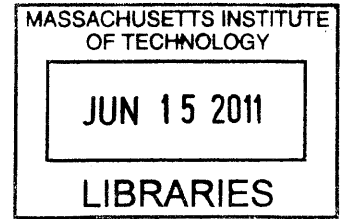


Startups Mexicanas: A Guide to Software Entrepreneurship in Mexico

by

Jorge Guzman



B.S. Electronics Engineering
Instituto Tecnológico de Estudios Superiores de Monterrey

ARCHIVES

SUBMITTED TO THE DEPARTMENT OF MANAGEMENT STUDIES IN PARTIAL
FULLFILLMENT FOR THE DEGREE OF
MASTER IN BUSINESS ADMINISTRATION
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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Signature of Author _____

MIT Sloan School of Management
May 20th 2011

Certified By: _____

Michael Cusumano
SMR Distinguished Professor of Management & Engineering Systems
MIT Sloan School of Management

Accepted By: _____

Debbie Berechman
Executive Director, MBA Program
MIT Sloan School of Management

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Abstract

This document investigates the possibilities of software entrepreneurship in developing economies, particularly Mexico, from an entrepreneur's perspective. It includes a broad analysis of the entrepreneurial environment in Mexico – venture capital, talent, regulation and market, in which it also touches on some topics that are relevant to the country today, like its growing violence trend.

After creating a picture of the current environment in the first chapter, the second chapter investigates three different business models to create globally successful startups from Mexico. The first one of these models considers incubating a company in Mexico and then moving that company into the United States. The second one talks about ways in which Mexican companies can be created with the intention of selling software in the American market from their first day. Finally, the third one investigates going for the software market in emerging economies rather than the American market. The chapter closes with a proposed model to evaluate each opportunity, using as a base Michael Cusumano's eight point framework from his book *The Business of Software*.

The third and final chapter presents three case examples of software business in Mexico that have had different levels of success, followed by some analysis. The businesses considered were two very successful ones, JackBe and Metroscubicos and one that had a lot of promise but could not materialize, Nibbo Studios.

The document's conclusion contains two lists of ideas for entrepreneurs to keep in mind. One called "Seven myths and realities of Mexican software entrepreneurship" tries to paint the real picture of Mexico's entrepreneurial environment, and the second one, named "Eight principles for entrepreneurs creating a Mexican software startup" provides guidance for entrepreneurs creating new companies.

Acknowledgements

To my parents, for being the foundation on which everything stands, and to my daughter Catalina, I hope this work inspires you to learn and develop yourself further than you plan.

Special thanks to:

My thesis advisor, Michael Cusumano

And all of those who participated in this study including but not limited to:

Luis Derechín – JackBe

Erik Lopez Jansen – Intel Capital Mexico

Alberto Osio and Hernan Fernandez – Angel Ventures Mexico

Sara Holloway and Fernando Fabre – Endeavor Mexico

Diego May – Junar

Geoff Grossbeck – MIT Legatum Center

Heberto Terecena – Inventmx / Metroscubicos.com

Pier Guillen - Purdue University / Nibbo Studios

Jorge Arguelles – MicroStrategy

Luis de la Garza – Neurik

Carlos Gamez – MIT Sloan MBA

Finally, to my wonderful wife, Aileen Charleston for her support, encouragement and love. And to my family, I have really missed being near to all of them during the last four years.

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Introduction

In March, 2011, Harvard Business School's Dean Nitin Nohria talked to the leading Mexican newspaper Reforma about his aspirations for Mexico. He mentioned that the recent economic crisis should be a wakeup call to Mexico to get back to the growth and competitiveness it experienced in the late 1990s, after signing the North America Free Trade Agreement (NAFTA). Dean Nohria explained that through the last decade Mexico has fallen into self-complacency thinking that as long as the United States did well, they would do well, however, it was time for Mexico to realize that the world where consumption is driven by the US and Europe does not exist anymore, and it should focus on leveraging the opportunities present in Latin America. "I think that México should understand they don't only have to compete in the US, but they need to compete in the whole world, that will be the secret to Mexico's future success [...] From being the unquestioned leader of Latin America, Mexico today runs the risk of being behind Brazil".

This is the Mexico we live in today. This is the Mexico that inspired this thesis.

It is my sincere belief economic growth comes from new businesses and, therefore, entrepreneurs. The growth depends on how much value-add is created and in today's information economy, software is still one of the highest value add products. This thesis explores how to create successful software businesses in Mexico.

The thesis is divided in three chapters. In the first chapter, I will present an overview of Mexico's software entrepreneurship environment including an analysis of capital sources, available talent and future prospects. In the second chapter, I will present three strategic models to create high growth software companies from Mexico. And in the third chapter, I will present three case studies of different Mexican software startups, some more successful than others, and do an analysis of themes in those cases. Finally, a conclusion outlining two information lists that can be extracted from this study: Seven myths and realities of Mexican software entrepreneurship, and Eight principles for entrepreneurs creating a Mexican software startup.

I hope you find reading this thesis as enlightening as I found writing.

A preceding comment on the current violence crisis in Mexico

In the last two years, Mexico has been internationally noted for the high levels of violent activity in the country. Though we could not write about the problem in depth in this thesis, one could not start talking about opportunities in Mexico without at least commenting on this point, which is in the minds of many individuals. Recent news about passengers being forced to step out of tourist buses and join the Zetas Cartel, or others of mass assassinations of Central American immigrants who were just traveling to the United States (Reforma, April 19th, 2011) have traumatized the public as acts of horror which cannot be accepted as part of a society. Undoubtedly, the security situation in Mexico feels much less safe today than it did a few years ago. However, how does this problem affect entrepreneurial opportunities?

In terms of the business environment, Mexico today has one of the lowest unemployment rates in the OECD (Gascón, 2010) and its main economic indicator, the Índice de Precios al Consumidor, grew by

6.7% in 2010, compared to 5% for the Dow Jones Industrial Average. John Lomax, analyst of emerging markets for HSBC London, gave his perspective to CNN in October of 2010, "Of course the issues related to drugs are a problem to Mexico. However, the Mexican economy has been operating in an expected and normal way. [... The drug problem] is a problem for Mexico, but it has not stopped the economic recovery." (CNN, Aaron Smith, 2010). However, there are other analyses that do suggest there is an impact, and in 2010, BBVA estimated that violence problems cost Mexico 1% of GDP (CNN, Jiménez, 2010).

Though these are only two data points, I conclude from them that though it is intuitive that violence would cause an effect in the economy, it is not clear how significant that is, or if it is even significant at all. One very important factor to note is that violence is actually localized mostly in border cities and rural towns which, except for Monterrey, are not good places at all to create software startups. It would be incorrect to assume that all of Mexico is extremely unsafe. As for Mexico City, which in this thesis will be suggested as the best city for a startup, I have heard anecdotally from people that it is much safer now than it has been in a long time.

The kind of bloody and grotesque violence that is occurring in Mexico is perfect material for news coverage, but entrepreneurs should not follow them completely and understand that violence is probably not a significant factor in creating companies. Mexico as a country has always had drug cartels and violent issues that arise, including other very covered cases like kidnappings by Daniel Arizmendi's gang in 1998 or the killing of the top presidential candidate of the PRI, Luis Donaldo Colosio, and its secretary general, José Francisco Ruiz Massieu, in 1994. Though it is worrisome and as citizens we certainly should be compelled to act on this issue, we should not confuse citizenship and business opportunities, and understand that businesses, in this case software startups, are in fact not materially impacted by the violence wave in northern Mexico.

I. The overall Mexican software entrepreneurship landscape

The first chapter of this thesis is an overview of the high-tech entrepreneurial environment in Mexico. It serves a dual purpose. First, it gives any entrepreneur reading it a general understanding of the country and the structural tools and challenges that he or she will have face when creating a company. Second, it will serve as a baseline in the analyses through other chapters of this thesis, where models and insights derived later will reference this information.

Most Mexican businessmen know, at least instinctively, that Mexico has been behind other countries when it comes to creating innovation-driven companies. They know that Mexico has challenges in its primary education system and that its economy is driven by exports of manufacturing, tourism, and services to the United States. They know that this lack of strong global companies is why, “When the United States gets a cold Mexico gets pneumonia.” (Anderson, Perez-Rocha, 2008) For more than fifty years, Mexico’s exports have been mostly services of car assembly, car part manufacturing, cement, cheap programmers, call-centers, *maquiladoras*, steel, warm vacations, and all sorts of intermediary goods to American companies (some innovative) and their executives.

This is Mexico’s past, but the future looks a little bit different. Mexico has changed its legal framework, its financial market framework, the availability risk capital and has made governmental and educational efforts to create an entrepreneurial ecosystem where high-tech companies can thrive.

The Nueva Ley de Mercados y Valores and its impacts

In 2006, the Mexican government created the Nueva Ley de Mercados de Valores (NLMV), or the New Law for Stock Market. The law was created to allow small and mid-size enterprises to obtain more and better financing privately or through the Mexican stock market, a stock market that had historically excluded small businesses from itself.

The NLVM creates two new types of corporation the SAPI, and the SAPIB, which complement the standard Sociedad Anónima, and are expected to allow companies to be ready for an eventual IPO (Hernandez, Ganoa, 2010). The following are some specific benefits of the NLVM:

1. The SAPI, a new corporation

The Sociedad Anónima de Promotora de Inversión (SAPI), which translates to Anonymous Society of Investors, is a new corporation figure for businesses. Compared to the United States, it is most similar to a C-Corp. Its intention is to create a regime where a small company would be automatically in a favorable position to seek private investment or grow into an IPO. In this respect, a SAPI addresses some of the main issues that exist with the Mexican de-facto corporation type to date, the S.A. de C.V.

A SAPI provides better governance, better protection to minority shareholders, and defines more clearly the roles of different players of the corporation, including board members, auditors, and the board (de

la Fuente, 2006). Entrepreneurs benefit from these changes. Adequate protection to minority shareholders is expected to unleash private investing and provide better valuations for their companies. In the past, because of a lack of good protection, venture capitalists and angel investors often required 51% participation in the companies they invested in. One reason was that, otherwise, they could not have much control over the company's direction.

A second issue with private investment on a S.A. de C.V. is the lack of transparency in Mexican corporations. Procedures that give an investor clarity in the operation and status of the firm were not well defined. At the same time, most companies did not enforce adequate rigor on their own operation, meaning that reliable financial and operating statements were not available even to themselves. These reasons, independently of the low protection of minority shareholders, discouraged investment from otherwise good companies. The SAPI solves these issues with detailed governance requirements including the roles and responsibilities of auditors, board meeting requirements and rights of board members. It therefore creates a common baseline of governance where entrepreneurs can easily show investors how the company will be managed and an investor can have the security that these requirements are mutually understood and legally binding.

An entrepreneur is also benefited from a more detailed specification of the role of board members in the NLMV. Another risk of private investment in Mexico is that sometimes investors try to control the company too tightly. The SAPI specifies the roles and responsibilities of board members clearly, creating a common contract that both parties can agree on and abide to.

2. Improvement and simplification of the IPO process.

Despite being the second largest in Latin America, the Mexican Stock Market has a low number of companies compared to the economy it supports. With a GDP of \$1 trillion, Mexico has only 137 publicly listed companies, compared to Brazil with 381 companies and a GDP of \$2 trillion and India's staggering 5,034 companies with a GDP of \$1.5 trillion (Lerner, 2010). There is a general lack of Mexican IPOs, a problem that the NLMV tries to address.

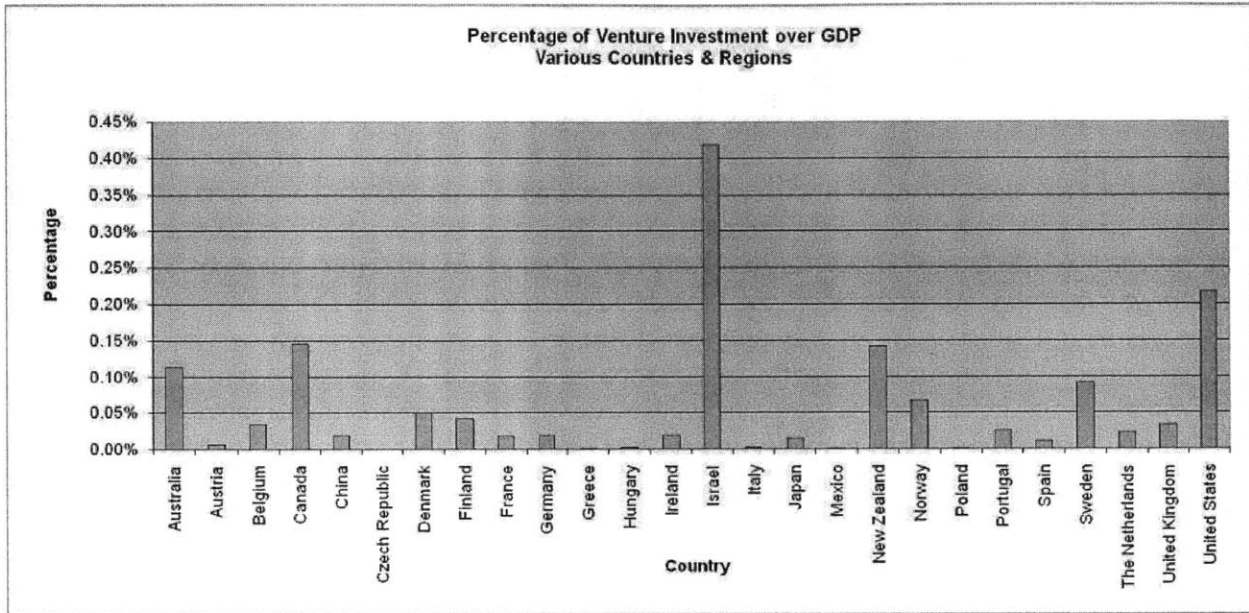
The SAPI plays a pivotal role in the new IPO process. The NLMV established a new intermediary regime for companies to become a publicly listed entity, called the SAPIB – a public company is called Sociedad Anónima Bursátil or SAB. A company can be a SAPIB for three years before either doing an IPO or going back into a SAPI. During that time, the company is allowed to register their stock and get listed in the Mexican Stock Market, without having to actually offer shares (Hernandez & Ganoa, 2010). This change is meant to allow companies to transition more easily into the public markets, without having to become a publicly traded company all at once.

