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**Innovation and Entrepreneurship:
A Model Based on Entrepreneur
Development**

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Abstract

This article proposes a person-centered model for entrepreneurship, rather than one based on an idea or business plan. It analyzes the characteristics of entrepreneurship development programs worldwide and presents a representative sample of best practices. On the basis of the main findings and lessons learned, we define the characteristics and components of a new model for entrepreneur development and present recommendations as to how to deploy the model in Latin America and the Caribbean (LAC).

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Introduction

The *Global Entrepreneurship Monitor (GEM) 2010 Global Report* states that: “Most policymakers and academics agree that entrepreneurship is critical to the development and well-being of society. Entrepreneurs create jobs. They drive and shape innovation, speeding up structural changes in the economy. They contribute indirectly to productivity by introducing new competition. Entrepreneurship is thus a catalyst of economic growth and national competitiveness,” (Kelley, Bosma, and Amorós, 2010, p.12).

According to the Organisation for Economic Co-operation and Development (OECD), high levels of entrepreneurship exist but are mostly informal and not original, which explains the high failure rate in the early stages of a business, as demonstrated by the GEM studies. These results indicate that to maximize development of quality entrepreneurship in LAC, it is essential to improve the ability of entrepreneurs to innovate with scalable products or services that provide greater value (OECD, 2009).

In recent years, entrepreneurial development programs have proliferated in the region — primarily at universities — including training in various entrepreneurship topics and support platforms such as incubators, mentor networks, and angel investors. Entrepreneurial training programs focus on preparing a business plan once the entrepreneur has identified an idea. The more brilliant business ideas become a part of mentor networks and incubators.

This paper proposes a person-centered model of entrepreneurship, rather than one based on an idea or business plan. It analyzes the characteristics and performance of entrepreneurship development programs around the world and studies elements of successful ecosystems to propose a model that can strengthen the development of dynamic enterprises in LAC, despite existing limitations and restrictions. At the end of this paper, a series of initiatives are recommended for deployment of the model.

General Analysis of Entrepreneurial Activity in Latin America and the Caribbean

According to the Global Competitive Index (GCI) Innovation pillar, the United States of America is one of the most innovative countries in the Americas; Bolivia is positioned among the bottom of the list in terms of innovation. Oppenheimer (2010) notes that the English language is a common denominator among countries with the most innovation-based entrepreneurship, including Singapore. There is a 75-point difference between the U.S. and Canada and the Spanish-speaking countries of LAC. According to the 2010 GCI Innovation Index, the United States was ranked first. The most competitive country in LAC was Chile, which occupies position 30, followed by Barbados, Panama, Costa Rica, and Brazil, with positions ranging from 42nd to 60th. Among countries in Latin America, the Dominican Republic had an average ranking. The results published by GCI for 2011 were similar. Surprisingly, despite this marked difference, according to the GEM Innovation for Early-Stage Entrepreneurship Activity 2008–2010 survey

(Kelley et al., 2010, p.43), the perception is that the levels of innovation-based entrepreneurship are similar in countries such as the United States and the Dominican Republic.

The *GEM Special Report: A Global Perspective on Entrepreneurship Education and Training* concludes that: “training is likely to increase awareness of entrepreneurship, increase self-efficacy and heighten intentions. However, it has less influence on opportunity identification and fear of failure,” (Corduras et al., 2010, p. 43). Furthermore, the study’s results suggest that increased investment in entrepreneurship education in LAC, whose countries’ development and competitiveness are based on production factors and their efficiency, will not translate into increased entrepreneurial activity as is typical in innovation-based economies. Two possible reasons are given for why training will not translate into increased entrepreneurial activity. First, the study indicates that there may be limitations that restrict the impact of training, such as inadequate infrastructure, economic instability, and market and technological conditions. Second, the authors indicate that the quality of training may be poor.

Higher education programs in science and engineering are unpopular, and this seems to be related to inadequate and declining preparation in reading and sciences at the K–12 level, as evidenced by international exams in the United States. This situation is also occurring in LAC, where the levels of primary and secondary education are very deficient. This phenomenon has motivated the Organization of American States (OAS) to promote the Engineering for the Americas program, which aims to develop quality human capital in the areas of engineering and technology as a way to compete with other economic regions.

Aware of the link between these two factors, the State of Georgia has created an Innovation Fund worth US\$19.4 million to support the establishment and strengthening of alliances between schools, higher education institutions, businesses, and non-profit organizations to advance the applied learning and good performance of the state’s K–12 students, especially in science, mathematics, and technology. The Brazilian Government announced the Science Without Borders program, which will invest US\$2.02 billion on 75,000 scholarships in science and technology. The initiative will send candidates to study abroad and will assign almost half of its resources to students in doctorate programs (Gardner, 2011). Similarly, in Costa Rica, Intel announced that it will invest US\$1 million toward promoting education in sciences, mathematics, and engineering. Every year, in collaboration with the National Science Fair Commission and the Ministry of Science and Technology, Intel sponsors science fairs for primary and secondary school students (<http://www.intel.com/about/corporateresponsibility/community/costarica.htm>).

During the last 15 years, the popularity of technology incubators in certain countries of LAC that have shortfalls in critical reading — according to the definition provided by Harris and Hodges (1995) — and in the sciences, indicate that the requirements for technological innovation are not well understood. What is sought is the creation of a critical mass of innovative entrepreneurs rather than special cases, as distinguished in the following expression: “yes, but we achieved one (a successful innovation-based start-up).”

