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COMPETITIVENESS AGAINST THE SUSTAINABLE DEVELOPMENT GOALS

Universidad de Guadalajara

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Prologue

Competitiveness against the Sustainable Development Goals is an excellent book for experts, governments, and entrepreneurs. In its pages, we can discover different topics about two competitive factors. New poverty profiles and climate change are factors that modify strategist perception and the construction of competitive advantages.

Experts explain the situation of the organization, institutions and regions according to the Sustainable Development Goals (SDGs) in nine chapters. SDGs are considered as the essential guidelines that facilitate the strategic consideration of climate change and the new poverty profiles to achieve greater competitiveness.

Each part of this book was based on empirical and real evidence from enterprises, universities, governments, and institutions. All of these studied organizations are part of the competitive environment. The writers believe in economic progress in line with the innovation, the resilience, the entrepreneurship, and the international cooperation between regions, countries, and corporations.

The authors are from Canada, Colombia, Mexico, and Spain. All of them are experts in Economic and Business Sciences. The universities that participate in this project are: Université du Québec à Montréal, Universidad de la Amazonia, Universidad de la Guajira, Universidad del Norte, Universidad Autónoma de Aguascalientes, Universidad de Guadalajara, Instituto Politécnico Nacional, Universidad Michoacana de San Nicolás de Hidalgo and Universidad Nacional de Educación a Distancia.

This publication was created following the best practices of scientific edition. Turnitin was applied to favour the originality. The editorial team carefully analysed the quality and originality of the contents. Every chapter was selected, evaluated, and modified with the support of international peers.

Editors and authors hope that this book contributes to the advancement of theoretical and practical knowledge.

Dr. José Sánchez-Gutiérrez

Chapter 1

Climate Change and New Poverty Profiles for the Sustainable Competitiveness

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Climate Change and New Poverty Profiles for the Sustainable Competitiveness

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Introduction

The aim of this book is to analyse the competitiveness versus the Sustainable Development Goals. This implies addressing new poverty profiles and climate change. Poverty and climate change are factors that change the strategist perception and the construction of competitive advantages.

Economic development can be achieved thanks to organizations, regardless if these are private or public. Government policies, the economic environment, and the entrepreneur actions must fit coherently to achieve the development synergy (ECLAC, 2013).

A strategic vision that considers the new poverty profiles and climate change generates social value and increases the population welfare. This, in turn, contributes to the business or public programs' suitability. Thus, expenses become an investment, the system becomes dynamic and the population enters a virtuous circle of work-income-welfare.

In this context, there is a need for strategists with the capacity to build new scenarios and the availability for constant checking of emerging strategies adapted to the new reality. The capacity for analysis and transformation in an ever-changing system is a decisive element in the 21st-century competitiveness.

The strategist needs the learning capacity about his own reality. Only from a critical vision the competitiveness sustainability can be reached (EM, 2015).

Sustainability implies more factors than environment caring. The environmental element is one of the many factors that involve sustainability pursuit. It is especially relevant for the competitiveness sustainability in a capitalist system.

Given the unstable global economic scenario, it is considered fundamental to focus on strategic analysis and the construction of new scenarios of two elements: new poverty profiles and climate change, both in the public and private spheres.

Sustainability in Competitiveness Terms: What Does It Include?

Any strategy to be sustainable must be evaluated from three critical areas: economic, social and environmental (Calvente, 2007). In the world scenario, this imposes great challenges, because the information and communication technologies together with financial internationalization make the uncertainty even greater.

International events affect local business activities and change costs, purchasing power, distribution channels, and even consumer preferences and expectations. Calvente (2007) points out the following characteristics: supportability, robustness, resilience, and adaptability.

A strategy is supportable in the organization when it has developed the capacity to produce at a rate in which it does not exhaust the resources it uses and requires in order to function and does not produce more pollutants than its environment can absorb. (Berkes, Colding and Folke, (2001).

A strategy is robust when it maintains global production conditions in volatile environments, implying major changes and transformations away

from equilibrium. Such is the case of the biosphere. The biosphere is an unbalanced system, even if it can maintain global conditions on a regular basis, which gives the appearance of "balance of nature". It is the balance within the imbalance or order from the chaos. (Berkes, Colding and Folke 2001)

A strategy is resilient when the organization achieves the ability to recover after a catastrophic situation, not necessarily returning to its previous state but yet performing its basic functions. It is to recover order from chaos. If a system does not have enough organizational resilience in the face of a catastrophe, the way ahead is the extinction of the system. (Berkes, Colding and Folke, 2001)

The adaptive capacity relates to mechanisms for the evolution of novelty through learning. (Berkes, Colding, and Folke, (2001).

Sustainability involves the strategy generation that is resilient, robust, adaptable and supportable.

Indeed, supportability becomes another factor in sustainability. It is also important to note that ignoring climate change and the new poverty profiles undermine these four factors, making the strategy not entirely sustainable because it does not identify the new scenarios origins at the root.

In fact, the sustainable development announces the economic rationality limit, proclaiming the superiority of life values, social justice and commitment to future generations (Leff, 2000). The inclusion of supportable, adaptive, robust and resilient processes, in order to reach their prevalence over time, is very necessary.

Competitiveness Versus to the Climate Change

The climate change obeys to factors in principle unrelated to the understanding and control of the human being. Yet, human-generated pollution (industrialization and exacerbated consumption) has fueled the negative effects on the conservation of life. Climate change has added a tragic effect on the world economic system and has even reduced human lives due to natural phenomena for which society was not prepared.

The main human activity contributing to climate change is the consumption of fossil fuels, particularly oil and coal, which emit carbon dioxide. The greenhouse effect is the mechanism by which carbon dioxide and other gases produce global warming (Rodríguez and Mance, 2009).

There is a disjunctive between industry and the greenhouse effect, which can favor the reduction of the first one, based on rational and alternative consumption (EEM, 2005).

The picture emerging from scientific data on Climate change is clear. The Intergovernmental Panel on Climate Change (IPCC) has come to the conclusion that the warming of the Earth's climate system is unequivocal. It is estimated that, in the last century, the average temperature of the planet's surface has increased by approximately 0.74 degrees centigrade (WTO, 2009).

Many greenhouse gases remain in the atmosphere for a long time. Thus, climate change will affect the planet for several centuries, even when emissions are considerably reduced or stopped altogether. (WTO, 2009) We need mechanisms to confront it and adapt the human activity to the new reality.

Climate change has a large impact on ecosystems, societies, and economies and increases the pressure on livelihoods and the food supply, including fisheries and aquaculture sector. The quality of food has played a very important role. As the pressure to which food resources are subjected is increasing, this determines that the availability and access to fisheries resources become an increasingly critical development issue. (WTO, 2009; FAO, 2012, 2014, 2015; ECLAC, FAO and IICA, 2014).

The fishing sector differs from the conventional agricultural sector by the interactions and specific needs that link it to the problems posed by climate change. Capture fisheries have their own traits in terms of harvesting natural resources and their links to global ecosystem processes. Aquaculture complements food supplies and contributes significantly to their increase, and although its interactions are similar to the ones of agriculture, it also has important connections with capture fisheries. (FAO, 2012)

The consequences of climate change affect the four dimensions of food security: availability, stability, accessibility, and usefulness. The availability of food of aquatic origin varies due to alterations in habitats, fish populations, and the species distribution. The stability of supplies and related risk-taking is affected by seasonal irregularities, the variance in the productivity of ecosystems. The accessibility of food of aquatic origin is modified due to changes in livelihoods and in catches or harvest possibilities. The usage of aquatic products is undergoing alterations, for example, some societies and communities must adjust their consumption habits by introducing into their food species that were not part of their traditional diet. (FAO, 2012)

Conflicts over resources are likely to intensify as a result of the interruptions of agricultural production and water supply processes. Some companies in South Korea have sought to offset the effects of Climate change in their country by investing in the fertile ground on the island of Madagascar.

It is possible that also another countries must extend their influence to new regions to guarantee their food security. Among them could be India and China, since the melting of the Himalayan glaciers will lead to the deregulation of the water cycle in the region, with devastating consequences for the production of cereals and rice. (Rodríguez and Mance, 2009)

A future climate scenario with significant alterations generates important impacts both on the ecosystems and on the socioeconomic sectors, threatening in an unequal and, above all, disproportionately greater way, those who, being poorer, have less capacity for reaction and adaptation.

The effects of climate change are not only disproportionately greater in the sectors of the most vulnerable population, but they are also eminently unfair to those who have had little to do with the generation of the problem. (Domínguez, 2007; WTO, 2009)

The poorest countries bear the main burden of climate change effects, while at the same time striving to overcome poverty and promote economic growth. For these countries, climate change represents the threat by multiplying their vulnerabilities, eroding the progress being achieved with so much effort and by severely damaging the prospects for development.

At the same time, many developing countries fear the limits that may be imposed on their decisive call for energy development or new rules that may prevent them from meeting their many needs, from infrastructure to entrepreneurship. (World Bank, 2010)

Climate change is double-sided for the Latin America's countries. It could become a serious threat because of the risks involved or, on the contrary an opportunity to contribute to economic development within the framework of sustainability. The risks are related in part to the preponderant role of agriculture in the economies of the region and their dependence on weather changes. The potential advantages have to do with the financial instruments that emerge. (CSDA, 2000)

A high degree of creativity and cooperation is needed in order to face the immense and multidimensional challenge of climate change. A world with an "intelligent climate approach" is possible in our time, but, as maintained in the report, in order to achieve this transformation we must act now, at one and in a new way. (World Bank, 2010)

The effects on international trade have been felt in two ways: infrastructure and trade routes. Port facilities, but also buildings, roads, railways, airports, and bridges, are at serious risk of damage as a result of rising sea levels and the increasing frequency of extreme weather events such as floods and hurricanes. In addition, changes in sea ice, especially in the Arctic, are expected to lead to change the existing navigation routes. (WTO, 2009)

Clean Development Mechanism (CDM) is a mechanism for dealing with change. It has its origin in the Brazilian proposal for the creation of a Clean Development Fund that would be constituted by financial resources of rich countries that did not fulfill their quantified obligations to reduce or limit greenhouse gas emissions (usually referred to as "goals"). Such a fund would be used to generate projects in developing countries.

