

THE DEVELOPMENT OF ENTREPRENEURIAL NETWORKS IN PUERTO RICO; A GLOBAL PERSPECTIVE

by

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Abstract:

This is a synopsis of a research that focuses on issues of market structure and the development of entrepreneurial business networks in Puerto Rico and their impact on economic development and globalization. Entrepreneurship provides the opportunity to create linkages that can promote economic development, reduce dependency and promote growth. Clusters as an industrial organizational model, shows that entrepreneurial networks do extremely well in areas where adopting quickly and creatively to changes. This research describes the current market structure in Puerto Rico, and identifies firms that have been successful in bridging the structural gaps between the domestic market and the global market place.

Este es una synopsis de un estudio el cual esta enfocada en asuntos de estructura de mercado y el desarrollo de redes empresariales en Puerto Rico y su impacto en el desarrollo económico y la globalización. El empresarismo provee la oportunidad de crear enlaces que promuevan el desarrollo económico, disminuyen la dependencia, y promueven el crecimiento. Los Conglomerados o “clusters” como modelo de organización industrial, demuestra como las redes empresariales son excelentes en

entornos que requieren adaptarse rápidamente y creativamente al cambio. Esta investigación describe la estructura actual del mercado en Puerto Rico e identifica empresas que han logrado servir de puente entre el mercado doméstico y el mercado global.

Introduction

Economists have characterized globalization as the singular event of the 1990s, just as interdependence was in the 1970s, but the phenomena it refers to are not entirely new. Our characterization of interdependence more than 20 years ago now applies to globalization in the new millennium.

Like all popular concepts meant to cover a variety of phenomena, both interdependence and globalization have many meanings. To understand what people are talking about when they use these terms, and to make them useful for analysis, we must begin by asking whether interdependence and globalization are simply two words for the same thing, or whether something new is going on.

The two words are not exactly parallel. Interdependence is defined by Webster's New Collegiate Dictionary (1959) as a mutually and reciprocally dependent relationship.

Simply stated, interdependence refers to a condition, a state of affairs. It can increase, as it has been doing in most dimensions since the end of World War II, or it can decrease, as it did, at least in economic terms, during the Great Depression of the 1930s. However, globalization, as defined by Govindarajan and Gupia (2001) in their book *The quest for global dominance*, is the growing economic interdependence among countries as reflected

in increasing cross border flows of three types of entities: goods and services, capital, and know-how.

According to this definition globalization implies that something is increasing: There is more of it. Hence, "globalism," a condition that can increase or decrease. Globalism is a state of the world involving networks of interdependence at multi-continental distances. Keohane R. (Spring, 2000) in his article, *Globalization: What's new? what's not? (and so what?)*, describes how networks of interdependence occur through the flows and influences of capital and goods, information and ideas, and people and forces.

In other words, global interdependence refers to situations characterized by reciprocal effects among countries or among actors in different economies, industries, and consequently networks. Hence, globalism is a type of interdependence, but with two special characteristics (Keohane R. spring, 2000).

First, globalism refers to networks of connections (multiple relationships), not to single linkages. A relationship between only two and simply on a single level cannot be described as global.

Second, for a network of relationships to be considered "global," it must include multi-continental distances, not simply regional networks. This relationship must also be greater than simply sharing borders. Distance is an important qualifier to be considered global. Distance can range from adjacency (between, the United States and Mexico) or to opposite sides of the globe (for instance, Great Britain

and Australia). Any sharp distinction between long-distance and regional interdependence therefore cannot be definitive. In spite of this, globalism would be an odd word for proximate regional relationships. Globalization refers to the shrinkage of distance on a large scale. It is distinct from localization, nationalization, and regionalization.

In addition to the increase in competition that companies must face due to the globalization of markets, countries are also faced with new challenges. Competitive advantages of the past no longer suffice for achieving success. Economies of scale, expansion of markets, reduction of barriers to cross border transactions, and the reduction of risk have driven companies outside of their domestic markets into new and unfamiliar economies.

Many countries have been active in promoting the integration of markets through commercial trade agreements. Caricom, El Acuerdo de Los Andes, NAFTA, the European Union and others are clear demonstrations of this. Furthermore, the objective of the USA and Latin America in achieving a Free trade area of the Americas by 2005 indicates a continued trend in this aspect of globalization. These changes have required that countries redesign themselves in order to compete in a global economy.

