:

1. Those who do the plan are responsible or accountable for the plan's implementation
2. This same group is committed to the plan's success
3. Management is committed to the plan's success and is willing to expend the necessary resources for its implementation
4. The marketing plan is created in the context of the organization's overall business plan
5. People in the organization share a similar orientation to the marketing function

Packaged goods as a strategic marketing tool are regularly seen in retail stores and may actually be seen by many more potential customers than the company's advertising. An effective package sometimes gives a firm more promotional impact than it could possibly afford with conventional advertising efforts. Promotionally oriented packaging also may reduce total distribution costs. An attractive package may speed turnover so that total costs will decline as a percentage of sales. Rapid turnover is one of the important ingredients in the success of self-service retail marketing. Without packages, self-service retailing would not be possible (Chaneta, 2010). He further agrees that costs may rise because of packaging and yet everyone may be satisfied because the packaging improves the total product, perhaps by offering much greater convenience for consumers.

The ultimate purpose of the marketing concept according to Kotler (2001), is to help organizations achieve their objectives. In the case of private firms, the major objective is profit; in the case of non-profit and public organizations, it is surviving and attracting enough funds to perform useful work. Private firms should aim to achieve profits as a consequence of creating superior customer value, by satisfying customer needs better than competitors.

Marketing according to Kotler and Armstrong (2012), is a social and managerial process by which individuals and organizations obtain what they need and want through creating and exchanging value with others. In other words, marketing is managing profitable customer relationships. The aim of marketing is to create value for customers and capture value from customers in return to create profits and customer equity.

Measuring and Managing Return on Marketing Investment, marketing managers must ensure that their marketing dollars are being well spent. In the past, many marketers spent freely on big, expensive marketing programs, often without thinking carefully about the financial returns on their spending. They believed that marketing produces intangible creative outcomes, which do not lend themselves readily to measures of productivity or return. But in today's more constrained economy, all that is changing (Kotler and Armstrong, 2012).

2.9 Incubators and Entrepreneurial Propensity

Incubator is an initiative that systematizes the process of creating successful new enterprises, by providing entrepreneurs with a comprehensive and integrated range of services, which include floor-space made available on a flexible and affordable, but temporary basis; common services that include secretarial support and shared use of office equipment; hands-on business counselling; access to specialized assistance such as research and development support and venture capital; and networking activities operating as a reference point inside the premises among entrepreneurs and outside to the local community. According to Lalkaka (2000), incubator is a means by which visions of new businesses are turned into reality with reduced risks. Incubators aspire to have a positive impact on a community's economic health, by maximizing the success of emerging companies (Cassim, 2001). Incubators have proved effective in many parts of the world. According to Rice and Matthews (1995), only 10 business incubators existed in the United States in 1980. There were nearly 500 by 1995, meaning a new incubator has been opening every week. The technology incubators generally focus on nurturing technology intensive enterprises and knowledge-based ventures.

The technology incubation system (TIS) is variously represented by entities such as Technopolis, Science Parks, Research Parks, Technology Parks, Technology and/or Business

Incubators. These entities operate as separate organisations but are mostly integrated with other players in the innovation system. The terms Science Parks, Research Parks and Technology Parks as well as Technology Incubators (TIs), Technology Innovation Centres (TICs) and Technology Business Incubators (TBIs) are used interchangeably in many countries depending on the level and type of interaction between R&D community, venture funding and industry (Lalkaka, 2000).

The theory that entrepreneurial behavior is the result of inherited competencies or that entrepreneurship is an innate characteristic of a minority of individuals no longer seems to have many followers (Rodrigues et al., 2008). Some researchers have come to support the idea that psychological attributes conducive to entrepreneurial behavior can be culturally acquired (Vesper, 1990) and/or culturally moderated (Stephan et al., 2003). However, Li (2006) argues that the theory of planned behavior provides a sound theoretical framework for understanding the origins of entrepreneurial intentions, emphasizing that it is possible for people to learn to be entrepreneurs, mainly through the use of targeted training approaches.

Few would disagree that it would benefit all students if, before completing their education, they were exposed to well designed entrepreneurship-related inputs that stimulated, independent, creative and critical thinking. Hatten and Ruhland (1995) and Teixeira (2007) argue that if students with entrepreneurial potential were identified earlier and nurtured throughout their educational experience, the result both for the individuals concerned and for society would be more and more successful entrepreneurs. Thus it makes sense to investigate the extent to which entrepreneurial propensity and intensions may be the result of factors that can be significantly altered through training as Kolvereid and Moen (1997) have suggested.

More concretely, the idea of becoming an entrepreneur may become more and more attractive to students because it is seen as a valuable way of being employed without losing one's independence (Martínez et al., 2007). While there have been a large number of studies of entrepreneurial propensity (e.g. Naffziger et al., 1994; Brandstätter, 1997), only a limited number of studies have focused on students' entrepreneurial intent (e.g. Scott and Twomey, 1988; Oakey et al., 2002; Klapper and Léger-Jarniou, 2006). In general, the results of such studies indicate that males with a strong need for achievement, with evidence of creativity and leadership capacity, with a propensity for risk taking, and whose parents are or have been self-employed, are those that possess the key factors fa-

voring the decision to become an entrepreneur (e.g. Lena and Wong, 2003; Franke and Lüthje, 2004; Teixeira, 2007; Rodrigues et al., 2008).

There is no consensus on the factors that drive entrepreneurial propensity; but a representative gamut of determinants could be identified from the literature. Gender and entrepreneurial education were found to be positively influential among Welsh students who reported that they are likely to set up a business venture within three years of graduation (Czuchry and Yasin, 2008). While policies broadly consistent with economic freedom (such as secure property rights, low taxes, and low regulations) were reported to lead to robust entrepreneurial propensity in Virginia (Goodbody Economic Consultants, 2002); He further said financial constraint, education and self-efficacy were found to have much influence on Irish students' entrepreneurial intentions. Family and community background had an important influence in the orientation towards entrepreneurship among British, India and Chinese students (Stella, 2008). Wang and Wong (2004) found that entrepreneurial aspirations among Singaporean students was driven largely by family business experience, educational level and gender but hindered by inadequate business experience. Verheul and Thurik (2002) suggest a strong indirect effect of gender on self-employment decisions in Europe and U.S.A. Candice et al. (2001) concluded that in addition to government intervention, the French culture appears to have an important negative impact on entrepreneurship, though both are intertwined. Ramana and Jesper (2008) presented results based on a study of employed individuals in Denmark that peer interactions influence the likelihood of becoming an entrepreneur through two channels: by increasing an individual's likelihood to perceive entrepreneurial opportunities and by increasing the motivation to pursue such opportunities. This suggests that peer influence could endow individual's acquired self-efficacy whereby they see themselves as having the potentials to succeed in entrepreneurship because a close acquaintance had been. The Global Entrepreneurship Monitor (Reynold et al., 2001) Singapore adult population surveys, found that self-efficacy, prior knowledge of other entrepreneurs, and fear of failure are significant determinants of entrepreneurial propensity.

2.10 CROSS-COUNTRY EXPERIENCE

This section used empirical framework derived from observations, verifiable and guided practical experience that support hypotheses, concepts and theories discussed in other

studies and Cross-Country Experience in Technology Incubation and Entrepreneurship Development of some countries around the world for better understanding of technology incubation programme and entrepreneurship development in Nigeria.