The concept of penalization was not accepted by some developed countries and the idea of the fund was modified, becoming the Clean Development Mechanism. (Frondizi, 2009; Jiménez, 2007; SERCAL, 2013) Most of the projects under the Clean Development Mechanism are focused

on renewable energy and the capture of methane in solid waste management. (Coto and Morera, 2007)

They can include the substitution of fossil energy by other one of renewable origin, rationalization of the use of energy, afforestation and reforestation activities, or more efficient urban services, among other possibilities. (Frondizi, 2009)

According to the picture presented in the previous sections, it is shown that both the new poverty profiles and climate change become pivots triggering the competitiveness. They transform the vision with which we approach, understand and act in the local market. Such is the case of those companies that offer green products (Rodríguez and Mance, 2009).

Technological innovation, as well as the transfer and generalized application of technologies, are the axis of the global efforts to face the mitigation of Climate change. Adaptation technologies can be applied in different ways, including, for example, the construction of infrastructures (dykes, coastal retaining walls, ports, railways, etc.); the design and structure of buildings; and research on drought-resistant crops, their development, and their practical application. (WTO, 2009)

The main barrier to technological transfer lies in patents and distrust related to the perception of it being subject to acts of opportunism. However, this does not indicate that the transfer does not occur; it does not occur in the same dimension and speed as the climate change and the new poverty profiles processes would require from it.

Rodríguez and Mance (2009) cite five climate change risks for companies; however, only the following three are considered relevant for the study:

1. Materials. Damage to property, assets and distribution networks. Less availability of natural resources such as water.
2. Security. Increased competition for scarce resources could generate and lead to global instability and collapses in supply chains.
3. Financial. The cost of insurance increases, particularly in vulnerable regions - for example, coastal areas. Plus the losses due to catastrophic events.

The meteorological effects of climate change on migration can be divided into two conditioning factors: on the one hand, climate processes such as sea

level rise, soil salinization for agricultural use, desertification and increasing water scarcity; and on the other hand meteorological phenomena such as floods, storms and flash floods of glacial lakes.

But non-climate factors such as government policies, population growth and the resilience of communities after a natural disaster also play an important role. All this determines the level of vulnerability of the population. (Brown, 2008)

Pettengell (2010) produced a report based on case studies from around the world and the experience acquired by Oxfam in its work with rural communities. Oxfam's approach combines experience in areas such as livelihoods, natural resource management and disaster risk reduction, with firm decision making to manage uncertainty and risk, and thus develop the capacity to adapt at the local, national and global scale.

The report identifies the need to combine processes from the global, the national and the local levels to create the necessary conditions for people living in poverty to adapt to climate change, it also exposes a series of possible measures for this purpose. (Pettengell, 2010)

In 1990, the Intergovernmental Panel on Climate Change (IPCC) noted that human migration is the most serious consequence of climate change. Millions of people move because of the coastline erosion, the coastal flooding, and the agriculture ravages. Forced migration has at least four ways to hinder development: it increases the pressure on urban infrastructures and services, it undermines economic growth, it increases the possibility of conflicts and, among the migrants themselves, it worsens health, educational and social indicators. (Brown, 2008)

The World Bank points out that in order to face climate change, we have to act now, act in common and act differently (World Bank, 2010). Mitigation and adaptation have been the two mechanisms adopted against climate change. Mitigation refers to policies and options that aim to reduce greenhouse gas emissions or to enhance sinkholes (for example, oceans or forests) that absorb carbon or carbon dioxide from the atmosphere. (WTO, 2009)

Adaptation, on the other hand, refers to the responses to reduce the negative consequences of climate change or to take advantage of its possible

benefits. That is, mitigation reduces the speed and magnitude of climate change and its associated effects, while adaptation reduces the consequences of those effects by increasing the capacity of human beings or ecosystems to cope with changes. Most of the international measures have focused on mitigation. (WTO, 2009)

Inclusive business favors adaptation and is a response to the fact that migratory flows do not continue to lead to poverty belts (WBCSD, 2006). Communities must have the capacity and resources to act as intermediaries and connect the processes driven from below and from above (bottom-up and top-down), based on the following factors, according to OXFAM:

1. Populations that depend on agriculture are particularly vulnerable to Climate change. Communities need access to the forecasts and appropriate technologies to be able to put into practice the most appropriate management methods and to address the conditions that currently limit their ability to adapt. (Pettengell, 2010).

2. Climate change exacerbates the scarcity of traditional resources and causes the search for different resources. Some areas become increasingly arid and others, like coastal zones, suffer from saline intrusion; the availability of water for domestic use and the production is decreasing there. (Pettengell, 2010)

3. Climate-related disasters have increased in frequency and intensity as a result of climate change (Pettengell, 2010).

Brown (2008) indicates that migration may be the only adaptive solution in the case of some small island states or countries with very low land. Andrew Simms, from the New Economics Foundation, points out that internal solutions are, in some cases, absurd given that it is the national territory that can be submerged (Lovell, 2007). Climate change, migratory flows, and new poverty profiles are closely linked. These three elements are also convenient in order to consider the strategies to commit with under the current world scenario.

New Poverty Profiles: Between Climate Change and Competitiveness

It is not very gratifying to address poverty, particularly if the question is about competitiveness. In some cases, there is a contradiction and the misconception that profitability comes at the expenses of poverty and competitiveness can have negative effects for the welfare state.

Unfortunately, there are situations that these controversial statements can be confirmed. Fortunately, there are also different situations. The inclusion principle allows the creation of economic activities that mitigate poverty.

Many organizations have been in a competitive race that, in many cases, has sharpened and increased poverty. It is also clear that this is not the only pattern of behavior.

Strategies in search of competitiveness that have undermined the welfare state, have given this result probably due to the lack of a more accurate reality vision. Most of the investment projects, export plans, and other planning exercises focus only on competitiveness and profitability. These are strategies centred on the financial benefits and market expansion. They were implemented without including poverty mitigation as an element of their sustainability. This dynamic led to the creation of new poverty profiles.

Misleading assumption: it is comfortable to ignore poverty because it generates the perception of having eliminated it. Indeed, this ignorance does not eliminate it, what is more, it reproduces it and makes it more complex. The complexity level causes a higher cost to the system. Higher costs could be avoided by giving place to the poverty phenomenon inside the system. Finally, poverty is the system product and corrective mechanisms must be generated to mitigate it.

One way to alleviate poverty is to accept the relationship it has with strategies for competitiveness. It requires abandoning the idea that it is up to public bodies to mitigate it. The alleviation of poverty corresponds to all organizations. Furthermore, mitigating poverty is profitable and

competitive because it creates social value. And it is this value that can be translated into economy.

A strategy is self-limited if it is not based on reality. The new poverty profiles are part of this reality. Part of the sustainability of the business is to understand what the new poverty profiles are, so that the strategies that are developed also adapt to the reality in terms of the latter.

Poverty is a way of life that arises because of the impossibility to access resources that satisfy basic physical and psychic needs. This inability to access results in the deterioration of life quality. The resources that are not accessed are food, housing, education, healthcare or access to drinking water. It also includes the lack of means to access such resources as unemployment protection, zero or low income. Sometimes, it is the result of processes of social exclusion, social segregation or marginalization (EAPN, 2014).

Latin America is one of the most unequal regions in the world. Poverty is a part of the general picture of its territory. Originally, this poverty was, in general, linked to rural areas, big cities instead were the development symbol, and opportunity source. Rural poverty is a problem that has not been resolved and that liberalization, decentralization, and privatization have had little impact on.

In 2017, the number of poor people in Latin America reached 184 million, equivalent to 30.2% of the population, while the number of extremely poor ones stood at 62 million, or 10.2% of the population (ECLAC, 2017).

According to ECLAC (2017) estimates, between 2002 and 2014 poverty and extreme poverty both fell considerably in the region: the poverty rate fell from 44.5% to 27.8%, and the extreme poverty rate from 11.2% to 7.8%, with the steepest fall occurring in the first half of that period. However, in 2015 and again in 2016 both rates rose, representing a setback that was especially severe in the case of extreme poverty.

Economic liberalization increased the attractiveness of emigrating to large cities. Also, social violence and climate change forced many to leave their homes to seek a new life in a high-income economy.

The development policy in the big cities did not imply mechanisms for the absorption of migratory flows and expansion by overpopulation. The

disproportionate and unplanned growth has resulted in human settlements in highly disadvantaged conditions, even in cities of developed countries. New York is an example of that. In most cases, these settlements were on land not appropriated for the construction of houses and they were lacking basic services such as electricity and/or water.

These settlements lead to new reproductions of poverty with new profiles. To these nuclei are adding those poor people that arise in the same cities due to social fragmentation, the fall in wages and the economic crisis.

Faced with the more classical conceptions of poverty, which emphasize the level of material life and the income insufficiency as determining factors, other approaches have emerged. "Poverty in terms of capabilities" or "social exclusion" are approaches to poverty with a broader perspective. A common element of these new approaches, as opposed to the conventional one based on income, is the vindication of the multidimensional nature of poverty. (Malgesini and Candalija, 2014)

New poor people even if with better preparation, are derived from prolonged unemployment and precarious jobs and they are located in different regions of the world. It is expected that in the coming years the proportion of vulnerable employment will remain around 46 percent at the global level. The problem is especially serious in emerging economies (ILO, 2016, 2014, 2007).

The new poverty profiles are not derived only from the loss of employment, or employment with low incomes, but also due to changes in the family structure (increase in single-parent households, family breakdowns), as well as the non-complete labor participation of all members. This problem is greater when there are several dependent children involved. (Red Cross, 2016)

Likewise, the Red Cross (2016) has established four major profiles of people at risk of exclusion: 1) foreign men are subject to extreme and multidimensional risk, without income and without home; 2) foreign people in general are at extreme economic risk; 3) immigrant women with present family and social problems are subject to moderate risk; 4) older people are at low risk (Red Cross, 2016).

The international economic context and financial crisis has resulted in a significant increase in unemployment and has put at risk of poverty people who had never thought they would be in that situation after the job loss. On the other hand, although the fact of having paid employment is a key factor to avoid the poverty risk, in certain circumstances, it is insufficient to maintain a home, which can also lead to situations of poverty risk at work (Herrera *et al*., 2012).

When decent employment is scarce, more workers can stop looking for work. In 2015, the number of people of working age who did not participate in the labor market increased by about 26 million, reaching more than two billions (ILO, 2016).

Poverty can be analysed according to different demographic or socioeconomic variables, one of which is the relationship between people and the labor market. To some part of population, integration in the labor market does not guarantee the way out of poverty. Working poor is an English term that refers to job precariousness. This word link work with poverty (Herrera *et al.* 2012). A reality, that not even Europe escapes.

The impoverishment and precariousness of the living conditions of recent times have brought out the fragilities and deficits of social protection of the welfare model. (Gutiérrez, 2014).