Accordingly, countries must continually revise the attributes of their competitive advantage, and in many cases redesign themselves to compete successfully in this dynamic and innovative environment (Porter M, 1994). Puerto Rico must also reevaluate its competitive position. Otherwise it may find itself on the wrong side of globalization.

With the expansion of commercial agreements and its new challenges, today's world has become a Global Economy. These agreements have lowered the cost of transferring production factors between markets (capital, knowledge, equipment, labor skills, etc.) and, as a result, products can no longer be referred to as being built in any one specific country. Therefore, a single microchip unit can be made in the USA, Malaysia, France and Japan (global production). In addition, the increase of mergers, joint ventures, and licensing agreements among multinational companies has added another dimension to globalism.

Companies have moved beyond their borders to seek new markets in which to sell their products and services. This opportunity has at the same time brought with it new threats to domestic markets. In order to understand the dynamics of globalization and to develop strategies to compete effectively in this singular and global market, domestic firms and governments must refocus their efforts towards seeking effective strategies to deal with this dynamic new environment.

It is no longer sufficient for a firm to focus its strategic efforts to develop a better mouse trap or to use technology to become more efficient than the competition. Firms must also become proactive in their own evolution and in shaping the environment in which they are engaged. Many small firms have effectively entered the global economy by constructing a network of relationships that have given them a competitive edge.

Similarly, national development has been subject to the influences of globalization. In many cases, the effects of globalization have played a decisive role in shaping a nation's economy. This impact of globalization has been documented through market conditions and reflected in the financial capital movements. A case in point is the popular discussion of the potential impact of globalization on the distribution of income and wealth within an economy.

Due to the opportunities and challenges brought on, by the dynamics of globalization, the role of entrepreneurship in economic development has gained even more importance than in the past. As a result, entrepreneurship is considered to be a fundamental component of competitiveness in today's knowledge economy.

Economic development and market structure

Central to economic development theory and cluster analysis is the role that market structure plays in either facilitating and / or hindering the development process. Thus, the development process must be considered from two perspectives that operate simultaneously and they must interact at some level for sustainable development to occur.

First, we must consider development from a vertical perspective, in which the bridging of gaps between market based production sectors and non-market based production sectors, (Grabowski 1999) drive economic development. From this perspective, economic development requires the presence of firms that can bridge the gaps between the different network structures. Rullani (2002) has depicted these vertical marketing systems (VMS) as enterprise networks, and Varaldo and Ferruci (1997) define them as extended companies.

Second, as considered from a horizontal perspective, development results from maximizing the exchange utility between firms that participate initially in related markets and within a given market structure and ultimately bridging the gaps between different market structures. Consequently, the distribution of capital (knowledge) is prompted horizontally through out the economy.

In either case, firms in these networks are part of a broad learning circuit involving the supply chain (vertically) and local society (horizontally), as are the examples in the Silicon Valley California, the Hsinchu-Taipei region electronics industry, and the Northern -Westfalen Biotechnology in Germany.

In this regard, recent studies clearly demonstrate that for sustainable economic development to occur, the market structure must facilitate the processes that encourage the emergence and development of innovation, learning, and the diffusion of these throughout vertical and horizontal business systems.

In order to present the conclusions of the study of networks in Puerto Rico from an entrepreneurial perspective, this study uses the Customer Relationship Model (CRM) presented by Pelton L., Strutton D., and Lumpkin J. (2002) in their book, *Marketing Channels; a relationship management approach*, which presents a framework that emphasizes market structure as central to firm and market development.

As an ecological model, CRM acknowledges the effect of environmental influences on the development of firms and markets, and can assist in recognizing the role that entrepreneurial firms play in development. The components of CRM are described as the:

Exosystem

According to the CRM Model, the exosystem is composed of the effect of the externalities or the environment in which network members operate. Some of the major externalities that have affected members and the economy have been the expansion of markets and the role of the transnational firm. These influences have played an important role in economic development during the past decade (Johansson 2000). This has, therefore, been a major factor that has promoted the dramatic changes in current market structures.

Micro system

The micro system consists of the network's internal environment. This internal environment encompasses the roles and expectations among the members and the ensuing environment. Coughlan A., Anderson E., Stern L El, and Ansary (2001) in their book *Marketing Channels*, refer to this as the Interactivity of Channel members.