Africa in general, and Nigeria in particular, is a late adopter of the Incubator paradigm this is why researches on technology incubation are at their infancy in this region. In South Africa for instance, Buys and Mbewana (2007) investigated the factors that contribute to successful business incubation in Godisa and found that there are eight key success factors. They include; access to science and technology expertise and facilities, funding, quality of entrepreneurs, stakeholders' support, supportive government policies, competent and motivated management, financial sustainability and networking.

Bertenbreiter (2013) study the types of incubators in Africa and found three types: technology lab, for-profit and non-profit incubators. While technology lab provides shared office space and business assistance and are designed as co-working spaces, for-profit incubators take on high potential entrepreneurs and accelerate them in a 3-month program, provide them with seed funding, expert advisors and a network willing to fund them. The non-profit incubators merge the other two incubators concepts. He concluded that incubator type has little effect on its success.

Aggarwal et al. (2012) examined technology incubation as a tool for creating sustainable business in Rwanda and reported that they bring several benefits to the whole community and can reduce poverty. They concluded that incubators have the potential for promoting innovation and entrepreneurship not only in Rwanda, but also in other African countries and the entire world.

Jibrin (2012) studied Performance Evaluation of Some Selected Incubated Enterprises at Technology Incubation Centre, Kano, Nigeria, that the performances pattern in terms of monthly turnover of three (3) selected enterprises, which were arbitrarily designated as A, B and C from Technology Incubation Centre (TIC), Kano were evaluated from 2007 to 2010. Three critical stages of the enterprises' incubation status were considered, that is their last twelve (12) months of resident incubation, next three (3) months of transition from resident incubation to post incubation and the subsequent first twelve (12) months of post incubation. He observed that all the enterprises showed a parabolic behaviour in terms of progress in the last twelve (12) months of resident incuba-

tion. However, the three (3) months transition period considered as the period from graduation to final relocation from the centre characterized by the commencement of withdrawals of the subsidies enjoyed by the enterprises during the three (3) years in the TIC in terms of facilities rent, utilities, marketing, ICT, technical/business coaching, training, seed capital etc., recorded a linear behaviour with a sharp drop in turnover. However, on final relocation outside the TIC which is the commencement of post incubation, the turnover in respect of enterprise A began to steadily rise, enterprise B maintained a constant turnover, while enterprise C recorded a gradual drop that lead to its collapse. He therefore concludes that, the results of the study call for the need by the stake holders of the Technology Incubation Programme in Nigeria (TIP), i.e.; Government at all tiers, Academia and the Industry/ Entrepreneurs to address the critical observations in the second (2nd) and third (3rd) stages through provision of facilities, grants, loans, etc. including relocation to a befitting technology/innovation parks that will serve as a booster to their survival.

In general, these studies reveal a mixed picture about the success and regional effect of technology incubation centres and science parks. Luger and Goldstein (1991) concluded in their study that half of the science parks are failures and another quarter have to change their goals, because the parks did not live up to their expectations; only one-quarter of all science parks can be regarded as being successful. Most of these successful science parks appeared to be the existing older science parks, which may have an effect of decreasing demand for additional, later-built facilities.

Furthermore, the success of these science parks seems to be related to large agglomerations with an existing bias in R&D, high-tech activities, universities, a well developed infrastructure, business-related services and foresight and effective political, academic, and business leaders. However, all these factors still do not guarantee success. On the other hand, success in investors-preferred-regions is possible but only through good leadership, good planning, and good implementation (Luger and Goldstein, 1991); consequently, Luger and Goldstein advise caution for new science parks.

Job creation remains a popular measure used to evaluate incubator performance however, using job-creation, as a metric of incubator performance is problematic because new ventures will often try to reduce their fixed costs as they operate in conditions of uncertainty. Venture investors are acutely aware of the need to control spending by investee firms,

which often means in practice delaying recruitment of full time employees (FTEs) as long as possible and instead preferring the use of flexible contract workers (Collaert and Vanacker, 2011). This can lead to conflicting goals as incubators try to satisfy the needs of public bodies through supporting job-creation, but also the needs of investors by discouraging incubatees taking on additional risk through recruiting FTEs.

Despite the growth in literature on incubation, few studies have applied a robust evaluative approach to assessing the economic contributions of incubators. Many quantitative academic studies attempting to evaluate the impact of incubators on populations of firms have more conservative results than industry studies, and often-contradictory findings. Furthermore, some of these studies include data on science parks as well as business incubators and this makes comparisons between studies challenging.

When considering the impact of incubators on new venture performance, the fundamental research question is 'whether' and 'how' incubators enhance the performance of new startups. Many of the early studies seeking to answer these questions are lacking conceptual and/or methodological grounding (Campbell et al., 1985; Hisrich and Smilor, 1988). They further said that more recently, studies show a stronger empirical focus, using data from surveys, interviews and case studies However, studies on incubator impacts are fragmented and do not feed into a consistent stream of research. Various researches has shows that the practice, application or implementation of Technology Business Incubation varies from country to country, region to region (USA, UK, Brazil, Nigeria, Israel, China, Egypt, etc.) based on the focus, objectives and goals set to be achieved.

3. RESEARCH METHODOLOGY

3.1 Research design

The nature of the problem and the objective of any study usually determine the type of research design to be adopted by a researcher. Though various types of research design exist, which include experimental design, historical design, descriptive survey design, case study design, ex-post design, correlation design among others. This study utilized the descriptive survey design as it attempts to establish the effect of technology incubation programme on entrepreneurship development in Nigeria.

3.2 Population and Sampling Technique

The population of this study consists of all technology incubation centers in Nigeria as at December, 2012. This population is specifically 27 and includes technology incubators in 26 states and FCT, Abuja (see Table 3.1). There are many types of sampling methods. These include, among others, random sampling, stratified sampling, systematic sampling, multistage sampling, convenient sampling, cluster sampling and quota sampling.

For the purpose of this study, quota sampling technique was used considering the geographical spread of the incubators in Nigeria. A quota sampling method extends the idea that every area has a kind of representation in the study to enable the ease of generalising the results of the study. One advantage of this method is that the sample itself is a representation of all interest groups in the area of study. The selection of the sample is subjective and it reduces the cost due to the extra time and labour necessary for the organization and implementation of the other sample.

The sample size of this study was six technology incubation centres from the six geo-political zones. The incubation centres selected are those in Minna, Kano, Benin, Bauchi, Lagos and Nnewi as shown in the Table 3.2. These six centers are the six zonal offices in the country; they are among the first fifteen centres established before the year 2000. These centers have the highest number of incubator units and graduate incubates.

3.3 Method of data collection

There are basically two sources of data collection i.e. both primary and secondary sources of data collection. For the purpose of this study, primary method of data collection was utilized. Primary data was collected using structured closed ended questionnaires, which was administered on graduate incubatees.

3.4 Procedure of data analysis and model specifications

The nature of the data collected determines the type of tool to be adopted for analysis. For the purpose of this study multiple regression technique was used as a tool of analysis. This is for the reason that the study determines the effect of technology incubation represented by financing, marketing, training and the incubation programme, which are the independent variables on entrepreneurship development represented by funding, turnover, ability and propensity as dependent variables.