With half of the world's population living in cities at this time -52.1 percent in 2011 to be precise (United Nations) -, the prototype of the poor has ceased to be the peasant, as it was in the past. Now the poor is located in the neighborhood. Large metropolitan areas, which are expanding rapidly, especially in countries of the South, have become breeding grounds of misery and despair, at the same time that they are places of great conspicuous wealth and unattainable housing. (Argyriades, 2014)

Exclusion is the term that nowadays, is used to characterize the situation of people without access to centers of power or economic resources and, therefore, totally incapable of exerting any influence in the direction taken by the economy or of determining their own future in a meaningful way. With a low number of declining jobs and a very low salary, the idea that anyone with a couple of years in school and a minimum of skills could get a stable job is no longer related to the real world. (Argyriades, 2014)

In 2003, a new indicator was included in the European list of social indicators: in-work poverty risk, which is defined as the poverty risk rate of the people who are working, i.e. the percentage of people who work and who have equivalent disposable income below 60 percent of the median income of the society of reference (Herrera *et al.* 2012).

Herrera and others (2012) show that the deepening of the segmentation of labor markets by qualifications, security and salary, generate risks for the most vulnerable social groups. These groups are caught in the alternation between low-skilled jobs and unemployment, which can lead to poverty and social exclusion (Gallie, 2002; Marx and Verbist, 1998; Nolan and Marx, 2000; Caprile *et al*. 2008; Herrera *et al*. 2012).

With less than five percent of the world's population, the United States is the home to the highest incarceration rate worldwide. Too often, these are people who left school or are the product of poor neighborhoods, where education leaves much to be desired (Blow, 2014: A19; Blow, 2013: A21; Argyriades, 2014).

As part of this recount, large groups of recently settled immigrants, mostly from Asia and Africa, are now a prominent feature of the urban landscape in Europe, where they constitute representative minorities of the population. (Argyriades, 2014)

The majority's reaction to this substantial influx has varied over time and has sometimes been hostile. The integration of these groups in the community, in general, has rarely been a success and as expected, the recession has not helped. (Argyriades, 2014)

Violent actions have worsened over time instead of diminishing. Likewise, they have expanded to other countries where their existence would be difficult or almost impossible. In this way, sympathizers of ISIS can be found in the Philippines, Neonazis in America and "Mara Salvatrucha" in France.

If the indicators on the new poverty profiles compiled in Europe were applied in Latin America, it would lead to exceptionally high numbers in terms of poverty. The Latin American society that inhabits the big cities has lost the memory about what the middle class implies, i.e. savings and family patrimony. This class has already practically disappeared, before the

impoverishment of the population. This impoverishment has been slow and it was the purchasing power that was mainly affected.

The point is that given the generalization and the slowness with which poverty has advanced, the majority of the population does not perceive itself as poor. The media and statistical data address extreme poverty, but not the new poverty profiles. This leads to the perception that the population situation "is bad, but it could be worse".

There are less economic opportunities and families are over-indebted. The new poverty profiles are also expressed by food and clothing purchases with credit cards that offer them to divide the amounts to pay up to 48 months. In other words, it is becoming common for families to acquire food and clothing in the same way that it purchases a car. The aberrant thing is that the automobile is not a basic necessity, but feed and cover are.

In this sense, Latin America is a clear example of the crisis in terms of EAPN (2012). For the EAPN the economic crisis cannot be as serious as the memory crisis and the crisis of vision that seem to invade the debate of the construction of government policies and programs. These two crises evade the true roots of the new poverty profiles and prevent the generation of mechanisms that could allow their reduction.

The new poverty profiles demand the generation of business with greater inclusion. Not only in terms of the generation of jobs that allow facing precarious work, but also the generation of social values that promote the integration and unity of the population in the face of the changes generated by migratory flows and climate change. If we are to achieve sustainability in business at all.

The region's poor performance in recent years, coupled with the weak economic cycle, call for public policies on social protection to be implemented and renewed. It refers especially to workplace inclusivity and income redistribution measures (ECLAC, 2017). Efforts must be redoubled to promote high-quality jobs and the construction and expansion of comprehensive and effective social protection systems, which would enable the most disadvantaged households to accumulate the resources needed to have a decent quality of life (ECLAC, 2017).

The situation becomes even more critical when the shortage of jobs is combined with the transformation of the productive system and lifestyle due to climate change. A transformation that has been reactive and not proactive in the face of the new reality that the global environment shows and that is beyond the human being control. The adaptation has been slow and less oriented to the creation of new jobs; it has rather focused on the reduction of pollutants and the containment of migration.

Inclusive growth in the short term, as well as sustainable growth in the long term, require effective coordination of policies at the national, regional and global levels. Although it may seem ambitious, given the degree of financial deregulation that characterizes many countries, it is critical for policymakers to ensure that the financial sector stimulates and promotes long-term productive investments, breaking the vicious circle of weak aggregate demand, low investment, low productivity and growth below the potential of the world economy.

While reducing excessive dependence on monetary policy, policymakers will have to implement fiscal policies aimed at stimulating aggregate demand, investment, and growth (UN, 2016). The global system is committed to achieving the SDGs through market mechanisms.

The Competitiveness Versus the Sustainable Development Goals

The search for development on behalf of the international community and the efforts to achieve it seem to get out of hand. At least in part, it is due to the lack of long-term vision that would include the generation of social values along with economic ones. It is especially true for economic agents.

In the short term, the capitalist system rewards through the economic value accumulation and it leads to the social value detriment. It is the cause of the consideration of only competitiveness and profitability for the strategies.

Although, this does not guarantee the business sustainability in the long term, it generates the strategist perception of doing the right thing and having the key to success in the markets. This is a trap because the

perception of the short term leads the attention away from the possible long-term results.

The Sustainable Development Goals, as well as the process of building them, are a window into that misalignment in between the short and long-term visions, and at the same time, in between the generation of social and economic values.

This conceptual gap is the key in the strategy generation for long-term competitiveness. The big corporations do know this and their owners have created foundations for that purpose, which concept should be much more expanded. The primordial question is for smaller companies. Are they building strategies in terms of this reality? Or do they remain as spectators trying to give a sense of tragedy to the new economic scenarios, at the same time that they undermine social values without any effort to generate them?

Definitely, the Sustainable Development Goals are a compass that clearly indicates where to go before the prevailing reality of the 21st century. Innovation (Chen, Lin and Chang, 2009) and entrepreneurship, in line with these objectives, will be those that will fill the gap and give a new dynamism to the global economic system.

The SDGs are preceded by the Millennium Development Goals (MDGs). The MDGs were eight objectives and eighteen goals. Its achievement was a necessary but not sufficient condition to achieve the general objective of eradicating poverty and eliminating social disparities and increasing inequality during the period 1990-2015. (IDB, 2004)

The MDGs helped more than a billion people escape extreme poverty, fight hunger, facilitate more girls to attend school, and protect the planet. They generated new and innovative collaborations, boosted public opinion and showed the immense value of setting ambitious goals. (UN, 2015)

The International Conference on Financing for Development, held in Monterrey in March 2002, was the first attempt to comprehensively examine the means and impediments for mobilizing resources towards poverty reduction, through mobilization of domestic resources, trade, official development assistance, debt relief, direct foreign investment, and other flows. (IDB, 2004).

Despite the efforts, the poorest and most vulnerable continue to suffer (what they must?). Gender inequality still persists. There are large gaps between the poorest and the richest households, and between rural and urban areas. Climate change and environmental degradation undermine the progress made, and the poor suffer the most. Conflicts remain the greatest threat to human development. Millions of people still live in poverty and hunger, without access to basic services. (UN, 2015)

There are more people to feed with less water, farmland, and biodiversity. But the world economy produces enough food for everyone. Current food systems, which use a high quantity of inputs, have to be transformed to make them more supportable - including the reduction of food loss and waste - through better management and better techniques in agriculture, livestock, fisheries, and forestry. (FAO, 2015)

Although the funding requirements for SDGs are extremely broad, i.e. public and private savings worldwide, according to United Nations (2016), it would be sufficient if the financial system were to efficiently intervene these flows to direct them towards the SDGs. However, currently the financial system is not stable or efficient in allocating credits where they are needed to achieve inclusive and supportable growth, and the loans granting is not aimed at creating a social or environmental impact.

This is a great challenge because the international financial system has favored speculative rather than productive investment. The financial instruments and the mechanisms for the allocation of resources are oriented to satisfy the needs of the financial market, dissociating themselves from the sectors dedicated to production. In other words, we are witnessing the persecution of the SDGs with a divorce between the productive sector and the financial sector. Hence, much of what is achieved will depend more on cooperation for development and international agreements.

The effective mobilization and use of public resources will remain a critical aspect to achieve sustainable development. This will require additional and more effective international financing, including Official Development Assistance, South-South cooperation and other official flows. To complement existing public funds, there is also an important role for development banks at the national, regional and multilateral levels,

especially since private resources are not currently being channeled effectively in this direction. (UN, 2016)

Tax evasion and fraud and illicit financial flows have become an important difficulty for efficient mobilization of resources. According to the United Nations (2016), this can be improved with greater efforts towards international tax cooperation. The Sustainable Development Goals are:

1. End poverty in all its forms everywhere.
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. Ensure healthy lives and promote well-being for all at all ages.
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Achieve gender equality and empower all women and girls.
6. Ensure availability and sustainable management of water and sanitation for all.
7. Ensure access to affordable, reliable, sustainable and modern energy for all.
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10. Reduce inequality within and among countries.
11. Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat climate change and its impacts.
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Conclusion

The sustainability implies that something reaches continuity by itself but also in relation to its surroundings. An example of this is the planet Earth and its position within the solar system. For millions of years, it has maintained a dynamic position in relation to the Sun and other planets.

The Earth as an element of the solar system has reached its sustainability. The same system logic allows it to continue dynamically conserving its position with the corresponding results. In the same way, an economic agent achieves the sustainability of its strategies when its activities are perpetuated by the same system logic. The economic agent is not static, nor is the environment in which it operates.

The dynamics that the economic agent follows contributes to the logic of the system and it is in turn influenced by the system. Both feed off each other, making the millions of agents at the world level feed and shape the economic system. Climate change and new poverty profiles become elements that require the strategist to consider them; thus abandoning the unique vision of competitiveness and profitability.

Furthermore, considering climate change and the new poverty profiles will increase competitiveness and profitability, just because these factors transform the scenarios and their consideration facilitates the generation of sustainable strategy. In the present book, the Sustainable Development Goals are considered as the essential guidelines that facilitate the strategic consideration of climate change and the new poverty profiles to achieve greater competitiveness.