Mesosystem

The mesosystem consists of the exchange of resources among members that results in formal organizational linkages. In today's economy, formal (direct) and

informal (indirect) linkages between networks and their members are vital to a firm's competitiveness (Pelton et al., 2000).

Exosystem:

Although, Puerto Rico possesses one of the most open and dynamic economies in the region, this study shows that the exosystems of the business network structures in Puerto Rico are predominantly closed. Consequently, over 65% of the firms in the study belong to well-defined networks in which member firms obtain legitimacy through the development of high standards in order to serve the focal member. As a result, the data shows that these networks in Puerto Rico can be characterized as:

- Being based on normative similarities between the members (homogeneous group).
- Conforming to the prevailing rules set by the most influential actors in the network.
- Controlling of the competitive struggle by Internal forces (Horizontal Marketing system).
- Sharing to enhance the long term viability of the individual firms and their position within the network (Vertical Marketing System).

Firms in Puerto Rico form closed networks in order to influence, control, and minimize changes in their exosystem, thus minimizing risk and volatility. As a result of these efforts, business networks in Puerto Rico limit the information shared to those of

environmental control, and thus limit innovation. These efforts are what have driven the predominance of closed network in Puerto Rico that are focused on maintaining the status quo.

In addition, the study shows that these closed network structures are formed by the development of formal contracts or strategic alliances within a vertical marketing system. These networks compete through efficient production, low prices, and high quality standards established by the focal firm. As a result, these networks are focal firm driven, and not necessarily market driven. Thus, they tend to minimize, and in certain cases ignore, the dynamics of market change.

The study's findings also demonstrate how firms in Puerto Rico are directly linked to an upstream focal member that directs the innovation efforts, thus leaving the firms in Puerto Rico vulnerable to attack by new competitors entering the market. Consequently, firms in the network (vertical marketing structure, VMS) cooperate in order to better serve the focal members. These efforts serve to anchor firms in their network position and, simultaneously, they serve as barriers to other firms' entry thus maintaining placid environments and providing a comfort zone from the global market place. Thus, the networks and firms in Puerto Rico are focal driven, and possess a structure identified by other researchers as incompatible with sustainable economic development and high performance entrepreneurial firms (Miller and Toulouse, 1986). Accordingly, the business networks in Puerto Rico demonstrate characteristics of mature networks.

Furthermore, the data demonstrates that in the case of Puerto Rico's networks, sharing does not extend throughout the network, but primarily focuses on the firm's direct upstream linkages. In this situation, the network expands and learns vertically but does not provide for the bridging of gaps between different market structures (horizontal networks). In other words, the learning is primarily focal firm directed, and serves the VMS network.

Under these circumstances, the network exosystem in Puerto Rico is retarding the learning process and hindering the bridging of structural holes between different network structures which are critical for growth and sustainable economic development in this global era.

Micro Systems:

In order to determine and gain insight into network micro systems in Puerto Rico, this study analyzed the network dynamics by the number and the type of ties a firm maintains. Furthermore, these ties are developed in order to facilitate individual firm strategic focus, and, therefore are directly related to each member's role within a network. (Focal firms vs. member firms).

As noted earlier, focal firms possess and use their influence to force the other members in their network to act in the focal firm's best interest. Thus, the members of the network directly tied to the focal member must comply in order to maintain their position in the network. Accordingly, these firms become extensions of the focal firm (Ahuja G., 2000).

This provides the focal member with a great deal of influence and control over the network as a whole (VMS).

In this regard, the research found that business networks in Puerto Rico, in addition to being focal dominated; the focal-firms in the majority are non-local firms. Furthermore, the study shows that these focal-firms dominate network decision making and primarily exist to serve Puerto Rico's domestic market. As a result, the network dynamics limit the opportunity for non-focal firms to bridge gaps between domestic and global markets. Moreover, in relating these dynamics to economic development, Ahuja G. (Sep 2000), discusses how a network of partners exclusively tied to a focal member within a network is detrimental to sustainable development.