Mexican Venture Capital and other financial items

Venture capital is a very small industry in Mexico. In an analysis done by Josh Lerner of Harvard Business School, venture capital in Mexico was measured at 0.0003% of GDP, which is many times smaller than the United States 0.22% or Israel 0.42%. In his analysis, Lerner admits that there were some difficulties with the data because the sources used only capture institutionalized investment, and that the data is from 2007, before some relevant policy changes meant to accelerate venture capital in Mexico took

effect (Lerner, 2010). However, these numbers still paint a sobering snapshot of Mexico and its investment community. Figure 1 shows investment levels in 2007 for different countries. In this comparison, Mexico is ranked amongst the lowest countries.

Figure 1: Venture Capital investment per country



Source: Lerner, Josh. Mexico Venture Capital Report.

Though the industry is small, some changes have occurred and they are expected to allow venture capital to grow more quickly in the near future.

1. A change of law allowing pension funds (AFORES) to invest in venture capital

The venture capital industry became into official existence in the United States when venture activity rose dramatically through the late 1970s and early 1980s. Many people attribute this growth to a change in the Employee Retirement Income Security Act’s “prudent man” rule in 1979. This change allowed pension funds to invest substantial capital in high-risk assets, and particularly venture capital (Lerner, 2010).

The Mexican pension funds (Afores) manage \$85 billion dollars and, as in the United States, are a prime source for long term investment. However up to 2009, they had not been allowed to invest in venture capital or private equity due to regulation. (Reuters, 2010) In November of 2009, the Mexican Stock Market (BMV) allowed the listing of Certificates for Development Capital (Certificados Bursátiles de Capital de Desarrollo – CKDs), these bonds are a new type of mechanism through which private capital can be accessed by Afores. The BMV also changed regulation to allow Afores to invest up to 11% of their capital in CKDs (Ferriz, Reyes, 2009). This creates a catalyst for venture capital and other types of private capital in Mexico. Overnight, a market of up to \$9.35 billion dollars opened up for venture capital funds to court as limited partners. It is expected that venture capital activity will rise promptly in Mexico and

some of that impact is starting to be visible. By January of 2011, Mexican Afores had already invested \$483 million dollars in private equity and venture capital combined. Growth is expected accelerate according to a study by Deloitte and the Mexican Association for Private Capital – Amexcap (Notimex, Jan 30th, 2011).

2. The creation of a fund-of-funds to invest in venture capital

Besides a change in the investment from Afores, Mexico took another positive step to accelerate venture capital in the creation of a fund of funds. A fund of funds is an organism funded by the government or other entities that takes limited partnership positions in other funds, therefore not actually doing any investments themselves. In this particular case, the fund was created by Mexican development banks to take a 20% position in the venture funds it invests. (Fondo de Fondos, 2010). This is a direct mechanism in which the Mexican government, through its development banks, is doing direct investment in entrepreneurship and private capital in the country. Appendix 1 shows the funds in which this fund of funds has invested and highlights the ones that are venture capital and not private equity.

There are also other formal financing sources available to Mexican entrepreneurs, many of which have been developed through the last few years. Some of them are:

1. The fund PROSOFT to accelerate software investments

The Program for the Development of the Software Industry (PROSOFT) is a program created by the Economics Secretariat in 2005 to accelerate both the demand and supply of software services in Mexico, and help Mexico grow into a leading provider of software as was planned in the National Development Plan 2001 – 2006 (Canales, 2005). It offers temporary subsidies to companies doing software projects and supports projects in R&D, personnel training, services and business process work related to software initiatives.

Investments are usually around \$50,000 dollars and can be up to \$200,000, and PROSOFT can contribute up to fifty percent of the cost of a project (Canales, 2005). This program should be considered and well understood by many entrepreneurs, as this money might serve both as seed funding for product development, or as a way to create liquidity for clients that would not be able to afford a solution otherwise.

2. CONACyT

The Mexican National Science and Technology Commission (CONACyT) offers some funding for new ventures, the most relevant of which is their program Última Milla (Last Mile) which specifically aims to support the creation of high value add organizations that can create technology into meaningful businesses.

Capital availability is improving in Mexico and recent changes are likely to accelerate this rapidly. For an entrepreneur, this could be a very good time to seek capital as there will be many new funds that will need to be invested through the next few years. This is a case where a smart entrepreneur would be wise to see that future performance is probably not going to be like past performance, because the

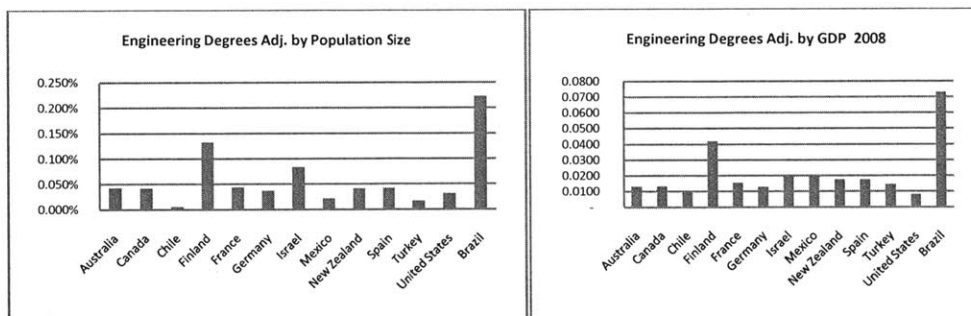
environment has changed tremendously, and understand that capital will be much more available to the average entrepreneur today than it was ever before in the past.

How much engineer talent is there in Mexico?

One key question on whether successful software startups can be created in Mexico is talent. Is there enough talent and is that talent strong enough to create technology products that will make a global impact? Engineering quality is known to be one of the most important success factors for a technology company since, without a world-class product, it will be hard to make many sales in the long run. Today more than ever, the industry is focused on product excellence as the core differentiator for software businesses. (Fred Wilson, 2011) (Feld, 2011)

The availability of talent needs to be looked at both in breadth and depth: how many engineers are in Mexico and how good are they. To evaluate the number of engineers I looked at the number of people that obtain a bachelor's or graduate degree in an engineering field Mexico. This data is not meaningful in its raw format, since it is likely to be high just by the fact that Mexico has a high population. To make a comparison it would be more adequate to scale it either by GDP (talent for the size of the economy) or by total population. Both of these comparisons are created from the OECD statistics portal, StatExtracts, and available in figure 2.

Engineering Degrees in Mexico



Source: OECD.StatExtracts

In 2008, Mexico graduated a total of 23,660 engineering students on all levels of achievement, up 2.5% from a year before (OECD, 2011). A look at figure 2 shows that the number of graduates in engineering, adjusted by GDP and population, is adequate compared to other countries and even higher than the United States. Though a high number, it is not fully surprising as, culturally, most people tend to graduate from engineering even if they don't want to pursue a career in this field. This contrasts to the United States where most engineers are interested in doing engineering work, at least initially out of school. The low annual growth rate is also adequate given that the number of graduates is already high enough for the economy's size. However, at least in pure terms purely of raw people available with engineering knowledge to create technology companies, the data suggests that there is enough in Mexico.

Though the reader might see an issue with this analysis in the fact that the data is for engineering in general and not computer related areas specifically, I could not find this specific data, but I believe it is reasonably realistic to assume that the proportions here hold true for computer engineering, especially considering many engineering professionals move around different fields and that programmers are many times not computer engineers in their degree.

The second aspect that is useful to understand is the quality of this engineering talent. One possible way to measure this is to look at the size of Mexican research and the impact factor of its published papers. Impact factor is a measure that tries to assess the impact of a piece of research by looking at the number of citations it gets in further research.

In terms of size, Mexico researchers produce 0.7% of the global engineering papers production and 0.6% of all computer science papers. It produces .85% of all global research papers, a number which has gone up from .64% in 2000, and is the second largest producer of scientific research in Latin America, after Brazil, which produces 2.64% of the global total. As for impact, for the five year period of 2004 to 2008, papers published by Mexican researches received 127,232 citations up 5.8% from the previous period of 2003 to 2007. When measuring the relative impact factor (RIF) of Mexican publications, Mexico does not do very well. It has an RIF of .68 and has the 28th position amongst the 30 OCDE countries (CONACYT, 2008). Considering that Mexico has one of the highest populations in OCDE countries, and a very high number of graduating engineers, it is disappointing to see this measure so low.

This information suggests that, in terms of talent, there are a lot of people with engineering backgrounds in Mexico and that understand engineering, however, only a few go beyond a bachelor's degree to engage in research and develop breakthrough ideas, ideas which could eventually become products. My experience growing up in Mexico validates this, as most of my friends decided to study engineering but almost none of them performed engineering work afterwards. In Mexico, some engineering degrees, like Industrial Engineering, are considered very similar to business administration or economics in the US and are more business than engineering.

For an entrepreneur, in terms of talent, the strategy will need to be similar to what I have heard in the past from some Mexican founders: there are people with skill, talent and fundamentals, but you really need to train them to become world-class engineers. Entrepreneurs should also remember that globally successful startups are often created by the exceptionally talented and not by the median engineer and exceptionally talented individuals can be found in all places.

Where will the Mexican innovation hub be?

Entrepreneurial communities around the world seem to be created around innovation hubs with an environment where new companies can exist and succeed continuously. These hubs are usually based around knowledge centers and research institutions, where most of the high-end technology is originally created and envisioned. They are then complemented with venture capital and other necessary services like law and accountants. This has certainly been the case in the United States, where the most active entrepreneurial activity has been around the most scientifically renowned universities of MIT, Harvard, Stanford and University of California Berkley.

Entrepreneurs seeking to create a successful company in Mexico should understand many of these dynamics and plan ahead their location. Given that Mexico is still a predominantly face-to-face business culture, the proximity or distance to the right people could make a relevant difference in the success of an entrepreneurial firm – this is also still largely the case in the United States, though to a bit lesser extent.

One way to evaluate different locations is to look at Mexican universities and try to understand which one will likely become this innovation hub to which capital will flow. To analyze that, I used the university ranking Webometrics, which takes into account both the strength of the educational curriculum and the impact and breadth of published research. This is also the same ranking used by CONACyT to evaluate the universities themselves. Figure 3 shows how the top Mexican institutions rank in the world and Latin America. The top university, the Universidad Nacional Autónoma de México, holds the 2nd place in Latin America and 66th worldwide, the next two, the University of Guadalajara and Monterrey Tec, hold a much lower ranking in the twenties of Latin America and 500s worldwide. This suggests that UNAM as an institution on the aggregate of their research output and education, is substantially better than any other university in Mexico and, therefore, is more likely to be a place where forward looking people congregate to create ideas that challenge the world. The most renowned Mexican developer, Miguel de Icaza, who created Linux’s window manager Gnome was, in fact, from UNAM.

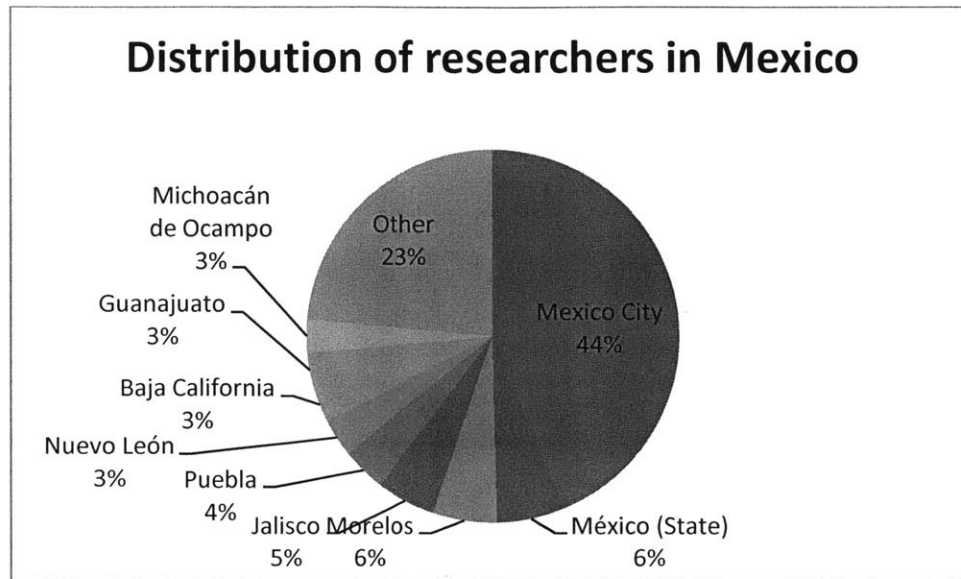
Figure 3: Top Universities in Latin America

University	World Rank	Latin America Rank
Universidad Nacional Autónoma de México	66	2
Universidad de Guadalajara	550	22
Tecnológico de Monterrey	593	25
Universidad Autónoma del Estado de México	643	38

Source: webometrics.info

A second data point that could be included is to look at the geographical distribution of the 16,598 researchers registered in CONACyT’s national system of researchers. Though these researchers are in all areas of engineering and technology, looking at the distribution will show how the relevant fields are likely to be arranged geographically. Figure 4 shows this analysis. From the chart, it can be seen that a very large majority of research in Mexico is carried out in Mexico City, where almost half of all researchers reside and all other states, like the state of Mexico and Jalisco, are greatly outshone by the number of people in Mexico City (CONACyT, 2008).

Figure 4: Geographical distribution of researchers in Mexico



Source: CONACYT, 2008

I should comment at this point that CONACYT is doing an effort to decentralize this research, and it is not possible to see at the moment how successful this effort will be. However, this decentralization is not very relevant to entrepreneurs creating companies in the near future as migration of research capabilities, if successful, is likely to take a very long time.