According to Tiffin (2004), “entrepreneurial spirit is a concept that has recently become in vogue in Venezuela. The belief is that it is going to solve the current ills afflicting the country, especially sub-employment and low production capacity, but there is no real understanding of what the entrepreneurial spirit involves and how this relates to innovation and development. The general perception is that a large part of the Venezuelan population is not educated or prepared to carry out complex technical and technological work,” (p.51). This statement on innovation-based entrepreneurship in Venezuela can be extrapolated to most countries in LAC where emphasis has been erroneously placed on business plan training instead of the development of education in fundamental areas of knowledge essential to the development of an innovation base.

Innovative Entrepreneur Development Initiatives

One of the drawbacks we experienced in preparing this paper was the lack of validated measurements of innovation. There are indicators for the levels of invention in a country — such as investment in research, development, and innovation — but measurements of marketing are lacking, such as licenses, which is a more accurate point of reference for technological innovation. However, entrepreneurship and innovation programs in the United States, where universities are an essential part of the most prominent innovation and entrepreneurship ecosystems, are worldwide role models. Stanford University, Babson College, and Georgia Institute of Technology (Georgia Tech) are success stories in areas with different demographic and cultural characteristics.

Stanford University

Stanford University is in Silicon Valley, the most popular innovation ecosystem in the world, where capital, knowledge, and international talent converge to develop the most valued innovative companies in the market. Stanford follows a science-based model, similar to those of Harvard University and Massachusetts Institute of Technology (MIT), taking advantage of the combination of various subjects and a close relationship with the Valley community.

Design thinking, applied by Stanford University and made famous by the IDEO design company, is based on principles that can be taught or utilized by people with diverse academic levels. Design Thinking can be described as a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity (Brown, 2009).

Georgia Institute of Technology

In Atlanta, the innovation ecosystem is built around Georgia Tech, where centers of technological transfer converge, such as the Advanced Technology Development Center (ATDC), a technology business incubator; the Technology Association of Georgia (TAG); the Georgia Tech Research Institute (GTRI), the cutting edge applied R+D organization of Georgia Tech; and most importantly, a growing population of youth educated in engineering (Cortright and Coletta, 2005).

While Georgia Tech's management program conducts business plan competitions, the engineering program organizes competitions for innovation-based start-ups (InVenture Prize @ Georgia Tech). Engineering degrees include coursework with global perspectives and creativity, and conclude with at least one course where student teams must design and create prototypes, such as the Capstone Design course (www.capstone.gatech.edu).

The ATDC recruits entrepreneurs with some type of intellectual property, a service that can be commoditized, or any other technology start-up with high growth potential. It periodically organizes open round tables for community entrepreneurs where a business formation specialist facilitates sessions for approaching and solving typical problems in the formation of businesses.

The GTRI is a living laboratory for science and engineering students. This institution serves as a bridge between academia and industry. In some cases, the State of Georgia channels taxes collected from certain traditional industries for technology developments that can enhance the growth of that particular industry.

Babson College

Babson College, which is internationally recognized as a leader in entrepreneur education, offers an entrepreneur education program that follows the cycle of creating a new business and introduces fundamental management concepts within the context of entrepreneurial thinking. Furthermore, the program places emphasis on a holistic and integrative learning approach that eliminates the barriers across different business administration subjects, converting entrepreneurship into a lifestyle. At Babson, entrepreneurship is defined as a way of thinking and acting. It is applied in every class and co-curricular activity and is a way of life for students on campus.

The program develops competencies such as creativity, action-oriented conduct, passion, risk taking, and holistic thinking. It also develops competencies such as leadership, teamwork, and communication. Students examine real business problems, analyze case studies, and participate in practical business training and competitions where they must develop their innovation and entrepreneurial capabilities. Moreover, they gain real experience by studying, visiting, and making presentations at local companies.

Other Countries

In Finland, the Demola program won the annual innovation Assembly of European Unions (AER) Award, which places emphasis on open innovation entrepreneurship. The program serves to bridge academia and the needs of society with a value proposition that consists of focusing on creative action (not on publishing papers), turning needs into prototypes (licensing project results), and creating new jobs and business. The program is sponsored by Hermia, Ltd., an institution that promotes networks, matches opportunities, and accelerates capabilities (www.demola.fi).

Singapore, the country with the highest economic growth rate in the world in 2010, has taken advantage of authoritarian order and discipline to differentiate itself on the basis of specialized core knowledge

combined with an entrepreneur education whose axis of innovation was founded on cooperation. Instead of copying the approaches used by models of the most influential ecosystems, such as Silicon Valley, Harvard, or Cambridge, which start off with abstract ideas and move on to concrete marketing actions, Singapore follows a bottom-up approach, moving from concrete modest achievements to abstract ones (Hampden-Turner, 2009, p. 39).

According to a BBC global survey, Indonesia is the best country in the world for entrepreneurship (Walker, 2011). During the Regional Entrepreneurship Summit, Gita Wirjawan, Chairman of the Indonesian Investment Coordinating Board (BKPM), indicated that to achieve an annual growth rate of 7 percent in the next 10 to 20 years, “the country needs to invest in education, promote risk-taking and networking,” (Zainuddin, 2011).

In South America, *Fundación Chile* is an example of how to transform traditional industries into world class centers for innovation and entrepreneurship. According to Alejandro Valencia, Entrepreneurship Platform Director, the foundation’s critical success factors are

- maintaining an open dialogue with both the public and private sectors,
- maintaining an open innovation model from the start,
- relying on development areas with high technical levels, and
- efficiently managing the project portfolio.

Solid government support has made the institution viable. Furthermore, according to Valencia, the most valuable criteria used to “discover” a start-up is the structure of the human team backing the business. Recently, Start-Up Chile, an initiative supported by the government, applied the reverse process of attracting international talent with the aim of achieving innovative enterprises while offering good living conditions to the entrepreneur and a market of 80 million people through the free trade agreements that it has signed with other countries.