Table 3.1. Incubation Centres in Nigeria

S/N	Incubation centre	Geopolitical zone	Year Established	No of Incubation Units	No of Incubation Graduates
1.	Technology Incubation Centre, Kano	Northwest	1994	24	18
2.	Technology Incubation Centre, Sokoto	Northwest	1999	10	2
3.	Technology Incubation Centre, BirninKebbi	Northwest	1999	10	2
4.	Technology Incubation Centre, Gusau	Northwest	1999	10	-
5.	Technology Incubation Centre, Kaduna	Northwest	2010		-
6.	Technology Incubation Centre, Bauchi	Northeast	1999	13	10
7.	Technology Incubation Centre, Maiduguri	Northeast	1999	8	-
8.	Technology Incubation Centre, Yola	Northeast	2007	6	-
9.	Technology Incubation Centre, Jalingo	Northeast	2010	8	-
10.	Technology Incubation Centre, Minna	Northcentral	1998	21	43
11.	Technology Incubation Centre, Jos	Northcentral	2007	16	-
12.	Technology Incubation Centre, Ilorin	Northcentral	2010		-
13.	Technology Incubation Centre, Lagos	Southwest	1993	26	38
14.	Technology Incubation Centre, Akure	Southwest	2004	9	
15.	Technology Incubation Centre, Abeokuta	Southwest	2007	8	-
16.	Technology Incubation Centre, Ibadan	Southwest	2006	5	-
17.	Technology Incubation Centre, Ile ife	Southwest	2012	6	-
18.	Technology Incubation Centre, Ekiti	Southwest	2012		-
19.	Technology Incubation Centre, Aba	Southeast	1995	21	9
20.	Technology Incubation Centre, Nnewi	Southeast	1998	18	9
21.	Technology Incubation Centre, Owerri	Southeast	2006	8	-
22.	Technology Incubation Centre, Enugu	Southeast	2010		-
23.	Technology Incubation Centre, Benin	Southsouth	1999	11	10
24.	Technology Incubation Centre, Warri	Southsouth	1999	8	-
25.	Technology Incubation Centre, Calabar	Southsouth	1998	17	9
26.	Technology Incubation Centre, Yenagoa	Southsouth	2007		-
27.	Technology Incubation Centre, Uyo	Southsouth	2001	11	6

Source: FMST (2012)

Table 3.2. Sampled Technology Incubation Centres

S/N	Incubation centre	Geopolitical zone	Year Established	No of Incubation Units	No of Incubation Graduates
1.	Technology Incubation Centre, Kano	Northwest	1994	24	18
2.	Technology Incubation Centre, Bauchi	Northeast	1999	13	10
3.	Technology Incubation Centre, Minna	Northcentral	1998	21	43
4.	Technology Incubation Centre, Lagos	Southwest	1993	26	38
5.	Technology Incubation Centre, Nnewi	Southeast	1998	18	9
6.	Technology Incubation Centre, Benin	Southsouth	1999	11	10

Source: Ndagi (2014)

3.4.1 Models specification

The models that were used in testing the hypotheses of the study are presented below. In the models, PROP is propensity to enterprise, FINA is financing, TURNO is turnover, TRAIN is training, ABIL is the ability to enterprise, TIP is for technology incubation programme, MAKT is for marketing, and FUND is funding. These models were used to test the four hypotheses stated in chapter one.

These models were tested in three stages; at admission, at graduation and at post-graduation.

Model 1 $ABIL = \alpha + \beta_1 TRAIN + \varepsilon$ .... (1)

The model is broken down into the function shown below:
PDT CAP = f (MDTRAIN, R&D, TRADEMARK, TRAINING).

The entrepreneurial ability is represented in the model by production capacity (PDT CAP) —the dependent variable, and training is broken into MD training, R&D, trademarks and training.

Model 2 $FUND = \alpha + \beta_2 FINA + \varepsilon$ .... (2)

The expanded version of the model is
CREDIT = f (FINANCE, NETWORTH, SALES).

The funding is represented in the model by credit assessed by the incubatees —the dependent variable, and finance of the incubatees is represented by finance, networth, and sales.

Model 3 $TURNO = \alpha + \beta_3 MAKT + \varepsilon$ .... (3)

The expanded version of the model is:
TURNOVER = f (TFAIR, DNETWORK, MKT).

The turnover is represented in the model by sales of the incubatees —the dependent variable, and the independent variables are trade fairs, distribution network and marketing.

Model 4 $PROP = \alpha + \beta_4 TIP + \varepsilon$ .... (4)

The expanded version of the model is:
PROP = f (TRAIN, FIN, MARKT, INCPROG).

The propensity is represented in the model by willingness of the incubatees —the dependent variable, and the independent variables are training, financing, marketing and incubation programme.

3.5 Justification of the technique used

A quota sampling technique was the method used in this study and the rationale for the choice of this sampling method is that the population of this study is segmented based on the geographical regions of Nigeria. Primary method of collecting data was used because of the need to interact with graduate incubatees. We used the multiple regression technique in analysing our data considering the fact that the study is about the relationship between multiple dependent and independent variables.

4. DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation and Data Characteristics

The characteristics of the data collected are presented on Table 4.1, where the twenty nine (29) sampled enterprises are represented by letter A – AC; six (6) of the respondents are

Table 4.1. Characteristics of Sampled Enterprises

S/N	ENTERPRISES	SEX	AGE	EDUCATIONAL QUALIFICATION	NATURE OF BUSINESS
1	A	M	47	B.Sc	Pharmaceuticals
2	B	M	40	B.Sc	ICT
3	C	F	42	NCE	Chemical & allied Products
4	D	M	50	B.Sc	Agro-processing
5	E	M	32	OND	Fabrication
6	F	M	45	MBA	Chemical & allied Products
7	G	M	47	B.Sc	Pharmaceuticals
8	H	M	50	Ph.D	Agro-processing
9	I	F	46	B.Sc	Chemical & allied Products
10	J	M	38	B.Sc	ICT
11	K	M	51	M.Sc	Fabrication
12	L	M	48	B.Sc	Pharmaceuticals
13	M	M	43	B.Sc	Agro-processing
14	N	M	45	OND	Chemical & allied Products
15	O	F	55	M.SC	Agro-processing
16	P	M	48	NCE	Agro-processing
17	Q	F	50	MBA	Agro-processing
18	R	M	37	HND	Fabrication
19	S	M	43	B.Sc	Chemical & allied Products
20	T	M	35	OND	Fabrication
21	U	M	46	MBA	Agro-processing
22	V	M	42	B.Sc	Pharmaceuticals
23	W	M	49	B.SC	Agro-processing
24	X	F	38	OND	Chemical & allied Products
25	Y	M	40	B.Sc	Agro-processing
26	Z	M	52	MBA	Agro-processing
27	AA	F	47	B.Sc	Chemical & allied Products
28	AB	M	50	M.Sc	Fabrication
29	AC	M	47	HND	Agro-processing

Source: Ndagi (2014)

females while twenty three (23) are males; the youngest is thirty two (32) years old while the oldest is fifty five (55) years old; the least educational qualification is National Certificate of Education (NCE) while the highest educational qualification is Doctor of Philosophy (Ph.D.), but Bachelor of Science (B.Sc.) degree are the majority ; the nature of business shows that two (2) are into Information Communication Technology (ICT), four (4) into Pharmaceutical products, five (5) into machinery/equipment fabrications, seven (7) into chemicals and allied products, while, lastly, eleven (11) are into Agro- allied processing products.