Mexico has always been known to be a country centralized around Mexico City and we see this phenomenon again in this analysis. Most of the research talent lies in Mexico City and it is likely that as capital starts to be created in a more accelerated fashion due to the points explained earlier in this chapter, most of it will exist around certain Mexico City institutions. For entrepreneurs, it is my impression that to create a top level software company, they would be wise to locate that company in Mexico City. If they needed a second option, Guadalajara would be adequate, but its entrepreneurial ecosystem is likely to be far less developed than Mexico City.

It is also probably important to talk about Monterrey, a city that is believed by some to be a good entrepreneurial environment with both sufficient capital and technological skillset. From the data above though, I conclude that although Tec de Monterrey in fact trains many skilled engineers per year, it will be harder to find highly capable engineers (superstars) that could create the globally breakthrough products that this thesis proposed Mexican startups should create particularly engineers with graduate education.

Entrepreneurial attitudes in Mexico

Culture is often considered important when evaluating an entrepreneurial environment. Ultimately, it is culture that decides what type personal fulfillment entrepreneurs are seeking in their ventures and what will they call success or failure. When evaluating entrepreneurship cultures, fear of failure, or rather the

lack of it, is often considered an important aspect of an environment where entrepreneurs breed. In a majority of cases, entrepreneurs create their most successful businesses after the first attempt. This is the same conclusion suggested in book **STARTUP NATION: THE STORY OF ISRAEL'S ECONOMIC MIRACLE**, where authors Dan Senor and Saul Signer spend a full chapter analyzing this topic, ultimately concluding that in Israel mistakes and failures are very accepted as long as people learn something from them and they are not “stupid mistakes” (Senor, Signer, 2009).

Though not many, there are a couple of sources that talk about fear of business failure in the Mexican culture. On March 17th of 2011, speaking at the second Venture Monterrey forum, Henry Chesbrough from the Center for Open Innovation at University of California, Berkley said the following: “In the Mexican culture, failure is very badly seen. People who have had entrepreneurial activities and failed are punished socially, instead of being told it was a good try or that they will do better next time[...] There is nobody willing to work with them, hire them, or finance their next company. Their professional career is affected, and this discourages risk taking, which is necessary for innovation in any culture. This problem of failure is very hard to change, but it is one thing that needs to evolve to promote real innovation.” (Herrera, 2011).

Chesbrough's perspective is discouraging for the Mexican entrepreneur, however, other data points paint a relatively better picture. Babson College publishes every year the GEM Global Report from Babson's Global Entrepreneurship Monitor research center. The report measures the entrepreneurial environment of 80 different economies in several metrics, one of them being Fear of Failure. Appendix 5 shows a comparison of this result for some sample countries, a lower score is positive and means that people have less fear of failure. Mexico has a score of 33.4, which is around the mean of all the economies reported. It is interesting how it compares to some particular places. Brazil and Germany, for example, which have much more developed startup environments than Mexico do not have less fear of failure, with scores of 33.2 and 33.7. Israel, Sweden and Taiwan, three locations widely regarded as innovative, entrepreneurial countries, have much more fear of failure, at 46.0, 42.4 and 43.8. Meanwhile, the best (lowest) scores of fear of failure for the full report are in Ghana and Zambia with 10.4 and 12.8, yet these countries are not seen as thriving in innovative entrepreneurship (Kelley, Bosma, Amorós, 2010).

A Mexican entrepreneur should consider perspectives like that of Chesbrough and know that the way entrepreneurial failure is perceived in Mexico is not one of the strongest aspects of the country. However, the importance of this factor in entrepreneurial success is sometimes heavily overblown, to the point where it is considered a blocking aspect. The data from Babson's Global Report suggests that cultural fear of failure is far from being a determining factor in a country. Also, software entrepreneurship is usually driven by innovation hubs composed by only a small fraction of the population, and more than likely the attitudes in the hub will be different than that of the population in general. This is even truer in Mexico since it is a very big country with many business subcultures in it, and the way someone approaches new businesses in Tijuana is unlikely to be related to how an engineer does it in an incubator in Guadalajara.

Once aware of the attitudes towards failure in Mexico, entrepreneurs would be wise to forget about this aspect and not take it into account when making business decisions for their company.

Caution! Some companies should not plan to be globally successful

Even though this thesis is focused on making startup companies successful a company can only be successful if they have a business model, team and technology that stand to gain around the world. In many cases, very profitable companies can be created by addressing a local market need either because that specific market is underserved by the international players or because it has idiosyncrasies were a local player stands to be more effective. These companies, however, may not have technology that could become successful against global competition.

Entrepreneurs should be self-aware enough to assess this since, if not thought effectively an unsuccessful global strategy can lead to a lot of frustration and high cash outlets and, if pushed excessively hard, could even bankrupt what would otherwise have been a successful, profitable local player.

II. Opportunities for Mexican entrepreneurs

One of the assumptions of this thesis is that any Mexican software business that wins globally will have to make a considerable part of their revenues from international sales. I believe this is true because the Mexican software market is considerably small, therefore limiting the potential of a company that is local-only. Furthermore, local-only companies might not be able to hold their ground for long, as software can be exported very easily and most often international leaders are also the leaders in the Mexican market. For these reasons, when studying how can a Mexican software company be created for success, the core question we will try answer is “Given the country in which they are, what kind of opportunities and business models should companies implement to sell profitably and gain market share in the international market?”.

From such understanding, I created three models, which are developed in this chapter. The first model considers how to create companies in Mexico that can migrate to the United States. It acknowledges the fact that some Mexican entrepreneurs might consider the best location for their company is Silicon Valley, but they are often not able to migrate due to migratory requirements and a network to help them surpass that, but there is another country whose startups have an even smaller market and are migrating with much less trouble: Israel. By studying why Israel is able to migrate their companies, Mexican entrepreneurs will be able to understand the strengths they need to develop to do the same.

A second model considers software product companies that are headquartered in Mexico but sell to the United States. In what is now called “nearshore”, many IT service companies in Latin America sell cheaper labor to the US, however, few actually create value-added products. This model explores whether this is possible and how by looking at the “other” American neighbor, Canada, and the types of firms that are successful in that country.

The third and final model breaks away from the assumption that all successful software companies need to win in America, and looks at products that can be exported to emerging markets, where Mexico could be at a better position to innovate vis-à-vis local competitors in those markets. It supports the case for emerging market companies by looking at the increasing internet usage in those countries and showing that this is where most of the users will exist in the future. Showing that, though 50% of the IT spent is in the United States today, that might not be the case in ten or twenty years.

All three models are guidelines meant to help further an entrepreneur’s understanding of different global opportunities. They are meant to serve as models for businesses to change, adapt and modify as they best fit their current situation and market opportunity.

Model 1: Incubate in Mexico and then launch in the United States

Is it possible to create a company in Mexico, with the specific goal of moving it to a place like Silicon Valley in the future? This is not uncommon amongst Israeli startups. Many of them get created and invested with a direct plan of moving some into the United States and they have ultimately had very successful exits. Could Mexican startups do the same? I think they could but, How? Exploring this question is the goal of this section.

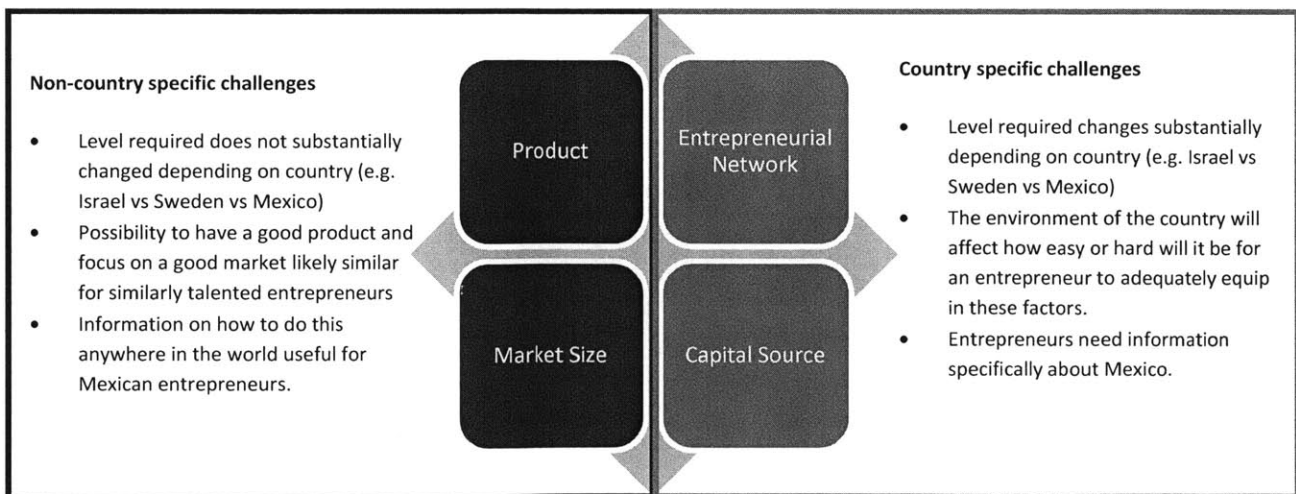
Today, the Israel venture capital industry is thriving. Adjusted by size of GDP, Israel venture spend of \$884 million dollars for 2010 is twice as much as the United States and more than one thousand times that of Mexico (Nissan, 2011) (Lerner, 2010). In terms of the quality of venture capital in Israel, the country has local branches of some of the most renowned international firms, including Sequoia Capital, Lightspeed Ventures and Greylock Capital. In fact, many times these firms are the ones that help companies move to Silicon Valley or New England.

After reading through the literature of Israel’s startup, I have found that four factors appear most important in their achievements. Two of them, market size and product, are exogenous to any country, and should be considered base requirements for any company to be funded. Though it is critical for Mexican companies to attack the right market with the right product, it is an assumption of this study that such is possible. If it is not, then the company is likely not “fundable” regardless of location.

The other two factors, capital source and entrepreneurial network, however, are important and change depending on location. How do these factors enable a company in Israel to migrate to Silicon Valley while not allowing a Mexican company to do the same? Studying it can help entrepreneurs plan how to compensate for them.

Therefore our methodology can be summarized as follows:

Figure 1: Factors for startups to migrate to the United States



Capital source: presence of American venture capital firms in Israel

One interesting aspect in Israel is the role of American venture capital. Renowned venture capital firms like Sequoia Capital, Lightspeed Ventures, and Greylock Capital have established venture arms in Israel and invest directly in many companies in the country. Investment from these international top-tier venture firms has several benefits for Israeli companies planning to move to the United States. Whereas a local venture capitalist might feel that it will be hard to manage a company that moves to America, an international venture capitalist will actually have the company closer to the firm, since they have very good presence in all American innovation hubs. Not only will they be more approving of the move, they can provide follow-on capital to help them grow in the United States. They also help beyond capital. A firm like Sequoia will have a stronger network in America and will connect the entrepreneurs “fresh off the boat” with talent, potential clients, and other entrepreneurs in their portfolio that can help them figure out easier the logistics of working in California or New England.

Sometimes, American venture capital doesn't only facilitate the option of relocation for Israeli startups, they require that they move. Consider what Moshe Mor, a partner at Greylock Capital, said in 2004 as he explained to a **BUSINESS 2.0** reporter the three virtues that were important for him in a Israeli investment: unique technology, a good fit with a large market opportunity, and a management team that recognizes its own limitations *and will partner with U.S. executive talent* (emphasis mine). The last virtue is clearly interesting for the entrepreneurs as it implies that a company invested in by Greylock in Israel is both likely to move to the United States, and once they do, have the top management team replaced or at least complemented, at some level, by US talent.

Since US venture capital is a factor in causing international companies to relocate after incubating in the country, Mexican entrepreneurs who have an intention to relocate need to think how can they access venture capital that could help them move. They are at a disadvantage here, as Mexico does not have local presence of top-tier international firms the way Israel does, and they will need to be more creative in how they connect to American venture firms. However there are definitely things that they could do.

One option is to use their geographic closeness as an advantage. Traveling to Silicon Valley is quick and not expensive for a Mexican company – at the time of this writing, a round-trip ticket San Francisco - Mexico City was \$347 dollars purchasing four days in advance. Entrepreneurs can easily schedule meetings with American venture capitalists and travel back and forth through negotiations without leaving their company too far away or having it be prohibitively expensive. Sharing very similar time zones, they can also talk with venture partners often which will allow for a deal to move quickly. Finally, since the executive team is likely to have a tourist US visa, the company could also easily take a “vacation” for a few months to Palo Alto while they search for capital.

American capital plays an important role for young startups to migrate to the United States. Though the situation is different for Israel and Mexico, it is useful to understand how capital helps in Israel, doing so allows entrepreneurs to see why it is important. With a little creativity, Mexican entrepreneurs can fill this gap and connect to the top-tier venture firms that will help them be successful in the United States post-incubation.

Entrepreneurial network: How other entrepreneurs help new entrepreneurs migrate

A second relevant aspect for Israeli entrepreneurs to move successfully to the United States is their network. In Israel the network is extremely connected, and includes many already successful entrepreneurs living in the United States. As Yossi Vardi, an Israeli entrepreneur mentioned, “The social graph is very simple here. Everybody knows everybody.” (Senor, Signer, 2009) How much does this matter for a company to migrate? How much help do entrepreneurs get from previous migrants?

Entrepreneurs often rely on their networks for advice on different topics of their company. Through them, they find potential hires, get introduced to investors, find new clients and develop partnerships with people who trust them. In fact, being able to effectively use their networks to grow their business is a very important trait in CEOs and other leaders of startups.

