

**Impact of Service Offerings of Business Incubators on Performance of Micro,
Small and Medium Sized Enterprises in Nicaragua.**

By

Rossana María Obregón Córdoba

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Advisor: C. Rosa Yeh, Ph. D.

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ABSTRACT

Business Incubators play a significant role in the development of Micro, Small and Medium Sized Enterprises (MSMEs) in Nicaragua. Therefore, this research examined the impact of the service offerings of business incubators on MSMEs performance. Specifically, this study assessed which aspects of performance are more likely to be affected by the four types of assistance incubators provide, namely technology, financing, networking and training. The aspects of performance studied are product/service innovation, quality of the product/service, capacity to respond to market demand, and internal organizational administration. A quantitative study was conducted with the use of SPSS and SmartPLS software in order to statistically analyze the information gathered from 100 MSMEs who had been or are current tenants in a business incubator in Nicaragua. It was found that training and technology assistance are the two service offerings more likely to have a positive effect on the performance of MSMEs. Quality of product/service is more likely to happen if technology assistance is provided, and innovation of product/service if training is provided. These two service offerings seemed to have a positive effect on formal organization administration as well. Financing did not seem to have any relation to MSMEs' performance. Since the majority of responses came from tenants of two incubators, the results can be a reflection on the assistance provided by these two institutions, and are limited in generalizing to other contexts.

Keywords: Business Incubators, Business performance, Micro, Small and Medium Sized Enterprises (MSMEs)

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CHAPTER I INTRODUCTION

Background of the Study

According to the National Business Incubation Association (NBIA'S):

“Business incubation is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts” (Nbia.org, 2009a, p. 1)

Business Incubators were formally initiated in 1959 in Batavia, New York with Charles Mancuso Son (Nbia.org, 2009b) and expanded all over the world; though it is a mature initiative already adopted by many countries, some countries just began to implement it in order to help their micro, small and medium sized enterprises (MSMEs) and entrepreneurial businesses to insert in uncertain economies and develop successfully in terms of performance and survival. One of the countries who recently adopted the business incubator initiative is Nicaragua, located in the center of the Central American Isthmus in the American Continent, between the Republic of Honduras and the Republic of Costa Rica.

In Nicaragua, the MSMEs generate 58% of employment in urban areas according to the Urban Economic Board of the Central Bank of Nicaragua (cited in El Observador Economico, 2011). These enterprises produce nearly 300,000 jobs, over 150,000 establishments of which 55% is managed by women. However, according to the Economic Commission for Latin America and the Caribbean (CEPAL), the mortality rate of MSME's oscillates between 50% and 70% in the first 3 years of existence (cited in La Prensa, 2012).

In 2010, Nicaragua joined the initiative of Business Incubators as a response to the needs of MSMEs by creating the first incubator in alliance with the International Finance Corporation (IFC) held by the World Bank, managed by the National University of Engineers (UNI) and the Commercial Science University (UCC), and promoted by the Nicaraguan Committee of Science and Technology.

Since then, many other business incubators were formed to enhance the development of MSMEs. These incubators designed support programs that were sponsored by private, public and nonprofit organizations. Some of these initiatives are: Agora partnership, Dynamic Entrepreneurship, Inspire, Modernize, Prameclin, Conimipyme, Prodef and CENAMI-CADIN. These support programs are intended to provide technological, financial, networking and training assistance to new entrepreneurial ideas and MSMEs owners.

For Nicaraguan MSMEs and entrepreneurs are of high importance to count on a supportive organism that helps them to accelerate the successful development of their businesses in terms of product/service innovation, quality of product/service, capacity of response to market demand and formal organization administration. Even though Nicaragua just initiated the project of Business Incubators, there is a considerable number of business support programs planned to make a significant difference to their clients.

Problem Statement

MSMEs represent a fundamental part of countries' economies, not only in Nicaragua but all over the world. Business incubators allocate valuable sources in promising enterprises in order to accelerate their development, through their process of selection; business incubators assess the MSMEs needs in order to provide the accurate assistance. This system allows business incubators to almost guarantee the successful development of their client but it is still very important to explore the impact of service offerings of business incubators on

MSMEs performance in order to determine which aspect of performance is more likely affected by the different types of assistance they provide.

Rationale of the Study

The fundamental reason of this research based on the newly initiative Nicaragua is taken regarding Business Incubators. Although Business Incubators have proved to be a helpful source to develop entrepreneurial ideas and micro, small and medium sized enterprises in other countries such as Spain and the United Kingdom (Hannon & Chaplin, 2003; Peña, 2004), it is important to assess the impact on the performance of Nicaraguan MSMEs.

From 2010 to the present time, Business Incubators have designed different business service offerings that adjust to the specific needs the MSMEs may have. Because Business Incubators is at its early stage in Nicaragua, not many studies have been done regarding this topic, nevertheless; the opportunity to explore MSMEs development from the service offerings impact of business incubators is very valuable for both parties, MSMEs and Business Incubators.

Research Questions

The role of Business Incubators is of primary importance in the achievement of MSMEs survival and competent performance in local and international markets; therefore, the following questions were developed in order to assess the relation of MSMEs performance with the service offerings of Business Incubators:

What is the impact of Business Incubators service offerings on MSMEs performance?

- Which aspect of performance is more likely affected if the Business Incubator provides technology assistance?

- Which aspect of performance is more likely affected if the Business Incubator provides financial assistance?
- Which aspect of performance is more likely affected if the Business Incubator provides networking assistance?
- Which aspect of performance is more likely affected if the Business Incubator provides training assistance?

Purpose of the Study

This exploratory study aimed to determine the impact of service offerings of Business Incubators on MSMEs performance in Nicaragua. The indicators of performance considered were: product/service innovation, quality of the product/service, capacity to respond to the market demand and formal organization administration. These factors were studied from the influence of service offerings such as training, technology, finance and networking assistance that business incubators offered to the development of MSMEs in Nicaragua.

Scope of the Study

Because the business incubator is a recent initiative in Nicaragua, it still has a long path to go in order to provide the complete package of services business incubators are intended to give. For this reason, the research was delimited only to the clients of business incubators that receive technological, financial, training and networking assistance separately or partially together, approximately 100 clients.

Contribution of the Study

This research meant to contribute with business incubators in Nicaragua by determining the impact of their service offerings in the performance of their clients. Furthermore it will serve as reference for those incubators that did not participate in this

research and for future researchers that would want to study the situation of MSMEs as part of business incubators programs in Nicaragua.

By understanding which aspect of performance is more likely affected by the different service offering of Business Incubators, the programs they offer will be more effective. Those MSMEs that have a need to improve their performance in terms of innovation for example, will be adopted by the incubator that provides the assistance that will be more likely to make that happen and so on.

Definition of Terms

Business Incubators

According to the National Business Incubation Association (NBIA), Business Incubators are programs that encourage and accelerate entrepreneurs and MSMEs success by providing resources and services that facilitate them to grow and establish in the market. Incubators also intend to revitalize economies by graduating MSMEs with potential to contribute to job creation, local and national financial system, and innovation among others. Incubators are characterized according to the type of service they offer, the target they serve and the structure of their organization. Among the services they offer, there is management guidance or managerial training, technology assistance, networks sharing and support in getting financial funds (Nbia.org, 2009a).

Micro, Small and medium sized enterprises (MSMEs)

According to the Ministry of Promotion, Industry and Commerce (MIFIC) in Nicaragua (law 645, article 4 and decree 17-2008, article 3); all those enterprises that have 1-5 employees will be considered micro, all those enterprises that have 6-30 employees will be

considered small business and those that have 31-100 employees will be considered medium size enterprises.

Business Incubator Service Offerings

For the development of this research, we will consider service offerings those services or assistance that business incubator provides to MSMEs in terms of technology, finance, networking and training as they are the most common ones provided by incubators in Nicaragua.

MSMEs Performance Indicators

For the purpose of this research, the micro, small and medium sized enterprises performance will be measure in terms of the following indicators: product/service innovation, quality of product/service, capacity of response to the market and formal organizational administration. According to Kueng (2000), “a process can be seen as a system or a subsystem consisting of interrelated components that have a common purpose and share a set of goals” (p. 70). This research is looking at a more process oriented approach because in today’s globalized world, the only way businesses and especially small and medium sized businesses can survive and be competitive is by focusing on innovation and quality of the product/service. The capacity to approach unexplored and unexploited markets niches is what will give these MSMEs competitive advantage over other MSMEs. The role of managers is crucial as they represent the leading force that will conduct the business to success. Managers should be competent enough in terms of administration of their business so that they have the tools and instruments for decision making and risk control (Kueng, 2000). The International Organization for Standardization (ISO) defines a process as a “set of interrelated resources (e.g. personnel, finance, IT facilities, equipment, and methods) and activities (working steps) which transform inputs into outputs” (ISO, 1994, p. 2).

CHAPTER II LITERATURE REVIEW

Micro, Small and Medium Sized Enterprises: Definition

Micro, Small and Medium Sized Enterprises (MSMEs) are businesses that are defined according to some specific characteristics. These characteristics vary from country to country. The most common characteristics under which every country classified its MSMEs are those stated by the European Union (EU); these are: number of employees, turnover or balance sheet total. The abbreviation "MSMEs" was also established by the European Union on the EU recommendation 2003/361 in 2003 (Ec.europa.eu).

According to the Organization for Economic Cooperation and Development (OECD, 2005), small and medium-sized enterprises (MSMEs) are

“Non-subsidiary, independent firms which employ less than a given number of employees, this number vary across countries. The most frequent upper limit designating an MSME is 250 employees, as in the European Union. However, some countries set the limit at 200 employees, while the United States considers MSMEs to include firms with fewer than 500 employees”
(p. 17).

This publication also considers the financial information of small and medium sized enterprises, defining the limits under which their turnover rate should be in order for them to fall into the category of SME. Based on the number of employees, the OECD established the following:

“The turnover of medium-sized enterprises (50-249 employees) should not exceed EUR 50 million; that of small enterprises (10-49 employees) should not exceed EUR 10 million while that of micro firms (less than 10 employees) should not exceed EUR 2 million. Alternatively, balance sheets

for medium, small and micro enterprises should not exceed EUR 43 million, EUR 10 million and EUR 2 million, respectively.” (OECD SME and Entrepreneurship Outlook, 2005, p. 17).

In Nicaragua, the Ministry of Promotion, Industry and Commerce (MIFIC) defined the MSMEs through the law number 645 according to the number of employees in: Micro (1-5 employees), Small (6-30 employees), Medium (employees 31-100) and Large (101 or more employees). This decree also establishes that a business will be considered micro if its total assets sum 200 thousands cords (cords is the Nicaraguan currency), small (1.5 millions cords) and medium if reaches 6 million cords. Also if it's total annual sales sum, for micro (1 million cords), small (9 million cords) and medium (40 million cords). The exchange rate on may 15, 2013 is for one USA dollar, 24.56480 cords.

Importance of Micro, Small and Medium Sized Enterprises

MSMEs are key sources not only for industrialized economies but for emerging and developing economies. “MSMEs constitute the dominant form of business organization, accounting for over 95% and up to 99% of enterprises depending on the country” (OECD, 2006, p. 1). This means that they are responsible of a considerate percentage of job creation, introduction of innovative products and new techniques to the market. Their contribution to the economy and social system is valuable. MSMEs are a fundamental pillar not only in current economy situation but also for the pursuing of growth and development.

The executive vice president and CEO of the International Finance Corporation defined MSMEs as “the growth engines of the world's economies; yet their success rate is not as good as it could be simply because of a lack of access to good business management practices. Giving small businesses the information and new collaborative technologies they need, will help them grow and prosper” (Lars Thunell, Ifc.org). In developing countries where there are few big industries, MSMEs account as a big part of the economical system.

This is why governments and the society itself should encourage the entrepreneurs and survival of these businesses by providing the necessary resources and knowledge that will allow them to grow and become those big industries such that it will lead to the development of the country.

In developed countries like Japan and Italy, MSMEs represent a large share of the economy. In Japan for example, 81% of the employment has place in small and medium sized enterprises. Although in the United States small and medium sized enterprises represent a smaller share compared with Japan and Italy, all these countries equally allocate more than 50% of the entire budget of their public support programs to MSMEs. The most common ways of assistance for this sector are training programs, consultancy services, provision of updated equipment, funds for research and development etc (Luckacs, 2005; OECD, 1997).

The World Bank (WB) recognizes the impact of MSMEs on countries development specially in developing countries like Nicaragua; these impacts can be measured in terms of job creation, poverty reduction and economic growth among other benefits; therefore, it provides common resources needed by these small and medium sized businesses such as financing, training, technology, support for improvements in their business environment, better corporate governance etc. In 2001 the WB together with the IFC and Multilateral Investment Guarantee Agency (MIGA) approved approximately 2.8 billion dollars to cooperate with the MSMEs sector (World Bank, 2001).

In the European Union MSMEs represent 66% of the job, and generate 56.2% of the private sector turnover and in the United Kingdom (UK) 99.8% of the businesses are SME's. In Asia, Taiwan's and Hong Kong's economy heavily rely on MSMEs, (Luckas, 2005). For the United Kingdom MSMEs represent a great contribution to innovation as "originators of new ideas and technologies; as links in supply chains promoting technical advances; and as

sources of knowledge and specialized goods and services for larger businesses” (Luckas, 2005, p. 8).

Nicaragua is no exception because MSMEs produce nearly 300,000 jobs and generate 58% of employment in urban areas according to the Ministry of Industry and Commerce and the Urban Economic Board of the Central Bank of Nicaragua (cited in El Observador Economico, 2011). The former vice-president of the Republic of Nicaragua (Jaime Morales) defined the MSMEs as the backbone of Nicaragua’s economy, however; the vulnerability of this economic sector is a current and continuo concern. The Economic Commission for Latin America and the Caribbean (CEPAL) states that 50-70% of these enterprises disappear on the first 3 years of existence, from the MSMEs that survive the first 3 years, 90% disappear when a 5 years cycle of existence occurs and only 10% of these enterprises make it through 5 years of existence (Cited in La Prensa, 2012).

MSMEs have great potential especially for developing countries, their main objective is to accelerate and mobilize these countries’ economies; with globalization there is a great opportunity for MSMEs to create alliances with larger enterprises, explore international markets and expand domestic markets. The survival rate of this sector will increase in the extent this sector receives the tools to become competitive and sustainable (Knight, 2001).

Needs of Micro, Small and Medium Sized Enterprises.

According to Oertel and Walgenbach (2009), there are some environmental factors that determine the survival of MSMEs. These factors are known as inertia and change, density dependence, age dependence, resource partitioning and niche width and all of them are fragments of the organizational ecology theory. According to these authors, those MSMEs that fit the environmental requirements are more likely to survive. Those businesses that count on a solid organizational structure might have more chances to adjust to the

environment and survive. However, a proper organizational structure is a common need for MSMEs (Abell 1980).

A qualitative study conducted by Obregon and Yeh (2013) found that the main needs of small and medium sized enterprises (SMEs) in Nicaragua are: access to financing, access to new technologies or technological improvement, innovation, and access to markets. Rising in utilities prices and updated infrastructure represented as well a big limitation for this sector of the economy. The study highlighted the importance of financing for these enterprises. The bank loan rate and the access to the bank loan become a huge barrier for the SMEs because they do not have the proper administrative documentation (i.e. financial documents) to support their business and fulfill the bank requirements for the application of the loan. From those enterprises that apply to bank loans, only few receive it. According to Mr. Ramiro Perez, business manager for SME at a local bank in Nicaragua; from those whom receive a bank loan, very few invest it correctly or according to the priorities of their business.

This study brought into the surface the experience of different groups, the owners of SMEs and the experts on this sector. The results showed that the owners focus on the external needs such as rising utilities prices and the experts' responses were oriented to the internal needs SMEs have such as lack of innovation or formal control and organization of their processes. In anyway, the results showed those weak areas where assistance should be focused and oriented in order to alleviate and reduce the high mortality rate of SMEs.