Mesosystems:

This study takes the view of Lane (2002), that the mesosystem can be defined as the construct that results from inter-firm organizational linkages. Thus, it forms a relational or communicational framework that serves to integrate thousands of decentralized and interdependent intelligences that interact with each other in an aggregate pattern of behavior. Consequently, the pattern of behavior can either serve or hinder the sharing of resources that are integrally related to the network competitive environment: innovation, growth, and the bridging of structural gaps..

Ideally, these linkages serve to form entrepreneurial networks (Feldman M, Francis J. 2002, Rullani 2002). This means that they optimize the use of their internal intellectual and financial resources by specializing in the performance of narrowly defined functions,

which they can only achieve through network learning. Thus each firm becomes part of a broad learning circuit (CAS) involving supply chain (VMS) initiatives and local members (HMS).

In seeking to further understand the Mesosystems of the business networks in Puerto Rico, linkages were analyzed based on their direction and density. The research found that in the case of Puerto Rico's network dynamics, firm's efforts are subject to the focal firm's interests, and thus they seek to develop competitive advantages internally while forming external linkages in order to control their external environment. Therefore, networks in Puerto Rico are conservative, and accordingly focus their efforts on closing the network.

These efforts are contrary to interdependence (collaboration) and decentralization (openness), both critical for network type learning. These dynamics hinder the sharing of resources, limit horizontal network expansion, do not promote learning, and, as a result, are contrary to the development of entrepreneurial networks.

Entrepreneurial Firms.

Although, the study shows that network structure and dynamics in Puerto Rico are conservative and have not served as bridges to globalization and development, the research seeks to identify the strategic typology of firms that have been able to bridge structural gaps. In studying Puerto Rico's business network structure, this study analyzes firm environmental scanning activities in order to determine individual firm strategic typology and relates this to the bridging of gaps.

Accordingly, the study shows that the individual firms that have successfully bridged these gaps possess a higher number of upper, lateral, and downstream ties than conservative firms; are entrepreneurial / prospector firms; and possess more indirect ties than conservative firms (99% certainty). Furthermore, these firms focus their strategic efforts in seeking a broad product domain, in being first movers, in using equity financing, and in performing frequent training of their employees.

In considering that the exosystem and mesosystem of business networks in Puerto Rico impede a firm's ability to take advantage of the opportunities brought on by globalization, entrepreneurs find themselves dealing with closed network structures that force them to develop linkages that are conservative therefore hindering the bridging of structural gaps and learning.

In considering Puerto Rico's business network structure and the distinguishing characteristics of entrepreneurial networks, it is critical to make a distinction between learning, innovation, and entrepreneurship. Although learning facilitates the realization of innovation, it may not be sufficient to create entrepreneurial enterprises. The critical condition for entrepreneurial enterprises is opportunity (Feldman M, Francis J (2002).

Opportunity is a critical element in innovative clusters and entrepreneurial development. Entrepreneurs operate in the exosystem and activate it to their own purposes (Blaug M, 1985, Leslie S.S. and Kargon RH, 1996). It is the creative feedback response of the

entrepreneur to his environment that gives rise to opportunity and determines the character of the cluster.

Moreover, this study identifies two areas that define the character of business networks and clusters in Puerto Rico that limit entrepreneurship and thus economic development in Puerto Rico.

First, in the case of business networks in Puerto Rico, the study found the structures are predominantly closed and focal dominant. In addition, firm linkages are primarily vertical and upper bound. As a result, a firm's competitiveness is based on its abilities to meet efficiently the high standards demanded from the focal network member. Therefore, the presence of a focal member influences the environment and seriously limits the ability of entrepreneurial emergence and survival. These dynamics reduce firm adaptivity, and confine the advantages of learning and innovation to the focal member and thus the vertical network.

Second, firms have developed high rivalry in order to maintain their position in the network. For this reason, the study shows that this limits sharing throughout the mesosystem, and does not promote learning and innovation among firms at a horizontal level.

In summary, although firms in Puerto Rico demonstrate a prospector typology, which is highly correlated with entrepreneurial networks, the study also shows that the current market structure controls the opportunities presented by globalization, thus impedes sustainable development and entrepreneurship.