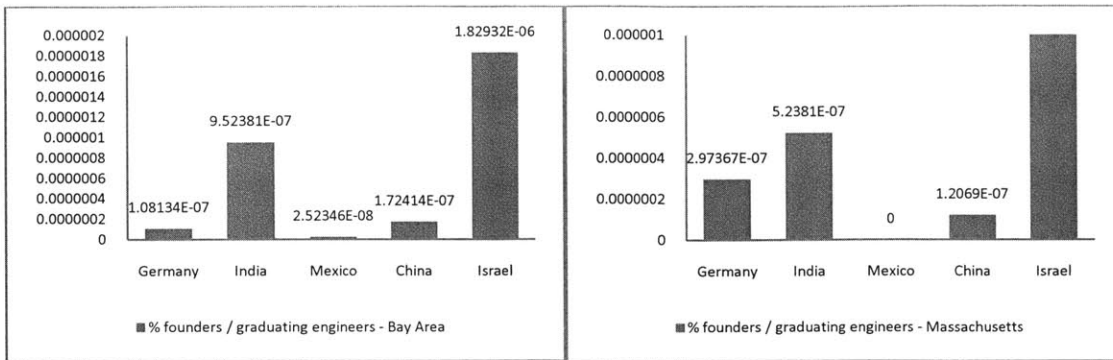
A personal network is very important to find potential investors. Recently Brian Halligan, CEO of HubSpot mentioned his experiences raising capital at an MIT Sloan workshop during Sloan Innovation Period. He mentioned entrepreneurs are most successful when seeking venture capitalists through introductions and that they are rarely effective when they contact them directly without a prior connection. (Halligan, 2011) This is relevant for entrepreneurs that want to move to the United States since, to approach American investors, they will need introductions from someone that knows them. It is also a chicken-and-egg problem as it is hard to know someone if you have never lived in the US.

One possible way to analyze the strength of networks of entrepreneurs is to understand how likely are they to know other founders that have created a business in their target country. It would not be sufficient to look at the raw number of founders from each nationality, but rather to also take into account the size of the population. Therefore, if there are 100 founders in Silicon Valley for a country with 1000 people, then a citizen is more likely to know one of those founders than a country with 100,000 people.

Vivek Wadhwa has information on the nationality of founders in his paper **AMERICA’S NEW IMMIGRANT ENTREPRENEURS: PART I** where he lists the percent of immigrants and nationalities that created a company in California and in Massachusetts. Appendix 9 shows each of these graphs. It should be noted that this raw number of founders is still relevant for entrepreneurs even if they do not know anyone, since people from the same country, or the same cultural heritage for that matter, are more likely to help others from that country compared to everyone else. Therefore, a Mexican will get a better response by reaching out and meeting other Mexican entrepreneurs to create his network than just reaching out to any founder.

To account for the size of the population I decided to use the number of engineering graduates instead of raw population, which in part will also help account for the state of an economy. Figure 5 shows percent of founders over raw yearly engineering graduates for some relevant countries. As can be seen, Mexican entrepreneurs are very unlikely to know other founders in the United States or even be able to find many. This is also true for other Latin Americans.

Figure 5 – percent of founders in Bay Area and Massachusetts



In conclusion, the lack of a network to tap into is certainly a hurdle for Mexican founders to move to the US, and one that they should not underestimate when planning to relocate their company to this country. Founders should consider strategies to navigate the American entrepreneurial scene. If they have a particular situation that allows them to have a stronger network (for example, doing graduate studies in the United States) they should leverage it and if not look for ways to create this network ahead of time, before moving to the country themselves.

A startup’s success depends a lot on reputation and relationships and this is certainly an area where Mexican entrepreneurs will struggle more than other nationalities.

About market size and technology

When one considers businesses like the ones this thesis treats, which are high impact companies that become global brands, it necessitates both an adequate market focus and a very innovative technology. When Israel and Mexican innovation are compared, Mexico loses the battle. Israel has the highest number of PhD graduates per-capita and holds a number of extremely innovative research centers including Intel’s R&D center, which developed its Dual Core technology (Senor, Signer, 2009). Without a doubt the high end technology developed in Israel, much of it created from advanced engineers trained in the military, plays a part in its success and is much more advanced, in general terms, than the technology created in Mexico.

Though this is true, technology level will not be considered a factor in this analysis, neither will market size. The reason is that truly innovative technology, used in a new way that addresses a real market need is a necessary condition to create a global company anywhere, and the level of inventiveness required from the technology is, for the most part, country agnostic. Since this analysis is specifically about how is Mexico different to create a company than Israel and how can Mexicans address those challenges, I consider these issues not relevant.

A comment on Startup Visa and immigration

At the time of this writing there is substantial work by the entrepreneurial community to help international entrepreneurs move their company into the United States. In 2011, Senators Kerry (D-MA), Lugar (R-IN) and Udall (D-CO) submitted the *Startup Visa Act of 2011*, which is meant to simplify this immigration process. For entrepreneurs who want to relocate it would require them to have generated

only \$100,000 in sales in the United States. (Feld, 2011) Many proposals are submitted to the Senate that never pass, and this act still has a long process ahead of it but, if completed, it could be a great way for entrepreneurs to move their companies.

Thoughts for Entrepreneurs

In this chapter we analyzed how companies can be created in Mexico with a goal to move into the United States. As was just explained, companies anywhere in the world require the best technology and business focus to be successful, since software is so easily moved from one market to another. This analysis is made on the precondition that a company already has a “Silicon Valley worthy” technology and business team, and then analyzes what could they do to make their business successful.

I found three challenges that entrepreneurs will have to overcome when compared to other countries:

1. They will need to connect to American venture capital
2. They will need to develop a network in their target location to scale their business effectively
3. They will need to be open to partner with American talent to create the company.

Given that Israeli companies are very successful migrating to the United States understanding how these factors allow them to do so, permits Mexican entrepreneurs to assess their own position. Creatively, an entrepreneur can then start addressing her shortcomings and develop everything necessary to make such plan successful. It is also beneficial for Mexican entrepreneurs to understand how other nationalities have a comparative advantage in this model and face such reality. Since, if this advantage is not understood, ignorance could lead them to incorrectly believe that there are other flaws in their person or in their company causing this.

Model 2: Stay in Mexico but sell internationally

Interesting lessons can be learned by comparing startups in Canada and Mexico. Canadian and Mexican companies face a similar situation in terms of local markets and geographical advantage. Their economies' are not very different in size. Canada's nominal GDP of \$1.5 trillion is only 50% higher than Mexico's \$1 trillion. This difference is even less meaningful when compared as purchasing-power-parity, in which case Mexico's GDP is actually higher than Canada's \$1.3 trillion by 15% (Wikipedia). Canada and Mexico are also the only two neighboring countries to the United States, the largest IT economy in the world, and have a history of exporting into that market. When exporting to the US, they have a unique regulatory environment, governed by the North America Free Trade Agreement (NAFTA), which imposes different types of rights and tariffs depending on the good traded. These tariffs are almost identical for Canada and Mexico, but different for all other countries that export to the United States. Due to these similarities, looking at Canadian software startups that are globally successful could provide insight into how to structure a global Mexican startup and the opportunities it could attack.

I analyzed successful Canadian software ventures on the belief that the ways in which they position their products and succeed in their global market would show patterns that Mexican startups could apply, to create a company that is in Mexico but does not need to sell in Mexico.

To select the list of Canadian firms to analyze, I used TSX Venture Exchange. TSX Venture is a marketplace for stock in Canadian venture backed startups, run by the same group that owns the Toronto Stock Exchange. For this thesis, I used all software companies in TSX Venture with a market capitalization over four million dollars. The companies in this set have two characteristics, they have received investment and they already have achieved a decent level of success – implicit in their capitalization value. These traits make an appropriate list of successful venture backed software companies for this analysis.

Appendix 3 lists the companies used. It should be noted that the highest capitalized company, Pure Technologies, was not included in this analysis to control for outliers. The following aspects stand out:

A local market is not necessary to make a company successful

Many of these successful companies do not have a local market they could use to develop their products and services. From the eleven companies analyzed, only one of them, Healthscreen Solutions, focuses specifically on covering local Canadian needs – in their case physician software. The rest of the companies do not focus much in Canada and sometimes not at all.

It is particularly interesting to note the companies Diversinet Corp and Empower Technologies. Diversinet creates mobile healthcare solutions to deploy HIPPA compliant applications – the United States Health Insurance Portability and Accountability Act. HIPPA is a US act. Therefore, their full market is naturally in the United States, not in Canada, but the founders built their company in Toronto, and today they have achieved a market capitalization of \$12 million dollars.

Empower Technologies manufactures embedded operating systems based on Linux. One of their biggest clients is Texas Instruments, which runs their OS on many products. The rest of their market is other manufacturers of electronic equipment and, with the exception of Research In Motion, practically all of them are not in Canada. However, Empower is building a successful business out of their office in British Columbia. Today the company is valued at \$11 million dollars.

These are not the only two companies that focus internationally, others like Titan Trading Analytics, which sells software for financial traders, Automated Benefits, an insurance claims processing company, and Angoss Software, a predictive analytics firm, have a natural market focus that relies heavily in international sales, and they are building successful businesses. Even companies that have a country-agnostic solution like Sangoma, Sylogist and Versatile Systems, are heavily oriented to the United States given the size of the economy and its level of IT spend.

In terms of market, a big market seems to be more important than a local one, and the same is true for Mexican ventures. In fact, there is no reason why these firms doing valuable software business from Canada could have been created in Mexico instead.

Enterprise companies are possible internationally

It stands out in the list of companies studied that nine out of eleven sell enterprise products (82%). Enterprise software is sometimes perceived as not appealing for international sales, particularly by startups. Enterprise sales require presence near their clients and being able to develop close relationships before completing a sale. These Canadian companies are not stopped by this hurdle, and are running fantastic enterprise businesses from a different country.

As an example, consider Titan Trading Analytics, a company that offers cutting edge analytics for financial traders. Though there could be some market for their technology in Toronto, Canada's financial center, their real market is in the major financial capitals of the world – New York, London, Hong Kong. That is why Titan has their main sales office in New York. However, this does not mean they moved the company. It is still based off of Edmonton, Canada.

Enterprise software businesses are possible for Mexican firms too, even if there is no one in Mexico that needs that particular product.

Direct sales is possible if you setup a US sales office

A corollary to having many enterprise software firms is that most of them operate through direct sales. Given that their main market is usually the United States, it is interesting to understand how do they setup their sales force. I found that more than half of the companies had a sales office, sometimes even called "sales headquarters", in the United States. It seems that in the enterprise market, setting up a sales office near your clients in America is an important and relevant step, and many Canadian companies are doing it successfully.

Mexican entrepreneurs doing businesses that require direct sales should setup an office in the United States. In terms of talent, there are many skilled Latin Americans in all areas of business already leaving in the country, and they could perform well while adapting easily to the cultural identity of a company

from Mexico. The program TechBA, which is described in chapter 1, is created by the ministry of economics to help Mexican technology companies setup sales offices in the United States.

All companies have cutting edge technologies

With software being so easy to transfer, any company that wants to compete internationally needs to have differentiated products that will succeed in the global marketplace. This is certainly true for the Canadian firms in question, all of which have technologies that are advanced in their segments. Sangoma, for example, offers IP Telephony services that intend to compete with Cisco and other leading providers in the industry. Similarly, Diversinet offers their mobile health systems to large health providers in the United States. These providers have multiple suppliers and Diversinet's technology must be better than all of them to be successful.

The same lesson applies to Mexican engineering: they need to create products and technologies that are the best in the world for their niche, if they want to sell to the best and most profitable clients in the world.

Most companies cover a vertical business need / niche

It is interesting to note that most companies have a vertical business rather than a horizontal software solution. The reason for this is hard to identify. One possibility is that horizontal products might benefit from being close to the innovation hubs more than vertical products, either because the early adopters, which are technologists, tend to gravitate more to local products or because the company can iterate a lot quicker by being local to their clients. Though that is certainly possible it could also be true that Canadian investors look for revenues quicker, require a more proven business model to invest, or just lack the extra vision required for horizontal applications. All of these possibilities would push most businesses to focus vertically in a niche, which is much easier to make sustainable in the short term.

There does not appear to be enough information to make a conclusion. For Mexican entrepreneurs, they should keep this lack of a conclusive reason in mind and when presented with the argument that "Silicon Valley is the only place where all great companies will be built because all existing great companies have been built in Silicon Valley" know that it is a weak argument, and there is no reason why it has to be true.

There are no companies focused on social media

Another interesting aspect in the data is that there are no companies focused on social media, or any other related trend which, as of this writing, are very relevant trends in the United States. The fact that there are none, seems to suggest that these type of startups are much less successful in Canada than in the United States, where these types of firms are commanding very high valuations.

Two possible explanations come to mind for this. It is certainly possible the reason is related to the investment community, and that Canadian venture capitalists value investments more on the revenue that portfolio companies will generate rather than other consumer media metrics like number of users or level of engagement. This seems to be a possibility given that most firms have vertical products, which can generate revenue more quickly. However, another possible explanation for this is that it is not the investors but that location does matter and that, in social businesses, new concepts require being

near the most forward looking communities in the world – Silicon Valley and New York City, to create the big communities of engaged users that make social media investments valuable.

Thoughts for entrepreneurs

It is insightful to look at Canada as a proxy of what types of businesses could be done in Mexico and that sell into the developed economies, particularly the United States. Through this analysis, we saw that it is a model that can be implemented well. Entrepreneurs should remember that just because the company is in Mexico that does not mean it needs to sell in Mexico, and this is very true for software.

I should mention before starting, however, a comment that multiple experts in the topic have told me: Canadian firms are not considered as foreign as Mexican firms when we look at the American market. Whereas Canada is considered, for the most part, an extension of the US market, Mexico is considered part of Latin America. Mexican companies should be aware of this fact and know that they will likely need to prove their product much more in the market compared to Canada.

Like Canadian firms, Mexican startups should focus on solving niche market needs with innovative technology. Focusing on a niche will allow them to create product-market fit and revenue quicker which, in the less-sophisticated Mexican investment environment, will be more important than it could be in the United States. However, entrepreneurs should evaluate horizontal opportunities when they do present themselves. As was shown with Empower Technologies who creates embedded operating systems that runs in Texas Instruments' equipment, it is also possible to create and sell horizontal applications, even if they have a complex sale process like in this case.