As observed in the salmon and wine clusters in Chile, which have been axes of innovative entrepreneurship, start-ups can have a greater impact when they relate to the most dynamic sectors of the economy. Clusters are “large enough to be able to reach a critical mass of enterprises, institutions, infrastructure, and talent, and small enough to promote [the] close interaction ... required to innovate and compete in a global economy,” (Gabriel et al., 2008). According to Ramos (2011) “the cluster approach allows reducing the perception of risk by distributing it, along with corresponding benefits, amongst the different actors. In turn, innovation is given a boost through the interaction of different experiences, concerns and points of view.”

Also in Chile, the business powerhouse Octantis supports the development of entrepreneurs by offering tutorials by industry experts. It encourages the formation of “corporate entrepreneurship” in order to promote spin-offs from its existing business and the related environment.

In Costa Rica, a country that has created coherent government policy, the Costa Rican Institute of Electricity (Spanish acronym: ICE) combined pride and dignity to develop a generation of engineers and talent that accelerated the qualitative progress of new businesses. This was later consolidated with higher education institutions such as the Costa Rican Institute of Technology and the INCAE business school, moved from Nicaragua. Similarly, in Brazil, entrepreneurship programs are centralized in engineering schools, which contribute the industrial engineering and product development perspectives (Tiffin, 2004).

Entrepreneur Park in Colombia (Park E) has the peculiarity that is the result of the mayor of a city (Medellin) and a university (the University of Atioquia). To promote entrepreneurial culture, the Park has online diagnostic tools available to the general public that can be used to assess business ideas and develop business plans. Further, it mobilizes its team of professionals to different communities to train and advise entrepreneurial projects. Meanwhile, the Foundation of Software Technology Park (ParqueSoft) has formed a cluster to support entrepreneurs from marginal communities to launch companies engaged in the design and production of software and related services. With its policy of “zero bureaucracy,” this non-profit organization is characterized by the relevance that gives to its entrepreneurs, who form the board of directors, outsource work among themselves, and select new entrepreneurs to join the group. In the selection process, a business plan or the entrepreneur’s resume is less important, according to the Schwab Foundation for Social Entrepreneurship. Most important is “the desire [of the entrepreneur] to invest their energy, passion, and talents, to take risks and to work hard to achieve their goals.”

Classified by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as one of the top five countries with the best literacy rates, Barbados is the country in the Caribbean with the best innovation index. In Barbados, the Caribbean Research Innovation and Entrepreneurship Network, which defines itself as “a network of people and organizations dedicated to advancing economic and social progress in the region through the application of science, technology, and innovation,” (www.rienet.net) supports innovation projects that resolve endogenous needs.

In Israel, companies have used the strategy described by Ray (2004, p.75) that proposes establishing R&D in the country of origin, while opening a subsidiary in a country with a larger market. The subsidiary will license the technology and rights of products made at headquarters to obtain risk capital and build an operational company. This strategy is being emulated in countries such as Finland, Ireland, Austria, New Zealand, and Singapore with the support of local corporate sponsors, risk capital companies, incubators, and governments.

Development and Implementation of a New Model

The goal in Latin America and the Caribbean is to increase dynamic and high-value start-ups by transforming the business needs of high-growth companies. This will be achieved by adequate levels of differentiation and organization or by attracting entrepreneurs with good potential for starting high-value businesses. In both cases, a new education model centered on entrepreneur development, along with

other elements in the ecosystem, can play an important role in producing a significant impact on the quality and quantity of start-ups in the region.

The innovation and entrepreneurship models that serve as points of reference have undergone decades of gestation and evolution until they became what they are today. If an education system wants to transplant elements of one of these ecosystems, those initiating the new program often forget that what is visible to the eye is merely the tip of the iceberg. For example, to say that one is following the Babson education model by offering similar classes downplays the power of a campus environment and a teaching method that develops a way of thinking (the mindset) of the entrepreneur, considered by the experts at that university to be the essence of the program. Likewise, it is not enough to take the design thinking methods of Stanford and separate them from the emphasis that is placed on active learning, a multidisciplinary approach, deepening knowledge in the sciences, and the ecosystem that has been developed in Silicon Valley.

The entrepreneurship model that we propose is described in the three sections that follow:

1. Entrepreneur Education
2. Promoting the Value of Entrepreneurship and Innovation
3. Development of a Supportive Ecosystem

To maximize the efficiency of the model, the process must be performed in an integrative and accelerated manner to achieve the successful cases that will nurture this movement.

Entrepreneur Education

Entrepreneur education is critical for successful innovation. This section discusses the proposed methodology, the intended audiences, and the importance of introducing core knowledge to activate the innovation process, as well as the need to change the mindsets that can hinder the process.

Entrepreneur Education Program

Methodologically speaking, the program hinges on design thinking, case analysis and simulations, and active learning for developing the competencies required for the arduous task of starting a new business. Conceptually speaking, competencies are developed to understand the external business environment, assess the capabilities and resources of the entrepreneur and his team, and build and analyze business models for the new business, while using companies doing similar or opposite things as reference models (Mullins and Komisar, 2009).

Design thinking is a central axis of the program and combines entrepreneurial case studies and the discussion of core concepts of market, sector, and trend analysis. Particularly helpful for generating innovations, this methodology can be used to understand consumer-users, channels, competitors, and suppliers through simple observation without relying on public data. It also develops the ability to view existing processes from a different perspective by identifying innovation opportunities. Its experiential orientation can boost real- or digital-world product or service innovations. While emphasis is placed on learning by

doing, this introduces the practice of fundamental skills and the development of competencies such as teamwork, leadership, self-confidence, and exploration and reduces fear of failure.