Although the study conducted by Obregon and Yeh in 2013 focused on SMEs, it is still considered an important contribution on this study which includes micro enterprises as well.

Performance Indicators of Micro, Small and Medium Sized Enterprises

Innovation of the Product/Service

Product innovation refers to any new product, process or service that has been implemented or developed by a group of people and it can be categorized as technical or administrative innovation depending on the type. For example technical may stand for technologies, product, services and new procedures may stand for administrative. To understand innovation from a managerial perspective, people should consider the dynamic of communities' interaction, ideas, transaction and environment itself. Innovation can be the combination of old ideas or an added value to other's existing idea (Van de Ven, 1986). According to the Small Business Administration, there are four levels of significance for innovation:

“(1) the innovation established an entirely new category of product; (2) the innovation is the first of its type on the market in a product category already in existence; (3) the innovation represents a significant improvement in existing technology; and (4) the innovation is a modest improvement designed to update an existing product” (Zoltan & Audretsch, 1988, p. 681).

Gunasekaran, Lloria- Aramburo and March- Chorda (2002) state that “The major critical factors for the success of product development and innovation are classified into three groups: top management support, product development planning, and analysis of market requirements” (p. 302).

Innovative MSMEs role is to seize technological and market opportunities in order to economically grow and expand. These types of MSMEs are also more likely to rapidly employ more workers, require more specific skills, improve salaries and offer better and stable environments for their workforce (OECD, 1996). The transition of innovation is very difficult for MSMEs; there are many obstacles that make the process sometimes impossible

for most small and medium size businesses, such as lack of qualified workers, expertise, information and knowledge, managerial skills and eligibility for financial support, etc (Freel, 2000).

Barriers can be classified in external or exogenous and internal or endogenous. All those factors related to supply, demand and environment are considered external and can include difficulties in getting technological information, raw materials, and access to finance. The most common ones for MSMEs especially start ups businesses are access to financing and technological innovation. On the other hand, the one that involves resources such as employee resistance to innovation or lack of internal funds, are associated to internal barriers (Piatier, 1984; Rush & Bessant, 1992, as cited in Hadjimanolis, 1988).

Innovative MSMEs have the advantage of being more competitive in the market, more flexible to environment changes and more qualified for international markets. Although not many MSMEs are considered innovative, those that develop or improve their product or services are more likely to survive and grow. The performance of innovative firms is better in terms of communication, staff interaction and quality of information (Gunasekaran, March-Chorda, & Lloria-Aramburo, 2002).

Quality of the Product/Service

Quality has been described as "the single most important force leading to the economic growth of companies in international markets" (Feigenbaum, 1982, p. 22). Reves and Bednar (1994) use excellence, value, conformance to specifications and meeting or exceeding consumer expectations to define quality because only by knowing customers expectations and needs, using quality control processes or practices and adding extra value to the product/service MSMEs offer, success, development and growing will be achieved.

Studies conducted in USA, Japan and Singapore have emphasized the importance of quality. Some of the results of these studies were reproduced by the Strategic Planning Institute of USA (SPI, 1986) finding the following statements:

- “Product/service quality is an important determinant of business profitability.
- Businesses offering premium quality products and services usually have large market shares.
- Quality is positively and significantly related to a higher return on investment for almost all kinds of products and market situations
- A strategy of quality improvement usually leads to increased market share, but at a cost in terms of short-term profitability.
- High quality producers can usually charge premium prices”(as cited in Hezan & Padibajo, 1998, p. 490)

MSMEs that supply larger corporations find a lot of pressure on quality requirements; quality is basically what makes them competitive but with limited resources it is hard for these small and medium sized businesses to implement quality systems that allow them to fulfill domestic and international conditions to commercialize their product (Haksever, 1996; Henricks, 1992). It happens very often that when purchasing a product or service, people does not get what they were expecting, it could be that they get something better or that they get something worst. This lack of standardization is what threatens the most MSMEs, especially when talking about quality standardization of service or product.

Capacity to Respond to the Market Demand

Market behavior is very dynamic and sometimes unpredictable, and in all types of businesses customer orientation is defined by the market they serve; therefore, it is very

important especially for MSMEs to have the ability to adapt and respond to customers' needs and desires (Kwaku & Satyendra, 1998).

MSMEs that know their market and count on technological resources are more likely to explore and exploit new opportunities. Information about their capacity to respond to their current target and general market behavior will allow them to take risks or approach different niches. MSMEs that are aware of customer's expectations and needs are the ones that see the opportunities where the competitors see threats (Wiklund & Sheperd, 2003).

There should be an equilibrium between the dynamic of MSMEs strategies and market requirements, this can only be accomplished through the understanding of the business and the customers that serves (Day, 1997). "As a concept marketing is the anticipation and satisfaction of consumers' need and wants profitably" (Baker, 2000, as cited in Abimbola, 2001, p. 98). This means that MSMEs will be more competitive in the extent in which they know their customers and their market and the extent in which they possess unique advantages between the competitors (e.g. more efficient and faster ways of serving the customer) (Abimbola, 2001).

Globalization has forced MSMEs to enroll in activities related to trades, international investment and participation on strategic alliances, partnerships and networking associations. These practices have a significant impact on the MSMEs performance. Besides the opportunity to access to larger and new market niches, there is great possibility to improve or upgrades technological capabilities, and also the potential to become high-grow firms and have easier access to financing (OECD, 2004a).

One way to insert in globalization is by acquiring updated and modern technology. MSMEs that possess updated systems, procedures and practices are more likely to respond to the changes and challenges of a globalized market. If a business is able to define its market strategies it means that it is able to respond to market that serves. These can be accomplished

by putting efforts to meet strict product standards or develop unique characteristics in the product or service that will be offered. Global markets are not far from local markets in terms of diversity on consumer's needs, competitor's offerings, different economic and technological conditions etc. Therefore it is highly important for MSMEs to count with the resources and conditions to face the various scenarios of globalization and economy variation. Efficacy and efficiency are highly related to technological processes because one of the main purposes of technology is to reduce time and cost, especially on production process. Reduction of time and cost is of great importance for MSMEs, by implementing technology in their practices and having necessary resources such as financing, networking, knowledge etc.; small and medium sized enterprises would be able to respond to local and international market demand. Accessing international market requires MSMEs to standardize their product/services and subsequently their processes, once this is accomplished the benefits for the economy of both parties (MSMEs and large international companies) would be vast (Knight, 1998).

Formal Organization Administration

Knowledge is the unique source of lasting competitive advantage in dynamic, changing and unpredictable economies. Those MSMEs that constantly update and create new knowledge are those who will succeed when markets change, technologies proliferate, competitors multiply and product /services become outdated (Nonaka, 1991).

“Firms should produce wealth but should also enable personal development and values in the firm's human resources (e.g., workers, middle management, upper management), as these are the foundation and starting point of all entrepreneurial competencies” (Senge, Roberts, Ross, Smith, Kleiner, 1994, as cited in Garcia, Llorens, & Verdu 2007, p. 547).

The majority of MSMEs do not count with formal internal administrative processes or instruments; there is usually lack of human resources practices, managerial capacity, limited

capital resources etc. This directly affects the overall performance of the business. If business want to access to financial institutions, they do not have supportive documents of their business functions which makes acquisition of financing almost impossible. For decision making there are no strategies aligned with formal objectives because sometimes MSMEs owners are no clear of their business objectives, and in most cases employees perform different positions at the same time which decrease their motivation and employee commitment, and increases the turnover rate (Garengo, Biazzo & Bititci, 2005).

Formalization of the organizational system refers to: “the exact determination of all components of the organization system and their consignment in detailed organizational documents, serving as working instruments for the company’s components and for the work control and their performances by the entrepreneur and managers” (Nicolescu, 2009, p. 409).

MSMEs owners need to be trained in managerial practices in order to improve or develop skills and abilities necessary to successfully run their businesses in terms of administration; for short term when looking for financial assistance and long term when visioning international markets. MSMEs survival heavily relies on the capacity of their owners to backup the internal practices and predict future scenarios (Nicolescu, 2009).

Business Incubators: Origin and Definition

According to the National Business Incubator Association (NBIA), the first formal concept of Business Incubator began in the United States in 1959 in Batavia, New York. By the 1980’s the industry of incubators rapidly grew because people valued the great contributions these institutions were giving to sustain local economies. In addition, there were some activities that enhanced the creation of more and more incubators such as the efforts of the United States Small Business Administration (SBA) to hold conferences in order to

deeply explain the purpose and characteristics of incubators and the sponsorship to incubators programs from larger companies (Nbia.org, 2009b).

Unlike the origin, there are many definitions of business incubators but for the purpose of this research, the NBIA definition will be use. The definition states that: Business Incubators are programs that encourage and accelerate entrepreneurs and MSMEs success by providing resources and services that facilitate them to grow and establish in the market. Incubators also intend to revitalize economies by graduating MSMEs with potential to contribute to job creation, local and national financial system, and innovation among others. Incubators are characterized according to the type of service they offer, the target they serve and the structure of their organization. Among the services they offer, there is management guidance or managerial training, technology assistance, networks sharing and support in getting financial funds (Nbia.org, 2009a). For the purpose of this research, these 4 services will be known from now on as business incubators service offerings and will be used to study the impact on MSMEs performance in Nicaragua.

Impact of Incubators in MSMEs Performance

Previous studies have demonstrated the impact of incubator centers or business incubators in the performance of MSMEs (Hannon & Chaplin, 2003; Peña, 2004).

Peña (2004) developed a study that aimed to find out the extent to which the assistance provided by incubators was vital to ensure the survival and success of MSMEs in the Basque Country. This study measured the performance of MSMEs in terms of profit growth, employment growth and sales growth. The assistance provided by business incubators was described in terms of networking and training. Besides these two factors, other variables were used to assess the performance of MSMEs. These factors were human

capital and firm resources and capabilities. The results showed that training was the only significant variable that positively associated with firm growth.

Another study conducted by Hannon and Chaplin (2003) intended to find out if incubators were good for MSMEs in the United Kingdom. Although it also focused on the incubation practice and policy, it also measured the performance of MSMEs in terms of firm change and growth. The factor the researcher used to assess the impact of the incubator center in the performance of MSMEs was training. The study demonstrated that those firms that received assistance from incubation centers experienced a level of growth.

Service Offerings of Business Incubators

Technology Assistance

“Business incubators provide a mechanism for technology transfer, promote the concept of growth through innovation and application of technology, support economic development strategies for small business development, and encourage growth from within local economies”(Phillips,2002, p. 299). Technology transfer is usually known as the transfer of a technology, technique or knowledge with the objective of enhancing the firm performance, this could take form of updated production machinery or assets that accelerate efficiency and effectiveness (Melkers, Bulger & Bozeman, 1993).Technology is crucial for MSMEs transition to innovation; Mowery (1988) captured its importance in this way: “The economic impact of innovation, whether revealed in productivity growth, employment creation and destruction, or changes in wages and profits, is realized only through the adoption of innovations” (p. 481).

The adoption of new technologies involves the development of the owner or employee skills and competencies because when introducing technological resources to the functioning of the business, changes in processes, structures and strategies will occur. MSMEs need to be

aware on the impact new technology will bring to its practices (McCole, Morrow, Ponsonby & Kelly, 2001).

According to the OECD (2000), the adoption of technology influences MSMEs competitiveness and contributes to effective reduction of costs. MSMEs become more competitive in the extent, in which they standardized their product/services, and offer distinctive value compared with the competitors; cost reduction is a benefit from technology when reducing time of production or input material. The introduction of internet and web base information technologies also enables MSMEs to enhance organizational and management capabilities (e.g. Automation of clerical procedures).

Given the importance of the technological assistance for small and medium sized business, the following hypotheses are proposed:

H1a: The technology assistance business incubator provided to MSMEs, positively affects their product/ service innovation.

H1b: The technology assistance business incubator provided to MSMEs, positively affects their quality of the product/ service product/ service.

H1c: The technology assistance business incubator provided to MSMEs, positively affects their capacity to respond to market demand.

H1d: The technology assistance business incubator provided to MSMEs, positively affects their formalization of internal administrative organization.

Financial Assistance

Access to financing is one of the biggest constraints MSMEs encounter not only in the start up phase but along their existence. In developing countries, getting financial support from friends or families is more likely to happen because of the lack of eligibility of MSMEs

owners to apply for bank loans or access to governmental support programs. The credit availability of MSMEs strongly relies on the administrative infrastructure that supports financial practices, business environment and legal system among others (Thorsten & Asli, 2006).

Compared to larger enterprises, MSMEs face more severe credit conditions in terms of interest rates; therefore not many MSMEs consider bank loans as an alternative to invest in their business (OECD, 2012). The lack of funding directly impacts the overall performance of small and medium sized enterprises especially in terms of innovation (Hadjimanolis, 1998).

According to Pissarides (1999), MSMEs access to financial resources is subject to the general profile of the country in terms of economic growth, access to international markets, monetary and fiscal policies etc. The role of the bank superintendence is crucial to improve the financial status of MSMEs. Pissarides (1999) propose the following suggestions for international financial institutions:

- “Strengthen the local banking sector, whose weaknesses remain substantial and pervasive despite the significant reforms undertaken so far
- Create incentives for local banks to lend to MSMEs
- Develop equity markets that can serve the financing needs of MSMEs
- Capitalize on the emergence of other financing vehicles and
- Mobilize other pools of capital” (p. 524).

MSMEs financing is necessary because they represent a huge portion of the economic system, contribute to innovation by creating new products and play key role in creating new jobs. Innovative firms are those who constantly invest on their product/services and study the market behavior in order to add features to existing product/services or explore undiscovered niches (OECD, 2006).

Access to financing represents a significant obstacle especially for start up's MSMEs since banks ask for conditions that go beyond start ups capabilities; therefore, most start up MSMEs rely on incubators and governmental support programs. A recent survey conducted by the European Central Bank (ECB) between April and September of 2012, showed that from 24% of European MSMEs that applied to bank loans, 15% were rejected and 46% of MSMEs did not apply to bank loans because of insufficient internal funds (Gabrielsson, Sasi & Darling, 2004; ECB, 2012).

Given the importance of the financial assistance for small and medium sized business, the following hypotheses are proposed:

H2a: The financial assistance business incubator provide to MSMEs, positively affects their product/service innovation.

H2b: The financial assistance business incubator provide to MSMEs, positively affects their quality of product/service.

H2c: The financial assistance business incubator provide to MSMEs, positively affects their capacity to respond to the market demand.

H2d: The financial assistance business incubator provide to MSMEs, positively affects their formalization of internal administrative organization.

Networking Assistance

“A network is an organizational form of economic activities that may allow firms to cope with market failures that hierarchy (i.e. internalization of transactions through acquisition, mergers, etc.) cannot correct” (OECD, 2004b, p. 11). MSME networking is the most important channel for MSMEs to exchange and share knowledge and experiences. MSMEs heavily depend on external sources to access to information, know-how and technologies; by

counting with a strong and solid network of contacts, MSMEs can develop innovation capabilities and can access to unexplored domestic and international markets, thus subsequently strengthen their position in the market (OECD, 2004b). Networks provide a wide range of benefits to MSMEs, by creating alliances or sharing market strategies with other interested parties, owners can share cost and risks when approaching unexplored niches. The capability of MSMEs owners to deal with complexity is also enhanced through the interaction with experts in unknown fields. By joining forces with other MSMEs owners, the capacity to respond to customers and potential markets increases in speed and efficiency (OECD, 2001; OECD, 2004b).

According to Gibb (1997):

“The very essence of a small company management is the personal day to day handling of transactional and other relationships with the network of customers, suppliers, bankers, accountants, solicitors, agents, marketing channels, workers and regulatory authorities as well as (more intimately) acquaintances, friends and family” (p. 18).