Out of the total of 30 questionnaires distributed to respondents, 29 of them were returned. That is, about 97% response rate. Out of the 29 entrepreneurs that responded, only six were non-existent as at the time of entering the incubation centre. The remaining already existed ventures before admission at the centres and none of the firm is a subsidiary of any company. 28 of the firms were registered with the Corporate Affairs Commission (CAC) when admitted to the incubation centres and the summary of the registration year is shown below (Table 4.2, and Fig. 1 & 2).

Table 4.2. Years of Registration

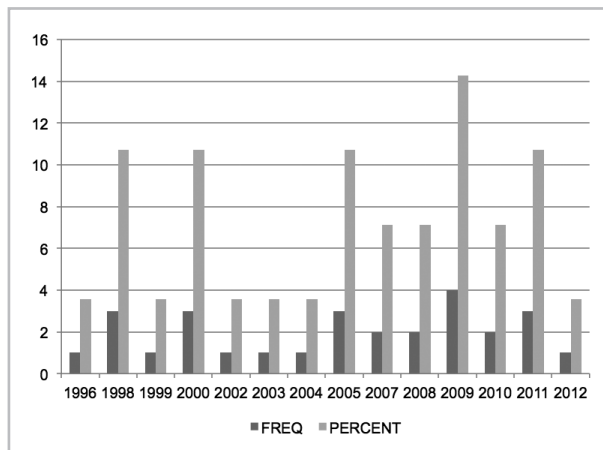| REG YEAR	FREQ	PERCENT(%)	CUM.
1996	1	3.57	3.57
1998	3	10.71	14.29
1999	1	3.57	17.86
2000	3	10.71	28.57
2002	1	3.57	32.14
2003	1	3.57	35.71
2004	1	3.57	39.29
2005	3	10.71	50.00
2007	2	7.14	57.14
2008	2	7.14	64.29
2009	4	14.29	78.57
2010	2	7.14	85.71
2011	3	10.71	96.43
2012	1	3.57	100.00

Source: Ndagi (2014)

Fig. 1. Bar chart showing year of Registration versus the frequency and percentage
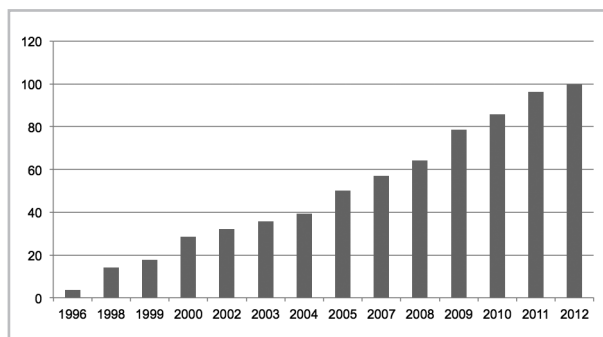
Source: Ndagi (2014)

Fig. 2. Bar chart showing year of Registration versus the cumulative figures

Source: Ndagi (2014)

The Table 4.3 below shows the summary statistics of the major variables that were collected from the respondents.

The Table 4.3 shows that the 29 respondents have a mean of 4 direct members of staff before admission into the incubation and the maximum direct members of staff before admission was 25 while some do not have direct members of staff. At graduation from the incubation centre, 28 respondents have an average direct members of staff of six and a maximum of 18 direct members of staff and there are some that do not have direct members of staff at this point. At post – incubation period, the average direct members of staff increases to eight with a maximum of 20. This shows that owing to increases in business activities after incubation, the direct members of staff of entrepreneurs' increases.

The indirect members of staff also increase from admission through post-incubation. The average indirect members of staff were seven, 10, and 16 with the maximum of 50, 45, and 80 at admission, graduation and post-incubation, respectively. The minimum and maximum duration they spent in the incubation centre were two and nine years respectively.

The analysis of the sales of the incubatees at admission, graduation and post-graduation shows average sales of N1,886,038, N26,400,000, and N27,000,000, respectively. The maximum sales for this period were N1,200,000 at admission, N590,000,000 at graduation and N600,000,000 at post-graduation. These sales figures have shown a significant improvement in the activities of the incubatees as a result of the incubation programme.

Furthermore, the average net-worth of the incubates at admission was N2,550,000 with a maximum of N12,000,000. It increases to N11,500,000 with a maximum of N80,000,000 at graduation and further improves to N13,000,000 with a maximum of N50,000,000after graduation.

Finally, the analysis of accessing to credit by the incubatees shows whether there are not accessing credit or credit is unavailable. At admission, the average credit was N1,900,000 and decreases to N981,481.60 at graduation and further decreases to N447,037.30 at post-graduation. The maximum for these periods were N8,000,000, N10,000,000 and N5,000,000, respectively.

Table 4.3. Descriptive Statistics of the variables

Variables	Obs	Mean	Std. Dev.	Min	Max
dstaf1	29	4.034483	4.858591	0	25
dstaf2	28	6.142857	3.9036	0	18
dstaf3	28	8.642857	5.579156	0	20
indstaf1	29	7.172414	12.4185	0	50
indstaf2	28	9.571429	11.20327	0	45
indstaf3	28	16.17857	21.20282	0	80
incdur	29	4.275862	1.90669	2	9
sales1	26	1668038	2627283	0	12000000
sales2	25	26400000	117000000	0	590000000
sales3	26	27000000	117000000	0	600000000
tfair1	29	3.241379	5.096604	0	20
tfair2	28	7.678571	9.353366	0	45
tfair3	28	6.571429	7.233812	0	20
networth1	27	2550000	3001410	0	12000000
networth2	26	11500000	16200000	0	80000000
networth3	27	13000000	11400000	0	50000000
credit1	13	1900000	2236720	0	8000000
credit2	27	981481.6	2475734	0	10000000
credit3	27	447037.3	1112916	0	5000000

Source: Ndagi (2014)

Table 4.4. Descriptive Statistics of the Variables at Admission, Graduation and Post-graduation

Variables	Obs	Mean	Std. Dev.	Min.	Max.
mdtrain1	28	4.944444	7.526207	0	25
mdtrain2	27	5.294118	4.934125	0	20
mdtrain3	28	4.777778	4.453096	0	15
r&d1	29	1.526316	2.988281	0	12
r&d2	29	1.684211	2.473249	0	10
r&d3	29	1.894737	3.619311	0	15
Trademark	29	1.526316	2.195157	0	8
train1	29	3.526316	0.9642741	2	5
train2	29	4.473684	0.5129892	4	5
train3	29	4.736842	0.4524139	4	5

Source: Ndagi (2014)

4.2 Technology Incubation Training and Entrepreneurial Ability

The first hypothesis of the study is that there is no significant relationship between technology incubation and entrepreneurship ability. This hypothesis is modelled by the equation:

$$ABIL = \alpha + \beta\ TRAIN + \mathcal{E}$$

PDT CAP = f (MDTRAIN, R&D, TRADEMARK, TRAINING)

The entrepreneurial ability is represented in the model by production capacity (PDT CAP) —the dependent variable, and technological incubation is represented by MD training, R&D, trademarks and training.