Entrepreneurs should not be afraid of any selling model, even if it requires them to do direct sales in the United States. Language should not be an issue either, as there are many capable Hispanics in the United States that could do it well and still be a good fit with a Mexican company. Not only are direct sales possible but any other type of sale should also be doable.

Finally, when considering creating a company whose product is focused in social media markets, Mexican entrepreneurs should spend extra time thinking about how they are going to make this business successful. They should keep in mind that historical results do not show consumer internet successes from Canada or Mexico and, therefore, they will need to evaluate with detail their technology, customer acquisition strategy, and investor risk-profile to be sure that they can create a company that will be ultimately successful.

Model 3: Software companies focused on emerging economies

The two previous models were created by looking at a sample economy where there exist successful companies that do that model, and then understanding what kinds of patterns do we see in those companies that could help Mexican entrepreneurs execute it. It was possible because Canada and Israel provided a somewhat controlled environment in which this type of analysis and the insights derived from it are clear enough. For this third model – How to create companies that sell to the developing rather than developed economies, the approach is different. For one, it was not possible to find a set of companies that do it well without adding significant selection-bias while choosing them, which would make any statistical insights irrelevant. Considering many more companies focused on emerging markets are in Asia, I tried a few sources including Deloitte’s Asia Technology Fast 50 and looking at the technology companies in either the Bombay Stock Exchange or the Shanghai Stock Exchange. It was not very helpful. Most of these companies do not focus on emerging markets and the ones that did had a significant emerging market business also had a well sized developed country component – therefore not being possible to separate the data for the two. I also tried looking at the Sao Paulo Stock Exchange (BOVESPA) and making lists out of Endeavor entrepreneurs, but those were not very fruitful either.

In the end, I decided that it would be best to make this a best practices section. Though without thorough statistical analysis, I would look at aspects of companies and comments focused in emerging markets and understand how they apply to Mexican entrepreneurs.

Mexican companies have a home team advantage in emerging markets

One constant question through the previous models was whether US-based companies have an edge selling in this market because they can understand their customer needs more easily. We implied that this “home-team” advantage existed, though it could be compensated by Mexican companies with lower cost structure and good execution. If such advantage exists, it is intuitive to think the converse will also be true in emerging markets. That is, emerging market companies will have a “home-team” edge when creating products for those markets, since they will be able to understand the details of this space much easier, and what could be idiosyncratic to an American product manager might be natural to someone from Latin America or India.

It is also true that there are shared characteristics in most developing economies that are not present in developed ones. Regions like India, Latin America, South Africa or Vietnam, share a surprising similarity in levels of corruption, cultural importance of family ties, gender inequality, relationship based sales, lack of infrastructure and technology adoption trends – be it cell phones, personal computers or computerized systems. This creates an advantage for a Mexican software company to make more intuitive technology. When they design technology for themselves, they will be able to make products that solve the needs of a wide variety of emerging markets.

A study performed by Deloitte in 2006, titled **LABORATORIES OF INNOVATION: LEVERAGING EMERGING MARKETS FOR COMMERCIAL SUCCESS** analyzed how a company from a developed economy had to change their operations to be successful in emerging markets. Appendix 11 shows a comparative analysis of product differences between the products sold at home and in emerging markets. In average, only about half the products are very similar between both markets, about 35%-40% are somewhat different,

and the rest are very different. The to-be biggest economies of the world, India and China, actually have the highest percentage of very different products with 14% and 16% respectively. (Deloitte, 2006) They did the same analysis again two years later, in 2008, with a study titled **INNOVATION IN EMERGING MARKETS** and found that the proportion of very different products kept increasing. Now it was 16% for China and 21% for India (Deloitte, 2008). This data suggests two insights. First, companies are increasingly realizing that very different products are necessary to win in emerging markets vis-à-vis developed markets. Second, and most important for Mexican entrepreneurs, a technology product that just moves into these new markets is not likely to win without substantial modification. Therefore, Mexico has an advantage to create such products.

Of course, this is not a definitive advantage and American companies can compensate for it through higher investment in R&D and by recruiting local work-force. Emerging market entrepreneurs should know competing multinationals are investing heavily in developing countries and looking for ways to create those very differentiated products. As an illustrative example, Procter & Gamble spends more than 30% of their \$1.9 billion dollars R&D budget creating products for low-income consumers (Deloitte, 2006).

This home-team advantage has certainly been advantageous when one looks at the most successful Mexican companies and how they have expanded into emerging markets. The telecommunications giant TELMEX, for example, was able to expand quickly on all Latin America through its subsidiary América Móvil and gain the market over then the much larger Spanish firm Telefónica Movistar. Its success was in part because the Mexican telecom model was so easy to port to other Latin American countries. The same is true for mining companies like Minera México, which is a leader operating copper mines in Perú and Chile or the firm Grupo Maseca, which is the global leader in the tortilla industry with yearly revenues of \$50 billion pesos (Google Finance, 2011).

The market is big: Internet users will skyrocket in emerging markets

In September of 2010, the Boston Consulting Group published a report titled **THE INTERNET'S NEW BILLION: DIGITAL CONSUMERS IN BRAZIL, RUSSIA, INDIA, CHINA AND INDONESIA**. The full message of the report can be summarized by its first sentence: "Just as Brazil, Russia, India, China and Indonesia (BRICI) are the new engines for global growth, they are also the sources of the most dynamic changes in digital consumption". The report then explains that, through the five year period between 2010 and 2015, internet users in these countries will grow from 600 million to 1.2 billion (BCG, 2010).

This growth is twice the population of the United States. All of these users will need content and applications to consume over the Internet and the companies that can create innovative solutions that address this market stand a chance to be very successful. For the reasons explained before Mexican companies can grab this market if they focus on it.

Cell phones are still a fantastic opportunity

In February of 2011 Ben Horowitz, founder and General Partner of premier venture capital firm Andreessen-Horowitz wrote a blog post titled **TINYCO'S BIG OPPORTUNITY**, talking about their most

recent investment of \$18 million in TinyCo, a startup focused in mobile games. His market analysis is worth mentioning:

There are currently 4.5 billion mobile phones worldwide [...] feature phones will be replaced entirely by smart phones over the next 5-7 years. As smart phones become the volume leaders, the component costs for smart phones will fall below the corresponding component costs for feature phones. Some people may be very happy without an intelligent phone, but in the future they will have to pay more for a dumb phone than a smart one. [...] The same phenomenon happened when the world moved from text-based to graphical PCs in the late 80s and early 90s despite many users claiming they would be “just fine” with their text-based computers. 4.5 billion mobile Internet users translate into an extremely large number of potential mobile gamers[...] The early data suggests that the mobile game market may be distinct from the web-based game market. [...] As a result, the eventual market leader may well be a new company.

Source: bhorowitz.com/2011/02/25/tinyco%E2%80%98s-big-opportunity

The level of detail in this analysis is fantastic and explains the potential of smartphones in emerging markets as well as the potential for new companies to revolutionize it. Its lessons are not only for the gaming world but rather for any cell-phone based application.

Through the next 5-7 years there will be a big market of smartphones with every type of mobile app exploding around the world. The reasons, as Horowitz explains, are more than just relative acquisition power or the needs of consumers for a cellphone, these phones will be deployed globally also because they will become the cheapest option available.

This is a opportunity for Mexican companies to create solutions that get sold worldwide. The Android and Apple stores will allow a distribution model where American firms will not have any advantage over them. However, Mexican firms will have a significant advantage. Since there exists many idiosyncrasies with developing markets that are not immediately clear to people in developed economies, companies in Mexico should be able to understand these needs better and create solutions that can work best in most emerging economies.

Not necessarily new technology - Adapting a developer world concept can be sufficient

It has been a theme in this thesis that the world is in fact flat, and global competition requires companies to be very innovative to win globally. However, sometimes it could be believed that real innovation requires creating new product categories or enabling new user scenarios. This is not true. Many times, innovation occurs only by changing the technology platform on which a user scenario is enabled or its market focus.

Consider cases like Salesforce.com, Gmail enterprise product, or even mobile games which were described before. In all of these cases, and commonly in the software industries, the companies created applications with the same functions than previous applications like Oracle CRM, Outlook and console games, however, they were able to succeed because they change the paradigm of the technology in which it was implemented.

Companies focusing in emerging markets do not need to create a new concept to create a business that can become a market leader. It is possible to only “tropicalize” a concept that already exists, in the developed economies and apply it to emerging markets. This by itself is a sufficient innovation and, if done well, it is not easy to do nor easy to copy.

First mover advantage is valuable

In the software business, particularly in the Internet, markets often develop as winner-take-most or winner-take-all. Entrepreneur Dharmesh Shah shared a similar point in his blog article **INSIGHTS ON SAAS FROM THE \$32 MILLION HUBSPOT MEGA-VC ROUND**. In the article, Shah mentioned their reason to get such a high figure: “In the age of Internet, winners win big” (Shah, 2011), the logic for such argument is in the blog post.

Given that many software markets usually have network externalities, being a first mover in that market is certainly very useful, as it will create barriers to entry and allow to acquire market share as the market develops. Being the first mover is usually valuable but this is even truer in software were, if you don’t dominate the market it is probably you will perish in the effort.

Thoughts for entrepreneurs

We analyzed a number of interesting points on businesses in emerging markets from different information sources. Emerging economies are a profitable business opportunity for Mexican software startups. They understand this market well and they are more likely to develop solutions that really apply to the problems of emerging market users. This is also a market that will grow through the next few years at a formidable speed, and is projected to become very big by 2015. In that sense, entrepreneurs would be wise to invest in companies today, as first movers through the next few years will be the ones that are going to be most successful in the future.

How to choose your growth model?

Though it is true that this thesis is based on the belief that Mexico has the right mix of technologists and business experience to create companies that will be successful beyond Mexico, it is also true that there is a big spectrum between a local company that is just in Mexico or a region of it, and a company that sells in every country in the world. The difference can come both in the ultimate markets a company will develop or, even if the company has an ambition to be in most economies, they need to understand in which geographical order should they approach their expansion (and the right answer is many times not going for the United States first).

In this section I present Michael Cusumano's model from **THE BUSINESS OF SOFTWARE**. This eight point model is made to help entrepreneurs understand the areas in which they need to develop their team as well as evaluate different growth opportunities accordingly. After presenting Cusumano's model I present how it could be used with each of the models presented in this chapter and key questions that entrepreneurs should ask themselves when considering how they will grow internationally.

Cusumano evaluates an entrepreneurial opportunity with the following eight points (Cusumano, 2004):

1. *A strong management team.* What is the experience and breadth of the management team? Is it the right management team to make this venture successful?
2. *An attractive market.* Is the market large enough or becoming large enough? Does the market have low competition, high barriers to entry and low supplier and buyer power?
3. *A compelling new product or service.* Does it substantially solve an unfilled or poorly met customer need in a much better way (10x improvement)?
4. *Strong evidence of customer interest.* Do you have actual customers that are willing to buy the offering?
5. *A plan to overcome the "Credibility Gap".* How will you cross the chasm? How will you get customers to buy your product despite of fears that you go out of business soon?
6. *A business model showing early growth and profit potential.* How will you make actual revenue in the near future (one or two years)?
7. *Flexibility in strategy and product offerings.* Does the company have a management team that can be agile to adapt their product offerings as necessary? Is the core technology of the company adaptable to different markets?
8. *Potential for a large payoff for investors.* What is the potential exit for investors? Is it easy to see how will they make a lot of money?

This is an excellent framework that should be used by any entrepreneur to evaluate their company in all levels, and Cusumano's book has examples of how this applies to different companies.

This eight point evaluation can also serve as a guideline for Mexican entrepreneurs to understand under which global model they should decide to position their startup strategy. There are different questions

that come to front depending on the global model that is chosen and entrepreneur should evaluate which is better for their ambitions, team and technology.

Model 1: incubate in Mexico and move to the United States

A strong management team	<p>Is the management open to moving to the United States permanently? Can the CEO establish rapport with American venture capitalists? Does the management team handle culture and language sufficiently well to attract and lead American employees in the future?</p>
An attractive market	<p>Is the market one that can develop initially in America?</p>
A compelling new product or service	<p>Is the product innovative in the latest trends of Silicon Valley venture capital?</p>
Strong evidence of customer interest	<p>Is the executive team skilled enough to establish necessary customer commitments in the United States?</p>
Potential for a large payoff for investors	<p>Will the payoff be large enough for an American IPO?</p>

Model 2: stay in Mexico but focus in international sales in developed markets

A strong management team	<p>Can the management team develop a sales model to sell internationally from Mexico? Can the management team maintain a vision for international products while being away of the American innovation hubs?</p>
An attractive market	<p>Where in the global market are you focusing? Is this focused on the United States first? How is the size of that market? How much competition is there from other American and European firms?</p>
A compelling new product or service	<p>Is the product compelling enough for the most sophisticated markets?</p>
Strong evidence of customer interest	<p>How will the executive team establish customer interest while being remote to the market?</p>
A plan to overcome the "Credibility Gap"	<p>How will the executive team make a foreign startup and Mexican technology credible?</p>
A business model showing early growth and profit potential	<p>How long will it take for sales to pick up being remote to the consumer?</p>

Model 3: Focus on emerging markets

A strong management team	<p>Is this a management team that can expand into unknown territory? Is this a management team that will want to create something different than an American Startup?</p>
An attractive market	<p>How will you measure the market with a lot less data than in the US? If you are betting the market will grow soon, what evidence can you show that it will really happen?</p>
A compelling new product or service	<p>How will your product disrupt an emerging economy and the way people interact in multiple countries?</p>
A business model showing early growth and profit potential	<p>How will you prove that there is enough money per sale, even when you are going for more price sensitive clients with a lot less income?</p>
Flexibility in strategy and product offerings	<p>The level of flexibility required will be even higher than in developed markets, Does the team have the ability to create products for markets that have never experienced them?</p>

Startup Case Studies

The following are several startup case studies about Mexican ventures. All case studies were developed between the months of January and April of 2011 by myself through interviews with the CEOs of each company. The typical interview process included a 90 minute phone call and then followed with questions through email. The companies were picked both due to their success history as well as easiness of getting the adequate level of support for the interviews.