Innovativeness of entrepreneurship often lays in the ability of new MSMEs owners to understand the market better than competitors, and a solid networking allow these owners to obtain information of new products/services and process ideas. The relations, alliances and partnership with larger enterprises are also a huge benefit for both parties. For MSMEs it means sources of capital and access to expertise management and for larger enterprises opens a wider source of ideas and market, networks strengthen the relations between the two most important sectors of economies, MSMEs and large companies (Malecki, 1994).

The importance of networking is also emphasized by Ostgaard and Birley (1994) “the personal network of the owner-manager is the most important resource upon which he or she can draw in the early days of the firm’s development” (p. 281). Incubators play a significant

role for SME's networking as they purpose is to provide resources to them to strengthen the areas where they have gaps or lack of knowledge. MSMEs often lack of networking infrastructure; therefore, incubators connect them with external and internal sources of interest depending on the nature of MSME and with internal sources such as other tenants (Rice, 2002).

According to Lichtenstein (1992), the role of incubators is vital for small and medium sized enterprises owners and entrepreneurs because it makes easier the contact, interaction and development of relationships with other MSMEs owners with whom they can create alliances to benefit their businesses in numerous ways. From reducing input material costs by getting access to deals not offered in the suppliers market to joining forces to approach unexplored markets. Incubators make possible that many MSMEs owners and entrepreneurs gather at the same time in conducive environments for them to naturally interact and share knowledge, projects, experiences and even find place to new ideas and market strategies (Abduh, D'Souza, Quazi, & Burley, 2007).

Given the importance of the networking assistance for small and medium sized business, the following hypotheses are proposed:

H3a: The networking assistance business incubator provide to MSMEs, positively affects their product innovation.

H3b: The networking assistance business incubator provide to MSMEs, positively affects their quality of the product/service.

H3c: The networking assistance business incubator provide to MSMEs, positively affects their capacity to respond to the market demand.

H3d: The networking assistance business incubator provide to MSMEs, positively affects their formalization of internal administrative organization.

Training Assistance

MSMEs owners or managers act as leaders, coaches and facilitators in their businesses, one of their main tasks is to create a learning environment and transfer knowledge to their employees. To accomplish this objective, MSMEs owners need to be trained in managerial skills that permit them to manage personal, policies and administrative structures. All type of businesses, especially MSMEs are exposed to rapid and continuous change in the environment. Therefore, by strengthening the management capacity of owner, there is a bigger chance for them to deal with all the external factors that may affect their small and medium sized businesses (Ellinger, Watkins, & Bostrom, 1999).

The main reason of why MSMEs are reluctant to formal training is because they have insufficient resources and lack of time; unfortunately not only this sector but large companies consider training as an expense instead of an investment. The benefits of training are usually display to a medium or long term; therefore, MSMEs owners do not demonstrate too much interest in allocating so much effort and resources to this practice (Gibb, 1997). MSMEs have more tendencies to adopt informal training in their practices because these are part of the daily responsibilities or the whole functioning of the business (e.g. recruitment and training); hence, owners do not perceive it as training. Still, there are two common situations where MSMEs owners embrace training: i.e., when facing crisis and when going through big changes in their business (Johnson, 2002).

Because there many ways in which MSMEs owners can learn, it is of high importance to understand the dynamic of owners with their businesses and vice-versa in order to ensure effective results. Learning styles can be defined as a single loop and double loop, the first one aiming for businesses that want to optimize organizational efficiency and the second one for those that aim to exploit new knowledge to evolve new practices (Chaston, Badger & Sadler-Smith, 1999a). According to Beach (1980), “learning is the human process by which skills,

knowledge, habits and attitudes are acquired and altered in such a way that behavior is modified” (as cited in Gibb, 1997, p. 15). “Training can, and should be a powerful agent of change, facilitating and enabling a company to grow, expand and develop its capabilities thus enhancing profitability” (Jennings & Banfield, 1993, p. 3). Those MSMEs that engage in the process of training are more likely to have the tools to overcome future difficulties and to insert in globalized economies. The power of information and knowledge is what makes businesses dynamic, creative and innovative.

Given the importance of the training assistance for small and medium sized business, the following hypotheses are proposed:

H4a: The training assistance business incubator provide to MSMEs, positively affect their product innovation.

H4b: The training assistance business incubator provide to MSMEs, positively affect their quality of the product/service.

H4c: The training assistance business incubator provide to MSMEs, positively affect their capacity to respond to the market demand.

H4d: The training assistance business incubator provide to MSMEs, positively affect their formalization of internal administrative organization.

CHAPTER III METHODOLOGY

This chapter provides information about the methodological steps followed to realize this research. It includes the framework, the hypothesis, research method, sample, instruments and measure, validity and reliability, data collection, data analysis and research procedure.

Research Framework

Figures 3.1 illustrate this research framework. The service offerings of business incubators to MSMEs in Nicaragua are listed as independent variables and the performance indicators of these micro, small and medium sized businesses are listed as dependent variables.

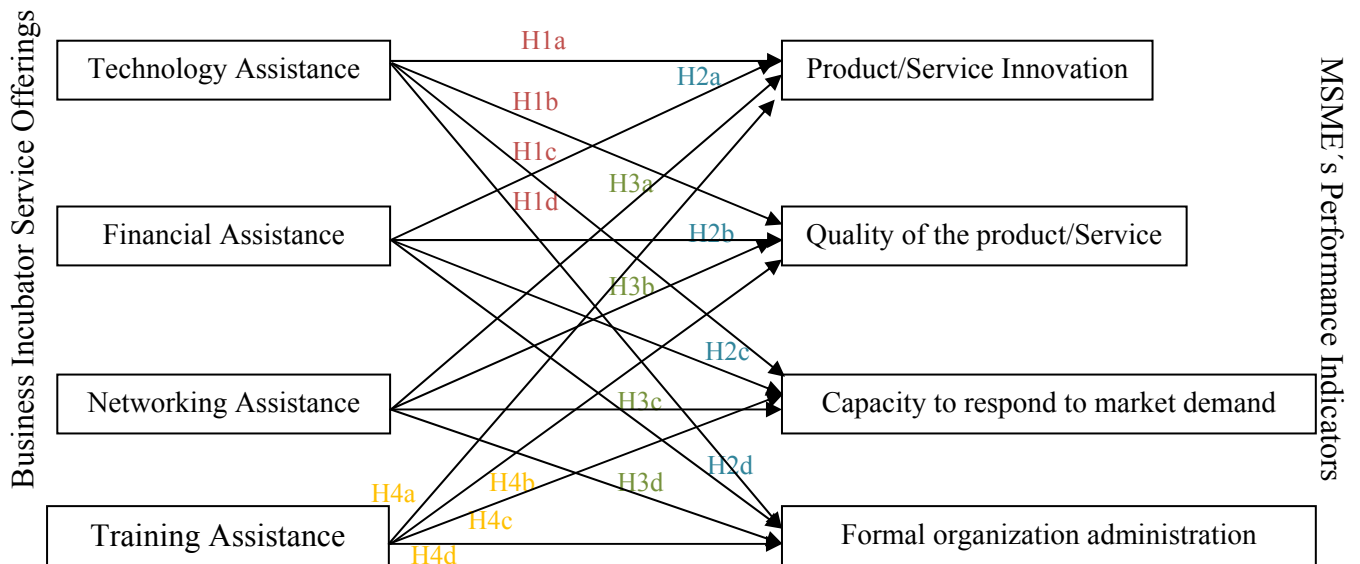


Figure 3.1. Research framework

Hypothesis

General Hypothesis

The general assumption of this research is that the performance of MSMEs is affected by the services that business incubators offer to them. Thus, the following hypotheses are proposed:

H1: The technological assistance business incubator provide to MSMEs, positively affects their performance.

H1a: The technology assistance business incubator provided to MSMEs, positively affects their product/ service innovation.

H1b: The technology assistance business incubator provided to MSMEs, positively affects their quality of the product/ service product/ service.

H1c: The technology assistance business incubator provided to MSMEs, positively affects their capacity to respond to market demand.

H1d: The technology assistance business incubator provided to MSMEs, positively affects their formalization of internal administrative organization.

H2: The financial assistance business incubator provide to MSMEs, positively affects their performance.

H2a: The financial assistance business incubator provide to MSMEs, positively affects their product/service innovation.

H2b: The financial assistance business incubator provide to MSMEs, positively affects their quality of product/service.

H2c: The financial assistance business incubator provide to MSMEs, positively affects their capacity to respond to the market demand.

H2d: The financial assistance business incubator provide to MSMEs, positively affects their formalization of internal administrative organization.

H3: The networking assistance business incubator provide to MSMEs, positively affects their performance.

H3a: The networking assistance business incubator provide to MSMEs, positively affects their product innovation.

H3b: The networking assistance business incubator provide to MSMEs, positively affects their quality of the product/service.

H3c: The networking assistance business incubator provide to MSMEs, positively affects their capacity to respond to the market demand.

H3d: The networking assistance business incubator provide to MSMEs, positively affects their formalization of internal administrative organization.

H4: The training assistance business incubator provide to MSMEs, positively affects their performance.

H4a: The training assistance business incubator provide to MSMEs, positively affect their product innovation.

H4b: The training assistance business incubator provide to MSMEs, positively affect their quality of the product/service.

H4c: The training assistance business incubator provide to MSMEs, positively affect their capacity to respond to the market demand.

H4d: The training assistance business incubator provide to MSMEs, positively affect their formalization of internal administrative organization.

Research Design

Given the importance of MSMEs not only to Nicaragua but also to many countries in the world, an empirical study was developed to assess the impact of service offerings provided by Business Incubators.

A quantitative study was designed to test research hypothesis. Quantitative studies are the most common method to use when seeking to confirm hypothesis about a specific phenomena. Often rely on highly structured methods such as surveys or questionnaires with close ended questions. The primary objectives of quantitative approaches are to quantify variation, predict casual relationships or describe characteristics of a specific population (Woodsong, MacQueen, Guest, & Namey, 2005).

Research Procedure

The research procedure consisted of all steps followed by the researcher in order to complete this study. The Figure 3.2 described below, provides a brief description of these steps, starting from the review of related literature to the presentation of findings and recommendations.

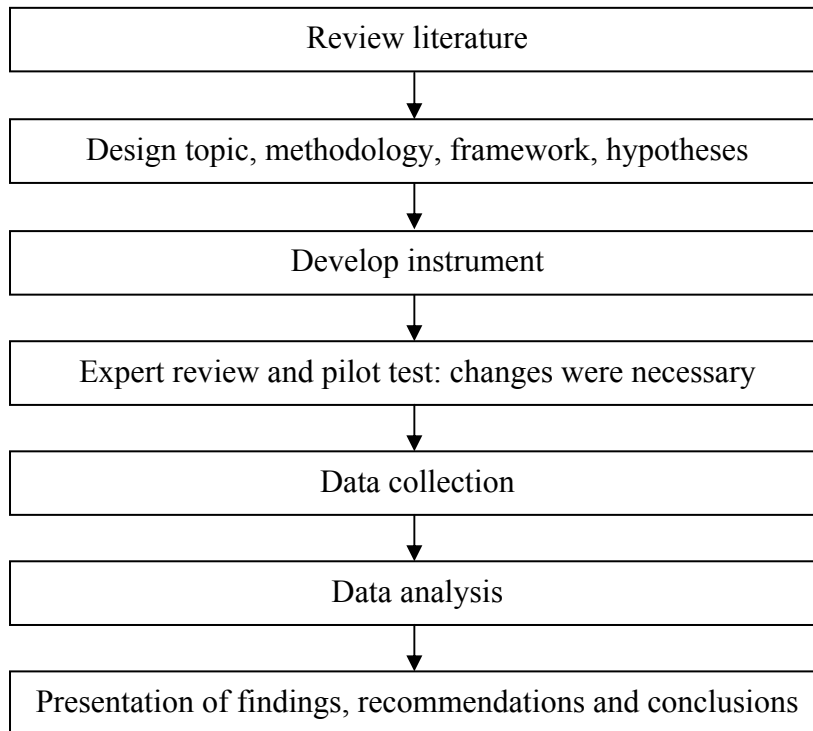


Figure 3.2. Research procedure

Instruments and Measures

A survey questionnaire was designed to collect the data from the intended sample. This questionnaire was constructed using reference literature related to the theme and previous questionnaires used for similar topics. The questionnaire was organized into three parts; part one referred to general information of the MSMEs such as type of industry, number of employees, age of the business, status of the business, reason to start the business, business ownership and funds to start the business. It also refers to information of the MSMEs and the program of assistance or incubator such as type of relation, type of assistance received, period of time in the program and finally it refers to demographics such as gender, age, level of education and experience, part two referred to questions oriented to the type of assistance the audience received from the incubator in detail and part three and

last one referred to items oriented to the current performance of the participating small and medium size enterprises. A 5 points likert scale was used in order to provide the interviewees sufficient values to proceed with the evaluation. Likert scale is the most frequently used in survey questionnaire research and is most suitable for use in factor analysis (Hinkin, 1998).

The first part of the questionnaire referred to general information and demographics required to assess the general profile of the MSME. Some of the questions such as number of full time employees and ownership of the business, were taken from the demographics of a questionnaire develop by Quazi and Padibajo (1998). Number of employees of full time employees was used to determine the size of the MSME according to the criteria establish by the law in Nicaragua. Other questions such as age, gender and education of the owner, type of industry, status of the business, reason to start the business, owner years of experience and sources used to start the MSME were retrieved from a previous questionnaire used by a study named Small Business Financing: Survey Evidence in West Texas (He & Baker, n.d.). The questions that referred to age of the business, type of assistance received from the incubator and period of time of participation in the incubator program were designed in order to assess the relation of the MSME with the incubator.

The second part of the questionnaire was oriented to the current situation of MSMEs in terms of the following dimensions: product innovation, quality of the product, capacity of response to market demand and formal organization administration.

The first section of the second part presented all items related to product/service innovation within the MSME. Innovation is the creation of new product, service or process and can also include the improvement of an existing product (Van de Ven, 1986; Zoltan & Audretsch, 1988). Based on this definition and using items developed by Quazi and Padibajo (1998), 10 items were utilized to assess the product innovation of SME's in Nicaragua. Some

of these items are: introduction of one new product/service/process within the last year, improvement of existing product, customization of product/service/process etc.

The second section of the second part was oriented to the quality of the product/service provided by the MSME. Reves and Bednar (1994) defined quality as: excellence, value, conformance to specifications and meeting or exceeding consumer expectations. The items used for this dimension were taken from Quazi and Padibajo (1998) survey questionnaire, other from Almeida (1999) survey questionnaire and other were designed based on the definition of quality. In total, 10 items were included, some of them refer to: integration of quality factors in product/service design, use of customer complaints to improve product/service, ask customers about their expectations of the product and/or service etc.

The third section of the second part assessed the capacity of response to market demand from MSMEs. According to Kwaku and Satyendra (1998), the ability of MSMEs owners to adapt and respond to customers' needs and desires is vital to survive in globalized and dynamic markets especially in the current era. The OECD (2004b) defined globalization as marketing and commerce trades, international investment, strategic alliances, partnerships and networking. All this factors created opportunities for MSME to access larger, unexplored and unexploited market niches. Using these literature as reference, 10 items were developed to evaluate SME capacity to respond to market demands, some of these items are: business approach to international markets, business approach to segment of the market not served by competitors, increase of client portfolio etc.

The last section of the second part referred to formal organization administration. According to Nicolescu (2009), formal organization administration is "the exact determination of all components of the organization system and their consignment in detailed organizational documents, serving as working instruments for the company's components

and for the work control and their performances by the entrepreneur and managers” (p. 409). The majority of items for this part of the questionnaire were adapted from Quazi and Padibajo (1998). Some of the items referred to the possession of business plan, business goal, administrative documentation etc.