Recommendations

This study serves as a diagnostic tool that specifically pinpoints the current difficulties in the economic processes and in the development of entrepreneurial enterprises in Puerto Rico. At the same time it aims to serve as a guide to economic policy makers, government officials, businesses and academics in directing their efforts beyond developing business clusters based on industrial sectors and geographic proximity. Consequently, this studies provides a solid bases from which the stakeholders in Puerto Rico's can begin to collaborate in undertaking specific efforts in developing a market structure that promotes learning, sharing and opportunity on a global scale, hence global entrepreneurial systems.

This research project also shows, that the current efforts to promote the economic development of Puerto Rico are not sufficient to bring sustainable economic development to Puerto Rico. A world systems' view can lend economic policy makers the vision needed to break away from the dependent development cycle.

In this regard, Puerto Rico must take a two step approach in positioning itself within the global market structure. As a first step, Puerto Rico must focus internally on developing competencies that can serve as a solid platform from which to launch its integration into the global market place. However, for this to occur each agent in the structure has a role to play in the economic transformation of Puerto Rico.

Government must go beyond their role as facilitators of business development, economic growth, and employment, and must develop and implement strategies that promote local

entrepreneurial firms that bridge the gaps between regional and global market structures. In other words, government and business must move away from an industrial-sector view of the market place, and acquire a world system view. This means that government efforts should be focused on firms that possess the ability to integrate globally diverse entrepreneurial enterprises, and therefore integrate and develop regional and global business systems.

Academia, as the Trustee and Communicator of knowledge, has a still more important role in development than ever before. Universities must design and provide new educational programs specifically designed to assist business executives in acquiring the knowledge and skills needed to transform their business environments into one that focuses on integration, cooperation, and team work in order to compete in the global arena.

Business executives must begin to understand the need to view their business as part of a Global Complex Adaptive System (GCAS) that continuously evolves. They must take advantage of the brokerage opportunities that arise due to the expansion of markets brought on by globalization.

Executives and managers must focus their competitive efforts in transforming the business competitive environment into one of global cooperation in order to develop global entrepreneurial business networks that take advantage of the opportunities brought on by this new global era.

Critical to this process is the integration of these independent efforts. Although some effort towards of integration between government and business has been undertaken, the role of academia has very limited. As an initial step in this direction it is imperative that academics gain a strong voice in business. This can be accomplished by having academics serve as members in company board of directors, thus linking academia and business.

In the case of government, the role of academia should become one of consultant, researcher and information manager. The need to develop data and research banks is long over due. Additionally, the political situation of the island and consequently the lack of transparency in government studies, has become a serious barrier to development. As such, academia's participation can lend transparency and facilitate the transference of knowledge.

As a second step, Puerto Rico must shed its myopic view of the entrepreneur's role in the development process and build a concerted effort towards a global vision regarding its economic development. Current efforts, such as the Mega Port, Tax Free Zones, "Corredor del Oeste", and the Bio-Molecular Science Center, are a start. However, these efforts can either serve firms in Puerto Rico to break away from the current market structure or leave them even more susceptible to dependent development and the competitive dynamics of globalization.

As this research clearly shows, entrepreneurial firms possess the competencies needed to attain sustainable economic development and bridge global market structural gaps.

However, achieving this vision requires a concerted effort, guided by a singular vision of becoming the entrepreneurial center of the global economy.

Furthermore, this vision must be executed through a coordinated effort in the development of an effective multi-channel and multi-directional communication system, through which Puerto Rico can seek to identify needs, and assist business executives in collaborating with other entrepreneurial firms and business clusters throughout the world.

In other words, multi-sector and multi-regional linkages must be established on a global scale for the establishment of regional and global business systems. Consequently, the emergence of an open market structure can provide firms in Puerto Rico access to a diverse and abundant source of resources. As a result, firms and networks in Puerto Rico become more adaptable to the dynamics of globalization, thus sustainable development emerges and the positioning of Puerto Rico in the global market place as the entrepreneurial core to regional and global markets.

Furthermore, this study be a foundation in the launching of a comprehensive multi-sector study focused on identifying specific competencies of entrepreneurial firms in Puerto Rico. Such a study can serve to further integrate and combine efforts in order to develop linkages with global business networks and position Puerto Rico within the global value chain as an important player in the global market system.

More importantly, academia must become proactive in positioning itself within entrepreneurial networks and firms in Puerto Rico. The transfer of knowledge among

academia, business and government is fundamental to develop and maintain competitiveness in this dynamic knowledge economy.

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