Entrepreneurship education has gone from teaching how to prepare a business plan to focusing on the development of a way of thinking and acting, as well as on the process involving ideation, creating a business, and managing its growth, as exemplified by Babson's programs. Mullins and Komisar (2009) argue that the process of jumpstarting a new business is hampered by misconceived business plans based on unproven suppositions and rigid business models. They suggest that the success of companies like Google, PayPal, and Starbucks required making radical changes to their original business plans and they propose a process for testing the initial idea and using the information obtained during the jumpstart phase to make corrections to the business model, allowing the company to achieve positive results. Along these same lines of thought, Blank (2006) argues that entrepreneurs must go out in the field and spend time on the process of customer validation.

Entrepreneurs must learn to master design thinking because it will allow them to offset the limitations in countries in Latin America, such as scarce secondary data sources, and lack of availability of laboratories and experiential classes, taking greater advantage of the potential capabilities of entrepreneurs, including people with little education. The intention is to convert university and educational centers into laboratories where students can develop their creativity, innovation capabilities, and mindsets through practical creativity exercises (Seelig, 2009, p.1).

Like a new baseball or football player, entrepreneurs must forge their knowledge, skills, and talents in specially designed practices to be prepared to face the challenges of innovation in an open and competitive market. Following this analogy, in sports, specific exercises improve the physical conditions of a new player: running, weight training, flexibility, and practicing routines of the game like throwing or batting or moves that develop teamwork. Finally, matches are played to put into practice what was learned. The entrepreneurship and innovation development centers must follow these types of routines to educate entrepreneurs in real entrepreneurial competencies.

Broadening the Scope of Programs

Since a significant proportion of quality innovation-based start-ups arise in higher education contexts, universities must reorganize and foster entrepreneurship in all degrees. Entrepreneur education programs should be included in all areas of study, not only business administration, since students from other areas have core knowledge that can open up opportunities for entrepreneurial enterprises based on knowledge or high-value technology. Furthermore, all fields of study should include the entrepreneur design-thinking course in their curricula, and when changes are introduced to the curricula, this subject should be made an elective, fostering the formation of groups of students from diverse areas of study, thus maximizing diversity in work groups. These materials can be delivered through intensive workshops called Boot Camps and can be offered through continued education programs to reach the great mass of professionals, employees, and unemployed individuals with an interest in entrepreneurship.

Following the model of sports academies that have served to take Latin American and Caribbean talent to the world's major leagues, entrepreneurship and innovation education centers can be spread throughout schools, colleges, and community centers or professional education centers, physically or virtually, to equip future entrepreneurs with the competencies needed to create a business on the basis of differentiated and innovative ideas. Fostering teamwork and collaborative entrepreneurship with peers is essential for gaining experience in the difficult process of starting a new business.

Similar to franchises, the center's sponsors must be trained in the innovation-based entrepreneurship methodology, as well as in the guidelines on how to successfully manage a center. At the end of their training program, they should receive learning guidelines (Tool Kit) similar to the Multilateral Investment Fund's Learning Guide for Dynamic Entrepreneurship Projects, though excluding the guidance for incubators. Rather than replace incubators, these centers really educate entrepreneurs about how to start a new business, while fulfilling all of the characteristics required by incubators.

The sports operations model can also shed light on the difficult task of identifying and channeling talent for entrepreneurship and innovation. Proactively recruiting entrepreneurs, instead of doing so reactively as has been done up to the present, can strengthen the innovation process for many talented people that exit the traditional educational system or get bored in class. Many individuals have not come to realize that they have entrepreneurial qualities and need a talent scout to discover their hidden talents such as in baseball or football. In addition, these innovation talent scouts proactively seek individuals with core knowledge.

Teaching Core Knowledge

A common denominator of technology-based businesses in developed countries is the mastery of a core knowledge area. Identifying core knowledge in the technology field, such as new programming languages, experimentation on molecular biology, sector studies, or trends, may assist and guide entrepreneurs in their search for high-value opportunities.

Although it is commonly assumed that ideas take shape in the air, Johnson (2010, p. 35) claims that good ideas are created from a collection of existing parts. Some are concepts, such as approaches for problem solving or new definitions of what constitutes a problem, while others are literally the product of mechanical parts, like new measurement and analysis equipment. These new platforms serve to launch innovations; for example, the increase in speed of Internet services opened the way for a video sharing service like YouTube. Its rapid launch was facilitated by the use of Adobe's Flash as a video serving platform because it allowed its founders, Hurley, Chen, and Karim, to concentrate on the ease of sharing videos and comments instead of investing millions of dollars in developing a new video standard from scratch (Johnson, 2010, p. 40).

Without there being a qualitative and quantitative leap in the teaching of core knowledge, dynamic innovation-based entrepreneurship is doubtful. To compete globally in innovation, for example, it is critical to

know how to interpret patents and other forms of intellectual property to take advantage of these innovation knowledge platforms — the lower the levels of knowledge, the lower the value of new businesses.

The Right to Explore, Dissent, and Fail

To allow the exploration and search of innovative solutions, entrepreneurial training and communication campaigns should help eliminate the failure stigma and the “do not invent” and “do not dissent” paradigms. Stephen Flemming, Director of Georgia Tech’s Enterprise Innovation Institute, affirms: “we have a history of risk-taking, of capital fluidity, and of tolerance of failure that has made the United States the best place in the world to start a company.” A culture that values experimentation and exploring the unknown should be created in LAC.

Einstein said: “Anyone who has never made a mistake has never tried anything new.” A part of the story that goes unsaid is the time that innovators spend trying to solve the problems they face in their businesses. Berkun (2010, p. 62) defines entrepreneurship as the sum of frustration and innovation. What is certain is that error is inherent to innovation and should not be penalized, hence the “do not invent” paradigm should be eliminated from the root, since fear of failure is evidently brought about by the stigma of being permanently considered a loser. If one really wants to innovate, both tolerance of failure and persistence should be increased.