The third part of the questionnaire covered all items related to the current assistance MSMEs receive from incubators; this part includes the following sections: technology assistance, financial assistance, networking assistance and training assistance. The first section of this part is technology:

“Technology transfer can be generally defined as the transfer of a technology, technique, or knowledge” (Melkers, Bulger & Bozeman, 1993, p. 223).

Based on this definition, 10 items were designed to cover the most common needs MSMEs in Nicaragua have because of lack of information, knowledge or accessibility. Some of these items are: updated production machinery, access to information technology media (e.g. internet, computers etc).

The second section is financing. According to Thorsten and Asli (2006), access to financing is one of the biggest obstacles MSMEs encounter not only in the start up phase but along their existence. For this section He & Baker survey questionnaire was consulted in order to identify the types of financial assistance through which MSME can access to financing. The opinion of experts in the current financial situation of Nicaraguan MSMEs was also taken into consideration; and based on these two sources, microfinance loans; bank loans and governmental financing programs were utilized to develop 10 items.

The third section covered items related to MSMEs networking. Gibb (1997) classifies MSMEs network relationships with the following groups of people: customers, suppliers,

bankers, accountants, solicitors, agents, marketing channels, workers, family, friends, acquaintances and regulatory authorities. Based on this classification and considering the most common practices for MSMEs networking in Nicaragua such as national fairs, 12 items were developed. Among those items, there are: meeting with other MSMEs owners, contact with governmental and non-governmental support programs, and contact with unexplored clients etc.

The last section of this part referred to training assistance. “Training can, and should be a powerful agent of change, facilitating and enabling a company to grow, expand and develop its capabilities thus enhancing profitability” (Jennings & Banfield, 1993, p. 3). Gibb (1997) expressed the lack of motivation or willingness of MSMEs owners to encourage a learning environment in their businesses especially because of lack of resources. Ellinger, Watkins, and Bostrom (1999) highlighted the role of MSMEs owners as coaches, mentors and leaders. Therefore, the importance of managerial skills and knowledge in financing, marketing, strategic planning and human resources were vital to the successful administration of their businesses. Based on these authors definition of training and role of MSMEs owners, 10 items were developed. Some of these items are: access to conferences/workshops/courses about finance and strategic management, mentorship programs etc.

Specific variables were considered as control variables to have a better understanding of the influence the business incubators service offerings had on the performance of the MSMEs. These variables are: size of the business, age of the business and the period of time the MSME spend on the program. According to organizational ecology theory the size of the business and the age of the business determine the extent in which a business is likely to survive (Oertel & Walgenbach, 2009). Gibrat’s law states that the size of businesses positively affects its growth and development hence their probabilities

to survive (cited in Peña, 2004). The duration of a MSMEs incubation program is necessary to differentiate between graduates of the program and current tenants as is expected that those that already graduate have a better performance from those that have just started with the incubator and also that those MSMEs that have been with the incubator for a longer period of time compared to the other tenants.

Sample

The population of interest was targeted at owners of Micro, Small and Medium Sized Enterprises (MSMEs) in Nicaragua that belong to Business Incubator assistance program under the following categories: Technological, Financial, Networking or Training Assistance. This research covered 150 MSMEs that currently belong to the different incubators programs or are graduated from these incubators in Nicaragua.

Data Collection

A list of the participant MSMEs for each one of the contributor incubators was given to the researcher. Seven incubators provided their MSMEs database and the researcher contacted the MSMEs owners via email. A representative of the incubators and programs of assistance that collaborated with this research also contacted the MSMEs owners via email to ask them to fill the questionnaire online.

Data collection was conducted during the month of May, 2013. Before the final data collection, a pilot test was conducted to a sample of 30 people. Prior conducting the pilot test, all items included in the survey questionnaire were subject to expert revision. The experts suggested adopting a wider category of industry classification like food agribusiness, textile, furniture etc., instead of general industry such as industry, commerce and service. The experts also provided time ranges for the period of time a MSME spend as tenants in the incubators. Because the pilot test was too small and could not provide stable results, no item

was reduced after running inter-item correlation and factor analysis. Also the targeted audience presented a positive attitude towards the 96 items questionnaire. For these reasons the questionnaire administered to the final sample was not subject to further changes.

Sample Profile

A total of 150 questionnaires were delivered by the researcher and incubator representative via email. From these questionnaires, 118 were returned but only 100 were valid to use. From the 100 respondents, 5 tenants belong to Agora partnership, 5 tenants belong to Inspire, 10 tenants belong to Moderniza, 30 tenants belong to Dynamic entrepreneur, 10 tenants belong to Prameclin, 30 belong to Prodef and 10 tenants belong to Conimipyme. Inspire incubator was conceived as an incubator that assist MSMEs on site.

According to Table 3.1, the majority of the MSMEs belong to food agribusiness with 30% of the respondents located in this category. The majority of the MSMEs are microenterprises (1-5 employees) with 54% of the respondents located in this category. Most of the MSMEs have 5 or more years of existence with 38% of the respondents located in this category. Most of the MSMEs fall into the growth stage status with 44% of the respondents located in this category. Be an entrepreneur is the reason why most of the MSMEs decided to start a business with 50% of the respondents located in this category. The majority of the MSMEs owners are sole proprietary of their business with 67% of the respondents located in this category. The source of financing most of the MSMEs owners used to start their business was personal savings with 52% of the respondents located in this category.

Table 3.2 shows that the majority of the MSMEs that participated on this research are current clients of incubators and programs of assistance with 69% of the respondents located in this category. The type of assistance most of the MSMEs received is networking and training with 19% of the respondents located in this category. From these current tenants, the

majority have been in the program of assistance from 13 to 18 months with 27% of the current tenants located in this category.

According to Table 3.3, the majority of the sample was female with a percentage of 56. Almost all the respondents fall into the age range category of 31 to 40 years old with 34%. The level of education that protrudes is college degree with 37% of the respondents located in this category and 27% of them have 1 to 3 years of experience in the administration of business.

Table 3.1, 3.2 and 3.3 show the descriptive statistics for the sample of this research.

Table 3.1.

Descriptive Statistics of the Sample (N=100): Business Profile

Variable	Category	Count	Percentage	Valid percentage
Type of Industry (N:100)	Food agribusiness	30	30.0	30.0
	Artesian	12	12.0	12.0
	Leather and footwear	4	4.0	4.0
	Furniture	6	6.0	6.0
	Textile	11	11.0	11.0
	Bakery	6	6.0	6.0
	Other	31	31.0	31.0
Full time employees (N:100)	1-5	54	54.0	54.0
	6-30	41	41.0	41.0
	31-100	5	5.0	5.0
Age of the Business (N:100)	Less than a year	8	8.0	8.0
	1 to under 2 years	16	16.0	16.0
	2 to under 3 years	17	17.0	17.0
	3 to under 4 years	9	9.0	9.0
	4 to under 5 years	12	12.0	12.0
Business status (N:99)	5 years or more	38	38.0	38.0
	Start up stage	15	15.0	15.2
	Growth stage	44	44.0	44.4
	Maturity stage	13	13.0	13.1
	Survival stage	27	27.0	27.3
Reason to start business (N:100)	Be entrepreneur	50	50.0	50.0
	Financial Reward	12	12.0	12.0
	Career progression	10	10.0	10.0
	Self employed	24	24.0	24.0
	Satisfied friends or family	2	2.0	2.0
	Other	2	2.0	2.0
Business ownership (N:100)	Sole proprietorship	67	67.0	67.0
	Partnership	27	27.0	27.0
	Joint venture	4	4.0	4.0
	Other	2	2.0	2.0
Source of financing (N:99)	Personal savings	52	52.0	52.5
	Friends and/or family	12	12.0	12.1
	Bank	21	21.0	21.2
	Government assistance programs	2	2.0	2.0
	Other	12	12.0	12.1

Table 3.2.

Descriptive Statistics of the Sample (N=100): Program Profile

Variable	Category	Count	Percentage	Valid percentage
Relationship between business and assistance program (N:100)	Current tenant	69	69.0	69.0
	Graduated (1-3 years)	13	13.0	13.0
	Graduated (more than 3 years)	8	8.0	8.0
	Recently graduated (less than 1 year)	10	10.0	10.0
Type of Assistance (N:100)	Technology (Tch)	3	3.0	3.0
	Networks (N)	17	17.0	17.0
	Financing (F)	9	9.0	9.0
	Training (T)	7	7.0	7.0
	TchNFT	7	7.0	7.0
	TechNF	3	3.0	3.0
	FT	7	7.0	7.0
	NT	19	19.0	19.0
	NFT	2	2.0	2.0
	TchNT	7	7.0	7.0
	TchT	5	5.0	5.0
	TchF	4	4.0	4.0
	TchFT	2	2.0	2.0
TchN	4	4.0	4.0	
NF	4	4.0	4.0	
For how long have you been part of the program? (N:100)	1-6 months	8	8.0	8.0
	7-12 months	22	22.0	22.0
	13-18 months	27	27.0	27.0
	19-24 months	7	7.0	7.0
	25-30 months	2	2.0	2.0
	31-36 months	3	3.0	3.0
	37 or more(graduated clients)	31	31.0	31.0

Table 3.3.

Descriptive Statistics of the Sample (N=100): Owner Profile

Variable	Category	Count	Percentage	Valid percentage
Gender(N:100)	Male	44	44.0	44.0
	Female	56	56.0	56.0
Age(N:100)	20-30	22	22.0	22.0
	31-40	34	34.0	34.0
	41-50	21	21.0	21.0
	51-60	19	19.0	19.0
	61 or more	4	4.0	4.0
	Level of Education(N:100)	9th grade	4	4.0
High school graduate		9	9.0	9.0
Technical		6	6.0	6.0
Some college but no degree granted		25	25.0	25.0
College degree		37	37.0	37.0
Post-graduate degree		14	14.0	14.0
Other		5	5.0	5.0
Experience(N:100)	Less than 1 year	11	11.0	11.0
	1-3 years	7	27.0	27.0
	4-6 years	21	21.0	21.0
	7-9 years	14	14.0	14.0
	10-15 years	13	13.0	13.0
	more than 15 years	14	14.0	14.0

Validity and Reliability of Measures

Because the questionnaire used to collect the data is designed by the researcher based on literature review, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were necessary to ensure that the instrument was stable and effectively measured for what were intended to.

Exploratory Factor Analysis (EFA)

For the preliminary exploration of the data SPSS software was used so that errors, outliers and distribution of the data could be examined. For this, each one of the variables were subjected to factor analysis. Factor analysis allowed the refining of the scales by

reducing a set of observed variables to a smaller set of variables (Hinkin, 1998). Those items that presented significant cross loading (the difference between the loadings was below 0.2) were deleted.

Following Kaiser's criterion (cited in Kinnear & Gray, 2000), those factors with an eigenvalue of less than 1 were excluded. Therefore a total of 18 components were considered for this study with a total variance explained of 79.711%. Varimax was used as criteria because it is the most common method used to preserved independence among the mathematical factors. Another statistical tool used during the EFA was the KMO and Bartlett test which was 0.603. It was expected by the researcher that the KMO value was in a range of 0.8 to 0.9 because the closer the value is to 1 the better as it generally indicates that the factor analysis can be useful with the data. However values of 0.5 are still acceptable. Bartlett test value should be <0.05 . For this study this criteria was met by a value of 0.000 (Hair, Anderson, Tatham & Black, 1998; Kinnear & Gray, 2000).

Factor analysis was administrated several times in order to ensure that every item of each variable fall into one component as supposed. However, some of the items for one dimension or variable fall into different components or groups. For this reason these items that fall into different groups were deleted. For example, for the independent variable financial assistance only item number 3,7,8,9 and 10 fall into one component and the other were scattered in other components or groups. For the other independent variables all the items fall in one component as it was expected. Refer to table 3.4.

Based on the EFA results, for the dependent variables (indicators of performance) the items fall into different components or groups. Therefore, the items considered for each one of the variables were those that loaded the higher. Take innovation for example, item1,2,4 and 5 fall into one component or group, item 6,7 and 8 fall into another component or group

and item 3 fall into another component or group by itself. Hence item number 3 was deleted and the loadings of the two other components or groups were compared to decide which item include under the variable or dimension of innovation. The items were also carefully checked in the questionnaire to analyze the logic of explanation of the variable or dimension. In the case of formal organization administration for example, item 1 to 7 fall into one component, 9 and 10 fall into the component of quality of product/service and item 8 fall into another component by itself. For that reason, only items 1 to 7 were considered under this dimension or variable. Those items that originally belong to one variable or dimension and happened to fall into another variable or dimension were analyzed in the new variable or dimension to check if the variable loaded higher with this new item. If not, only the items that originally belonged to the variable or dimension and fall into one component were included. For example, items 9 and 10 of formal organization administration fall into quality of product/service variable but this loaded higher if these two items were not included so the researcher deleted them.

Table 3.4 shows the items under its components or groups.

Table 3.4.

Matrix of rotated components

Items	Rotated component matrix ^a																	
	Component																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Networking																		
G. Q-21-1	.938																	
G. Q-21-2	.919																	
G. Q-21-3	.910																	
G. Q-21-10	.884																	
G. Q-21-4	.871																	
G. Q-21-9	.847																	
G. Q-21-6	.835																	
G. Q-21-11	.805																	
G. Q-21-8	.755																	
G. Q-21-5	.737																	
G. Q-21-12	.720																	
G. Q-21-7	.665																	
Training																		
H. Q-22-8		.931																
H. Q-22-6		.904																
H. Q-22-5		.897																
H. Q-22-7		.886																
H. Q-22-1		.885																
H. Q-22-9		.847																
H. Q-22-2		.817																
H. Q-22-3		.756																
H. Q-22-4		.716																.431
Technology																		
E. Q-19-1			.858															
E. Q-19-4			.853															
E. Q-19-10			.850															
E. Q-19-2			.849															
E. Q-19-5			.823															
E. Q-19-6			.807															
E. Q-19-9			.798															
E. Q-19-8			.784															
E. Q-19-3			.780															
E. Q-19-7			.710															

(continued)

Table 3.4. (continued)

Items	Rotated component matrix ^a																	1 8
	Component																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Quality of Product/Service																		
B. Q-16-7				.826														
B. Q-16-9				.788														
B. Q-16-8				.764														
B. Q-16-10				.735														
Financing																		
F. Q-20-8					.893													
F. Q-20-7					.863													
F. Q-20-10					.846													
F. Q-20-3					.721													
F. Q-20-9					.660													
Formal Organization Administration																		
D. Q-18-5						.796												
D. Q-18-1						.692												
D. Q-18-3						.616												
D. Q-18-6						.592												
D. Q-18-7						.418												
Innovation of Product/Service																		
A. Q-15-6							.786											
A. Q-15-7							.753											
A. Q-15-8							.685											
Capacity to respond to market demand																		
C. Q-17-7										.865								
C. Q-17-5										.750								
C. Q-17-8										.632								

Measurement Model Validation in Partial Least Square (PLS)

After the exploratory factor analysis, Smart PLS software developed by Ringle, Wende, and Will (2005) was used to confirm the validity and reliability of the measurements with multiple tests. Those items that loaded below 0.6 were deleted (Hatcher, 1994). According to Hinkin (1998), “low correlation indicates items that are not drawn from the appropriate domain and that are producing error and unreliability” (p. 112). The test of the

measurements showed the internal consistency of the indicators for each construct through the composite reliability. The standard score for the composite reliability is >0.7 (Nunnally, 1978). Convergent validity provided the average variance extracted value (AVE). This research will consider the AVE value above 0.5 because indicates good convergent validity (Fornell & Larcker, 1981). Discriminant validity allowed the researcher to make sure that each item of each construct related to each other more than to the items of another construct.