Hence the need to understand the world scenario through the Sustainable Development Goals (SDG). These objectives express the degree to which the system has been mined or saturated and which is the ways that allows it to continue. Understanding the new poverty profiles and climate change allows linking the SDGs with competitiveness, and not interpreting them as

independent and unrelated. It also facilitates the implementation of strategies in organizations that entail several of these objectives, while at the same time contributing to greater competitiveness and profitability of the organization

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Chapter 2

Tourism Destinations Sustainable Competitiveness in Mexico

PHOTO BY FABRICE VILLARD ON UNSPLASH

Tourism Destinations: Sustainable Competitiveness in Mexico

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Introduction

Many authors have shown the relationship between sustainability and destination competitiveness. The conceptual model of destination competitiveness recognizes a global environment, through the identification of the next factors: economic, technological, environmental, political, legal, socio-cultural, and demographics. Also note the competitive environment influence, micro, which is composed of residents, employers, media, financial institutions, business tourism and so on (Hong, 2008).

In the last years has developed a growing interest in competitiveness model of tourist destinations: studies based on the factors that encourage it (Crouch and Ritchie, 1999; Dwyer, Forsyth and Rao, 2000; Ritchie and Crounch, 2000; Dwyer and Kim, 2003; Crouch, 2011), their ways of measurement-based studies (Crouch, 2007; Mazanec, Wober, and Zins, 2007; Cracolici and Nijkamp, 2009; Hong, 2009; Croes, 2011; Croes and Kubickova, 2013); other studies considered competitive

strategies in tourism (Evans, Fox and Johnson, 1995; Gooroochurn and Sugiyarto, 2005).

International Tourism against Sustainable Development Goals

According to data in the report of the United Nation Tourism Organization (2016) to 2030, it is estimated that the number of worldwide international tourist arrivals will grow an average of 3.3% per year during the period between 2010 and 2030. Over time, the growth rate will decrease gradually to 3.8% in 2012 to 2.9% in 2030, but on the basis of figures increasingly older. In absolute terms, international tourist arrivals will increase by around 43 million per year compared with an average increase of 28 billion registered in the period between 1995 and 2010. According to the rate of projected growth, worldwide international tourist arrivals will surpass the figure of 1,400 million in 2020 and 1,800 million in 2030.

Tourism is an important category of international trade in services. In addition to income earned in the destinations, international tourism generated another 211.000 million U.S. dollars in exports for international carriage of passengers provided to non-residents by 2015, which raises the total value of the Tourism exports to 1.5 billion U.S. dollars, or 4,000 million dollars a day on average (UNWTO, 2016).

International tourism today represents 7% of world exports of goods and services, compared with 6% in 2014, since the sector has had, in the past four years, exceeding the world trade growth. As world-class export, tourism ranks third, only behind fuels and chemicals, and ahead of power and the automotive industry. In many developing countries, tourism is even the first sector in exports (UNWTO, 2016).

Most international travels are carried out in the same region as travelers. The main international tourism markets are concentrated in the markets belonging to the advanced economies of the countries of Asia, America, the Pacific, and Europe (UNWTO, 2016).

However, in particular the emerging markets of Asia, Central Europe and East, Middle East, Africa, and Latin America have experienced strong growth even if

Europe preserves the supremacy as the largest CA in the world region, since it generates the half of all international arrivals, followed by Asia and the Pacific (24%), the Americas (17%), Middle East (3%) and Africa (3%) (UNWTO, 2016).

China leads the outbound tourism world, that since 2004 it has maintained the highest growth rates in tourism expenditure, which has meant benefits for regions such as the United States, Japan, and Thailand. Chinese travelers spending grew by 26% in 2015 to 292.000 million U.S. dollars, while the total number of passengers grew 10% to stand at 128 million.

Tourism has maintained steady growth despite the crises of various kinds that were raised in the world, showing its strength as an economic activity. Worldwide international tourist arrivals have gone from 25 million in 1950 to 278 million in 1980, 674 million in 2000, and 1,186 million in 2015. Similarly, international tourism revenues earned by the destinations from around the world have gone from 2,000 million U.S. dollars in 1950 to 104,000 million in 1980, 495,000 million in 2000 and 1.260.000 million in 2015.

Mexico is the destination most visited by tourists from the United States and its market share has been growing so gradually but sustained, 15.2% in 2012 to around 18.5% that is estimated to close in 2017. Which represents that they have earned 3.3 percentage points of market share, is the only country that has achieved this level of progress in the United States market.

In the period January-November outbound tourism from Canada by air, grew by 8.5%, according to information from Statistics Canada, for which tourism toward Mexico is growing at a rate higher than the outbound tourism in general, during 2017 was recorded an inch RT moderately in the arrival of visitors from Europe, according to the economic situation of the region in general. However, marked differences are presented by country, which is explained in large part by uneven economic performance (SECTUR, SIIMT, 2018).

According to the Travel and Tourism Competitiveness Report (2017) of the World Economic Forum, Mexico has had a good performance in tourism over the past year. He climbed 8 positions in the rankings to reach the site 22/136, however, to continue improving its competitiveness in Mexico should focus on being a country safer since even though the country has increased its security in some tourist areas, which can cause that Mexico not be elected by tourists because of its concerns by crime and violence (place 113/136); on the other hand

also requires to make serious commitments to preserve the environment (116/136), an important part of the local fauna is threatened (133/136), finally Mexico will need to increase your value proposition by enhancing their prices and its tourist offer.

Mexico can diversify its tourist offer through promoting the nature tourism and thus seek alternatives to the traditional Sun and beach destinations. Mexico is considered as the second best country in America on the part of "Natural resources", just below Brazil and above countries such as Costa Rica, Colombia and Argentina, which are regarded as important markets in nature, what makes see that Mexico should seize their wealth in tourism competitiveness, tourism e innovate and develop new sustainable tourism products that are related to the use of existing natural resources (SECTUR, 2017).

This type of tourism offers a wide range of experiences for tourists in addition to promoting a close relationship with the exploitation and conservation of the natural and social resources, on the one hand promoting and preserving the sites where they are made activities and on the other hand, promoting the participation of the community in order to obtain benefits for its development, instilling new concepts that allow, together, carry out measures to avoid minimizing the negative impacts that for years It has been thought leaves tourism (SECTUR, 2017).

For that reason, nature tourism in Mexico should be conceptualized, developed, promoted, and marketed as a comprehensive and diverse product that allows the tourist to live unique experiences and engage in the environment conservation and the socio-cultural development of those locations involved for and by tourism. In full alignment with the foundations of the concept of sustainability in the SDGs: equity, inclusion, economic opportunity, responsibility, respect, and prevention (SECTUR, 2017).

Costa Rica is one of the main tourist destinations in Latin America in the eco-tourism field, by 2015 nearly 42% of international tourists who entered the country carried out activities relating to visits to protected reserves, national parks or biosphere reserves, making it clear that this activity type where natural resources are highlighted is an important factor when deciding a journey, regardless of the distance, is why Mexico is a competitive destination at the

regional level, If we look at the natural richness and geographic location that has connection with those international markets.

Therefore, it is important to work on the development of nature tourism under sustainability criteria, i.e., that also promotes the involvement of the community from product development to marketing, with the purpose of generating conditions that favour a greater economic and social development in regions that historically have suffered important shortcomings, and where tourism can become the trigger that will help alleviate poverty and at the same time to preserve their resources natural (Orgaz, 2013).

In Mexico, nature tourism includes all "those trips that are intended to carry out recreational activities in direct contact with nature and cultural expressions that surround you with an attitude and a commitment to learn, observe, enjoy and "participate in the conservation of the natural and cultural resources" (SECTUR, 2007).

Nature tourism is an economic activity that promotes the following: sustainable use of resources, a solid alternative for the job creation, a strategy for community development, a tool to fight poverty, a means to preserve, promote the natural, and cultural heritage.

Table 1
Nature tourism forms

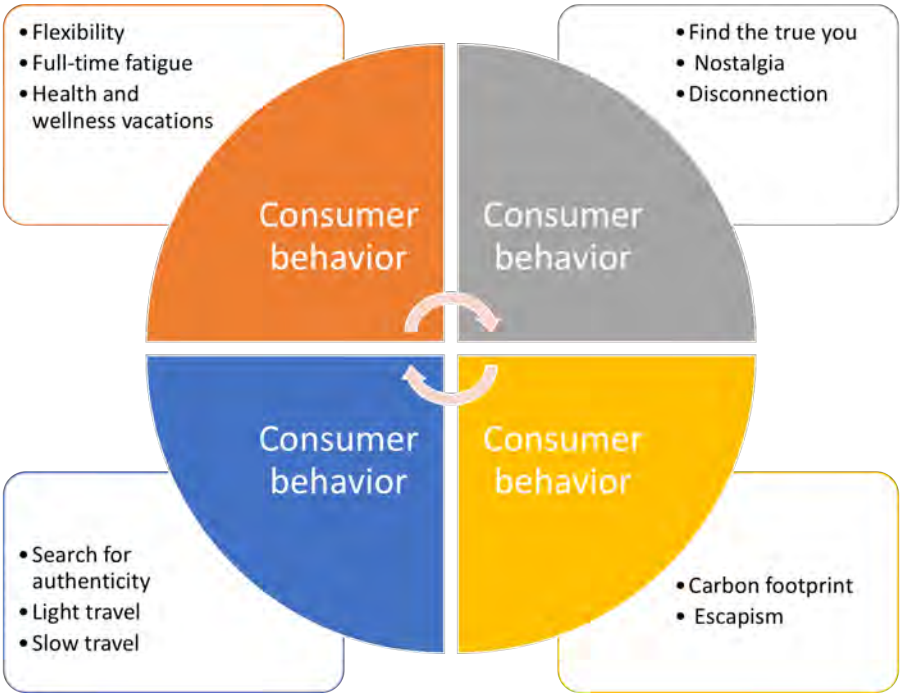
Forms of nature tourism		
Eco-tourism: Trips that are intended to carry out recreational activities of appreciation and knowledge of nature through contact with the same.	Rural tourism: Travel which aims to make coexistence and interaction activities with a rural community in all of those features, social, cultural and productive everyday the same.	Adventure tourism: travel which aims to carry out recreational activities associated with the challenges imposed by nature, be where participates in harmony with the environment, respecting natural, cultural and historical heritage.
Observation flora, fauna, fossil wrist, ecosystem, phenomena, and geological special attractions. Environmental education. Participation in programs, workshops, rescue of flora and/or fauna. Participation in biological research projects	Agro-tourism visits to indigenous rural photography mystical experiences language learning preparation and use of traditional medicine	Land: walking caving, canyoneering mountain high mountain biking, rock climbing Rappel. Cave diving downhill kayak fishing rivers, recreational air: skydiving flight Paragliding flight in wing delta flight in hot air balloon flight with Ultralights

Source: SECTUR, (2017)

Needs which has today to develop tourism, are totally different from usual in the last century. Therefore, you must promote and develop tourism future thinking (table 1) and considering that international development policy has a new vision embodied in the sustainable development goals (SDGs) and that it is the duty of the companies, destinations and individuals contribute to a more equitable, inclusive tourism and in harmony with the natural and cultural resources (SUSTENTUR, 2016). Trends in the tourist consumer behavior considered the following factors (Figure 2).