In addition to the advantage of creating a risk-taking culture, the complexity of certain problems that remain unsolved makes the development of inductive thinking necessary for innovating in technology. Likewise, it is easier to provide training in experimentation processes than in theoretical physics, for example, which opens the possibility for LAC countries to enter the field of technology innovation entrepreneurship. In this sense, a bottom-up innovation ecosystem such as the one followed by Asian countries seems more viable.

Promoting the Value of Entrepreneurship and Innovation

The promotion of an entrepreneurial culture is often pushed into the background. In other cases, it is understood that the mere existence of magazines and television programs covering the subject are sufficient. The quality of the material being prepared or disseminated is critical to educate audiences and achieve an adequate understanding of the reasons for the success or failure of businesses. There is a need for professionals to identify, study, and prepare case studies on successes and failures, which must be carefully analyzed and communicated in a simple and motivating language to highlight vital components of the entrepreneurial process. Education should not stop at the university or community classroom; it should be open, continuous, and permanent by means of the massive diffusion of business cases. The importance of entrepreneurship and innovation for the development of the region’s countries requires the unleashing of an epidemic that will spread the entrepreneurial virus to everyone. Applying the principles of contagion in a social network, the diffusion in the media of stories and interviews of entrepreneurs will facilitate the creation of a context susceptible to the propagation of the entrepreneurial virus, provided that a catchy message is delivered using effective design and production (Gladwell, 2000).

Without a doubt, conferences given by successful entrepreneurs are very motivating. Their stories are wide reaching when they are disseminated through adequate means and are analyzed by experts that draw the principal lessons and compare and contrast these initiatives with other cases of success or failure. Books, articles, and cases by internationally renowned entrepreneurs are very illustrative; however, future entrepreneurs and other audiences may relate better to the stories and cases of local entrepreneurs.

A good dose of creativity and innovation is required for the preparation of teaching materials and to spread the entrepreneurial virus. In past years, business novels have served as an ideal means of teaching concepts that are difficult to learn the traditional way. Komisar's (2001) novel *The Monk and The Riddle* illustrates the weaknesses of entrepreneurs that seek risk capital financing with a business plan based on general market information and very little understanding of reality. In the Dominican Republic, the novel *Aguacates Juan: Cómo iniciar y triunfar en los negocios* by Lorenzo Vicens (2008) has become a textbook for entrepreneurs and university students. Novels, storybooks, and exercises can be included as part of educational programs at primary and secondary schools or for people with little academic training. These simple stories, narratives, and anecdotes are an ideal means of reaching all audiences in an entertaining and effective manner.

The entrepreneur education process must incorporate public policymakers since they should be aware of the importance and potential of education in developing innovation and entrepreneurship capabilities and the impact on society. Furthermore, they must understand the impact that their decisions have on this process.

This cultural change can take advantage of social networks to create virtual spaces, communities, or nodes where entrepreneurs can exchange ideas, find knowledge resources and know-how, and share ideas with potential investors, advisors, or other service providers to promote national and international exchanges. In many countries, numerous Internet sites, blogs, magazines, and radio or television programs address the subject of innovation and entrepreneurship; however, all of these individual efforts could have a larger impact if they were connected in one big digital community.

Development of a Supportive Ecosystem

An innovation ecosystem can be established with clusters of entrepreneurs, since greater possibilities of innovation will arise with the growth of the ecosystem and with greater experimentation possibilities for its members (Johnson, 2010, p. 17). By the same token, the capacity for innovation increases exponentially with population size because, among other reasons, a wider audience is reached and this opens up the possibility of studying the same problem from different perspectives. Additionally, the connection with enterprises in a cluster allows an entrepreneur to have access to potentially faster payment by clients, supplier credit, and investment funds by complying with such investment decision factors as market needs and accessibility.

The search for capital required to build a high-value enterprise is challenging. Fortunately, the amounts required for technology-based investment projects have dropped considerably with the advent of cloud

computing, which allows the delivery of computing services via the Internet. Brown (2009) indicates that investment costs in the technology platform can drop by 10% of their value a few years ago, and additionally, cloud services simplify operations and facilitate scaling.

The level of investment in businesses varies as does the level of risk. Based on available resources and the possibilities of obtaining financing or raising capital, an entrepreneur and his/her work team and advisors will have to analyze the different ways to build the company. Many entrepreneurs in Latin American countries are financed by remittances they receive from family members living abroad; however, these businesses have a high failure rate. This existing source of financing can be better channeled to generate higher entrepreneurship value.

Moreover, enterprises discard many ideas that could be put to good use by employees who are interested in starting their own business, especially ideas with high growth potential. Outsourcing activities that are not core competencies of enterprises has brought about the establishment of many businesses that today successfully offer services in the open market. It is worthwhile exploring innovative programs to motivate and encourage entrepreneurs to support spin-offs of the core businesses of companies.

Furthermore, many valuable business opportunities are lost due to the lack of specialized advice or minimal capital that can be invested by angel investors with a lot of experience. Creating spaces for entrepreneurs and experts to interact can be more interesting than taking an idea to an incubator where internal personnel determine the quality of the advice. Training programs on how to become an angel investor, such as the one offered by the IESE Business School of the University of Navarra in Spain, can enhance the development of these investors in Latin American countries. Likewise, training programs on investment risk management can be designed (www.iese.edu).

In LAC, many local companies have been bought by multinational firms, and this has resulted in large numbers of millionaires with liquidity in search for investments. Properly managed and well-devised business proposals will surely find sources of financing if they are based on an understanding of the market and the sector, have a proven and passionate start-up team, and develop financial projections within a realistic framework.