The descriptive statistics of the variables are shown in the Table 4.4 and Fig. 3.

The results of the regression equations at admission, at graduation and at post-graduation are shown on the Table 4.5.

The regression equation at admission from the table are stated as below:

$$ABIL = 1.536 + 0.144\ MDTRAIN + 0.571\ R\&D + 0.560\ TRADEMARKS + 1.987TRAIN$$

At admission of the incubatees, the coefficient of MDTRAIN is 0.144 with a standard error of 0, while that of R&D is 0.571, that of TRADEMARK is 0.560, and that of TRAINING is 1.987
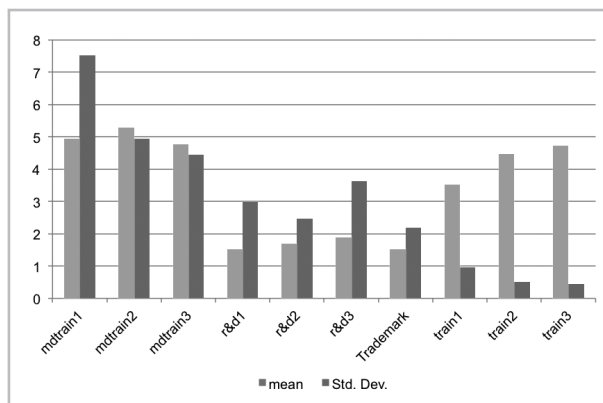

Fig. 3. Bar chart showing mean and standard deviation on admission, graduation and post-graduation

Source: Ndagi (2014)

and their p-value < 0.01. Since all the coefficients are positive, it means that a 1% change or increase in training of the MD leads to about 14.4% increase in entrepreneurs' ability. Also, a 1% change or increase in R&D leads to about 57.1% increase in entrepreneurs' ability, a 1% change or increase in trademarks leads to about 56% increase in entrepreneurs' ability and, finally, a 1% change or increase in training leads to about 198% increase in entrepreneurs' ability. Comparing the p-value with the three significance levels, it can be concluded that training of MD, R&D, trademarks and training in incubation centres are

Table 4.5. Regression result

VARIABLES	(ABIL) Regression1	(ABIL) Regression2	(ABIL) Regression3
lmdtrain1	0.144*** (0)		
lrd1	0.571*** (0)		
Ltrademark	0.560*** (0)		
ltrain1	1.987*** (0)		
lmdtrain2		0.838* (0.209)	
lrd2		0.605** (4.63e-09)	
Ltrademark		0.338* (0.509)	0.548* (0.2459)
ltrain2		0.4438* (0.449)	
lmdtrain3			-0.774 (0.292)
lrd3			0.613* (0.32)
ltrain3			0.348* (0.459)
Constant	1.536*** (0)	0.921* (0.229)	0.850 (0.321)
Observations	7	5	5
R-squared	1.000	0.843	0.701

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Ndagi (2014)

significant in determining entrepreneurial ability at 1%. This is because the p-value (prob) is less than 0.01. The R2 is 1.000 which shows that the model is in good fit. The result from this analysis shows that at admission into incubation centres, there is significant relationship between technology incubation and entrepreneurship ability.

The regression equation at graduation is as follows:

ABIL = 0.921 +0.838 MDTRAIN + 0.605 R&D + 0.338 TRADEMARKS + 0.4438TRAIN

At graduation of the incubatees, the coefficient of MDTRAIN is 0.921, while that of R&D is 0.605, that of TRADEMARK is 0.338, and that of TRAINING is 2.121 and their p-value < 0.05 and 0.1. Since all the coefficients are positive, it means that a 1% change or increase in training of the MD leads to about 92.1% increase in entrepreneurs' ability. Also, a 1% change or increase in R&D leads to about 60.5% increase in entrepreneurs' ability, a 1% change or increase in trademarks leads to about 33.8% increase in entrepreneurs' ability and, finally, a 1% change or increase in training leads to about 44.38% increase in entrepreneurs' ability. Comparing the p-value with the three significance levels, it can be concluded that training of MD, R&D, trademarks and training in incubation centres are significant in determining entrepreneurial ability at 10%. This is because the p-values (prob) are less than 0.1. The R2 is 0.843 which shows that the model is in good fit. The result from this analysis shows that at graduation from incubation centres, there is significant relationship between technology incubation and entrepreneurship ability. There is significant improvement in entrepreneurial ability than at admission as can be seen from the results.

The regression equation at post-graduation is:

ABIL = 0.850 − 0.774 MDTRAIN + 0.613 R&D + 0.548TRADEMARKS + 0.348TRAIN

At post-incubation period, the coefficient of MDTRAIN is -0.774, while that of R&D is 0.613, that of TRADEMARK is 0.548, and that of TRAINING is 0.348 and their p-values < 0.1. The coefficients show that a 1% change or increase in training of the MD leads to about 77.4% decrease in entrepreneurs' ability. Also, a 1% change or increase in R&D leads to about 61.3% increase in entrepreneurs' ability, a 1% change or increase in trademarks leads to about 54.8% increase in entrepreneurs' ability and finally, a 1% change or increase in training leads to about 34.8% increase in entrepreneurs' ability. Comparing the p-value with the three significance levels, it can be concluded that training of MD, R&D, trademarks and training in incubation centres are significant in determining entrepreneurial ability at 10%. This is because the p-values (prob.) are less than 0.1. The R2 is 0.701, which shows that the model is in good fit. The result from this analysis shows that at post-incubation, there is significant relationship between technology incubation and entrepreneurship ability.

Table 4.6. Descriptive Statistics of the variables at admission, graduation and post-graduation

Variables	Obs	Mean	Std. Dev.	Min.	Max.
finance1	29	2.526316	0.9642741	1	4
finance2	29	4.105263	0.4588315	3	5
finance3	29	4.421053	0.6924826	3	5
networth1	27	3150000	3508116	0	1.20E+07
networth2	26	8418750	9454397	0	4.00E+07
networth3	27	1.37E+07	1.23E+07	3E+06	5.00E+07
sales1	26	1571438	1833280	0	5000000
sales2	25	2834667	2501433	300000	1.00E+07
sales3	26	4406563	4811696	105000	1.50E+07
sales2	25	2834667	2501433	300000	1.00E+07
sales3	26	4406563	4811696	105000	1.50E+07

Source: Ndagi (2014)

4.3 Technology Incubation Financing and Funding Portfolio

The second hypothesis of the study is that technology incubation financing does not significantly impact on incubatees funding portfolios. This hypothesis is modelled by the equation;

$$FUND = \alpha + \beta\ FINA + \mathcal{E}$$

CREDIT = f (FINANCE, NETWORTH, SALES)

The funding is represented in the model by credit assessed by the incubatees —the dependent variable, and finance of the incubatees is represented by finance, net-worth, and sales.

The descriptive statistics of the variables for hypothesis two are shown in the Table 4.6 and Fig. 4.