Tourism is one of the fastest growing industries in many countries and the main income source for a significant number of developing countries. Therefore, the competitiveness study about the tourist destinations has attracted the legal attention, public and private organizations, and researchers in tourism (Crouch and Ritchie, 1999; Buhalis, 2000; Pearce, 1997; De Keyser and Vanhove, 1994; Dwyer *et al.* 2003; Enright and Newton, 2004).

Figure 2
Trends in the tourist consumer behaviour



Source: SUSTENTUR (2016).

The tourism sector growth and tourist destinations diversification contribute to the tourism competitiveness. The tourism competitiveness is defined as the ability of a target to create and integrate value-added products that sustain local resources, and conserve, and maintain their place in the market with respect to competition (Hassan, 2000; SUSTENTUR, 2016) there are three aspects to consider when making their travel by tourists: experiences authentic and self-paced, flexible in the decision-making, to promote social benefits in the communities who visit and preserve the environment.

Crouch and Ritchie (1999) published the most important (so far) work on the analysis of the tourism competitiveness with its conceptual model of destination competitiveness. These authors assert that the destination competitiveness should be measured not only by their ability to improve lifestyles and social prosperity but also for efficiency in the resource allocation, resulting in economic prosperity in the long run.

For them is the one that produces the best lifestyles and social prosperity on a sustainable basis, the more competitive destination (Crouch and Ritchie, 1999). This study is based on well established conceptual background and is structured in two parts. The outside represents a competitive advantage and comparative advantage (resource allocation). The inner part represents several important elements such as:

1. Competitive environment.
2. Global environment (macro).
3. Core resources and attractions, including topography, culture, and history, links of a market mix of activities, special events, and tourism superstructure.
4. Support factors and resources, for example, infrastructure, accessibility, providing resources, and companies.
5. Management destination, for example, marketing, service, information, organization, and resource management
6. Determining classification, for example, cost, security, location, and dependencies.

From the seminal works of Ritchie and Crouch (1999), a series of theoretical models have been developed to explain the competitiveness of tourist destinations (Hassan, 2000; Heath, 2002; Dwyer *et al*., 2003), as well as analyze

their competitive position (Sirse and Mihalic, 1999; Dwyer *et al*., 2003; Enright and Newton, 2004; Gomezelj and Mihalic, 2008).

The contribution variety has produced a multitude of considerations to understand the destination competitiveness. Croes (2011), Easter, Wober, and Zins (2007) and other authors, indicate that the complete definition of the tourism competitiveness has been developed by Ritchie and Crouch (2003). Ritchie and Crouch defined tourism competitiveness as

> "The ability to increase revenue from tourism, attract more visitors, giving them the satisfaction, memorable experiences to do so cost-effectively, and at the same time enhancing the well-being of the residents, and preserving natural resources for future generations" (Ritchie and Crouch, 2003).

Some studies analyze the destination competitiveness using as parameters the visitor numbers and the corresponding market share, these studies have an important limitation. They ignore the sustainable perspective of not overload the carrying capacity of a destination, or to preserve their environmental integrity (Croes, 2011).

Many authors seem to agree that a competitive destination is that conserves natural and cultural resources, and increase long-term well-being for its inhabitants by delivering an experience is more satisfactory in comparison with destinations similar (Hassan, 2000; Ritchie and Crouch, 2003; Bahar and Kozak, 2007).

On the other hand, much of the increased competitive effort has focused on destination promotion and the resources role in the same development. However, destination competitiveness involves a wide and complex range of issues. Research on tourism competitiveness have traditionally focused on the image destination or attraction, which refers to attributes that visitors considered important (Bonn, Joseph and Dai, 2005; Gallarza, Saura, and Garcia, 2002; Gearing, Swart and Var, 1974; Hou, Lin and Morais, 2005; Hsu, Wolfe and Kang, 2004; Hu and Ritchie, 1993).

These attractive features for visitors to the tourist destinations include natural resources (climate, landscape), historical and cultural resources (the history, cultural heritage of music, painting, folklore, religious sites, and special events),

and functional resources (accommodation, food, transport, guide services, and environmental management).

In general, while tourism services had been seen as important elements of the destination image, it is necessary to pay attention to the companies that supply services and the factors influencing the competitiveness of these companies.

On the other hand is considered to innovation as an important factor in the destination competitiveness model (Schumpeter, 1912), which is appropriate for the analysis of the endogenous comparative advantage caused by technological innovation; in the tourist service context requires the following elements: innovation of the operation model (new services), innovation in the niche creation (new markets) and technology of information uses (new service methods).

Research Method

The purpose of the research was to determine the factors that affect the competitiveness and innovation of the tourist destinations of nature in Mexico. This aim is in order to develop a model based on motivation of tourist nature and thereby contribute to the strategy creation that favors the performance of mentioned destinations. It conducted applied correlational analysis in nature, with a transverse temporality, with a mixed approach.

The instrument used in the research considered 47 items of which 13 collect general information about the segment to form the profile of the consumer potential and the 34 remaining are questions on Likert scales agreement (5 options): (1) totally in disagreement; (2) disagreement in certain aspects; (3) neither in agreement nor in disagreement; (4) of the agreement on certain aspects; (5) fully in agreement.

The reliability test of the instrument by the Cronbach's alpha coefficient showed a value of 0.808, with this information, we can deduce that the instrument is clearly reliable (table 2).

Tabla 2
Cronbach's Alpha

Cronbach´s Alpha	Cronbach´s Alpha based on standardized elements	N of elements
0.806	0.808	34

Source: Own elaboration. Program SPSS version 22.0 from pilot sample data

To justify the number of items included in the questionnaire, applied the method of internal consistency Cronbach's Alpha is chosen to eliminate 14 items. The halves method test was performed to give greater reliability data collection instrument, also since this achieves a better internal consistency check. To do items total divided into two halves, and correlated measurement scores. A total of 43 items which were divided into two groups, correlating both groups of items were given to the statistical program.

Table 3
Reliability study. The two halves method

Cronbach´s Alpha	Part 1 Value	0.85
	Number of elements	22
	Part 2 Value	0.755
	Number of elements	21
Total		43
Correlation between forms		0.713
Spearman Brown Coeficient		
Equal length		0.832
Uneven length		0.832
Two halves of Gutman		0.826

Source: Own elaboration. Program SPSS version 22.0 from pilot sample data.

The correlation obtained from both parties by the Spearman-Brown 0.832 for the estimation of response, values are acceptable from 0.7. Also, the coefficient of internal consistency in the first half Cronbach´s Alpha is 0.850 and Senate in 0.755. The proof of the two halves indicates a high-reliability rate. The sample was conducted among 306 individuals. The study population was identified

according to the investigative purpose and the study feasibility, the survey was conducted through a page that SECTUR facilitated for this purpose.

The dependent variable is the destination competitiveness of nature tourism (**COMPET**). Independent variables considered important resources to visit nature tourism destinations are the following next:

1. They are the features that involve time spent, cost shifting and stay, as well as the climate (**RECGEO**).
2. The providers resources of tourism services that are valuable for the segment: are all activities that offer the tourist destinations of nature, according to the classification of SECTUR (**RECPRES**).
3. The conditions of nature tourism destinations that are relevant for the segment: are these characteristics, conservation and physical state of the destination (**CONDDEST**).
4. The importance of inclusion by destinations and tourism service providers: willingness and ability of the providers of tourism of nature to treat with respect to members of the LGBT segment (**INCLSEG**).

Using multiple linear regression analysis is to estimate the effect of different variables: as Geo-economic resources, the resources of providers of tourism services that are valuable for the segment, the conditions of the nature tourism destinations that are relevant to the segment and the importance of the inclusion by the destinations and service providers of nature tourism in the tourist destination competitiveness of nature, to be able to detect what they have a greater importance in this variable.

In the theoretical model, the dependent variable will be the destination competitiveness and as explanatory variables, will be introduced four variables: the Geo-economic resources, providers of tourism services that are valuable resources for the segment, the conditions of nature tourism destinations that are relevant to the segment and the importance of inclusion by destinations and tourism service providers.

$$COMPET = \beta 0 + \beta 1 RECGEO + \beta 2 RECPRES + \beta 3 CONDEST + \beta 4 INCLUSEG + €$$

$\beta 0$= constant of linear regression

β 1…β4= parameters of the variation coefficients partial for each of the independent variables.

They represent the estimation of change in the variation in the dependent variable that can be attributed to an increase in a unit in the independent variable.

€= random error or residue from the regression line.

The residue is the difference between the actual value of the dependent variable and the predicted by the model

RECGEO= Geo-economic resources
RECPRES= Resources for service providers
CONDEST= Destination conditions
INCLUSEG= Inclusion of the segment

Results and Discussion

Competitiveness without considering the influence of the other explanatory variables (assuming all were zero) is about 1,051 units. An increase of one unit in Geo-economic resources causes an increase in the competitiveness of 0.654 units.

An increase of one unit in service providers resources produces an increase in the competitiveness of 0.050 units, an increase of one unit in the conditions of the target produces a decrease the competitiveness of 0.051 units and an increase of one unit in the inclusion of the segment produces a decrease of 0.046 units in competitiveness (see table 4).

Table 4
Test Individual Regression Coefficients

	Non-standardized coefficients		Standardized coefficients		
Model	B	Standard error	Beta	t	Sig.
(Constant)	1.051	0.618		1.702	0.090
RECGEO	0.654	0.016	0.924	41.713	0.000
RECPREST	0.050	0.012	0.103	4.071	0.000
CONDDEST	-0.051	0.024	-0.051	-2.168	0.031
INCLUSEG	-0.046	0.029	-0.037	-1.603	0.110
a. Depending variable: COMPET					

Source: Prepared by the SPSS program version 22.0, based on the sample data

For β_1 a *p-value* of 0.000 <0.05 is observed which leads to reject the Ho and consider the result statistically significant; for β_2, this result is corroborated from the interpretation of the *p-value* of 0.000 <0.05 that leads to reject the Ho and consider the result statistically significant. It is concluded that β_3 is statistically significant, the result is corroborated from the interpretation of the p-value of 0.031 <0.05 which leads to reject the Ho and consider the result statistically significant. For β_4 it is concluded that it is not statistically significant, the result is corroborated from the interpretation of the p-value of 0.110> 0.05 which leads to accept the Ho and consider the result statistically non-significant. ANOVA analysis tries to determine the significance of all the outstanding considered in the model for which the following hypotheses are postulated:

H0: β1= β2= β3= β4 = 0
H1: Not all slopes are simultaneously equal to zero.