The promotion of regional innovation and entrepreneurship networks can enhance development in the region by combining and complementing talent, resources, and technology; it can also allow ideas to transgress borders and receive the support of the most convenient ecosystems. The international leverage strategy proposed by Ray (2004) can be applied to promote innovative businesses that require an international infrastructure and financing structure to fully exploit their innovation potential. This method can apply to R&D businesses as well as to market opportunities, and the internationalization of local concepts. In this way, the entrepreneur avoids country-specific limitations and develops his/her enterprise in an innovation-based economy.

To support the entrepreneurial and innovation process, fostering the creation of mentor and specialized advisor networks is important to provide guidance and support during the critical moments of the con-

ception and start-up of new businesses. Such networks facilitate the building of businesses and marketing inventions, while creating spaces that serve to accelerate information and financing flows between academia, government, and industry. They also promote the conversion of non-government organizations (NGOs) and universities into centers for technology transfer to connect students with the fastest growing industries in each region.

In conclusion, the proposed entrepreneur development model implies a change in paradigm:

- From an approach based on the development of ideas to one based on the development of entrepreneurial talent.
- From placing emphasis on the preparation of business plans to providing entrepreneurs with the capability of identifying opportunities based on observation, producing creative solutions, and learning while making prototypes.
- From programs that include entrepreneurship classes in their curricula to the incorporation of an entrepreneurial culture in all academic phases.
- From the establishment of incubators waiting for innovative business ideas to the creation of entrepreneur development centers that create entire businesses.
- From waiting for an entrepreneur to have an idea to proactively searching for individuals with entrepreneurial talent.
- From focusing on technology-based businesses to supporting high-value businesses regardless of their knowledge base.
- From developing isolated programs to making business and innovation the engines of growth for the most dynamic sectors of the economy.
- From having a local approach to developing global businesses.

Public Policy Recommendations and Suggestions

The development of innovation and entrepreneurial capabilities is a key component of the competitive strategy of a country because it can serve not only to boost a given sector of the economy, but it can also generate completely new areas of opportunity. The preceding section set forth a model for entrepreneurship that is based on best practices and that adapts to the characteristics and limitations of countries in LAC. The creative combination of its elements in accordance with the circumstances and objectives of each particular country can accelerate its dissemination and, even more so, its results. The following is a recommended series of initiatives that can be implemented in the short to mid-term in a feasible and inclusive manner.

- **Business and Innovation Training:** The goal is to provide participants with the knowledge, abilities, and skills required for successful entrepreneurship and to participate in the innovation and business ecosystem. This includes the design of materials for entrepreneurs and other key actors in the ecosystem, such as angel or risk investors, mentors, and accelerators. Similarly, it includes the

development of professionals with capabilities to adequately replicate such training at different levels and types of intervention, and a massive training program ensuring the emergence of a critical mass.

- **Core Knowledge:** The objective is to introduce the technology and market knowledge needed to accelerate innovation and entrepreneurship. This includes the identification of required core knowledge, the recruitment of experts in the field at an international or local level, and training of high-level country personnel to serve as trainers and advisors in the network.
- **Development of the Business and Entrepreneurial Culture:** The objective is to position the entrepreneur as a hero, to develop a culture that promotes innovation and business, and to transform the entrepreneurial culture. This includes the formulation of a communication strategy, the production of materials (success cases and studies, etc.), promotions, and events. It also comprises the development of non-traditional mass media communications for disseminating contents to all priority audiences.
- **Innovation and Business Training Program for Clusters:** The objective is to improve the competitiveness of clusters and promote entrepreneurship and innovation. Main components include the identification of a cluster's needs and interconnecting them with entrepreneur centers and other innovation and business ecosystems.
- **School Entrepreneurship Program:** The goal is to develop an entrepreneurial culture starting from adolescence through the use of reading materials, mathematical exercises, and the study of stories related to entrepreneurship and innovation. The program includes the preparation of materials, trainer teaching, and the creation of a website for developing contents and facilitating exchange.
- **Angel Investor Program for Micro, Small, and Medium-Sized Enterprises:** The objective is to promote dynamic businesses using remittances from abroad and lower the failure rate of enterprises that are created with diaspora money. The program will support the establishment of NGOs managing innovations and capturing diaspora investments to finance innovative projects that guarantee a financial return to family members.
- **International Integration of Business and Innovation:** The objective is to promote business and innovation at the regional level, achieving networking with entrepreneurs in different countries. The program includes an invitation to groups of entrepreneurs from other countries to develop businesses with an international scope, such as the case of Start-Up Chile. Similarly, it includes combining innovation ecosystems of the region's countries and the development of multinational businesses, leveraging the benefits of each participating country.
- **Establishment of Innovation Management Institutions:** The objective is to establish NGOs to serve as innovation managers that free entrepreneurs from the administrative and operational load required in launching and marketing their ideas, following the example of Finland. This in-

cludes support for establishing these institutions and training the personnel required to manage and operate these centers.

- **Flexible Higher Education Programs:** The goal is to promote multidisciplinary education based on specific projects. This includes defining disciplines of interest and specific projects, the preparation of programs, and teacher training.
- **Alignment of Education, Science, Innovation, and Policies Related to Small and Medium-Sized Enterprises:** The goal is to attain the commitment of different organizations related to the sciences, technology, and innovation, as well as productive sectors to promote entrepreneurship, coherently coordinate public policy, and make institutional infrastructure more flexible to be able to respond to the demands of these sectors.