Convergent Validity

Table 3.5 shows the means and standard deviation (S.D.), factor loadings, composite reliability and AVE values of the latent variables of the model. It also provides the reason why some of the items were eliminated. The mean and S.D. were calculated by SPSS and PLS provided the information for factor loadings, composite reliability and AVE.

Table 3.5.

Descriptive S., Factor Loading, Composite Reliability, AVE and Items of Studied Constructs

Variables	Mean	S/D	Item	Factor loading (>0.6)	Composite reliability (>0.7)	AVE (>0.5)	Reason for deletion of item
Product/Service Innovation	3.3483	0.8949	Q15-1	deleted	0.8803	0.7103	Fall in other component EFA
			Q15-2	deleted			Fall in other component EFA
			Q15-3	deleted			Loaded below 0.6 in CFA
			Q15-4	deleted			Fall in other component EFA
			Q15-5	deleted			Fall in other component EFA
			Q15-6	0.8287			
			Q15-7	0.8163			
			Q15-8	0.8747			
			Q15-9	deleted			Cross loaded in EFA
			Q15-10	deleted			Cross loaded in EFA
Quality of product/service	4.3250	0.6342	Q16-1	deleted	0.9298	0.7687	Cross loaded in EFA
			Q16-2	deleted			Fall in other component EFA
			Q16-3	deleted			Fall in other component EFA
			Q16-4	deleted			Fall in other component EFA

(continued)

Table 3.5. (continued)

Variables	Mean	S/D	Item	Factor loading (>0.6)	Composite reliability (>0.7)	AVE (>0.5)	Reason for deletion of item
Quality of product/service	4.3250	0.6342	Q16-5	deleted	0.9298	0.7687	Fall in other component EFA
			Q16-6	deleted			Fall in other component EFA
			Q16-7	0.7271			
			Q16-8	0.9334			
			Q16-9	0.8984			
			Q16-10	0.9196			
Capacity to respond to market demand	2.9767	0.8867	Q17-1	deleted	0.8305	0.6232	Fall in other component EFA
			Q17-2	deleted			Fall in other component EFA
			Q17-3	deleted			Cross loaded in EFA
			Q17-4	deleted			Cross loaded in EFA
			Q17-5	0.7515			
			Q17-6	deleted			Fall in other component EFA
			Q17-7	0.9087			
			Q17-8	0.6903			
			Q17-9	deleted			Fall in other component EFA
			Q17-10	deleted			Fall in other component EFA
Formal organization administration	3.4115	0.8616	Q18-1	0.7506	0.8862	0.6101	
			Q18-2	deleted			Loaded below 0.6 in CFA
			Q18-3	0.6947			
			Q18-4	deleted			Loaded below 0.6 in CFA
			Q18-5	0.8354			
			Q18-6	0.8433			
			Q18-7	0.7681			
			Q18-8	deleted			Fall in other component EFA
			Q18-9	deleted			Fall in other component EFA
			Q18-10	deleted			Fall in other component EFA
Technology Assistance	1.0963	1.3834	Q19-1	0.8472	0.9542	0.6759	
			Q19-2	0.8181			
			Q19-3	0.7704			
			Q19-4	0.878			
			Q19-5	0.8261			
			Q19-6	0.8334			
			Q19-7	0.7891			
			Q19-8	0.808			
			Q19-9	0.7818			
			Q19-10	0.863			

(continued)

Table 3.5. (continued)

Variables	Mean	S/D	Item	Factor loading (>0.6)	Composite reliability (>0.7)	AVE (>0.5)	Reason for deletion of item
Financial Assistance	1.3775	1.7128	Q20-1	deleted	0.9300	0.7690	Fall in other component EFA
			Q20-2	deleted			Fall in other component EFA
			Q20-3	deleted			Loaded below 0.6 in CFA
			Q20-4	deleted			Fall in other component EFA
			Q20-5	deleted			Fall in other component EFA
			Q20-6	deleted			Fall in other component EFA
			Q20-7	0.9085			
			Q20-8	0.9111			
			Q20-9	0.8033			
			Q20-10	0.8791			
Networking Assistance	2.5689	1.5028	Q21-1	0.8562	0.9597	0.6652	
			Q21-2	0.8556			
			Q21-3	0.8094			
			Q21-4	0.7667			
			Q21-5	0.7516			
			Q21-6	0.874			
			Q21-7	0.8073			
			Q21-8	0.8325			
			Q21-9	0.7483			
			Q21-10	0.8074			
			Q21-11	0.8421			
			Q21-12	0.8292			
Training Assistance	2.1500	1.7510	Q22-1	0.9244	0.9666	0.7636	
			Q22-2	0.8858			
			Q22-3	0.8161			
			Q22-4	0.7448			
			Q22-5	0.8973			
			Q22-6	0.9099			
			Q22-7	0.8863			
			Q22-8	0.9269			
			Q22-9	0.8572			
			Q22-10	deleted			

The composite reliability and AVE for all the variables presented good convergent validity and internal consistency as all the scores on the AVE and composite reliability column are higher than the minimum of reference. Table 3.6 shows the factor loadings and cross loadings among the variables.

Table 3.6.

Factor Loading and Cross Loadings among the Variables

Items/Variables	Innovation	Quality	Capacity to respond to market demand	Formal organization administration	Technology Assistance	Financial Assistance	Networking Assistance	Training Assistance
Q15-6 <- Innovation	0.8287	0.2254	-0.0435	0.3271	0.0458	-0.0339	0.1441	0.2299
Q15-7 <- Innovation	0.8163	0.2148	-0.0955	0.2594	0.1362	0.0765	0.0443	0.151
Q15-8 <- Innovation	0.8747	0.2292	-0.0666	0.3563	0.2138	0.1197	0.164	0.2101
Q16-7 <- Quality	0.234	0.7271	0.0341	0.1699	0.1468	0.171	-0.0896	0.0299
Q16-8 <- Quality	0.2826	0.9334	0.013	0.4232	0.2913	0.0609	0.095	0.1819
Q16-9 <- Quality	0.2155	0.8984	0.0038	0.3405	0.2051	0.1164	0.1276	0.0765
Q16-10 <- Quality	0.2087	0.9196	-0.0486	0.4323	0.2569	0.0683	0.1612	0.1397
Q17-5 <- Marked demand	-0.0235	-0.0846	0.7515	-0.1801	-0.0485	-0.164	-0.0641	-0.0986
Q17-7 <- Marked demand	-0.1192	-0.0197	0.9087	0.0123	0.0805	-0.2227	-0.0157	0.0666
Q17-8 <- Marked demand	-0.0057	0.1153	0.6903	0.0274	-0.0466	-0.1586	0.0625	0.0348
Q18-1 <- Formal organization adm.	0.2553	0.2276	-0.0612	0.7506	0.2597	0.1514	0.2632	0.351
Q18-3 <- Formal organization adm.	0.2179	0.5062	-0.1197	0.6947	0.2211	-0.089	0.2847	0.1981
Q18-5 <- Formal organization adm.	0.1961	0.3393	-0.0994	0.8354	0.1358	0.0993	0.3114	0.287
Q18-6 <- Formal organization adm.	0.3312	0.335	-0.0968	0.8433	0.2746	0.0601	0.2589	0.3918
Q18-7 <- Formal organization adm.	0.4343	0.2772	0.1402	0.7681	0.3484	0.139	0.2596	0.3938

(continued)

Table 3.6. (continued)

Items/Variables	Innovation	Quality	Capacity to respond to market demand	Formal organization administration	Technology Assistance	Financial Assistance	Networking Assistance	Training Assistance
Q19-1 <- Technology	0.1397	0.2663	-0.0372	0.2682	0.8472	0.2301	-0.0586	0.2024
Q19-2 <- Technology	0.1655	0.2645	0.0112	0.2872	0.8181	0.1558	-0.0964	0.1745
Q19-3 <- Technology	0.1631	0.2121	0.0713	0.2303	0.7704	0.1805	0.061	0.2398
Q19-4 <- Technology	0.1161	0.2531	-0.0827	0.2749	0.878	0.2994	0.1321	0.2731
Q19-5 <- Technology	0.1653	0.1546	-0.0274	0.2535	0.8261	0.266	0.1767	0.2333
Q19-6 <- Technology	0.0899	0.206	-0.0324	0.263	0.8334	0.4143	0.0968	0.2633
Q19-7 <- Technology	0.1725	0.2085	0.1346	0.3249	0.7891	0.2704	0.2044	0.3925
Q19-8 <- Technology	0.1034	0.1597	0.0817	0.3009	0.808	0.228	0.1569	0.3341
Q19-9 <- Technology	0.1167	0.2635	0.0406	0.1991	0.7818	0.1456	-0.0694	0.2735
Q19-10 <- Technology	0.1208	0.211	-0.0436	0.2693	0.863	0.3939	0.1595	0.2316
Q20-7 <- Financial	0.0835	0.0901	-0.2554	0.0566	0.227	0.9085	0.0007	-0.0534
Q20-8 <- Financial	-0.0313	0.0719	-0.2037	0.0383	0.2465	0.9111	-0.0131	-0.0137
Q20-9 <- Financial	0.1806	0.0982	-0.1484	0.2034	0.3036	0.8033	0.0115	0.1667
Q20-10 <- Financial	-0.0348	0.0897	-0.2121	0.0409	0.3182	0.8791	-0.0927	-0.0764
Q21-1 <- Networking	0.0534	0.1447	-0.0722	0.1806	-0.1496	-0.0973	0.8562	0.0602
Q21-2 <- Networking	0.0817	0.1105	-0.0601	0.2113	-0.1391	-0.0817	0.8556	0.1095
Q21-3 <- Networking	0.0149	0.0439	0.0175	0.1274	-0.0714	-0.048	0.8094	0.0236
Q21-4 <- Networking	0.0257	-0.0204	0.0299	0.0435	-0.1407	-0.0679	0.7667	0.0268
Q21-5 <- Networking	0.0483	0.1263	-0.0598	0.2102	0.1004	-0.0304	0.7516	0.2986
Q21-6 <- Networking	0.1574	0.1439	0.0318	0.3368	0.1135	-0.0461	0.874	0.2238
Q21-7 <- Networking	0.1831	0.1074	-0.0252	0.4494	0.2117	0.0783	0.8073	0.3739
Q21-8 <- Networking	0.2502	0.0569	0.0937	0.3834	0.1836	0.0137	0.8325	0.3101
Q21-9 <- Networking	-0.0538	0.0842	0.0074	0.1244	-0.0768	-0.0881	0.7483	-0.034
Q21-10 <- Networking	0.0567	0.0335	-0.0028	0.1381	-0.149	-0.1286	0.8074	0.0877

(continued)

Table 3.6. (continued)

Items/Variables	Innovation	Quality	Capacity to respond to market demand	Formal organization administration	Technology Assistance	Financial Assistance	Networking Assistance	Training Assistance
Q21-11 <- Networking	0.0551	0.0515	-0.0416	0.2311	0.1344	0.006	0.8421	0.2853
Q21-12 <- Networking	0.1533	0.0731	-0.0629	0.3106	0.158	0.0084	0.8292	0.3394
Q22-1 <- Training	0.2339	0.1331	-0.0762	0.392	0.2993	0.0131	0.2248	0.9244
Q22-2 <- Training	0.3256	0.1537	-0.0501	0.4692	0.2935	-0.0307	0.3188	0.8858
Q22-3 <- Training	0.1795	0.1692	0.1574	0.4165	0.3573	0.0395	0.2809	0.8161
Q22-4 <- Training	0.1755	0.1446	0.1187	0.2818	0.3429	0.1509	0.2384	0.7448
Q22-5 <- Training	0.209	0.0921	-0.0326	0.3011	0.1665	0.0273	0.1718	0.8973
Q22-6 <- Training	0.1867	0.1024	-0.0606	0.3475	0.2239	-0.0296	0.2363	0.9099
Q22-7 <- Training	0.1386	0.1182	0.0253	0.3598	0.2453	0.0403	0.2192	0.8863
Q22-8 <- Training	0.1824	0.0584	-0.0083	0.3505	0.2144	-0.0616	0.1667	0.9269
Q22-9 <- Training	0.1853	0.0916	0.0597	0.3786	0.3309	-0.0089	0.3435	0.8572

Discriminant Validity

The square root of the AVE was check in order to revise the discriminant validity of this study. The square root of the AVE has to be larger than any other correlations in the Table 3.7.

Table 3.7.

Overview of Discriminant Validity Testing among the Constructs

Construct	Composite reliability (>0.7)	AVE (>0.5)	Technology Assistance	Financial Assistance	Networking Assistance	Training Assistance	Innovation Assistance	Quality Assistance	Capacity to respond to market demand Assistance	Formal Organization Administration Assistance
Technology Assistance	0.95	0.68	(0.82)							
Financial Assistance	0.93	0.77	0.276	(0.88)						
Networking Assistance	0.96	0.67	0.142	-0.132	(0.82)					
Training Assistance	0.97	0.76	0.309	-0.003	0.187	(0.87)				
Innovation Assistance	0.88	0.71	0.162	0.061	0.058	0.339	(0.84)			
Quality Assistance	0.93	0.77	0.188	0.039	0.046	0.115	0.246	(0.88)		
Capacity to respond to market demand	0.83	0.62	0.071	-0.159	0.041	0.008	-0.038	0.012	(0.79)	
Formal Organization Administration A.	0.89	0.61	0.333	0.077	0.310	0.406	0.319	0.402	-0.003	(0.78)

Note: The square root of AVE is in parentheses and must exceed the correlations with other constructs.

Cronbach's Alpha Reliability

The reliability of this study was calculated using cronbach's alpha because it's the most common measure in this kind of research and in conjunction with factor analysis is recommended. The reference of coefficient alpha is .70 because it provides an indication of strong item covariance and suggests satisfactory capturing of the sampling domain. The cronbach's alpha reported for all the variables in this research is above 0.7 (Nunnally, 1978).

CHAPTER IV DATA ANALYSIS, RESULTS AND DISCUSSION

This chapter provides information of the results of the data analysis and discussion of the outcomes. SPSS software was used to calculate mean, standard deviation and correlations between variables. SmartPLS software was used to test hypotheses.

Correlation Analysis

According to table 4.1, there is a significant correlation between the size of the business with the age of the business($r=0.261$, $p<0.01$). This might be due to the fact that almost all MSMEs have more full time employees compared with the beginning or start up of the business. This might indicate that these businesses have experienced a level of growth through time as they needed to hire more full time employees to attend the demand of the product or service they provide. Table 4.1 also showed that there is a negative correlation between the size of the business and the network assistance the incubator program provides to the SME($r= -0.298$, $p<0.01$). This means that companies with larger number of employees seem to receive fewer networking assistance. This could signify that the incubators in Nicaragua might prioritize those micro enterprises to help them to establish connections with appropriate networks such as other MSMEs, vendors, fairs etc. because micro and small business might need more support in this area compared to medium size enterprises.

There was as well, a negative correlation between the age of the business and the capacity to respond to the market demand ($r= -0.253$, $p< 0.05$). This might indicate that the older the business the less the capacity of the business to respond the market demand or vice versa. It was expected by the researcher that the older the MSMEs, the higher their capacity to respond to market demand. This was expected because those MSMEs that have been on

the market for a longer time, are supposed to know their customers and the market behavior and therefore be more competitive (Abimbola, 2001). However, the result of this study contradicts that thought.