This analysis is to determine the significance of all the outstanding considered in the model. For this purpose is the analysis of variance (ANOVA) and is calculated is statistical F Fisher. As you can see, the retrieved value is significantly higher than the value in the tables, which leads us to accept the

alternative hypothesis of the global significance of the proposed model (see table 5).

Tabla 5
ANOVA

Model	Sum of squares	gl	Half quadratic	F	Sig.
Regresion	6190.028	4	1547.507	670.952	.000[b]
Residue	694.237	301	2.306		
Total	6884.265	305			
a. Depending variable: COMPET					
b. Predictors: (Constant), INCLUSEG, RECGEO, CONDDEST, RECPREST					

Source: Prepared by the SPSS program version 22.0, based on the data of the sample predictors

Table 6
Quality test fit competitiveness

Model summary [b]					
Model o	R	R square	R ajusted square	Standard error of the estimate	Durbin-Watson
1	.948[a]	0.899	0.898	1.519	1.993
a. Predictors: (Constant), INCLUSEG, RECGEO, CONDDEST, RECPREST					
b. Depending variable: COMPET					

Source: Prepared by the SPSS program version 22.0, based on the sample data

Adjustment Quality

The goodness of fit of the regression model is corroborated with the value of the determination coefficient, R2, which measures the strength of the relationship between the dependent variable and independent variables. The R2 indicates the variables that are part of the model to achieve an explanatory capacity of the variability of the competitiveness of the 94.8%, adjusted R2 the explanatory power of the model is set to 89.9% that can be considered acceptable.

The error of estimation measures the degree of dispersion of the values of the dependent variable regression, between less plane around smaller dispersion will be, and more accurate in his prediction model and forecast (Webster, 2000), in this case, the error is 1519 units, which is considered acceptable.

Finally, the Durbin Watson statistic is used as proof of no autocorrelation. Seeks to not reject a null hypothesis, to Webster (2000) if Durbin Watson is close to 2 no Ho is rejected, DW is about 1993, therefore, it is not rejected, i.e. There is no autocorrelation between variables.

It's important derived from the results of the work shed Geo-economic factors, the conditions of the destination and resource for service providers to have a positive effect on the competitiveness of the destination of nature, on the other hand, the inclusion of a segment, not it was significant.

The model has an explanatory power of 89% which indicates that there is 11% of the tourism competitiveness which explains based on other factors and could be a subject of further research.

The results support some studies (Crouch and Ritchie, 1999; Buhalis, 2000; Pearce, 1997; De Keyser and Vanhove, 1994; Dwyer *et al*. 2003; Enright and Newton, 2004; Dwyer, Forsyth and Rao, 2000; Ritchie and Crounch, 2000; Dwyer and Kim, 2003; Crouch, 2011).

Their ways of measurement-based studies (Crouch, 2007; Mazanec, Wober, and Zins, 2007; Cracolici and Nijkamp, 2009; Hong, 2009; Croes, 2011; Croes and Kubickova, 2013) with regard to the importance of a number of factors which encourage the tourist destination competitiveness, offer it is important to consider in the Mexican case to expand tourist national services and attractions of other regions to innovate of the country based on the natural diversity of the same.

Conclusion

Tourism activity in the world currently faces important challenges, on the one hand, diversify its tourist and on the other hand offer the incorporation of new technologies with an effect in the creation, production, and consumption of the tourism product.

In Mexico tourism activity has stalled mostly due to the limited destinations offer, mainly Sun and beach, are prevailing to strengthen the Mexican tourism offer with new products, more attractive to a growing new and demand derived from changes in the consumption patterns and social behaviors.

Mexico must develop tourism services that generate higher added value and attract more tourists, both nationally and internationally, especially towards other destinations, which are not necessarily of a beach which represents a strategic weakness for cope with the changes in tourism demand patterns at the global level.

For years, Mexico has had a preparation process so that their tourism businesses, are able to meet the demands of international tourism markets, seeking ever more natural destinations of excellence. It is estimated that international tourists (35 million) who came to Mexico in 2016, 24%, i.e. 8.4 million tourists, they made at least one nature tourism-related activity.

However, recognized that work permanently with the operators or companies of tourism of nature in order to ensure a continuous quality in the product and can be offered both nationally and internationally.

The results revealed the relevance of the next factors: Geo-economic, destination conditions, and resources of the service providers in the choice of destination of nature. This reveals that these factors can be encouraged to achieve the community empowerment and thus achieve a positive impact on the destination competitiveness.

Local community is part of the tourism product, and the results support the idea that local empowerment results can help tourism planners and developers understand that sustainable tourism development is necessary not only for preserving the ecological balance of a tourist destination but also as a competitiveness crucial determinant.

The professionalization of service providers is required in order to become a differentiator that will allow to increase the competitiveness on the one hand with the consequent increase in profitability and competitiveness tourist destinations of nature based on the tourist motivation which can auxiliary growth strategies of fate and public policy creation related to the tourism promotion.

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Chapter 3

Business Sustainable Development through Competency-based Teaching and Learning

PHOTO BY LAVI PERCHIK ON UNSPLASH

Business Sustainable Development through Competency-based Teaching and Learning

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Introduction

Knowledge has always been the central element for the university functioning. Nowadays, this ingredient is the foundations of the production systems. Strengthening links between universities and the productive sector allow the academy incorporation, and the research in knowledge development in the region and improves the policy creation that encourages the country's development. Competency-based learning is a key element of the 2030 Agenda for Sustainable Development. Its aims form one of the targets of the Sustainable Development Goal (SDG) 4 on education and it is considered a driver for the achievements of all 17 SDGs (UNESCO, 2019).

Education for Sustainable Development empowers everyone to make informed decisions in favour of environmental integrity, economic viability and a just society for present and future generations. It aims to provide the knowledge,

skills, attitudes and values necessary to achieve progress on the sustainable development challenges captured in the SDGs. It also helps develop competencies that are relevant to a variety of different SDGs. (UNESCO, 2019)

Consistent with the press release delivered by ECLAC (2010), which made an emphasis on the national cooperation and *Research, Development & Innovation* (R&D&i) for more integrated societies. Malagón (2006) adds that such systems must a common language regarding flexibility, quality, competitiveness, results, and productivity.

Accordingly, the mission of the Business Administration Program encompasses a sustainable business development through teaching and learning processes based on competencies that boost the culture of entrepreneurship, innovation, ethics, social responsibility, research and social projection in the Amazonian region. Likewise, as part of the curricular aspects of the insight strands of entrepreneurship and creation there are some outstanding goals:

> "To create a professional with knowledge and skills to produce business initiatives for problems and opportunities in specific economic, social and cultural contexts. The education process must be based on the approach of background and competency development as of the entrepreneurship teaching to favour the business culture creation in the Business Administration Program." (Universidad de la Amazonia, 2014, p.19)

From this perspective, Pérez (2008) considers that the creation and development of competencies are an articulated process among the courses of a school curriculum which must react to the needs demanded by the environment with more efficiency and quality (García, 1987).

Similarly, Magendzo (2003) establishes that such articulation must take place through transversal contents in the education, that is, actions that must be coordinated with the productive sector needs (PS). In this trend of ideas, the pressure exerted by the PS demands from the university the improvement of its organization, management and institutional assessment that allow the availability of agreements between the university and productive sector in technical and financial roles with an allied organization about entrepreneurship (Colmenares de Saavedra, 2004).

In this regard, Colmenares de Saavedra (2004) states that the university must take over a new way to organize and teach knowledge in order to facilitate the community approach to living standards where the development prevails.

Didactics have developed three basic types of knowledge in the creation of working competencies from teaching processes which Tobón (2006) defines them as Knowing, Knowing How and, the most important one, in this case, Doing as it is the type of knowledge about doing in real life in a systematic and reflective way in order to achieve goals based on specific criteria. It is not just doing for doing, neither remain in the search for results with efficiency and effectiveness.

The structuring and implementation processes of investment alternatives in the productive sector are labelled by the opportunities and/or needs that exist in a global, regional and local level as a response to the competency development. According to Tobón (2013), must be aimed based on the integral human development of knowing, knowing how, showing and knowing to get along beyond the daily academy contents and all this integrated in a cross-curricular life project.

In a similar trend, Andrade and Bravo (2008) mention that the educational approaches that have to be considered in the link of previous knowledge with emphasis on development have to focus on the comprehension and creation of problems.

Similarly, it is recommended the use of modern didactic strategies (also known as inter-structural) (Hurtado, 2016): Learning for Comprehension (EPC in Spanish), Significant learning, Problem-based Learning (ABP in Spanish) (Castillo, 2003), among others, that can link university activities with many sectors of society through research and teaching, internships service provision, and training for professionals (Alvarado, 2009).

In this regard, it is possible to provide with the knowledge and human resource for the investigation and links to the productive sector in order to supply the context needs, research, processes or procedures as well as to contribute to the solution of the basic requirements demanded by the industry and society in general.

Pavón and others (2007), as well as Mendoza (2005), establish that the benefits of the university-productive sector link are related to the integration of the

scientific and research activities as well as the sector needs regarding the interdisciplinary work and the problem solved in a regional context.

Likewise, Herrera (2006) states that the university-productive sector link is important in the development of university professional since the growth of a person for a job is only achieved precisely in the job because the investigative process and labour preparation that is developed in the liaison has its own educational consistencies. Addine (1996) adds that

> "The education-work link is something inherent to human activity, therefore, any aspect of education unrelated to work is unreal, socially ineffective, [and] impossible." (p. 3).

The development of the internship through work in a real environment turns it into a professionalization process that trains the student to face the working world.

Pavón and others (2007) consider that the link through university extension joins specific demand problems (productive sector), forces the information search and update knowledge. Accordingly, Fabre (2005) proposes that creativity and an adequate environment can penetrate in the investigation process with results and internship experience; this connection supports the activity and directs in the area of essential university function in a correlated way.