The innovation and entrepreneurship development model and the initiatives that have been set forth, in particular, have great potential for making important advances. Countries like Chile and Costa Rica are on their way toward implementing entrepreneurship models with characteristics similar to the ones that have been mentioned. Still pending is the execution of an integrated plan in different countries of the region to assess the impact with standardized metrics, sharpen the model, and amplify results. A firm commitment to this model can change the course of the region's economies.

References

- Berkun, S. 2010. *The Myths of Innovation*. Sebastopol, CA: O'Reilly.
- Blank, S. 2005. *The Four Steps to the Epiphany*. Cafepress.com
- Brown, T. 2009. *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*. New York, NY: Harper Business.
- Corduras, A., Levie, J., Kelley, D. J., SÆmundsson, R. and Schøtt, T. 2010. *Global Entrepreneurship Monitor Special Report: A Global Perspective on Entrepreneurship Education and Training* (PDF document online).
- Cortright, J. and Coletta, C. 2005. *The Young and Restless: How Atlanta Competes for Talent*. Atlanta, GA: Impresa, Inc. and Coletta & Company for Metro Atlanta Chamber of Commerce. Available at: http://www.smartcityconsulting.com/files/YNR_Report_Atlanta.pdf.
- Gabriel, T. B., Amorós, E. and Kunc, M. 2008. Innovation, entrepreneurship and clusters in Latin America: natural resource – implication and future challenges. *Journal of Technology, Management, & Innovation*. 3 (3): 52–65.
- Gardner, E. (August 4, 2011). Brazil promises 75,000 scholarships in science and technology. Retrieved from: <http://www.nature.com/news/2011/110804/full/news.2011.458.html>
- Gladwell, M. 2000. *The Tipping Point: How Little Things Can Make a Big Difference*. Boston: Little, Brown.
- Hampden-Turner, C. (2009). *Teaching Innovation and Entrepreneurship Building on the Singapore Experiment*. Cambridge, MA: Cambridge University Press.
- Harris, T. L., and Hodges, R.E. 1995. *The literacy dictionary: The vocabulary of reading and writing*. Newark, DE: International Reading Association.
- Johnson, S. 2010. *Where Good Ideas Come From: The Natural History of Innovation*. New York, NY: Riverhead Books.
- Kelley, D. J., Bosma, N. and Amorós, J. E. 2010. *Global Entrepreneurship Monitor: 2010 Global Report*. Retrieved from: www.gemconsortium.org.
- Komisar, R. 2001. *The Monk and the Riddle: The Art of Creating a Life While Making a Living*. Boston, Mass: Harvard Business School Press.
- Mullins, J. and Komisar, R. 2009. *Getting to Plan B: Breaking Through to a Better Business Model*. Boston, MA: Harvard Business Press.
- OECD. 2009. *Clusters, Innovation and Entrepreneurship*. Local Economic and Employment Development, OECD Publishing.
- Oppenheimer, A. 2010. *Enough with the Stories: The Latin American Obsession with the Past and Twelve Keys to the Future*. New York, NY: Vintage Español.
- Ramos, A. 2011. *Innovation and Entrepreneurial Links*. Retrieved from <http://clusterizando.com/2011/02/06/la-innovacion-y-la-vinculacion-emprededora/>
- Ray, D. M. 2004. Entrepreneurship and entrepreneurial support systems in Latin America. In: S. Tiffin, editor. *Entrepreneurship in Latin America: Perspectives on Education and Innovation*. Westport, Conn: Praeger.
- Seelig, T. 2009. *What I Wish I Knew When I Was 20: A Crash Course On Making Your Place in the World*. New York, NY: HarperCollins Publishers.
- Tiffin, S. 2004. *Entrepreneurship in Latin America: Perspectives on Education and Innovation*. Westport, Conn: Praeger.
- Vicens, L. 2008. *Aguacates Juan: Cómo iniciar y triunfar en los negocios*. Santo Domingo, DR: Grupo Editorial Norma.
- Walker, A. (May 25, 2011). Entrepreneurs face global challenges. *BBC World*.
- Zainuddin, S. (July 24, 2011). Clinton Gives Pep Talk to Indonesia's Entrepreneurs. Retrieved from: <http://www.thejakartaglobe.com/business/clinton-gives-pep-talk-to-indonesias-entrepreneurs/454943>