In the case of technology assistance, the Table 4.1 showed significant correlation with the financial assistance ($r= 0.276$, $p<0.01$) and the training assistance ($r=0.309$, $p<0.01$). Nevertheless, because the coefficients are not too large; there is no serious concern of multicollinearity. Correlation between technology assistance and formal organization administration was also identified on the table ($r= 0.333$, $p<0.01$). This might indicate that those MSMEs that received technology assistance might be more likely to perform better in the formal organization administration of their business. The implementation of technology influences MSMEs competitiveness and contributes to effective reduction of costs and standardization of product/service among other benefits. The introduction of internet and web base information technologies also enables MSMEs to improve organizational and management capabilities such as automation of clerical procedures etc. (Mowery, 1988; OECD, 2000). In the case of financing assistance, no correlation with any of the indicators of performance was identified. This is an unexpected result because those SME that count with the financial resources are more likely to invest on their product/service, add feature to existing product/service, explore undiscovered niches, automate their clerical processes etc. (OECD, 2006). For networking assistance, a significant correlation with formal organization administration was identified ($r= 0.310$, $p<0.01$). This might suggest that the contact with the appropriate networks may help MSMEs to perform better in the formal organization administration. According to Gibb (1997), the network channels include customers, suppliers, bankers, accountants, solicitors, agents, marketing channels, workers and regulatory authorities as well as (more intimately) acquaintances, friends and family. In the case of training assistance, a significant relation with innovation($r=0.339$, $p<0.01$) and formal

organization administration was identified ($r=0.406$, $p<0.01$). This could indicate that when training assistance is provided to MSMEs, innovation and formal organization administration is enhanced. According to Jennings and Banfield (1993), training is a powerful source of change. Those MSMEs that engage in the process of training are more likely to have the tools to overcome future internal and external difficulties and to insert in globalized and competitive economies. The power of information and knowledge is what makes businesses dynamic, creative and innovative. It was expected training assistance to be the service offering more likely to positively correlate with the performance of MSMEs. Those MSMEs that engage in the process of training may have a bigger chance to deal with all the external factors that may affect their businesses (Ellinger, Watkins, & Bostrom, 1999).

The indicators of performance also presented significant correlation between each other. For example, the innovation of product/service significantly correlates with the quality of a product/service ($r=0.246$, $p<0.05$) and with the formal organization administration ($r=0.319$, $p<0.01$). Product innovation refers to any new product, process or service that has been implemented or developed and it can be categorized as technical (technologies, product and services) or administrative (new procedures) innovation depending on the type (Van de Ven, 1986). Also the quality of the product/service shows significant correlation with the formal organization administration ($r=0.402$, $p<0.01$). Reeves and Bednar (1994) use excellence, value, conformance to specifications and meeting consumer expectations to define quality because only by knowing customers expectations and needs, using quality control processes or practices and adding extra value to the product/service MSMEs offer, success, development and growing will be achieved. Most of the results of correlation were expected by the researcher. However, it was unexpected that the time the MSMEs spent in the incubator program did not show any significant correlation with any of the other indicators of performance such as innovation, quality and the formal organization administration. It was

expected that those MSMEs that have spent more time in an incubator program might be more likely to perform better in all these aspects. However, it seems that what matters is the quality of the assistance and not the time the MSME spend with the incubator or program of assistance.

Table 4.1.

Correlation Analysis

Variable	Mean	S/D	1	2	3	4	5	6	7	8	9	10	11
1.Full time employees ^a	1.51	0.59											
2.Age of the Business ^b	4.15	1.78	.261**										
3.Time in the program ^c	4.06	2.20	-.132	.180									
4.Technology Assistance	1.10	1.38	-.079	-.035	.084	(0.95)							
5.Finance Assistance	1.38	1.71	.045	.060	.056	.276**	(0.90)						
6.Networking Assistance	2.57	1.50	-.298**	-.021	.193	.142	-.132	(0.96)					
7.Training Assistance	2.15	1.75	-.072	-.120	.095	.309**	-.003	.187	(0.96)				
8.Innovation	3.35	0.89	.068	.191	.175	.162	.061	.058	.339**	(0.80)			
9.Quality	4.33	0.63	.192	.084	-.077	.188	.039	.046	.115	.246*	(0.90)		
10.Capacity to respond to market demand	2.98	0.89	-.143	-.253*	-.101	.071	-.159	.041	.008	-.038	.012	(0.70)	
11.Formal organization administration	3.41	0.86	-.040	-.032	-.071	.333**	.077	.310**	.406**	.319**	.402**	-.003	(0.84)

Note: Numbers in the brackets represent the Cronbach's Alpha values of the variables

^a 1=Micro (1-5), 2=Small (6-30) and 3=Medium (31-100).

^b 1= more than 1 year, 2= more than 2 years, 3= more than 3 years, 4= more than 4 years, 5= more than 5 years and 6= more than 5 years

^c 1=1-6 months, 2=7-12 months, 3=13-18 months, 4=19-24 months, 5= 25-30 months , 6=31-36 months and 7=graduated (>37 months).

Model Testing in PLS

PLS software allowed the researcher to simultaneously test the relationship between the dependent and independent variables. This was done by duplicating the sample and t-value of the duplication through bootstrapping. For this study it was recommended to run bootstrapping at a 5000 sample (Hair, Ringle, & Sarstedt, 2011). PLS also allowed the researcher to review how much the variance of the indicators of performance (dependent variables) is explained by the variance of the service offerings (independent variables) incubators provide to MSMEs through the coefficient of determination (R^2). The closer the R^2 is to 1, the better, however; R^2 values of 0.02, 0.13 and 0.26 can be used as conventional measures to assess weak, medium or strong R^2 (Cohen, 1998).

On the other hand, the path coefficient indicates the relationship between the dependant and independent variable. This relationship can be interpreted as positive or negative, meaning by negative that when one variable increase the other one decrease. According to Moore, McCabe, Duckworth and Alwan (2009), the critical t-value for the two-tailed test used in this model is considered weak at the level of 1.660 (*), moderate at 1.984 (**), and strong at 2.626 (***)

Table 4.2 shows the path coefficient, error, t-value and R square of the analysis for this research.

Table 4.2.

Path Coefficient, Error, T-values and R-square

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)	R square
Effect of control variables						
Age of the business -> Formal organization administration	0.0453	0.0729	0.0538	0.0538	0.8421	
Age of the business -> Innovation	0.2	0.2006	0.1	0.1	2.0013	
Age of the business -> Marked demand	-0.1832	-0.1905	0.0924	0.0924	1.9819	
Age of the business -> Quality	0.0542	0.0921	0.069	0.069	0.7854	
Size of the business -> Formal organization administration	0.1085	0.1197	0.082	0.082	1.3225	
Size of the business -> Innovation	0.0309	0.0974	0.0718	0.0718	0.4304	
Size of the business -> Marked demand	-0.0344	-0.0961	0.0728	0.0728	0.4725	
Size of the business -> Quality	0.254	0.2538	0.0917	0.0917	2.7686	
Time in the program -> Formal organization administration	-0.1552	-0.1644	0.0887	0.0887	1.7506	
Time in the program -> Innovation	0.0968	0.1188	0.08	0.08	1.2091	
Time in the program -> Marked demand	0.0424	0.1231	0.0898	0.0898	0.472	
Time in the program -> Quality	-0.1025	-0.126	0.0828	0.0828	1.2373	
Effect of main variables						
Technology -> Formal organization administration	0.2062	0.2141	0.0884	0.0884	2.3333	
Technology -> Innovation	0.0549	0.0993	0.0746	0.0746	0.7361	
Technology -> Marked demand	0.1181	0.1395	0.0985	0.0985	1.1984	
Technology -> Quality	0.2347	0.2452	0.078	0.078	3.0106	
Financial -> Formal organization administration	0.0566	0.1031	0.0743	0.0743	0.7615	
Financial -> Innovation	0.021	0.1074	0.0781	0.0781	0.2695	
Financial -> Marked demand	-0.2644	-0.2701	0.1006	0.1006	2.628	

Table 4.2. (continued)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)	R Square
Financial -> Quality	0.0612	0.0967	0.0694	0.0694	0.8819	
Networking -> Formal organization administration	0.3016	0.3046	0.0992	0.0992	3.0399	
Networking -> Innovation	0.0691	0.1143	0.0832	0.0832	0.8309	
Networking -> Marked demand	-0.0301	-0.1079	0.081	0.081	0.3719	
Networking -> Quality	0.1385	0.1533	0.0886	0.0886	1.5636	
Training -> Formal organization administration	0.2832	0.29	0.096	0.096	2.9497	
Training -> Innovation	0.2177	0.224	0.0997	0.0997	2.1843	
Training -> Marked demand	-0.0322	-0.0986	0.0732	0.0732	0.4395	
Training -> Quality	0.029	0.0859	0.0636	0.0636	0.4566	
Innovation of product/service						0.1279
Quality of product/service						0.1592
Capacity to respond to market demand						0.1006
Formal organization administration						0.3194

Figure 4.1 illustrates the hypothesis testing, level of significance of the relation, path coefficients and r square value.

The results showed that hypothesis 1 is partially supported (refer to table 4.3) because the technology assistance provided by business incubators positively affects only the quality of product/service ($\beta=0.055$, $t>2.626$) and formal organization administration ($\beta=0.206$, $t>1.984$). It was also expected by the researcher for technology to positively affect innovation and capacity to respond to the market demand. According to Mowery (1988), technology is crucial for MSMEs transition to innovation. Technology introduction to MSMEs functioning cannot only be interpreted in updated machinery but automation of processes and operations. Updated machinery permits the standardization of product hence higher opportunities to enter international markets. Automation of processes allows MSMEs to be more efficient and effective, therefore; more able to respond to the market demand. Refer to figure 4.1.

Hypothesis 2 is rejected because the financial assistance provided by business incubators does not positively affects any of the indicators of performance hence is eliminated from the model. This is an unexpected result because financial resources provide MSMEs owners more chances to carry out strategies, innovate, invest, adopt technologies etc. All these actions positively influence the business performance (Boden & Nucci, 2000).

Hypothesis 3 is also partially supported because the networking assistance provided by business incubators positively affects only the formal organization administration ($\beta=0.302$, $t>2.626$). It was expected by the researcher for networking assistance to positively affect innovation of product/service, quality of product/service and capacity to respond to market demand. According to the OECD (2004b), those MSMEs that count with a solid network of contacts have more chances to develop innovation and risk to explore domestic and international markets. This happens because through the right network of contacts

MSMEs owners are able to share information, experiences, ideas and strategies. Refer to figure 4.1.

Hypothesis 4 is partially supported as well because the training assistance provided by business incubators seems to positively affect the innovation of product/service ($\beta=0.218$, $t>1.984$) and the formal organization administration ($\beta=0.283$, $t>2.626$). Other studies have shown that there is a positive relationship between the good managerial performance and business success (Cooper, Woo & Dunkelberg, 1989; Stuart & Abetti, 1990). The researcher also expected training to positively affect quality of product/service and capacity to respond to the market demand. Feigenbaum (1982) described quality as the most significant factor that conducts businesses to economic development. Quality makes MSMEs competitive and allows them to adventure in unknown local and international markets. Being competitive for a MSME implies that they know their customer and market behavior. Those successful MSMEs know the product they offer, how they offer it, where they offer it and to whom they offer it. Therefore, there is a higher probability for them to see opportunities where other see threatens. (Wiklund & Sheperd, 2003).

The control variables that seem to have an effect on the indicators of performance are size of the business, age of the business and time in the program. The first one seems to have an effect on quality of product ($\beta=0.254$, $t>2.626$). The second one, appears to have a positive effect on the innovation of product/service ($\beta=0.2$, $t>1.984$) and a negative effect on the capacity to respond to the market demand ($\beta=-0.183$, $t>1.984$). And the third one has a negative effect on the formal organization administration ($\beta=-0.155$, $t>1.660$).

This could mean that those MSMEs with higher number of employees are more likely to pay attention to the quality of the product/service they offer. Those that have been in the market for longer time are more likely to be innovative but not necessarily to respond to the

market demand. For example, new MSMEs could have a high capacity to respond to market demand or older MSMEs could have less capacity to respond to the market demand. Other studies suggest that MSMEs grow through a learning process that allows them to adapt to the different conditions of the market and considered the relationship between the firm age and their capacity to respond and adjust to the market demand positive (Peña, 2004).

The effect of the time in the program and the formal organization administration indicates that those MSMEs that have stayed less time in an incubator program perform better than those that have stayed longer in terms of formal organization administration. It could also mean that the performance of the formal organization administration of those MSMEs that have stayed longer in an incubator program is poorer.

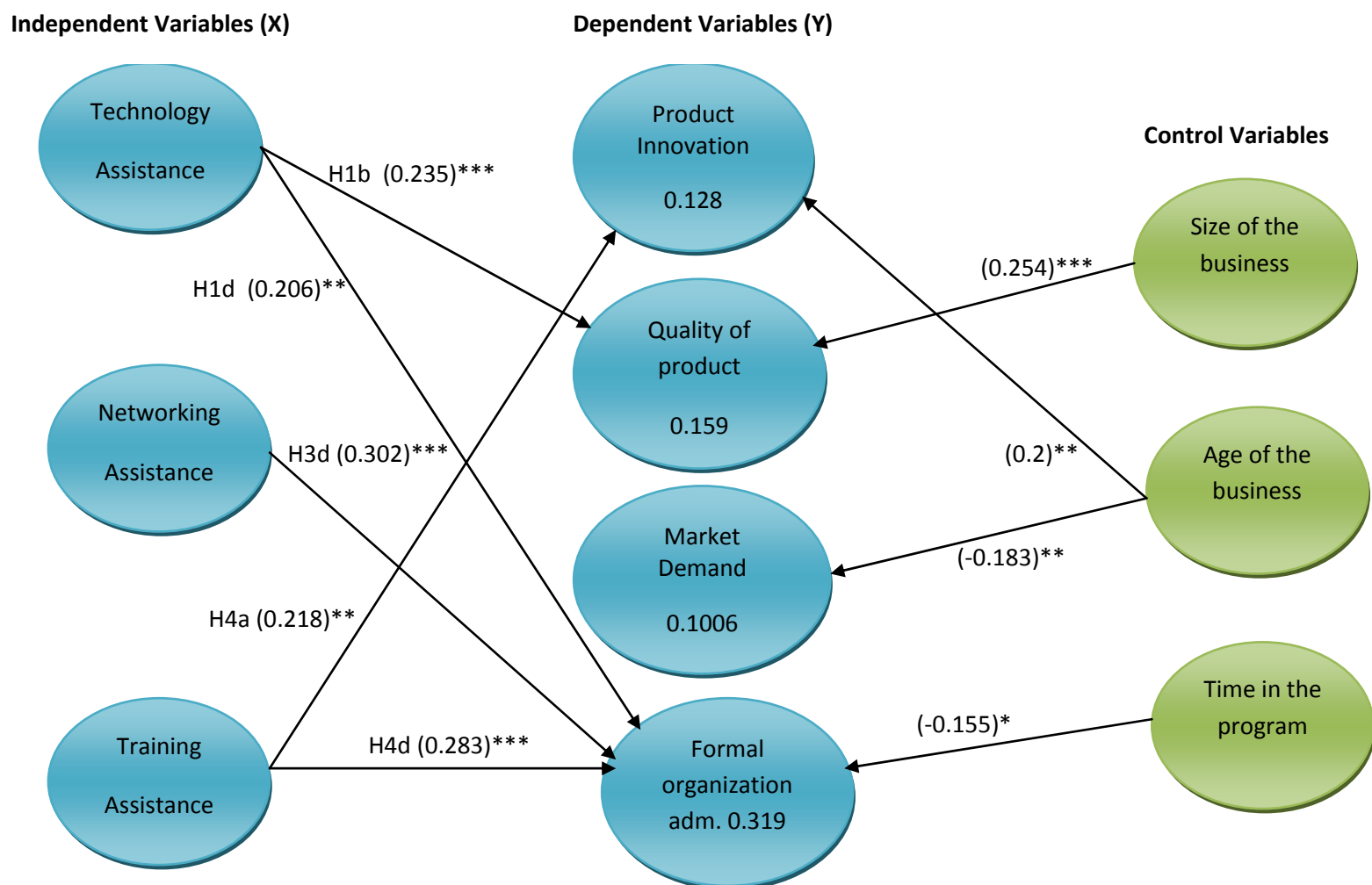


Figure 4.1. Hypotheses testing, path coefficient and R squares

Note: The stars represent the level of significance or t-value, the number in parenthesis show the path coefficient and the number in the circle the R square. Refer to figure 4.2, 4.3 and 4.4 for the original models.