Vega and others (2011) conclude that the interchange between institutions of higher education and the public sector must enhance to help in the economic growth and social welfare. This idea is similar to the one presented by Florida (1999) and Laredo (2007) who agree that the teaching role is the main approach in which universities contribute to national development.

On the other hand, the university-enterprise link benefits students that take part in real and complex situations in national and foreign organizations that provide experience and knowledge to undergraduate and graduate students.

Likewise, it is possible to show the professional quality that is being prepared as well as social recognition and, conversely, enterprises obtain support from this relation to update and train their staff. Also, Solleiro, Ritter, and Escalante (2008) establish that this relationship allows the enterprise to attain technology, knowledge and cutting-edge process in the university core, access to R&D&i.

Through links, public institutions of higher education have the possibility to disseminate the benefits of science, technique, and culture directly with society or with other public, private and social organisms (Nuñez, Felix and Perez, 2006).

Similarly, there are three models for the university-enterprise link. Knowledge is established as the main boost for the progress of a society and the economy, strengthening of a country due to its innovation and constant re-engineering of processes which create benefits through their investigations at the service of social needs and business sector requirements (CIMD, 2017).

In this regard, Etzkowitz and others (2000) consider that universities have developed different roles in the context of these transformations from being only a training university for having a role as an entrepreneurial university.

On the other hand, one of the important consequences of the university-productive sector link is that it promotes the creation of technicians, technologists, and professionals considering the job market demand.

According to Castillo and Reyes (2015), nowadays due to globalization processes and the knowledge dominance in the field of goods and services production it is fundamental for countries to strengthen this relationship between higher education and the productive sector.

For Etzkowitz and Leydesdorff (1995), the types of university-enterprise link are:

1. The link based on consultancy activities between universities and the development of common research programs.
2. Creation of small enterprises with low technological and research capacity whose main role is consultancy.
3. Enterprises obtained from university research, but with a strong link with their original external source of the university.
4. Enterprises that are the height result of university innovations that are closely linked to the outreach and extension offices of universities.

Universities and enterprises are linked to different reasons. For the university, the link is regarded as a support to obtain financial resources, an increase in the research quality and university teaching as well as a higher achievement of integration with the social needs. On the other hand, the enterprise aims to raise its competitiveness in the market by increasing productivity, to reduce costs in

research and to obtain better quality products through the technology created in universities (Etzkowitz, 1998).

There are different theories or models that explain how the scientific, technological, productive and state sectors are linked within the university-enterprise link. The main models that explain this are the Sabato model, the Triple Helix model and the National Innovation Systems.

Sabato Model: the first modern model of the university-enterprise link was created by Sabato and Botana (1968). This model shows how universities must interact with the environment, what and how to innovate based on the current demand. The model was created as a strategy to link the government, public enterprises and public infrastructure in science and technology in Latin America (Galvis, 2015).

Triple Helix Model: It was proposed by Etzkowitz and Leydesdorff (1995) and developed later by Jones-Evans, Klofsten, Anderson and Pandya (1997), Benner and Sandstrom (200), Okubo and Sjober (2000) as well as Numprasertchai and Igel (2005). It aims to integrate technology, science and economic development under the premise that in order to maximize the attainment of knowledge universities must have a close link with the industry. The model proposes the idea of an entrepreneurial university from its structure and academic functions (Etzkowitz and Leydesdorff, 2000).

National Innovation Systems: It encompasses the analysis of the link between universities, enterprises and the government (Edquist and Hommen, 1999). It is an interactive model to promote globalization and innovation processes among institutional agents in trans-disciplinary, interactive and complex structures where agents and organizations communicate, cooperate and establish long term relations as well as economic, legal and technological conditions for the innovation strengthening and productivity of a region or area (Lundvall, 1997; Nelson, 1993).

As a compliment, an analysis of the specific epistemological concepts of the university-productive sector link for the creation of professionals permits to set the bases of their relations in two theories which were summarized by Huberman and Levinson (1998) as well as Herrera (2006). These theories are:

Knowledge transfer theory: it establishes the different moments of in the link, from the production of knowledge by the university to its use for consumers (productive sector).

Inter-institutional theory: It states that an inter-institutional agreement must benefit both the university and the integration centre, improve work experience, the institution skills, the status and power of participants as well as inter-institutional connections.

Methodology

The current descriptive research was carried out as a result of a round table with the productive sector with a mixed approach in order to identify the present conditions of link processes such as the needs and opportunity areas of cooperation between the business administration program and the county enterprises.

An intentional or interest sampling was carried out by making written invitations to the representative enterprises that have had Business Administration Program interns and a semi-guided survey was administered to the participants of the round table. The survey was designed through a structured questionnaire of open questions, single answer questions and Likert-scale questions which were distributed in seven blocks. The analysis of the information collected with the three types of questions was carried out with the statistical software IBM SPSS Statistic 23.

Results

The first round table with the productive sector carried out by the PAE of the Universidad de la Amazonia had the participation of 17 enterprises (table 1).

The main activities of the enterprises that attended the round table rank from activities performed in public administration, such as government executive activities, public registries, provision of health services, disciplinary control and guarantee of human rights up to commercial activities such as trading and

distribution of energy, livestock farming, transformation of native fruits as well as savings and credit activities. 17.6% of the people interviewed mentioned that their main economic activity is the one of the services.

Table 1
Participant Enterprises

PARTICIPANT ENTERPRISES OF THE ROUND TABLE
AGENCY FOR THE REINCORPORATION AND NORMALIZATION
MUNICIPALITY OF FLORENCIA
COMMERCE CHAMBER OF FLORENCIA
ACCOUNTING DEPARTAMENT OF CAQUETÁ
LATIN AMERICAN COOPERATIVE OF SAVINGS AND CREDIT ULTRAHUILCA
COLOMBIAN CORPORATION OF AGRICULTURAL AND LIVESTOCK RESEARCH
COLOMBIAN CIVIL DEFENSE
SECTIONAL DICTETORATE OF TAXES AND CUSTOMS OFFICE OF FLORENCIA
ELECTROCAQUETA SA ESP
ECOLOGICAL LIVESTOCK FARMING LA VICTORIA S.A.S.
GOVERNMENT OF CAQUETÁ
REGIONAL HOSPITAL MARIA INMACULADA
SINCHI INSTITUTE
MUKATRI
ATTORNEY'S GENERAL OFFICE
UNITED NATIONS PROGRAM FOR DEVELOPMENT
UNIVERSITY OFAMAZONIA (MARKETING DEPARTAMENT)

Source: Own elaboration.

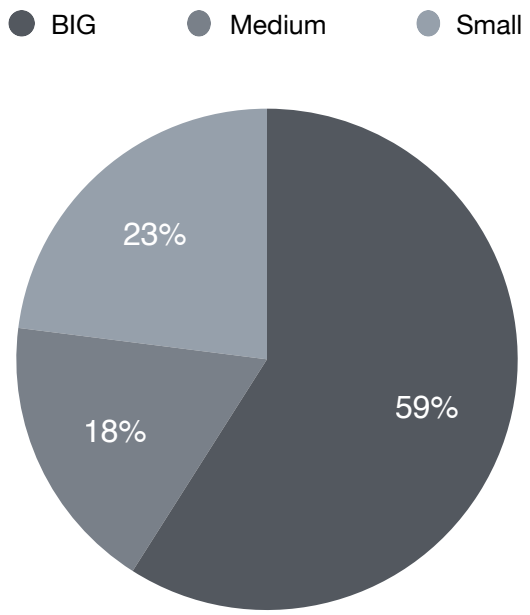
Table 2
Economic Activity

MAIN ECONOMIC ACTIVITY	FREQUENCY	PERCENTAGE
Government activities	1	5,9
Executive activities of public administration	1	5,9
Savings and credit	1	5,9
Support to risk management	1	5,9
Trading and distribution of energy	1	5,9
Disciplinary control and guarantee of human rights	1	5,9
Marketing department of higher education	1	5,9
Livestock farming	1	5,9
Scientific research	1	5,9
Research, development and innovation	1	5,9
Provision of health services	1	5,9
Public registries	1	5,9
Services	3	17,6
Transformation of native fruits	1	5,9
Monitoring of public resources	1	5,9
TOTAL	17	100

Source: Own elaboration.

Regarding the size of enterprises, it can be seen that 59% mentioned they correspond to big businesses, 23% are small enterprises and 18% and medium size.

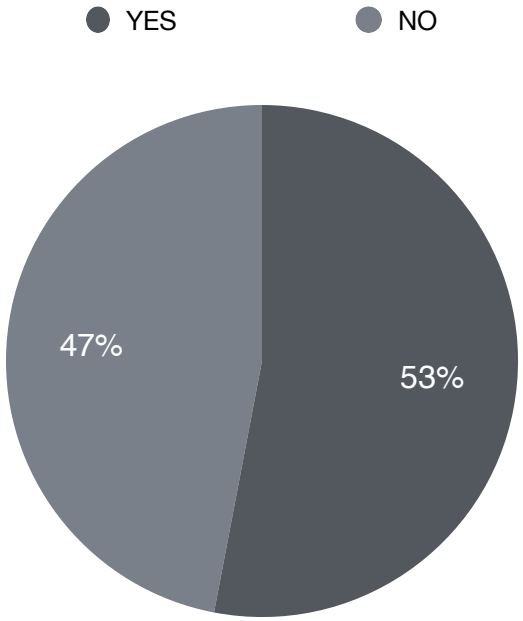
Image 1
Size of enterprises



Source: Own elaboration.

Regarding the enterprises membership of a network, chamber or cooperative, 53% indicated that they belong to one of them and 47% said they did not. Those that answered yes mentioned that they are part of one of the following networks, chambers or cooperatives: Amdelca, Comité Municipal de Ganaderos del Doncello (County Committee of Livestock Farmers of Doncello), Sistema Nacional de Innovación agropecuaria SNIA (National System of Agricultural Innovation, or SNIA in Spanish), Negocios Verdes-Ministerio de Ambiente (Green Business, Ministry of Environment), Ministerio Publico (Public Ministry), Visionamos, Coopcentral, Asocooemca, Asocooph, Sector Solidario, Contralorías Departamentales (Department Accountings), Ministerio de Educación Nacional (Ministry of National Education) and Redes Prestadoras de Servicios de Salud (Networks of Provision of Health Services).

Image 2.
Does your organization belong to a network, chamber or cooperative?