JackBe - Luís Derechín



Website: www.jackbe.com

JackBe has been called by many the most successful Mexican startup. It was founded by two brothers, Luis and Jacob Derechín, in 1999 with the promise to create a new type of communication technology for IT that uses low bandwidth. Today, the company builds an integrative software for enterprise mashups, which allow users to combine multiple data-sources, both external and internal, into a single view that can be manipulated, queried and edited as a simple relational database model. Over time, the business has raised \$24.5 million USD in capital and their flagship product, JackBe Presto, has been called the Development Tool of the Year by Read Write Web online magazine in 2010. Luis and Jacob have run the company from day one, and to this day Luis is still the CEO of the firm.

Luis explained how this project came about, “I actually don’t come from an IT background. I was running a cosmetics company until my brother Jacob approached me with this technology he had built that allowed companies to use 90% less bandwidth than they did then. It was something similar to what today would be called Ajax. In Mexico back in 1999, bandwidth was an important problem, and so we decided to start a company out of it.” Luís and Jacob started their company in Mexico City on the height of the dot-com. They found an investor in Intel Capital Mexico, which gave them substantial capital to start. It was at this time that Luis decided he wanted to move the company to the United States to continue launching JackBe because, in his own words, “We are going for everything and we are going to either make it big or fail big”.

After being successful for about a year in Mexico, Luis and Jacob moved to Washington DC. Luis started to sell the product with which he had been succeeding in Mexico. To his surprise, there was not a lot of response. He later explained how their product did not solve a problem in the American market, “In Mexico, they were using JackBe to save bandwidth, because it was very expensive, but that concern was not as pressing in the United States”. Soon, they didn’t only have a product problem, but the dot-com bubble also exploded and virtually all IT investment came to a halt. It was at this time that Luis came to the conclusion the product with which they had come to the United States with was not going to be

successful. He later explained they had two options: first, they could admit their reality and accept that the differences they found were large, and go back to Mexico, or second, continuing with Luis's theme of "win big or fail big", they were going to find a new product with which they could succeed in the United States.

This was a hard time for the company, Luis explained. "This is very difficult, you have to look again, you have to read a lot and understand a lot of what is out there and find a way to come up with a new idea", said Luis. That's when they came up with the idea of enterprise mashups, but still, one idea was not enough to make a product.

Luis then started looking for more people to be part of his company. After a long search, he did a great advance when he was able to add John Cupri to his company. John was at the moment CTO of Enterprise Web Services for Sun Microsystems and was one of the most experienced people in Web Services. That was the start of their team and of a fully new product. In some ways, it was the start of a new company from scratch.

Today, their success in the United States is based on this second product which they created for what they called enterprise mashups. Their product, JackBe PRESTO serves as an aggregator of data sources of multiple types into a common query-able programmatic interface upon which applications can then be build. An enterprise can connect their CRM, ERP, support system, HR system, payroll and other all together in PRESTO and be able to look at all of this information as if it was a single data source all in real time. With aggregate data, businesses can make cross sectional, real time, decisions while allowing IT to work in a central framework and stop doing one-off reports.

Metroscúbicos - Heberto Taracena



Metroscubicos.com is the premier place for real estate advertisement in Mexico. It was bought by Time Inc. in 2007 and constitutes one of the most successful M&A transactions in Mexican software startups. Today, its former CEO and entrepreneur Heberto Taracena is a mentor to Endeavor Mexico and runs his new company InventMX.

Metroscubicos was born in the year 2000, at the height of the Internet boom, as a submission to a business plan competition in Tuck School of Business. When they started, they knew they wanted to do something in real-estate but were not clear on what. Funding came from one of the partners, who used his personal savings to provide it. In reality, Heberto recalled, there were not many other sources available at the moment.

Metroscubicos started growing quickly, as was the nature of that time and, after only eight months of operation they merged with another company that had a similar focus. In this merger, they received cash to help them continue their company. However, the landscape had changed by 2001, as did for Internet companies around the world.

Heberto and his team realized that Internet businesses were not going to grow as quickly as most people had predicted a year ago, now, they expected internet adoption will get to a level it could sustain the business only until 2003. With this problem, they decided to move into traditional media. "That is what ultimately saved us" Heberto later explained as he reflected on this experience.

Traditional media for real-estate advertising was a much better business in Mexico and they started to generate adequate revenues. However, it was also at this time that it became clear the company was not going to find any more funding in the near future. They decided they had to go for breakeven as soon as possible and worked on reducing their cost structure. Their workforce went from 100 people to 18 people in that year while they worked hard to remove any redundancy and focus their efforts on that profitability goal. This was, without a doubt, what could be the near-death experience every company gets to live.

Through this time, Heberto recalls there was considerable nervousness in the company as money was running out and they were not able to get to breakeven. Ultimately, it took them two years to do so, mostly by focusing in traditional media rather than internet sales. Once the company was able to get to stop losing money, and the market conditions improved, Heberto drove that company to become one of the most successful ones in Mexico.

Today, as a subsidiary of CNN, Metroscubicos.com is what it was meant to be when it was created: a portal for online real estate classifieds that covers all Mexico. It serves more than 1000 real estate

professionals, 35000 properties and 800,000 monthly searches. They have moved off the traditional classifieds market to focus fully on creating the web-based classifieds vertical engine they envisioned and are successfully covering a very good position in the advertising market.

Nibbo Studios – Pier Guillén



Whereas the previous two companies are arguably the two most successful ones of Mexico, this one is a contrasting story. Nibbo is a company created by ambitious individuals that did not get to take off and succeed.

In 2004, Pier Guillen, an undergraduate student at the Universidad Panamericana in Aguascalientes had been working with his brother and talking about how they could create much better games than many that were in the market. They started creating a new type of program for a class, an educational game that would teach children and other students to type in a computer.

As they completed it, they decided to apply with this idea to a business plan competition. They were a success, the product worked well and the idea was novel and interesting. By the time they were graduating, their team of five people had won second place in Aguascalientes's state-wide entrepreneurship competition and was ready to start a business.

Some of the teammates left as they had other interest and, in 2005, Guillen, his brother, a PhD working with them part-time and an industrial engineer founded the new business. They quickly started working on completing and selling their new software. "Our selling model", Guillen commented, "was through schools. We gave away the product to them hoping to get the parents interested. It worked well in Aguascalientes, but it was not very scalable to a wider geography". They did sell well in their state, and after two and a half years, they had sold about 1500 copies of the system.

Though they started creating educational games their focus eventually included much more. They created programs for government entities that wanted to use gaming as promotion for an event. Including five games for the Feria de San Marco and one for CONACYT.

They also did a casual game, targeted for the mass audience rather than gamers, called *Uberpong*. It was well received and won two game development competitions. It is still available online and I can attest that it was in fact quite fun. Though the game was entertaining, the team at Nibbo could never find a monetization path for it.

In terms of using government funding, including some of the sources described in this paper, Guillen mentioned they tried several – PROSOFT, PROMEDIA, and TechBA, and his experience was not very good. From his experience, it was a lot of work to prepare the detailed applications and they were not able to get any funding. Furthermore, they did not get straight answers on the issues and took a long time re-applying to try to get this funding. From Guillen's perspective, it was complicated.

As he reflected on the reasons why the company did not work out, two were most relevant to him. First, he talked about the importance of good focus: “I think we did not have a concrete objective as a company”, he mentioned, “we did some consulting, educational games and casual games. You have an idea and you need to stick to it”. His second perspective had to do with the geography of competition in technology “we created better games than everyone else in Mexico, but that is not enough in gaming, you need to be the best globally even if you only intend to win in a local market”.

Three things entrepreneurs can learn from these case examples

Though three case studies is not enough to make definitive conclusions, some themes can be observed in these examples, which are useful for entrepreneurs to observe. Here are a few that I think are important:

Funding was hard to get in Mexico

Both Taracena with Metroscubicos and Guillen with Nibbo Studios acknowledged that financing was one of their biggest challenges. In the case of Metroscubicos, they had to change their full business model from an online to offline traditional media for several years because they knew that they were not going to be able to get any more funding. Nibbo tried a number of the government sources and used every trick possible that would still allow them to keep their company identity – consulting, entrepreneurship prizes. The government sources, which in paper are meant to cover a company exactly like Nibbo, where simply bureaucratic and hard to work with, at least at the stage in which their company was. When I asked Guillen if they considered venture capital he mentioned they tried some options, but nothing that was eventually very doable.

The lack of institutional funding sources has been constantly recognized as one of Mexico's biggest structural issues in terms of its entrepreneurial environment. In the two examples above it was this lack of capital that severely changed the business model of one company and partially bankrupted the other one. Some changes through the Nueva Ley Mexicana de Valores mentioned in Chapter I of this thesis are meant to help, but it is still too early to see whether they will have a significant effect.

Funding in a bull market is important

I do not believe it is a surprise that both Metroscubicos and JackBe, which are considered two of the most successful Mexican startups to have existed, were both created at the height of the dot-com boom. In both cases, they were able to raise decent capital and it was this capital that allowed them to work through the issues of their products and adapt them to the market. In the case of JackBe, they even created a totally new product.

One possible reason why they were both created in the dot-com boom, which I believe is true, is that the effect of the venture industry cycles is likely to be even more relevant in Mexico compared to the US. Whereas in the US there are some very strong players that might fund ideas through a downturn, and the funding situation changes from easy to find to hard or very hard to find, in Mexico the situation can be harder. The industry is so small and new that it is possible that, during a bear market, the whole industry comes to a halt and no investments are done, at all, in the country.

“Win big or fail big”

This phrase said by Luis Derechin of JackBe is very true for Mexican startups. It suggests that software product companies need to be very aggressive and know that they need to win the global market of they want to exist in the long run. It is not rare for companies to think that they need to be successful in their local environment however, in technology businesses, it is necessary to succeed in the global environment. With trade costs being minimal, if you are not a winner in the global market it is likely that the actual winner will dominate your local market as well. Guillen from Nibbo agreed with this concept,

as he mentioned their technology was good, probably one of the best in Mexico, but gaming is not competing in Mexico against Mexican brands, but rather against the global leaders in this space.

Conclusion

This thesis started from my personal motivation on how to create successful software companies in Mexico. Though I was not sure what I was going to find, I felt from my experience as a Mexican that the country had everything that was needed for a successful venture, and that, the biggest challenge was lack of information. I believed that by creating a guide to develop a company the field would be much more leveled between American and Mexican entrepreneurial ventures.

Though I achieved this in many ways, through my research, I have also come to find several structural deficiencies in Mexico which I once believed were less severe than I realize now. It is my belief that Mexican entrepreneurs need to understand these deficiencies and accept them as a fact of the environment in which they will create their businesses so they can think how they can best circumvent them. It is mostly useless from the short time-frame perspective of a new business to either want to change them, blame them as a cause of problems or failure, or assume they would not affect you. Therefore, it is essential for entrepreneurs to give them a thorough look. At the same time, some myths about Mexican venturing proved to be less relevant than I originally expected, and finally, I found some new opportunities that firms could target very well.

This conclusion first creates a realistic overall picture of Mexican software entrepreneurship, particularly its myths and realities and then moves on to talk about general principles that Mexican entrepreneurs need to consider to create successful businesses that can win globally.

Seven myths and realities of Mexican software entrepreneurship

The following are some important myths and realities studied in this thesis and important to understand Mexican software entrepreneurship.

1. Reality – Engineering talent is just not great in general

A lot of engineers graduate in Mexico every year. Actually, adjusted by population size the country graduates more bachelors in engineering than the United States. However, most of these do not work over a long period of time as engineers and a very small number decides to pursue a master's degree. In terms of software development, there might be a lot of people that know the basics, but when founders look for Software Architects with ten years of experience to create their enterprise application, they will find this talent search much harder.

2. Myth – Mexican entrepreneurship fails because Mexicans are afraid of failure

From the data I have seen one cannot conclusively argue that Mexicans are actually afraid of failure, but even if they were, it seems to me this is a factor that has just been heavily overblown and does not play as much of a central role as it has been suggested. Furthermore, if Mexicans had more fear of failure than Americans, it is not possible to independently measure whether entrepreneurial success was really related to that or other factors like capital or talent.

One way to evaluate it is through a thought experiment and ask myself: if a Mexican entrepreneur in Mexico was given the same amount of angel money than one in Silicon Valley (say, a million dollars), had access to a talent pool that's comparable, investors equally

sophisticated and a regulatory framework that worked as well, Would they be culturally much more afraid of failing? Particularly, would this fear difference be big enough to paralyze or handicap one startup against another? Though without data, the answer to me is almost naturally no.

Entrepreneurs with similar ideas might be more afraid of failure in Mexico if they know, for example, that it is less likely they will get their idea funded in this country. But that is a real structural issue – they are more afraid because the risk is actually higher given different capital availability, and it is not at all a statement of the character of the Mexican culture.

3. Reality – Capital availability is minimal

The venture landscape is finally changing in Mexico, and that is certainly encouraging. The **NUEVA LEY DE MERCADO Y VALORES** appears to have addressed the most important structural issues in the venture capital system, including the ability for pension funds to establish themselves as limited venture partners. However, Mexican venture capital will start growing from an extremely low base of 0.0003% of GDP, which is more than seven hundred times smaller than the United States at 0.22%. For an entrepreneur looking for capital in the near future (the next five years) the effects might not be as visible, since even if it does grow quickly, venture capital will continue to be tiny for a while.

4. Myth – Mexico’s entrepreneurial ecosystem is not evolving

There are many people in Mexico that are committed to create a better ecosystem for entrepreneurship and their efforts are yielding returns. As explained in chapter 1, there are many changes happening in Mexico to create a better country for startups and I think they are very visible.

5. Reality – Not many breakthrough ideas

The Mexican research share is quite small, even more considering it is the 11th most populated country in the world (Wikipedia, 2011). This suggests that the average citizen is quite unlikely to come by an innovative university research idea. However, scarcity of ideas is not the biggest issue, but rather the quality of the ideas that do get created. Mexican research quality ranks at the bottom of the OECD countries, and makes it hard to believe that there will be technology that Mexican startups could create into companies even if they looked for it in a very targeted search. It is not impossible however, as can be seen by the Gnome project, created by Miguel de Icaza in the Universidad Nacional Autónoma de México and is today the de-facto window and desktop manager for Linux systems.