The results of the regression equation at admission are shown in the Table 4.7.

$$CREDIT = 14.444 + 2.34\ FINANCE + 1.180\ NETWORTH + 1.209\ SALES$$

At admission of the incubatees, the coefficient of FINANCE is 2.34, while that of NETWORTH is 1.189, and that of SALES is 1.209 and their p-value < 0.01. Since all the coefficients are positive, it means that a 1% change or increase in finance by the incubatees leads to about 234% increase in credit assessed by the entrepreneurs. It also shows that a 1% change or increase in the networth of the entrepreneurs leads to about
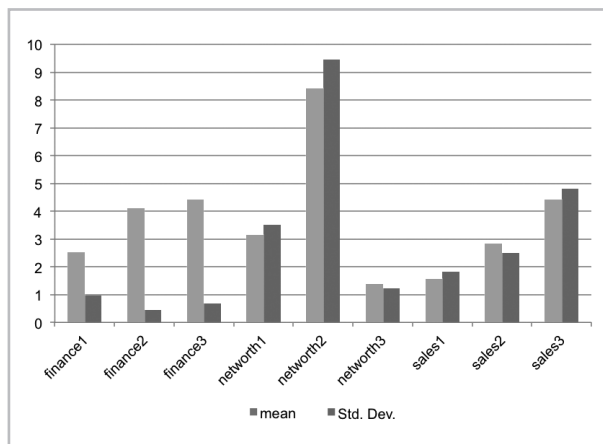

Fig. 4. Bar Chart of Descriptive Statistics of the variables at admission, graduation and post-graduation

Source: Ndagi (2014)

118% increase in funding, and a 1% change or increase in sales leads to about 121% increase in entrepreneurs' funding. Comparing the p-value with the three significant levels, it can be concluded that finance, net-worth and sales are significant in determinants of entrepreneurial funding at 1%. This is because the p-value (prob) is less than 0.01. The R^2 is 1.000, which shows that the model is in good fit. The result from this analysis shows that at admission into incubation centres, there

is significant relationship between financing and entrepreneurial funding.

The equation at graduation is given below:

CREDIT = 304.7 + 2.84 FINANCE + 25.34 NETWORTH + 6.588 SALES

At graduation, the coefficient of FINANCE is 2.84, while that of NETWORTH is 25.34, and that of SALES is 6.588 and their p-value < 0.01. Since all the coefficients are positive, it means that a 1% change or increase in finance by the incubatees leads to about 284% increase in credit assessed by the entrepreneurs. It also shows that a 1% change or increase in the networth of the entrepreneurs leads to about 2534% increase in funding, and a 1% change or increase in sales leads to about 659% increase in entrepreneurs' funding. Comparing the p-value with the three significance levels, it can be concluded that finance, networth and sales are significant in determinants of entrepreneurial funding at 1%. This is because the p-value (prob) is less than 0.01. The R^2 is 0.992 which shows that the model is in good fit. The result from this analysis shows that at graduation, there is a significant relationship between financing and entrepreneurial funding and it shows there is significant improvement in the funding of entrepreneurs.

The equation at post-graduation is given below:

CREDIT = 270.4 + 24.16 FINANCE - 1.23 NETWORTH + 1.754 SALES

At post-graduation, the coefficient of FINANCE is 24.16, while that of NETWORTH is -1.23, and that of SALES is 1.754 and their p-value < 0.01. The coefficients show that a 1% change or increase in finance by the incubatees leads to about 2416% increase in credit assessed by the entrepreneurs. It also shows that a 1% change or increase in the networth of the entrepreneurs leads to about 123% decrease in funding, and a 1% change or increase in sales leads to about 175% increase in entrepreneurs' funding. Comparing the p-value with the three significance levels, it can be concluded that finance, networth and sales are significant in determinants of entrepreneurial funding at 1%. This is because the p-value (prob) is less than 0.01. The R^2 is 0.778, which shows that the model is in good fit. The result from this analysis shows that at post-graduation, there is significant relationship between financing and entrepreneurial funding.

Table 4.7. Regression result

VARIABLES	(1) Regression1	(2) Regression2	(3) Regression3
lfinance1	2.34*** (0.883)		
lnetworth1	1.180*** (0)		
lsales1	1.209*** (0)		
lfinance2		2.84*** (0.683)	
lnetworth2		25.34*** (0.783)	
lsales2		6.588*** (0.477)	
lfinance3			24.16*** (24.26)
lnetworth3			-1.23** (6.504)
lsales3			1.754*** (2.862)
Constant	14.44*** (0)	304.7*** (5.957)	270.4* (107.3)
Observations	8	7	9
R-squared	1.000	0.992	0.778

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Ndagi (2014)

4.4 Technology Incubation Marketing and Turnover

The third hypothesis of the study is that technology incubation marketing does not significantly impact on incubatees' turnover. This hypothesis is modeled by the equation:

TURNOVER = α + β MAKT + Ɛ

TURNOVER = f (TFAIR, DNETWORK, MKT)

The turnover is represented in the model by sales of the incubatees —the dependent variable, and the independent variables are trade fairs, distribution network and marketing.

The descriptive statistics of the variables for hypothesis

Table 4.8. Descriptive Statistics of the Variables at Admission, Graduation and Post-graduation

Variables	Obs	Mean	Std. Dev.	Min.	Max.
sales1	26	1571438	1833280	0	5000000
sales2	25	2834667	2501433	300000	1.00E+07
sales3	26	4406563	4811696	105000	1.50E+07
tfair1	29	2.473684	4.376305	0	18
tfair2	28	6.5	5.933455	0	17
tfair3	28	6	6.63325	0	20
dnet1	29	13	35.23887	0	150
dnet2	28	18.33333	37.89459	0	150
dnet3	28	20.44444	37.8359	0	150
market1	29	3.421053	1.304513	1	5
market2	29	4.421053	0.5072573	4	5
market3	29	4.526316	0.6117753	3	5

Source: Ndagi (2014)

three are shown in the Table 4.8.

The regression results for the three periods are shown in the Table 4.9.

The result of the regression equation at admission is given below:

$$\text{TURNOVER} = 0.224 + 233{,}195\ \text{TFAIR} - 11{,}772\ \text{DNETWORK} - 94281\ \text{MAKT}$$

At admission of the incubatees, the coefficient of TFAIR is 233195, while that of DNETWORK is -11772, and that of MAKT is -94281. The p-value of TFAIR is < 0.01 and the other two were greater than all the level of significance. The coefficients shows that a unit change in TFAIR will leads to about 233195 increase in turnover of the entrepreneurs. It also shows that a unit change in distribution network of the entrepreneurs leads to about 11772 decrease in turnover, and a unit change in marketing leads to about 94281 decrease in entrepreneurs' turnover. Comparing the p-value with the three significance levels, it can be concluded that the result for trade fair is significant in improving the entrepreneurs' turnover at 1%. That of distribution network and marketing are not significant in explaining their contributions to the entrepreneurs' turnovers because their p-value (prob) are greater than the significant levels of

0.01, 0.05 and 0.1. The R2 is 0.624, which shows that the model is in good fit. The result from this analysis shows that at admission into incubation centres, there is a significant relationship between trade fairs and turnover, but we cannot say the same of the relationship between turnover and distribution network on one hand, and marketing on the other hand.