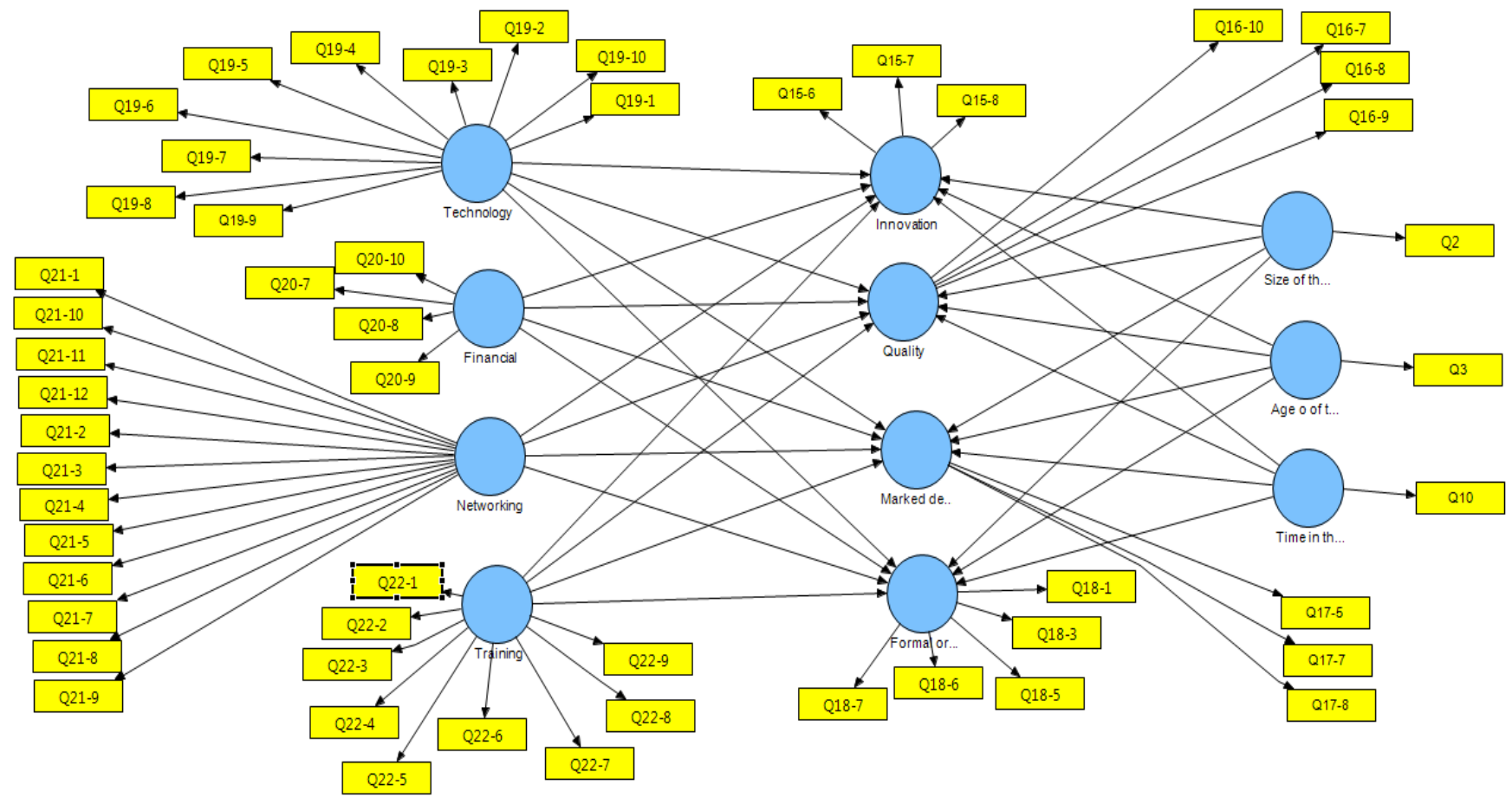


Figure 4.2. PLS model

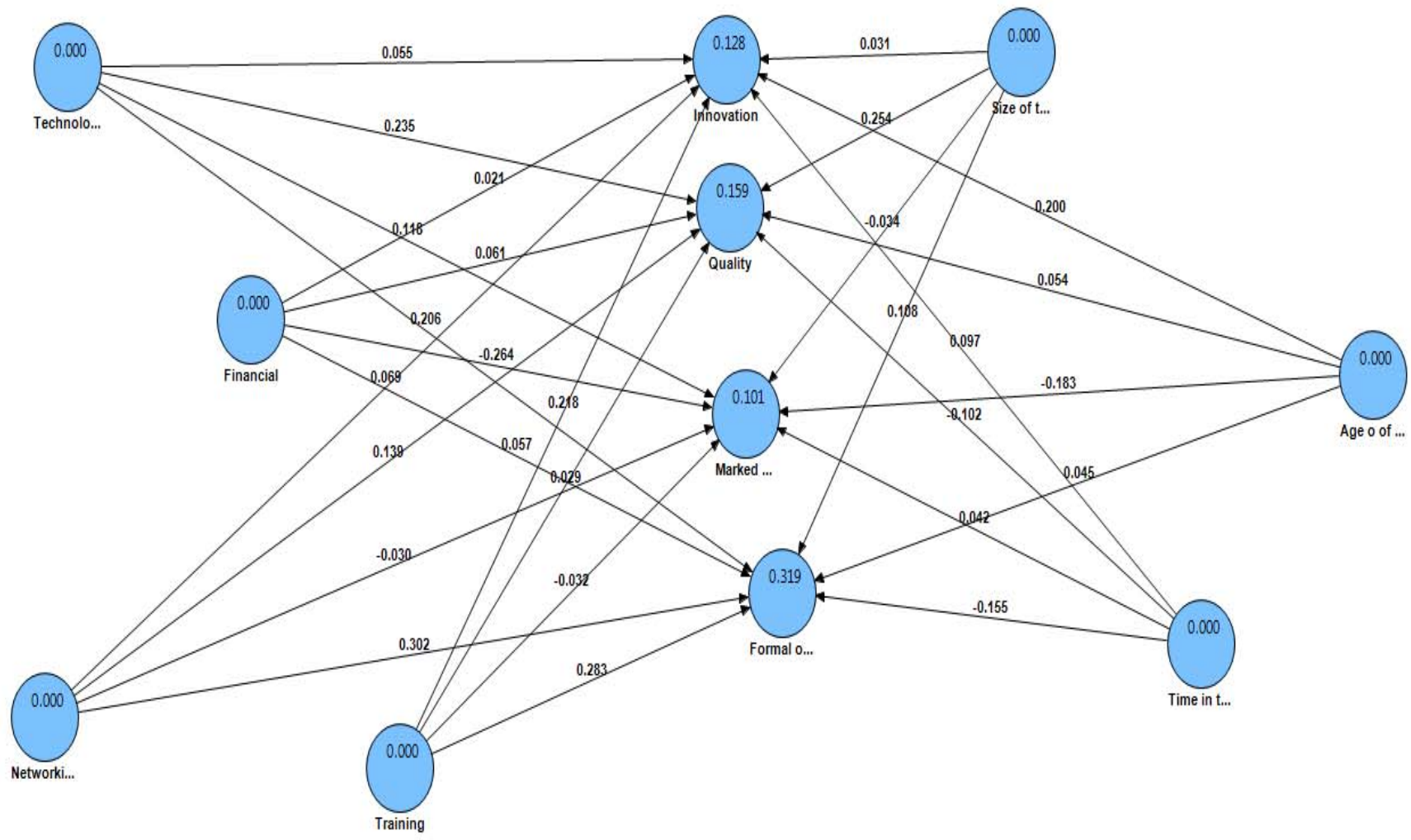


Figure 4.3. PLS algorithm result

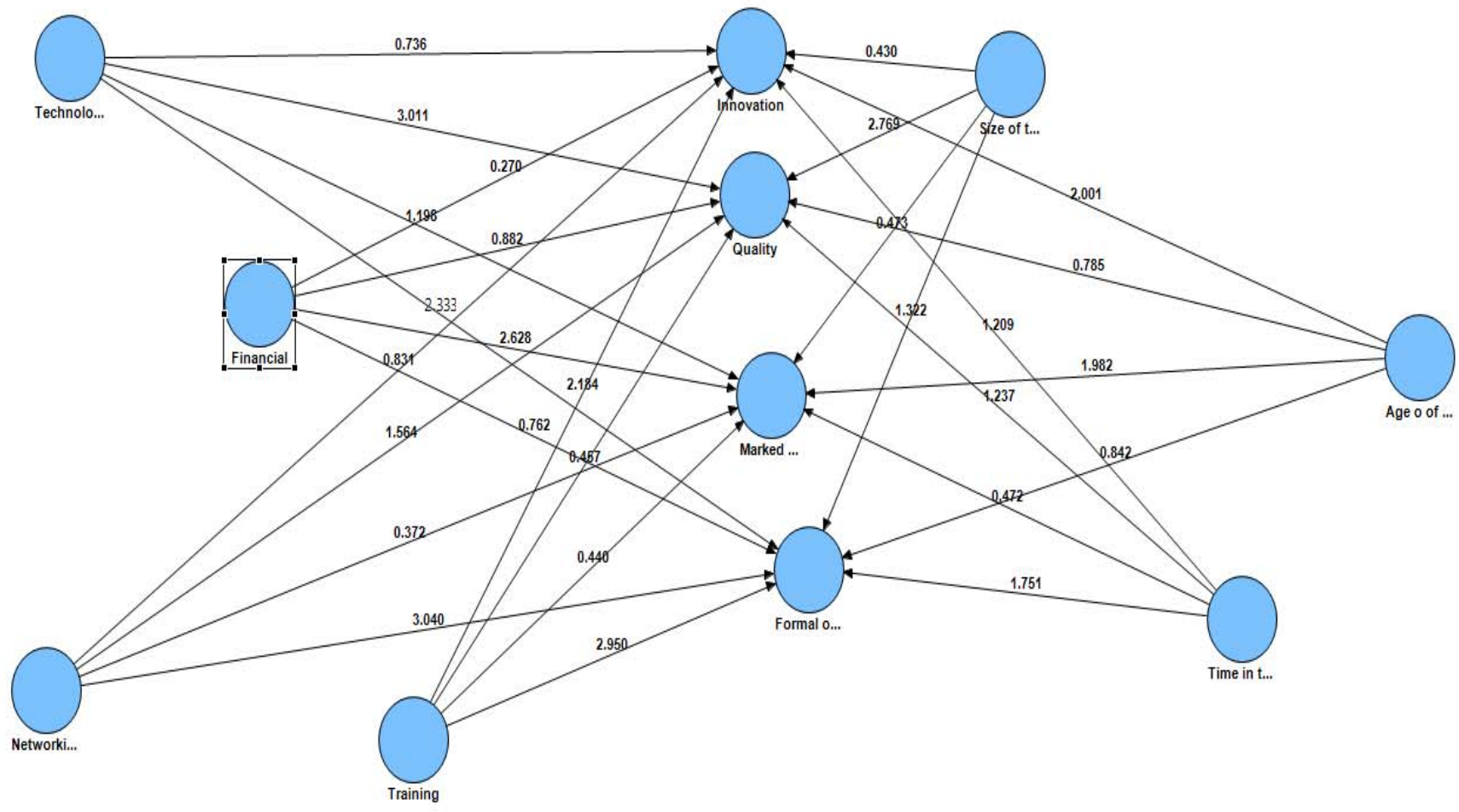


Figure 4.4. PLS bootstrapping result

Table 4.3.

Overview of Hypotheses Testing

Hypotheses	Results
H1: The technological assistance business incubator provide to MSMEs, positively affects their performance.	Partially supported
H1a: The technology assistance business incubator provided to MSMEs, positively affects their product/ service innovation.	Not supported
H1b: The technology assistance business incubator provided to MSMEs, positively affects their quality of the product/ service product/ service.	Supported
H1c: The technology assistance business incubator provided to MSMEs, positively affects their capacity to respond to market demand.	Not supported
H1d: The technology assistance business incubator provided to MSMEs, positively affects their formalization of internal administrative organization.	Supported
H2: The financial assistance business incubator provide to MSMEs, positively affects their performance.	Not supported
H2a: The financial assistance business incubator provide to MSMEs, positively affects their product/service innovation.	Not supported
H2b: The financial assistance business incubator provide to MSMEs, positively affects their quality of product/service.	Not supported
H2c: The financial assistance business incubator provide to MSMEs, positively affects their capacity to respond to the market demand.	Not supported
H2d: The financial assistance business incubator provide to MSMEs, positively affects their formalization of internal administrative organization.	Not supported
H3: The networking assistance business incubator provide to MSMEs, positively affects their performance.	Partially supported
H3a: The networking assistance business incubator provide to MSMEs, positively affects their product innovation.	Not supported
H3b: The networking assistance business incubator provide to MSMEs, positively affects their quality of the product/service.	Not supported

(continued)

Table 4.3. (continued)

Hypotheses	Results
H3c: The networking assistance business incubator provide to MSMEs, positively affects their capacity to respond to the market demand.	Not supported
H3d: The networking assistance business incubator provide to MSMEs, positively affects their formalization of internal administrative organization.	Supported
H4: The training assistance business incubator provide to MSMEs, positively affects their performance.	Partially supported
H4a: The training assistance business incubator provide to MSMEs, positively affect their product innovation.	Supported
H4b: The training assistance business incubator provide to MSMEs, positively affect their quality of the product/service.	Not supported
H4c: The training assistance business incubator provide to MSMEs, positively affect their capacity to respond to the market demand.	Not supported
H4d: The training assistance business incubator provide to MSMEs, positively affect their formalization of internal administrative organization.	Supported

Post Hoc Analysis

A post hoc analysis was conducted to assess which one of the incubators provided better assistance in terms of technology, financing, networking and training. For this reason the seven incubators that participated in this study were categorized as follows:

- Incubator A: Dynamic Entrepreneurs (30 tenants).
- Incubator B: Prodef (30 tenants).
- Incubator C: The 5 remaining incubators (40 tenants).

ANOVA test allowed the researcher to run multiple comparisons between the groups in question by comparing their means (Kinneer & Gray, 2000). This test permitted the researcher to provide further suggestions and recommendations to those incubators that participated in this research and for future studies.

According to Table 4.4, there are significant differences between the level of technology assistance and networking assistance provided by the incubators in question.

Table 4.5 showed that Incubator A seemed to be better than Incubator C in the technology assistance provided to the MSMEs in Nicaragua. In the case of the networking assistance provided by these incubators, Incubator A seemed to be better than the others.

Overall speaking, Incubator A seems to outperform others in all four types of assistance. The other incubators that belong to the group of Incubator C should consider revising and improving the assistance they provide in terms of networking and technology.

Table 4.4 show the level of significance in mean differences of the service offerings of incubators A, B and C.

Table 4.4.

ANOVA Post hoc Analysis Level of Significance

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Technology	Between Groups	13.169	2	6.585	3.623	.030
	Within Groups	176.286	97	1.817		
	Total	189.455	99			
Finance	Between Groups	6.328	2	3.164	1.080	.344
	Within Groups	284.109	97	2.929		
	Total	290.437	99			
Networking	Between Groups	19.706	2	9.853	4.688	.011
	Within Groups	203.880	97	2.102		
	Total	223.585	99			

Training	Between Groups	16.042	2	8.021	2.706	.072
	Within Groups	287.477	97	2.964		
	Total	303.519	99			

Dependent Variable	(I) Incubator	(J) Incubator	Mean Difference (I-J)	Std. Error	Sig.
Technology Assistance	Incubator A	Incubator B	.44007	.34526	.447
		Incubator C	.87897*	.32738	.031
	Incubator B	Incubator A	-.44007	.34526	.447
		Incubator C	.43890	.32438	.404
	Incubator C	Incubator A	-.87897*	.32738	.031
		Incubator B	-.43890	.32438	.404
Finance Assistance	Incubator A	Incubator B	.58898	.43831	.409
		Incubator C	.50833	.41561	.476

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the multiple comparisons among the Incubator A, B and C by using Scheffe test.