6. Myth – Mexican software companies cannot exist because the Mexican market is very small

The market myth has probably stopped one to many entrepreneurs. High growth startups need big markets and Mexico does not really have almost any of them. However, founders forget that there is no reason why they should focus their business in the Mexican market. Product

companies are almost always global companies, and therefore startups should focus on those global markets, not on the local ones.

7. Reality – the country is likely to be centralized around Mexico City

I have always personally disliked the fact that Mexico is a heavily centralized country and my intention in this thesis was to prove that companies can be created in most Mexican cities however, the availability of a number of factors has made me conclude that this is not the case, and that Mexico City offers a better advantage for most companies in terms of capital, talent and other.

Eight principles for entrepreneurs creating a Mexican software startup

This thesis mostly analyzed Mexico from a strategy point of view, understanding how to create successful companies in a different environment. The following are the eight strategic principles that I think are the core conclusions of this thesis and could sum up the conclusions as an advice to entrepreneurs.

1. You are right next to the United States, use that to your advantage

As was explained through chapter 2, there are multiple advantages to being next to the United States. It makes courting American investors easier as well as selling products into the US. As was seen in the case of Canada, it could be possible to create businesses in Mexico that focus on American, not Mexican, problems and clients. A trip from Mexico City to New York is relatively at the same distance and cost than San Francisco.

Furthermore, since most entrepreneurs are likely to already have a tourist visa that allows them to enter the United States for a period of six months, they can be in the United States for longer periods of time and more quickly without having to go through any paperwork.

2. Focus on a big market not on the local market

Big business opportunities have to be necessarily tied to a big market and, in Mexico, most markets are from small to medium in size. However, there is no reason in today's technology world why a Mexican company would have to forcefully focus on the Mexican market. There are big opportunities everywhere in the world, United States, emerging markets, Latin America. There are also opportunities in many segments including mobile, virtualization, datacenters, gaming and others.

3. Consider focusing on emerging economies

Mexican companies have an intrinsic bigger credibility gap to bridge than their American competitors when selling to the United States, however, they have good credibility with emerging economies, particularly in Latin America. At the same time, emerging economies have many of the best opportunities for the coming decade. When creating a company, consider if it should be focused on the United States or on emerging markets. After all, the days when winning meant successful sales in the US are starting to be over.

4. Consider business innovations, not only product innovations

There are many opportunities that can come from applying known concepts to new markets in new ways, given that a Mexican startup is bound to see things a little different than other startups, it is possible they find opportunities by just repackaging technologies in a new way so that a new problem is solved.

5. Don't try to build the next Twitter and if you do, move to California

Face it, Mexico City is not and will never be Silicon Valley. Some of the latest very successful social media solutions like Facebook and Twitter have required hundreds of millions of dollars to reach profitability, and the only venture funds with that kind of capital are located in the United States. If you want to build a company that will require that much capital, you would be wise to look for a way to move to the United States through the strategies outlined in chapter 2.

6. You need to be the best in the world in your market. Period.

Don't make the mistake of thinking that just because you are the best company in your city or even in all Mexico you have a good company. You might be able to get some advantage but in most markets, the global winners eventually are present in most economies and you will lose that share with time. The current focus on emerging economies will accelerate this problem.

Pier Guillen with Nibbo Studios talked about exactly this issue as he mentioned to me one that of the reasons they were not completely competitive was that they were the best educational game company in Mexico, but that didn't matter if their clients were buying international products.

7. You need to figure out how to get top engineering talent

Eventually, the raw input of software products is engineering talent and the best products are necessarily created by the best engineers. Mexico does not have many good engineers, and you might need to be very creative on how you find them. However, keep in mind there is no requirement for the engineers to either be Mexican or live in Mexico, and it is possible that more than one international engineer could relocate to the country. Inventiveness and a willingness to get the right people will be very important here. Also, you need to keep in mind that your product will be competing with that of people from the best engineering schools all over the world. Therefore, you need to create an engineering team that can compete with one in Israel or Silicon Valley.

8. If possible, establish your company in Mexico City

Great technology companies are usually created around hubs and there is evidence to suggest that the Mexican hub will be in Mexico City given its concentration of research, capital and other services. Given that it takes a lot more time for the hubs to develop than for entrepreneurs to create a company, founders are pretty much unable to change the environment but rather can just choose the one that better fits their goals.



Appendices

Appendix 1 – Venture funds invested by the Mexican Fund of Funds

Name	Relevant to technology entrepreneur
Latin Idea Mexico Venture Capital Fund II	✓
Cleantech Fund LP	
Nexus Capital Private Equity Fund III	
Alta Growth Capital Mexico Fund L.P.	✓
Capital I-2 Partners L.P.	
Darby Latin American Mezzanine Fund II, L.P.	
Mexico Real Estate Investments L.P.	
Fondo Sinaloa	
Aureos Latin American Fund I, L.P.	
Central American Mezzanine Infrastructure Fund L.P.	
Evercore Mexico Capital Partners II, L.P.	
La Salle Mexico Fund L.P	✓
Proequity Fund I, L.P.	

Source: www.fondodefondos.com.mx

Appendix 2 – Globally successful Swedish software companies

<i>Company</i>	<i>Software/Service</i>
Appear	
Algoryx	
Cention	
DigitalRoute	
Neo4j*	
Novotek AB **	
IFS AB	
NuEdge	
Develpoment	
Kenet Works*	
ReadSoft **	
Peltarion	
Propellerhead	
Software	
Power Challenge *	Developer of console multi-player online video games
QlikTech *	

Appendix 3 – Globally successful Canadian software companies

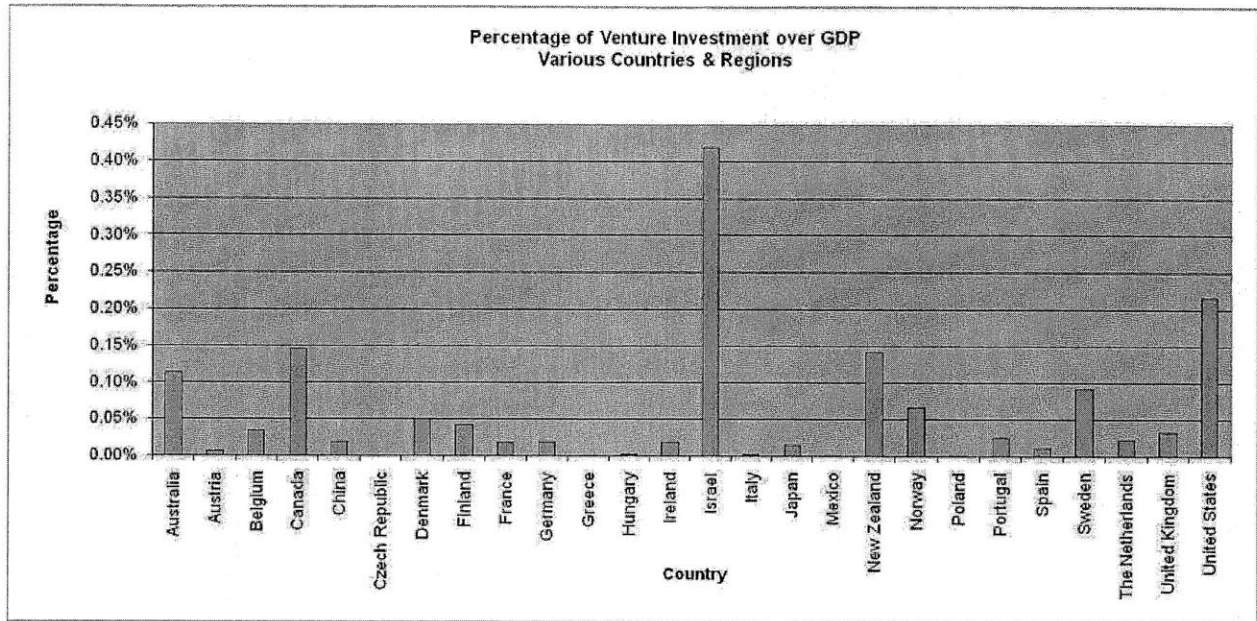
Company Name	Symbol	Mkt Cap (Millions Can\$)	Product type	Main Office in Canada	sales Office in US	Geographic footprint
Pure Technologies Ltd. *	PUR	239.4				
Sylogist Ltd.	SYZ	43.0	Vertical Business Process Management software for education, & municipal markets	Yes	Yes	Canada
QHR Technologies Inc.	QHR	30.3	Health productivity software (EMR / EMS)	Yes	No	Canada
Automated Benefits Corp.	AUT	28.4	Claims processing software for health and dental	Yes	No	Canada
Diversinet Corp.	DIV	23.8	Mobile healthcare security	Yes	Yes	US
Versatile Systems Inc.	VV	15.7	Virtualization Infrastructure	Yes	Yes	US, Canada & UK
Sangoma Technologies Corp.	STC	15.1	Networking hardware and software for telecom	Yes	Yes	Global
Empower Technologies Corp.	EPT	10.8	embedded operating systems	Yes	Yes	Canada, US
Titan Trading Analytics Inc.	TTA	9.3	Financial Trading Analytics	No	Yes	Canada, US
Healthscreen Solutions Inc.	MDU	6.0	Electronic Medical Records for Canada	Yes	No	Canada
Angoss Software Corp.	ANC	4.3	Data mining and predictive analytics for credit and sales	Yes	No	Canada & UK
Serenic Corp.	SER	4.1	Financial management software for non-profits, NGOs and public sector	Yes	Yes	Canada

*Pure Technologies was not included in the analysis

Breakdown by technology focus

<i>Company Name</i>	<i>Symbol</i>	<i>Target Client</i>	<i>Industry</i>
<u>Sylogist Ltd.</u>	SYZ	Mid and large costumers	Public sector
<u>QHR Technologies Inc.</u>	QHR	Enterprise	Healthcare
<u>Automated Benefits Corp.</u>	AUT	Enterprise	Insurance
<u>Diversinet Corp.</u>	DIV	Enterprise	Healthcare
<u>Versatile Systems Inc.</u>	VV	Mid and large costumers	Multiple
<u>Sangoma Technologies Corp.</u>	STC	Enterprise	IP Telephony
<u>Empower Technologies Corp.</u>	EPT	Enterprise	Hardware
<u>Titan Trading Analytics Inc.</u>	TTA	SMB	Financial Service
<u>Healthscreen Solutions Inc.</u>	MDU	small business	Healthcare
<u>Angoss Software Corp.</u>	ANC	Enterprise	ERP
<u>Serenic Corp.</u>	SER	Mid and large costumers	Public sector

Appendix 4 – Venture capital investment by country



Source: Lerner, Josh. Mexico Venture Capital Report

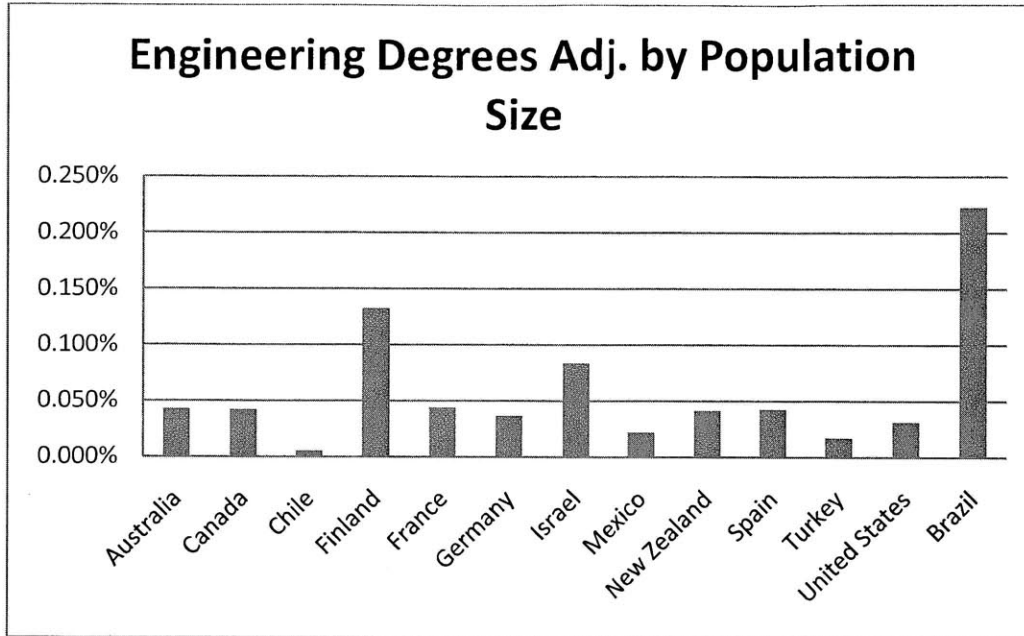
Appendix 5 - Fear of Failure in Mexico – Babson

Fear of Failure as reported in Babson GEM Global Report (a lower score, meaning that the country has less fear of failure, is positive for entrepreneurship).