The result of the regression equation at graduation is shown below:

$$\text{TURNOVER} = 1.247 \times 106 + 54410\ \text{TFAIR} + 19759\ \text{DNETWORK} + 218738\ \text{MAKT}$$

At graduation from the centre, the coefficient of TFAIR is 54,410, while that of DNETWORK is 19759, and that of MAKT is 218,738. The p-value of TFAIR and MAKT are < 0.1 and that of DNETWORK is < 0.05 level of significance. The coefficients show that a unit change in TFAIR will lead to about 54,410 increases in turnover of the entrepreneurs. It also shows that a unit change in distribution network of the entrepreneurs leads to about 19,759 increases in turnover, and a unit change in marketing leads to about 218,738 increase in entrepreneurs' turnover. Comparing the p-value with the three significance levels, it can be concluded that the result for trade fair and marketing are significant in improving the entrepreneurs'

Table 4.9. Regression Results

VARIABLES	(1) Regression1	(2) Regression2	(3) Regression3
tfair1	233,195*** (82,292)		
dnet1	-11,772 (11,167)		
market1	-94,281 (239,493)		
tfair2		54,410* (54,075)	
dnet2		19,759** (7,905)	
market2		218,738* (860,844)	
tfair3			66,102** (100,113)
dnet3			51,343** (21,388)
market3			2405000** (1.070e+06)
Constant	1.080e+06 (974,383)	1.247e+06 (3.927e+06)	-6.096e+06 (3.781e+06)
Observations	29	29	29
R-squared	0.624	0.090	0.159

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Ndagi (2014)

turnover at 1% and that of distribution network is significant in explaining the contributions to the entrepreneurs' turnovers at 0.05 significant level. The R2 of 0.060, which shows that the model cannot be said to be in good fit. The result from this analysis shows that at graduation from the incubation centres, there are significant improvement in the relationship between trade fairs and turnover, distribution network and turnover, and marketing and turnover.

The result of the regression equation at post graduation is shown below:

$$\text{TURNOVER} = -6.096 \times 106 + 66106\ \text{TFAIR} + 51343\ \text{DNETWORK} + 2405000\ \text{MAKT}$$

At post-graduation from the centre, the coefficient of TFAIR is 66106, while that of DNETWORK is 51343, and that of MAKT is 2405000. The p-value of TFAIR, DNETWORK and MAKT are < 0.05 level of significance. The coefficients show that a unit change in TFAIR will leads to about 66106 increase in turnover of the entrepreneurs. It also shows that a unit change in distribution network of the entrepreneurs leads to about 51343 increase in turnover, and a unit change in marketing leads to about 2405000 increase in entrepreneurs' turnover. Comparing the p-value with the three significance levels, it can be concluded that the results are significant in explaining the contributions of the variables to the entrepreneurs' turnovers at 0.05 significant levels. The R2 of 0.1590, which shows that the model cannot be said to be in good fit. The result from this analysis shows that at post-graduation from the incubation centres, there are significant improvement in the relationship between trade fairs and turnover, distribution network and turnover, and marketing and turnover.

4.5 Technology Incubation Programme and Entrepreneurial Propensity

The last hypothesis of the study is that technology incubation does not significantly impact on entrepreneurs' propensity. This hypothesis is modeled by the equation:

$$\text{PROP} = \alpha + \beta\ \text{INCPROG} + \varepsilon$$

$$\text{PROP} = f\ (\text{MDTRAIN, LINK, INCPROG, TRAIN})$$

The propensity is represented in the model by willingness by the incubatees –the dependent variable, and the independent variables are MD training, linkages, incubation programme, and training.

The descriptive statistics of the variables for hypothesis three are shown in the Table 4.10 and Fig. 5.

The result of the regression equation at admission is shown on the Table 4.11.

$$\text{PROP} = -1.508 + 0.202\ \text{MDTRAIN} + 0.220\ \text{LINK} + 0.650\ \text{INCPROG} - 0.103\ \text{TRAIN}$$

At admission of the incubatees, the coefficient of MDTRAIN is 0.202, while that of LINKAGE is 0.220, that of INCUPROG is 0.650, and that of TRAINING is -0.103 and their p-value S > 0.01, 0.05 and 0.1. The coefficients show that a unit change or increase in training of the MD leads to about 0.202 increase in

Table 4.10. Descriptive Statistics of the Variables at Admission, Graduation and Post-graduation

Variables	Obs	Mean	Std. Dev.	Min.	Max.
mdtrain1	28	4.944444	7.526207	0	25
mdtrain2	27	5.294118	4.934125	0	20
mdtrain3	28	4.777778	4.453096	0	15
incprog1	29	3.368421	1.011628	2	5
incprog2	29	4.421053	0.606977	3	5
incprog3	29	4.631579	0.4955946	4	5
train1	29	3.526316	0.9642741	2	5
train2	29	4.473684	0.5129892	4	5
train3	29	4.736842	0.4524139	4	5
dnet1	29	13	35.23887	0	150
dnet2	28	18.33333	37.89459	0	150
dnet3	28	20.44444	37.8359	0	150

Source: Ndagi (2014)

entrepreneurs' propensity.

Also, a unit change or increase in linkages leads to about 0.220 increase in entrepreneurs' propensity, a unit change or increase in incubation programme leads to about 0.650 increase in entrepreneurs' propensity and finally, a unit change or increase in training leads to about 0.103 decrease in entrepreneurs' propensity. Comparing the p-value with the three significance levels, it can be concluded that training of MD, linkages, incubation programme and training in incubation centres are not significant in determining entrepreneurial propensity at 1%, 5%, and 10%. This is because the p-values (prob) are greater than 0.01. The R^2 of 0.340 shows that the model is relatively a good fit. The result from this analysis shows that at admission into incubation centres, there is no significant relationship between technology incubation and the propensity of the entrepreneurs.

The result of the regression equation at graduation is shown in the Table 4.7 above:

$$PROP = 8.810 - 0.0439\ MDTRAIN + 0.638\ LINK - 0.880\ INCPROG - 0.768\ TRAIN$$

At graduation from the incubation centre, the coefficient of MDTRAIN is -0.0439, while that of LINKAGE is 0.638, that of
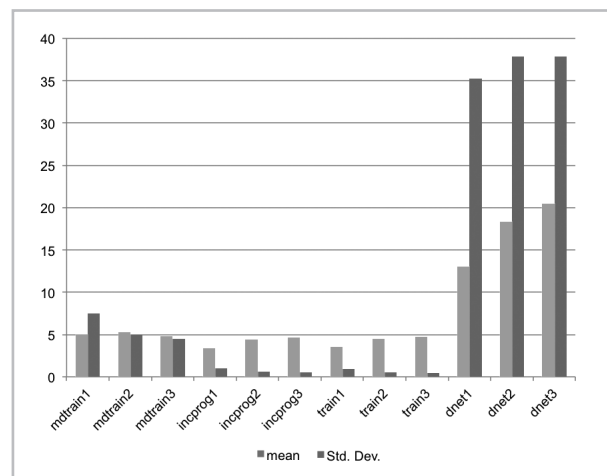

Fig. 5. Bar Chart of Descriptive Statistics of the variables at admission, graduation and post-graduation

Source: Ndagi (2014)

INCUPROG is -0.880, and that of TRAINING is -0.768 and their p-values > 0.01, 0.05 and 0.1. The coefficients show that a unit change or increase in training of the MD leads to about 0.0439 decrease in R&D which represent entrepreneurs' propensity. Also, a unit change or increase in linkages leads to about 0.638

Table 4.11. Regression Results

VARIABLES	(1) Regression1	(2) Regression2	(3) Regression3
mdtrain1	0.202 (0.154)		
linkage1	0.220 (0.732)		
incprog1	0.650 (0.547)		
train1	-0.103 (0.736)		
mdtrain2		-0.0439 (0.0561)	
linkage2		0.638 (0.832)	
incprog2		-0.880 (0.557)	
train2		-0.768 (0.938)	
mdtrain3			0.0531 (0.0862)
linkage3			0.128 (0.808)
incprog3			-1.841 (1.482)
train3			-2.603 (2.118)
Constant	-1.508 (2.155)	8.810 (5.540)	22.07 (15.91)
Observations	25	25	29
R-squared	0.340	0.150	0.223

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Ndagi (2014)

linkages, incubation programme and training in incubation centres are not significant in determining entrepreneurial propensity at 1%, 5%, and 10%. This is because the p-values (prob) are greater than 0.01. The R2 of 0.150 shows that the model is relatively a good fit. The result from this analysis shows that at admission into incubation centres, there is no significant relationship between technology incubation and the propensity of the entrepreneurs.