Table 4.5.

ANOVA Post hoc Analysis: Scheffe Test

	Incubator B	Incubator A	-.58898	.43831	.409
		Incubator C	-.08065	.41181	.981
	Incubator C	Incubator A	-.50833	.41561	.476
		Incubator B	.08065	.41181	.981
Networking Assistance	Incubator A	Incubator B	.05215	.37130	.990
		Incubator C	.93566*	.35207	.033
	Incubator B	Incubator A	-.05215	.37130	.990
		Incubator C	.88351*	.34885	.045
	Incubator C	Incubator A	-.93566*	.35207	.033
		Incubator B	-.88351*	.34885	.045
Training Assistance	Incubator A	Incubator B	.50146	.44090	.526
		Incubator C	.97119	.41807	.072
	Incubator B	Incubator A	-.50146	.44090	.526
		Incubator C	.46973	.41424	.528
	Incubator C	Incubator A	-.97119	.41807	.072
		Incubator B	-.46973	.41424	.528

(*) The mean difference is significant at the 0.05 level.

Note: Incubator A: Dynamic Entrepreneur (30 tenants), Incubator B (30 tenants): Prodef and Incubator C: the other 3 incubators.

CHAPTER V CONCLUSIONS AND IMPLICATIONS

This chapter provides information of the conclusions of the study. It also discusses important observations for the results and includes research implications, practical implications, limitations and future research suggestions.

Conclusions

This research intended to find which aspect of performance is more likely to happen if any of the different service offerings (technology, financial, networking and training assistance) of the business incubators is provided to the MSMEs. Based on the results, the quality of product/service and the formal organization administration are more likely to happen if technology assistance is provided. If networking assistance is provided, the aspect of performance that is more likely to happen is formal organization administration. Finally, if training assistance is provided, innovation of product/service and formal organization administration is more likely to happen.

According to these results, technology assistance, networking assistance and training assistance might increase the performance of MSMEs in terms of formal organization administration. On the other hand, if the MSMEs want to improve the quality of product/service, technology assistance should be provided. And if they want to develop innovation, training assistance should be provided. Financial assistance did not seem to have any impact or influence on any of the indicators; however, it still represents a need for the MSMEs (Obregon & Yeh, 2013).

Other studies (Peña, 2004) have shown that the importance of training is vital for MSMEs endurance. These results confirm the findings for this research as training is one of the service offerings that enable SMEs performance.

It is also important to mention that the support provided by business incubators and programs of assistance do not guarantee the survival and development of MSMEs. There is still a long way to go in order for the MSMEs owners to be aware of their role in their businesses. Business Incubator directors or coordinators need to constantly re-evaluate and revise the design of their programs and selection processes based on empirical evidence.

Research Implications

Incubators are characterized according to the type of service they offer, the target they serve and the structure of their organization (NBIA, 2009a). In Nicaragua, the work of incubators started on 2010. Because it is a recent initiative, no study has been conducted on this sector before. It is of great importance to enhance, reinforce and draw attention to the work and impact incubators cause on MSMEs performance. As mentioned through this research, MSMEs represent a vital sector for developing economies. Incubators should design follow up programs that allow them to assess the impact of their assistance on the development of the SME. This research included all kind of MSMEs that participated in different programs, however, more personalized evaluations of MSMEs sector and types of assistance should be conducted to enrich the information regarding incubators and MSMEs in Nicaragua. The onsite assistance from incubator to MSMEs should be retaken in order to further develop MSMEs and evaluate their improvement compared to those who are not onsite. Also evaluating how incubators are selecting tenants and designing programs of assistance is very important for further reference. In the present time there is no research on evaluation of incubators either. To avoid response biases and confusion among the respondents, it should be considered conducting this type of research one on one and through a neutral channel. The sense of awareness on how important it is for MSMEs to collaborate with this type of research should be promoted by all types of institutions that provide any kind of assistance to MSMEs and for the government as well.

Practical Implications

This research aimed to find which aspect of the service offerings was more likely to positively affect the performance of MSMEs in Nicaragua. Although most of the assistance provided by incubator and programs of assistance seemed to have a positive effect on the performance of MSMEs, financial assistance was not related to any of the indicators of performance. According to the ECB (2012), MSMEs access to financing represents a significant obstacle especially for start-up SME's since banks ask for conditions that go beyond start-ups' capabilities. MSMEs need to have the monetary resources to invest, innovate, grow and take risks. Incubators and programs of assistance in Nicaragua must consider redesigning the way they are allocating financial assistance to MSMEs. MSMEs need to learn what to do with the resources they have, where to invest and when to do it. It represents a whole service to provide the resources to MSMEs and teach them how to use it. Nevertheless, the benefits for MSMEs could be of great impact hence for the economy of the country. Because the incubator initiative has been recently introduced in Nicaragua as a way to help MSMEs, there are still some gaps in the way this assistance is delivered. The Nicaraguan government, private enterprise and non-governmental institutions must consider reinforcing the manpower of incubators. Although almost half of the incubators and programs of assistance that collaborated with this research represent public and private institutions, there is still an immense necessity for the MSMEs to be attended (Obregon & Yeh, 2012). The incubators should focus on the short term needs of these MSMEs in Nicaragua. By strengthening the services incubators provide to this sector, those objectives can be accomplished.

Limitations

This study was supposed to be oriented to small and medium sized enterprises in Nicaragua. However, once the data was collected it was found that more than 50% of the participants are micro enterprises, almost 50% are small businesses and only 5% are medium enterprises. The majority of the participants that collaborated with this study are part of two incubators therefore this might have some influence in the results. Because this research was oriented to all type of MSMEs that receive different type of assistance, a category of “non applicable” had to be included in order to statistically register the data from those types of assistance not received by the MSMEs. One big constraint was that there are few incubators in Nicaragua and very few wanted to participate in this study. Also, some of the incubators have fewer tenants than they originally proclaim. Therefore, the researcher had to include some programs of assistance provided by public and private institutions in order to conduct the research. Hence, all of these reasons limit the results to be generalized to other segments or countries.

Future Research Suggestions

For future research, the researcher suggests to consider other indicators of performance in order to assess the impact of incubators service offerings. Also it is important that this type of research is conducted in other contexts, for example other countries in Latin America. As mentioned before, it could be very interesting to also evaluate the effectiveness of the incubator programs. How incubators are designing their programs, recruiting tenants, conducting follow-ups, etc. For this study it was convenient to focus on the technology, financial, networking and training assistance provided from incubators to MSMEs in Nicaragua, however, other service offerings should be considered for future studies.

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APPENDIX A: QUESTIONNAIRE

Questionnaire of the Impact of Service Offerings of Business Incubators on Performance of Micro, Small and Medium Sized Enterprises in Nicaragua

Dear Respondent,

Please spare a few minutes to complete this questionnaire. Your participation in the Small and Medium sized Business Research Survey will help us to understand the impact of the Service Offerings from Incubators to business like yours. Please be assured that your responses will be treated with the strictest confidence. Your time and cooperation are highly appreciated!

PART I

General Information

1. Type of Industry

Food agribusiness Artesian Leather & footwear Furniture Textiles
Baker Other

2. Number of full time employees:

1-5 6-30 31-100

3. Age of the business:

Less than 1 year Less than 2 years Less than 3 years
Less than 4 years Less than 5 years 5 years or more

4. What best describes the status of your business?

Start up stage Growth stage Maturity stage Survival stage

5. What are the main objectives in starting up a small and medium sized business?

To be an entrepreneur Financial rewards Unemployed before start-up
Career progression Influence of family or friends other (specify)

6. Business Ownership:

Sole proprietorship Partnership Joint venture
Subsidiary

Associate company other, please specify: _____

7. What were the sources of funds used by the principal business owner upon starting the business?

Personal savings Family and friends Commercial banks
Incubator Government assistance programs Other: _____

8. What is the relationship between your business and the incubator program?

Current tenant Graduated: 1 a 3 years more than 3 years

Recently graduated (less than 1 year)

9. What type of assistance have you received from the incubator? **You can choose more than one option.**

Technological Networking Financing Training

10. If you are a current tenant, for how long have you been part of the incubator program?

1-6 months 7-12 months 13-18 months 19-24months 25-30months

31-36 months

Demographics

11. Gender: Male Female

12. Age: 19 or less 20-30 31-40 41-50 51-60 61 or
more

32. Highest level of education:

Less than high school degree High school graduate Technical/vocational
Some college but no degree granted College degree Post-graduate degree

14. How many years of experience do you have managing or owning a business, including this business?

less than 1 year 1 to 3 years 4 to 6 years 7 to 9 years
10 to 15 years more tan 15 years

Please answer the following questions based on the current status of your business. Use the scale below to determine the level of agreement with each one of the statements.

“Strongly Disagree meaning the less punctuation.....Strongly Agree meaning the highest punctuation”

Not applicable means that you have no experience or information to reply to the item

PART II:

Section A: Product Innovation

Item Description	Not Applicable	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
15. In the past year I have introduced at least one new product/service/process to my customers.						
16. In the past year I have improved at least one feature of my product/service.						
17. I frequently develop or improve my existing product/service.						
18. My product/services differentiate from my competitors for its features.						
19. I customize my product/services to the different type of clients.						
20. My business is one of the industry’s leaders in introducing new products/services.						
21. My business is one of the industry’s leaders in improving or developing its existing products/services.						
22. My business brand is well known in the market.						
23. I invest on product research and development.						
24. I have expertise knowledge in the production of product/service like mine.						

Section B: Quality of Product

Item Description	Not Applicab -le	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
25. I implement quality control systems to supervise the production of my product/service.						
26. I usually ask my customers about the quality of the product/service they have received.						
27. I use customer complaint to improve my product/service.						
28. I systematically ask my customers what they expect from my product/service.						
29. My business has reputation for high quality products/services.						
30. I used the best suppliers in the market.						
31. I enforced total quality commitment to all my staff in all operations.						
32. I give quality issues top priority as criteria when making decisions.						
33. I make sure that the integration of prevention and correction is always included in my daily business operations.						
34. I always incorporate quality factors in my product /service design.						

Section C: Capacity of response to market demand

Item Description	Not Applicab -le	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
35. My business is approaching unexplored markets.						
36. My business is looking to approach segments of the market not served by my competitors.						
37. My business currently approach international markets.						
38. Compared to the beginning of operations, my client portfolio has significantly increased.						
39. My business has lost customer's orders for lack of production capacity.						
40. My business is one of the strongest sellers of my product/service in the market.						
41. My business has problems to satisfy customer demand on high seasons.						
42. My business usually lacks of product storage.						
43. Compared to the beginning of operations, my business currently counts with more inputs (production machinery, branch office, etc).						
44. Compared to the beginning of operations I have hired more full time employees.						

Section D: Formal organization administration.

Item Description	Not Applicable	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
45. I have a business plan.						
46. I have set my business goals to short term.						
47. I have set my business goals to long term.						
48. My staff is aware of my business goals.						
49. I can document the financial performance of my business.						
50. I can document my employee's records/profile.						
51. I can document the turnover rate of my business.						
52. I keep records of customer's complaints.						
53. I continuously participate in all kind of trainings.						
54. I provide training to my staff.						

Please answer the following questions based on the status of your business according to the type of assistance you have received from the incubator. Use the scale below to determine the level of agreement with each one of the statements.

“Strongly Disagree meaning the less punctuation.....Strongly Agree meaning the highest punctuation”

Not applicable means that you have no experience or information to reply to the item

PART III:

Section E: Technological Assistance

-If your business has received any kind of technology assistance please answer this section otherwise continue with the next section.

Item Description	Not Applicab -le	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
55. The incubator made it easier for me to access updated production machinery.						
56. The incubator made it easier for me to get more than one piece of update production machinery.						
57. The incubator made it easier for me to get a website for my business.						
58. The incubator made it easier for me to get an email account for business purposes.						
59. The incubator made it easier for me to get a computer						
60. The incubator made it easier for me to access adequate computer systems to run some administrative processes.						
61. The incubator made it easier for me to get a telephone line or a cell phone line.						
62. The incubator made easier it for me to get electronic office equipment such as fax, printer, scanner etc.						
63. The incubator made it easier for me to get a transportation vehicle for business purposes.						
64. The incubator made it easier for me to access to quality control systems.						

Section F: Financing Assistance

-If your business has received any kind of financial assistance please answer this section otherwise continue with the next section.

Item Description	Not Applicable	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
65. The incubator made it easier for me to get a lower rate loan with a local bank.						
66. The incubator made it easier for me to get the lowest rate loan with a local bank.						
67. The incubator made it easier for me to get a fair rate loan with a local bank.						
68. The incubator made it easier for me to get a lower rate loan with a microfinance institution						
69. The incubator made it easier for me to get the lowest rate loan with a microfinance institution.						
70. The incubator made it easier for me to get a fair rate loan with a microfinance institution.						
71. The incubator made it easier for me to get a loan.						
72. The incubator made it easier for me to access governmental financing support programs.						
73. The incubator made it easier for me to access non-governmental financing support programs.						
74. The incubator made it easier for me to access partnerships that sponsor me financially.						

Section G: Networking Assistance

-If your business has received any kind of networking assistance please answer this section otherwise continue with the next section.

Item Description	Not Applicable	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
75. The incubator made it easier for me to get to meetings with people that own business like mine.						
76. The incubator made it easier for me to get to meetings with people that own different business but to whom I can create alliances.						
77. The incubator made it easier for me to get to conferences/workshops with all kind of small and medium sized enterprises owners.						
78. The incubator made it easier for me to get to conferences/ workshops with SME's similar as mine.						
79. The incubator made it easier for me to get to SME's national fairs, example Microfer.						
80. The incubator made it easier for me to contact bigger local enterprises with whom I can do business.						
81. The incubator made it easier for me to contact bigger international enterprises with whom I can do business.						
82. The incubator made it easier for me to contact non-governmental support programs that help business like mine.						
83. The incubator made it easier for me to contact governmental support programs that help business like mine.						
84. The incubator made it easier for me to contact other incubators that provide assistance it does not offer.						
85. The incubator made it easier for me to contact with appropriate suppliers for my business.						
86. The incubator made it easier for me to connect with unexplored clients.						

Section H: Training Assistance

-If your business has received any kind of managerial training assistance please answer this section otherwise continue with the next section.

Item Description	Not Applicab -le	Strongly Disagree	Disagree	Nor Agree nor Disagree	Agree	Strongly Agree
	0	1	2	3	4	5
87. The incubator made it easier for me to access conferences/workshops/courses about managerial skills.						
88. The incubator made it easier for me to access mentorship programs.						
89. The incubator made it easier for me to access courses about use of computer.						
90. The incubator made it easier for me to access courses about use of Microsoft Office.						
91. The incubator made it easier for me to access conferences/workshops/ courses about financial management.						
92. The incubator made it easier for me to access conferences/workshops/courses of total quality management.						
93. The incubator made it easier for me to access conferences/workshops/courses about strategic planning.						
94. The incubator made it easier for me to access conferences/workshops/courses about customer service.						
95. The incubator made it easier for me to access conferences/workshops/courses about human resources related practices.						
96. The incubator made it easier for me to enroll in language courses, for example English.						

You have finished this survey

Your participation is of high value for this research

Thank you very much for your time, patient and cooperation