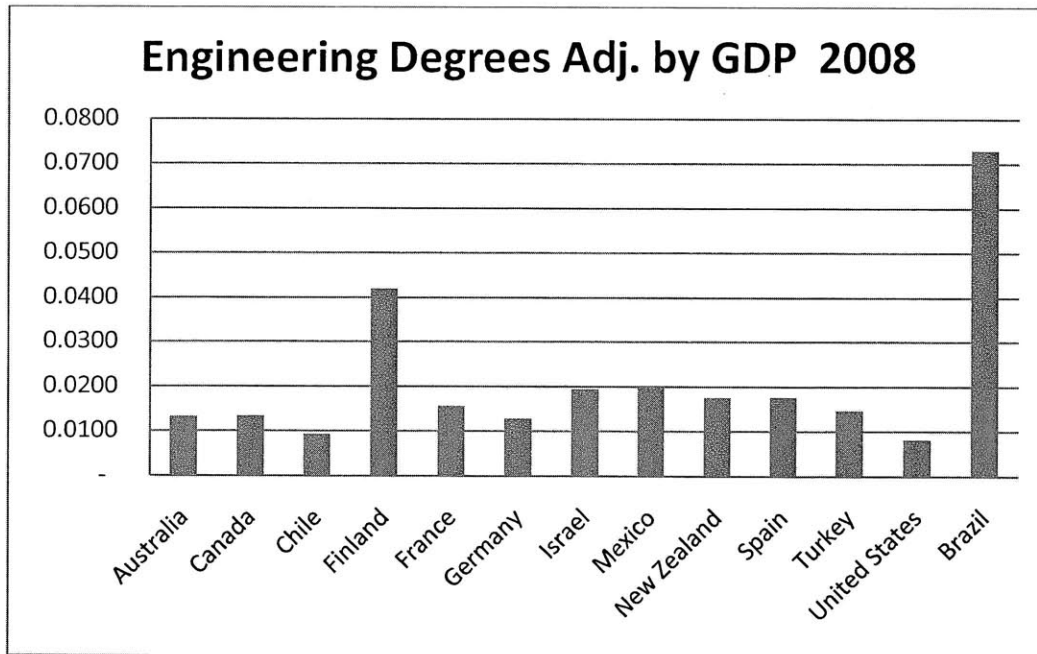
<i>Sample Countries</i>	<i>Score</i>
Mexico	33.4
Brazil	33.2
Argentina	21.3
Taiwan	43.8
Israel	46.0
United States	26.7
Germany	33.7
Finland	28.6
Sweden	42.4

Source: Babson GEM 2010 Global Report

Appendix 6 - Engineering talent in Mexico



Source: OECD.StatExtracts



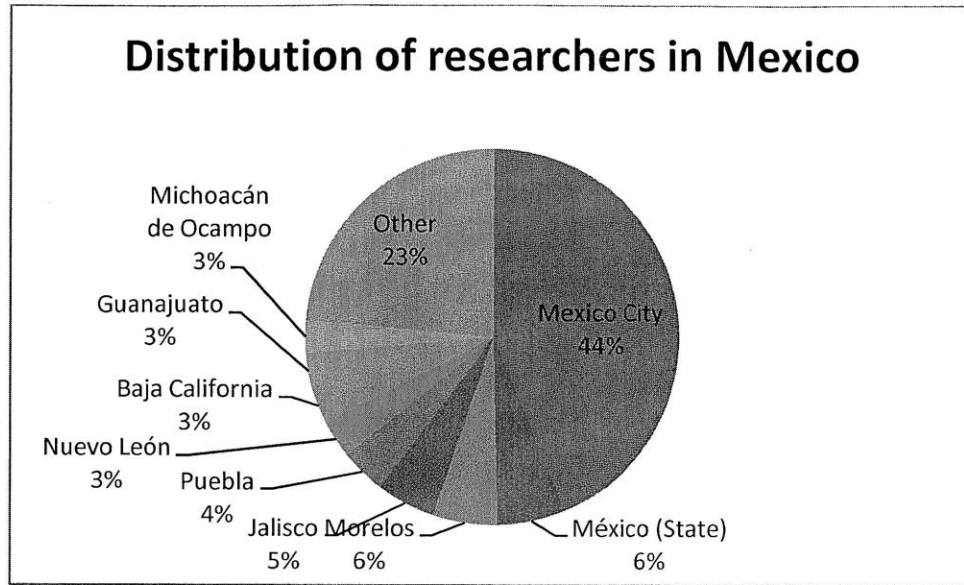
Source: OECD.StatExtracts

Appendix 7 – Top Mexican universities and their world ranking

University	World Rank	Latin America Rank
Universidad Nacional Autónoma de México	66	2
Universidad de Guadalajara	550	22
Tecnológico de Monterrey	593	25
Universidad Autónoma del Estado de México	643	38

Source: webometrics.info

Appendix 8 – Geographical distribution of researchers in Mexico

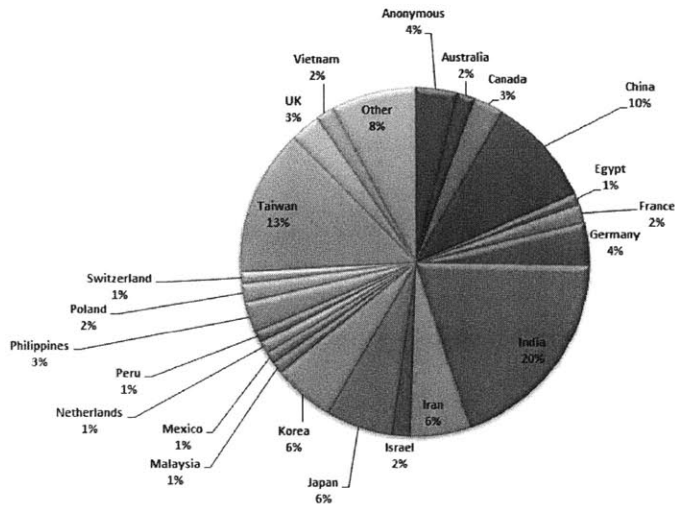


Source: CONACyT, 2008

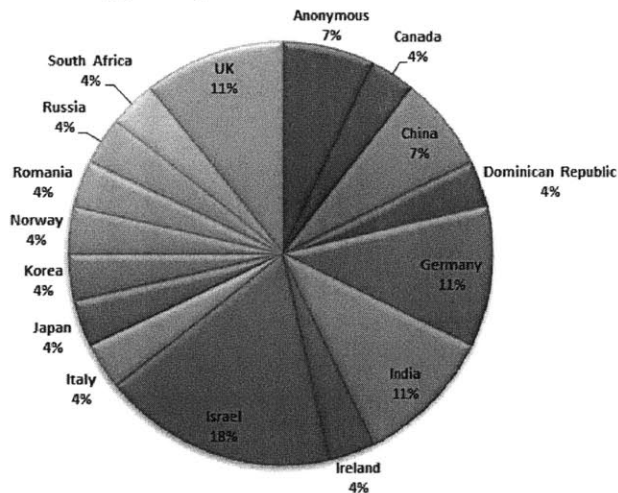
Appendix 9 – Immigrants from which countries founded technology companies.

Source: *America's New Immigrant Entrepreneurs: Part I. Wadhwa, Vivek.*

Immigrants from Which Countries Founded Engineering and Technology Companies in California?

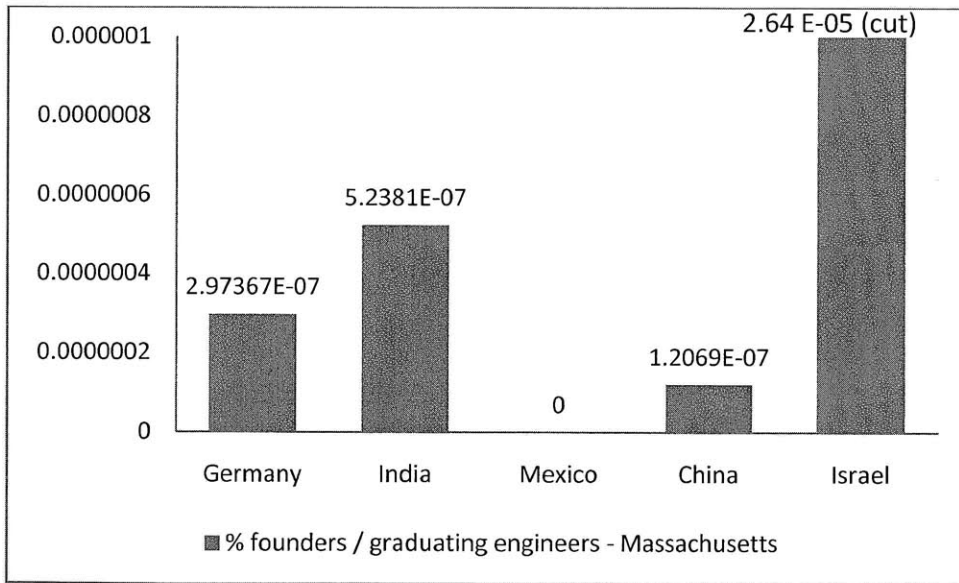
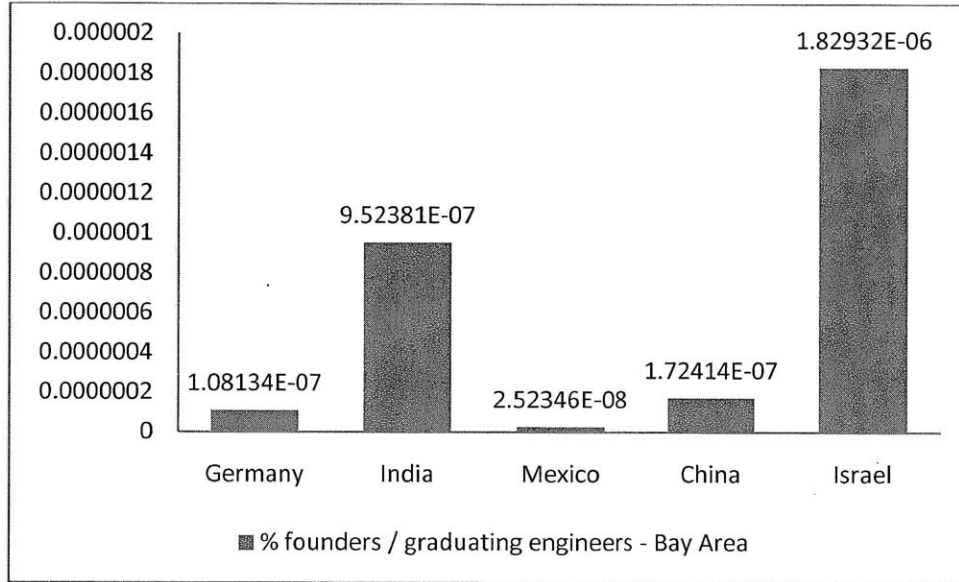


Immigrants from Which Countries Founded Engineering and Technology Companies in Massachusetts?



Appendix 10 – Comparative analysis of network strength to American founders

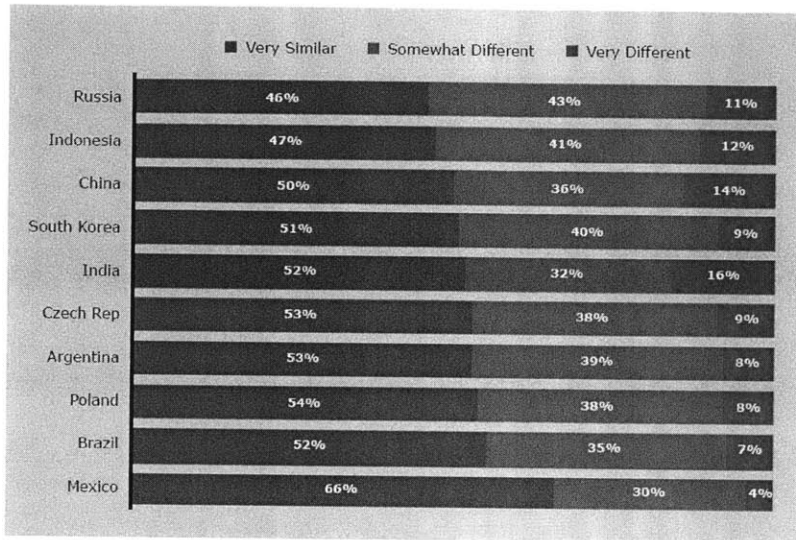
Sources: Germany and Mexico: OECD, StatExtracts. India and China: Gereffi, Wadhwa, Rissing, Ryan, 2009. Israel: Israel Central Bureau of Statistics.



Appendix 11 – Product differences in emerging markets and developed economies

Products Sold in Emerging Markets Often the Same as at Home

How Products Sold by Company in Emerging Markets Compare to Products Sold in Home Market

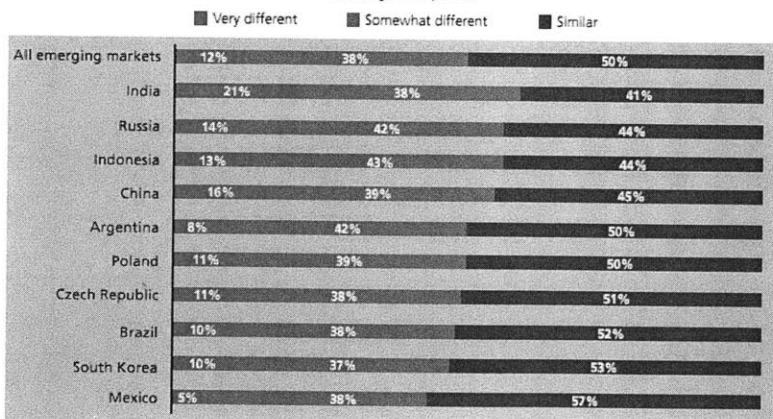


Source: One or More Member Firms of Deloitte Touche Tohmatsu

Exhibit 3

Few companies offer very different products

Products sold in emerging markets compared to those sold in home market
Percentage of responses

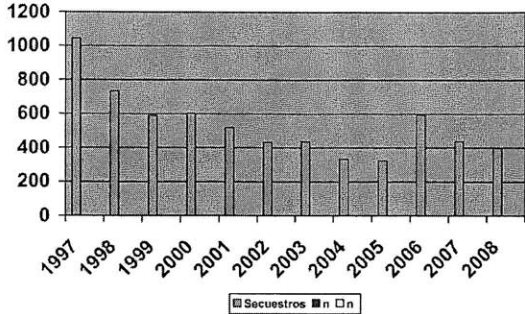


All emerging markets = 10 emerging markets listed

Source: One or more member firms of Deloitte Touche Tohmatsu

Appendix 12: Security threads in Mexico

Kidnappings in Mexico



Source: Insyde

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