The result of the regression equation at post-graduation is shown in the Table 4.7 above:

$$\text{PROP} = 22.07 + 0.0531\ \text{MDTRAIN} + 0.128\ \text{LINK} - 1.841\ \text{INCPROG} - 2.603\ \text{TRAIN}$$

At post-graduation from the incubation centre, the coefficient of MDTRAIN is 0.0531, while that of LINKAGE is 0.128, that of INCUPROG is -1.841, and that of TRAINING is -2.601 and their p-values > 0.01, 0.05 and 0.1. The coefficients shows that a unit change or increase in training of the MD leads to about 0.0531 increase in entrepreneurs' propensity. Also, a unit change or increase in linkages leads to about 0.128 increase in entrepreneurs' propensity, a unit change or increase in incubation programme leads to about 1.841 decrease in entrepreneurs' propensity and finally, a unit change or increase in training leads to about 2.603 decrease in entrepreneurs' propensity. Comparing the p-value with the three significance levels, it can be concluded that training of MD, linkages, incubation programme and training in incubation centres are not significant in determining entrepreneurial propensity at 1%, 5%, and 10%. This is because the p-values (prob) are greater than 0.01. The R2 of 0.223 shows that the model is relatively a good fit. The result from this analysis shows that at admission into incubation centres, there is no significant relationship between technology incubation and the propensity of the entrepreneurs.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This research study, which has its title as *Technology Incubation and Entrepreneurship Development in Nigeria* has as its objectives to examine the effect of technology incubation training on the entrepreneurial ability in Nigeria; to identify the effect of the technology incubation financing on entrepre-

increase in entrepreneurs' propensity, a unit change or increase in incubation programme leads to about 0.880 decrease in entrepreneurs' propensity and finally, a unit change or increase in training leads to about 0.768 decrease in entrepreneurs' propensity. Comparing the p-value with the three significance levels, it can be concluded that training of MD,

neurial funding portfolio; to verify the impact of technology incubation marketing programme on entrepreneurial turnover; and to investigate the impact of technology incubation programme on entrepreneurial propensity in Nigeria

There were four (4) hypotheses prescribed and tested in this study, which are: Ho1-Technology incubation training does not have significant effect on entrepreneurial ability; Ho2 -Technology incubation financing does not have significant effect on entrepreneurial funding portfolios in Nigeria; Ho3 -Technology incubation marketing programme has no significant impact on the entrepreneurial turnover and Ho4-Technology incubation has no significant impact on entrepreneurial propensity in Nigeria. A Structured closed ended questionnaires was used for data collection from the stratified quota sampled population from the six (6) geopolitical zones of the country while SPSS was used to analyze the data. This study revealed that; There is a significant effect of technology incubation training on entrepreneurial ability; There is a significant effect of technology incubation financing on entrepreneurial funding portfolio; There is no significant impact of technology incubation marketing programme on entrepreneurial turnover as only trade-fair participation has impact while distribution network, sales promotion and marketing (advertisement) has no impact on turn-over for the entrepreneurs and That technology incubation has no significant impact on entrepreneurial propensity in Nigeria.

5.2 Conclusion

This study, based on the analysis and findings, concluded that:

  i. The technology incubation-training syllabus and curriculum are effective and efficient and resulted in increased entrepreneurial ability. This further affirmed the potency of the training modules and methodology.

 ii. The sources of technology incubation financing, criteria for disbursement, monitoring of utilization and recovery mechanism has successfully increased the entrepreneurial funding portfolio.

iii. The technology incubation marketing programme lacks some basic marketing support programme such as advertisement, distribution outlet, sales promotion etc; this culminated in the result that technology incubation programme has no significant impact on entrepreneurial turnover. However, trade-fairs participation has significant but limited impact on entrepreneurial turnover.

iv. Internally, the technology incubation programme has sig-

nificant impact on entrepreneurial propensity vis-a-viz training and financing but limited on marketing. Externally, technology incubation programme has no significant impact on entrepreneurial propensity, as only six (6) out of the twenty-nine (29) respondents i.e.(1.74%) started new venture from the incubation centers. These six (6) were SIWES (IT Students) and skilled/unskilled staff of the incubatees. In other words, the effect of technology incubation programme on entrepreneurial propensity is only visible on six (6) entrepreneurs out of twenty-nine (29), and the six (6) were industrial training students and staff of the incubatees.

Conclusively, the study has shown that technology incubation programme in Nigeria has assisted entrepreneurs in training and financing; however, marketing programme and entrepreneurial propensity does not lead to business start-up.

Finally, the ultimate goals of technology incubation programme in Nigeria are new venture creation, job creation, wealth creation, value addition to products, process and services and community improvement, which are also the hallmark of entrepreneurship development in Nigeria. The need for policy adjustment or amendment to allow all encompassed, well-articulated and smooth implementation of the incubation concept as a complementary strategy to entrepreneurship development in Nigeria cannot be over emphasized.

5.3 Recommendations

  i. The technology incubation training programme has significant effect on entrepreneurial ability but modules should be expanded to capture in detail post incubation training programme, as training requirement at the incubation centre which is a closed regulated business environment, is completely different from the training required at the post incubation level which is opened competitive business environment. This will differentiate the training syllabus and curriculum and increase potency and further increase entrepreneurial ability across wider entrepreneurial sphere.

 ii. Since incubation financing increases entrepreneurial funding portfolio; National Board for Technology Incubation (NBTI) to facilitate access to risk funds, cheap capital and encourage establishment of venture capital to further boost sources of financing and further increase entrepreneurial funding portfolio.

iii. The technology incubation marketing programme has

no significant impact on turnover hence, the National Board for Technology Incubation should improve on its marketing programme to encompass all marketing needs of incubatees through systematic and integrated implementation strategies. This will increase incubates turnover by expanding the incubation marketing strategy beyond trade-fair participation to distribution outlets, sales promotion, advertisement and general marketing mix.

iv. Technology incubation programme has no significant impact on entrepreneurial propensity, thus, there is a need for National Board for Technology Incubation to restructure the technology incubation programme to increase entrepreneurial propensity by re-modeling training, financing and marketing strategy for resident and non-resident incubatees while centres' environment (aesthetics) and regular activities like mentoring, coaching and counseling should attract other entrepreneurs to facilitate business start-ups.

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