Bibliography

- Angelelli, P. and Prats, J. 2005. *Promotion of Entrepreneurial Activity in Latin America and the Caribbean: Suggestions for Project Formulation*. Retrieved from <http://www.buenastareas.com/ensayos/Emprendedores/2007099.html>
- Arriagada, P. 2004. Teaching Entrepreneurship in Chile: The UDD Case. In: S. Tiffin, editor. *Entrepreneurship in Latin America: Perspectives on Education and Innovation*. Westport, Conn: Praeger.
- Bortagaray, I. and Tiffin, S. 2000. *Innovation clusters in Latin America*. Retrieved from <http://in3.dem.ist.utl.pt/downloads/cur2000/papers/S11P01.PDF>
- Christensen, C.M., Cook, S., and Hall, T. 2005. *Marketing Malpractice: The Cause and the Cure*. Retrieved from <http://hbr.org/2005/12/marketing-malpractice/ar/1>
- Drucker, P. 1993. *Innovation and Entrepreneurship: Practice and Principles*. New York, NY: HarperBusiness.
- European Commission. 2008. *Entrepreneurship in Higher Education, Especially in Non-business Studies* (PDF document). Retrieved from http://ec.europa.eu/enterprise/policies/sme/files/support_measures/training_education/entr_highed_en.pdf
- Fayolle, A. 2007. *Handbook of Research in Entrepreneurship Education*. Cheltenham, UK; Northampton, MA: Edward Elgar.
- Gontovnik, M. 2010. *Tracking Transnational Shakira on Her Way to Conquer the World* (PDF document). Retrieved from <http://redalyc.uaemex.mx/redalyc/pdf/853/85317326010.pdf>
- Hermia. 2011. *Professional in Innovation and Technology Transfer*. Retrieved from http://www.hermia.fi/in_english/
- Hisrich, R.D. and Peters, M.P. 1998. *Entrepreneurship*. 4th ed. Boston, MA: Irwin McGraw Hill.
- Jawharkar, H. 2007. *Design Thinking for Business Strategy*. Retrieved from <http://www.scribd.com/doc/33292295/Design-Thinking-for-Business-Strategy>
- Kantis, H. 2008. *Contributions for the Design of National Entrepreneur Development Programs in Latin America*. Retrieved from <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35166775>
- Khalil, M. A. and Olafsen, E. 2010. *Enabling Innovative Entrepreneurship Through Business Incubation*. Retrieved from http://siteresources.worldbank.org/INFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/Resources/ChapterKhalil_Olafsen.pdf
- Khramkova, E. 2009. *Creativity Thinking or the Ability to Connect to What Is Outside the Box When You Are Inside It* (Powerpoint slides). Retrieved from <http://www.slideshare.net/Lumiknows/creativity-design-thinking-and-how-these-have-to-do-with-innovation-entrepreneurship>
- Kirby, D. A. 2004. 14th Annual IntEnt Conference: *Entrepreneurship Education and Incubators: Pre-incubators, Incubators and Science Parks as Enterprise Laboratories*. University of Napoli Federico II, Italy.
- Lee, L. and Wong, P. 2007. Entrepreneurship education: A compendium of related issues. *International Handbook Series on Entrepreneurship: The Life Cycle of Entrepreneurial Ventures*. 3 (2): 79–105.
- Lewis, M. 2006. *The Blind Side: Evolution of a Game*. New York, NY: W.W. Norton.
- Living lab. (n.d.). In *Wikipedia*. Retrieved from http://en.wikipedia.org/wiki/Living_lab
- Mohamed, Z., Rezai, G. and Shamsudin, M. N. 2011. The effectiveness of entrepreneurship extension education among the FOA members in Malaysia. *Current Research Journal of Social Sciences*, 3(1): 17–21.

- Multidisciplinary Design Network. 2010. *Multidisciplinary Design Education in the UK*. Retrieved from <http://www.designcouncil.org.uk/publications/Multi-disciplinary-design-education-in-the-UK/>
- O'Connor, A., Seet, P., Ahmad, N. and Mukhtar, D. 2009. *Business Incubation and Entrepreneurial Competencies: An Exploration of Relationships*. Retrieved from <http://www.swinburne.edu.au/lib/ir/onlineconferences/agse2011/000116.pdf>
- OECD (2010). *High-Growth Enterprises: What Governments Can Do to Make a Difference*. OECD Studies on SMEs and Entrepreneurship, OECD Publishing.
- Osterwalder, A. 2010. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Hoboken, NJ: Wiley.
- Owen, C.L. 2006. *Design Thinking: Driving Innovation*. Retrieved July 17, 2011 from <http://www.bpminstitute.org/articles/article/article/design-thinking-driving-innovation.html>
- Pittaway, L. 2005. Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*. 25 (5): 479–510.
- Poblete, C. and Amorós, J. E. 2010. *Conditions of the Entrepreneurship Context in Chile: A Five-Year Analysis*. Retrieved from <http://negocios.udd.cl/files/2011/05/GEM-5-AÑOS-completo-FINAL.pdf>
- Potter, J. 2008. *Entrepreneurship and Higher Education*. Paris, France: OECD
- Robertson, C. J., van der Hoek, A. and Kallman, R. 2008. Kola real's low-cost international expansion strategy. *Thunderbird International Business Review*. 50: 59–74. doi: 10.1002/tie.20174
- Schauer, B. and Whitney, P., editors. 2005. Proceedings from Institute of Design Strategy Conference (2005): *Perspectives on Design and Strategy*. Chicago, IL: Institute of Design, IIT.
- Stain, S. 2010. *The Design Mind: Fueling Entrepreneurship with Design Thinking*. Retrieved from <http://ideas.economist.com/blog/design-mind>
- Schwab, K. 2010. The Global Competitiveness Report 2010–2011. Retrieved from http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf
- The Bay Area Council Economic Institute. 2008. *The Innovation Driven Economic Development Model: A Practical Guide for the Regional Innovation Broker*. Retrieved from <http://www.bayeconfor.org/media/files/pdf/InnovationDrivenEconomicDevelopmentModel-final.pdf>
- Vicens (2011). *Entrepreneurs with a Global Mentality Sought*. Retrieved from <http://aguacatesjuan.wordpress.com/2011/04/11/se-buscan-emprededores-con-mentalidad-global/>
- Volkman, C., Wilson, K., Mariotti, S., Rabuzzi, D., Vyakarnam, S. and Sepulveda, A. 2009. *Educating the Next Wave of Entrepreneurs: Unlocking Entrepreneurial Capabilities to Meet the Global Challenges of the 21st Century (A Report of the Global Education Initiative)*. Retrieved from http://elientrepreneur.com/Entrepreneurship_Education_Report.pdf
- Von Kortzfleisch, H., Mokanis, I., Magin, P. and Bernasconi, M. 2010. *Entrepreneurial Design Thinking – A Living Lab Methodology for Scientific Entrepreneurship*. Living Labs Summer School.
- Wooldridge, A. April 15, 2010. The world turned upside down: A special report on innovation in emerging markets. *The Economist*.
- Zakaria, F. (June 5, 2011). The future of innovation: Can America keep pace? *Time*. Retrieved from <http://www.time.com/time/nation/article/0,8599,2075226,00.html>