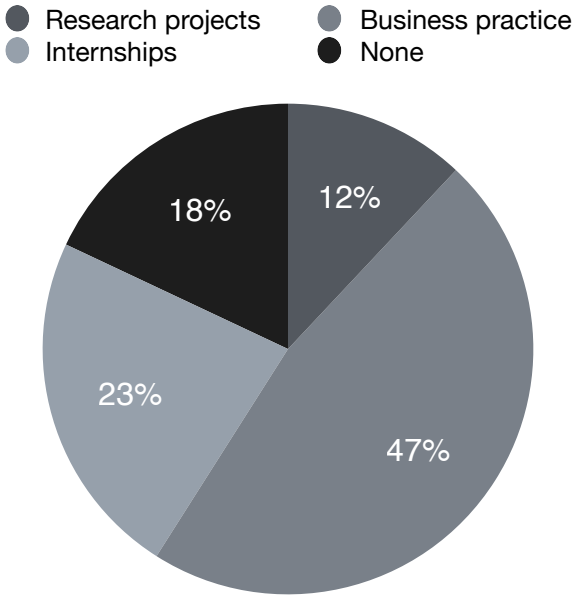


Source: Own elaboration.

Regarding the first approach of the links promoted by the Business Administration Program with the productive sector, it can be seen that 47% mentioned that the Business Administration Program has worked with them through the business practice; 23% said they did it through internships; 12% through research projects and 18% state that the Business Administration Program did not work with them in any way.

For the last group of answers, the people interviewed mentioned that there were some factors that did not allow them to establish a coordination between one program and the enterprise. The first one was because they did not know about the offer of the program, the second one was that they had just entered the region and are currently making agreements with the university and finally because of a lack of knowledge and interest from both parts.

Image 3
In what way has the program of Business Administration coordinated with your organization?



Source: Own elaboration.

In this set of ideas, the recommendations provided by the productive sector to the Business Administration Program are grouped in three aspects. Firstly, it is advised to modify internal processes for the selection of practitioners and interns as well as the design of occupational and academic profiles of students for a correct placement in the enterprises according to the attitudes and skills.

Secondly, it is recommended the incorporation of the program in the productive sector of the county and the department and in this way to be able to know in advance its needs and support the different processes and procedures of the economic sector of the region and have more interaction with the productive sector. Finally, it is suggested to improve the skills of students regarding the topics of leadership, reading, writing and interpretation to enhance their performance in the enterprise.

Table 3
Aspects that are considered to be improved in the Business Administration Program

ANSWERS	FREQUENCY	PERCENTAGE
Achieve an opening meeting between the university and the enterprise at the beginning of professional practices	1	5,9
Train young students in the aspect of leadership	1	5,9
More dynamic communication with the legal office but it has been effective so far	1	5,9
To be closer to the leading processes in the department	1	5,9
To develop essential skills in the students in professional practice: reading, writing and interpretation	1	5,9
To make a profile of practitioners so they can be placed in enterprises according to their skills	1	5,9
To have a follow up of the organizations that create or contribute to the development of the region and establish alliances	1	5,9
More coverage with interns	1	5,9
More commitment and responsibility	1	5,9
To show every semester the vacancies of services to coordinate projects that benefit our population	1	5,9
To prepare students to create enterprises for the future in the region related to ecosystemic services	1	5,9
To have more interaction with the productive sector so enterprises can have a wide knowledge about the virtues of having practitioners	1	5,9
To have better communication with the staff of the PAE in order to coordinate training courses	1	5,9
To have a larger basis in the area of marketing	1	5,9
To enable quickly the selection of interns in the auditor department	1	5,9
NONE	1	5,9

Source: Own elaboration.

Regarding the link with practitioners and/or interns, the productive sector indicated that the main issues or flaws are: the lack of a clear student profile, the flaws related to the critical analysis, oral expression, writing documents and competence in the community as well as the agreement of objectives with the government programs that work as platforms for the incorporation of practitioners in public sector of the department. On the other hand, 35.3% of the population surveyed refrained from answering this item.

Table 4
According to you, what have been the main problems or flaws identified in undergraduate students, practitioners or interns of the Business Administration Program that participated in your organization?

ANSWERS	FREQUENCY	PERCENTAGE
Critical analysis	1	5,9
Adoption and competence in the community	1	5,9
Placement of interns at the beginning of every semester	1	5,9
Agreement of objectives with the government	1	5,9
Oral expression	1	5,9
Ineffective incorporation to agricultural communities	1	5,9
Use of technological tools	1	5,9
Lack of a clear student profile	1	5,9
Planning of homework and objectives	1	5,9
Documents writing	1	5,9
DID NOT ANSWER	6	35,3

Source: Own elaboration.

On a different aspect, regarding the main contributions and/or strengths identified by the productive sector in undergraduate students, practitioners and interns of the Business Administration Program, it can be seen that they range from the time availability of students to their commitment with the development of the established activities in the enterprise.

Also, managers have a positive perception regarding the good level of knowledge that undergraduate students, practitioners and interns have and their attitude towards learning the processes and procedures of the enterprises. Finally, it is important to mention that 29.4% of the people that participated in the round table refrained from answering this item.

Table 5
According to you, what have been the main contributions and/or strengths identified in undergraduate students, practitioners or interns of the Business Administration Program that participated in your organization?

ANSWERS	FREQUENCY	PERCENTAGE
Good level of knowledge in their areas	1	5,9
Good level of knowledge	1	5,9
Learning ability	1	5,9
Commitment with the entity	3	17,6
Availability of the student	1	5,9
Willingness to learn	1	5,9
Willingness	1	5,9
Excellence in performance	1	5,9
Good attitude and adaptation of the practitioner	1	5,9
Assignments per goals and indicators	1	5,9
DID NOT ANSWER	5	29,4

Source: Own elaboration.

Regarding the areas that need to be reinforced in the preparation of students of the Business Administration Program in order to solve the needs of the sector, it can be observed that between the levels of importance 1 and 2 as well as from the main areas of the preparation of students as business managers were graded in the following way: regarding the level of importance one of the 11 topics shows that the area of projects was classified to this level by 12 people interviewed and followed by finances, direction as well as international markets and business with one person interviewed per category, correspondingly. The other areas were not classified at this level. On the other hand, the level of importance 2 in the subject areas, such projects, finances, human resources, marketing, production and planning had a classification of level of importance 2.

Table 6
Subject areas

SUBJECT AREAS	NUMBER OF PEOPLE INTERVIEWED THAT MENTIONED THE LEVEL OF IMPORTANCE 1 AND 2	
	IMPORTANCE 1	**IMPORTANCE 2**
Projects	12	1
Finances	1	4
Economy	0	2
Human resources	0	1
Marketing	0	2
Production	1	1
Planning	0	3
Direction	1	0
Law	0	0
Second language	0	0
International markets and business	1	0

Source: Own elaboration.

In this trend of ideas, the productive sector indicates that the specific competencies that are being developed by students of the Business Administration Program with a level of importance 1 the competency numbers are 1, 2, 3, 6, 7, 12, 13 and 20. For the level of importance 2 regarding development the competency numbers are 1, 2, 3, 5, 6, 9, 11, 12, 13, 15 and 16.

On the other hand, regarding the competencies that have to improve in the preparation of students, the productive sector graded the following competencies in the level of importance 1: 1, 2, 3, 8, 11, 12, 16 and 20. For the level of importance 2 we can find competencies 1, 2, 3, 4, 5, 8, 12 and 16.

The previous grading shows that there are competencies that are being developed to a level of importance 1 and they must be improved identically to a level of importance 1 including competencies number 1, 2, 3 and 12. Accordingly, there are competencies that are not being developed and that is why the productive sector considers that they should have the level of importance one such as numbers 8 and 16.

Table 7
Specific competencies that are in development

ESPECIFIC COMPETENCIES	IN DEVELOPMENT		MUST BE IMPROVED	
	1	**2**	**1**	**2**
1) develop a strategic, tactical and operative approach	4	1	6	1
2) identify and manage business risks of the organizations	2	1	1	2
3) identify and improve business processes of the organizations	1	2	1	3
4) manage an integral logistic system	0	0	0	3
5) develop, implement and manage systems of administrative control	0	1	0	2
6) identify the functional interrelations of the organization	2	1	0	0
7) evaluate the legal framework applied to business management	1	0	0	0
8) Create, assess, and manage business projects in different types of organizations	0	0	2	1
9) interpret accounting and financial for managerial decision-making	0	1	0	0
11) make investment, financing, and resource management decisions in the enterprise	0	1	1	0
12) take the lead for the achievement and accomplishment of goals in the organization	1	1	1	2
13) manage and develop human resources in the organization	2	1	0	0
15) improve and innovate management processes	0	1	0	0
16) identify opportunities to launch new business and/or develop new products	0	2	1	2
20) create marketing plans	1	0	2	0

Source: Own elaboration.

Undergraduate students

In a different matter, the productive sector established that the aspects to consider for the liaison of a professional in Business Administration and achieve a good performance in the organization regarding the level of importance 1 are the oral and written expression, implementation of principles, techniques and methods to solve problems, work by goals and indicators, development of the skill of leadership and the management of resources and time.

Regarding the level of importance 2 it is possible to find again the oral and written expression as well as the mastery of ICTs and management programs, the ability to carry out group works, skills in the use of machinery and equipment corresponding to their area, decision-making, good command of interpersonal relations and the ability to summarize and establish processes or services.

Table 8
Aspects to consider for the link professional of Business Administration Program with productive sector

ASPECTS	LEVEL OF IMPORTANCE 1	LEVEL OF IMPORTACE 2
Oral and written expression	9	1
Mastery of a foreign language (English)	0	0
Mastery of ICTs and management programs	0	5
Knowledge in occupational health and industrial safety	0	0
Ability to carry out group works	0	5
Comprehensive reading of texts, manuals, reports	0	0
Implementation of principles, techniques and methods to solve problems	2	0
Work by goals and indicators	1	0
Development of the skill of leadership (planning, organization, control, direction)	3	0
Skills in the use of machinery and equipment corresponding to their area	0	1
Creativity and innovation (adaptation and/or creation of new processes or technologies)	0	0
Management of resources and time	1	0
Decision-making	0	2
Development of projects	0	0
Observation skills	0	0
Good command of interpersonal relations	0	1
Ability to summarize and establish processes or services	0	1

Source: Own elaboration.

Research

Regarding the topics in which the Business Administration Program can support with research and contribute to the solution of problems or needs, the people interviewed indicated that of the level of importance 1 the related topics are the

increase of productivity, improvement of management processes, added value in the productive chains, creation and management of projects for the attainment of resources, market research and creation of new business.

On the other hand, regarding the level of importance 2, they mentioned the topics of the increase of business efficiency and effectiveness, improvement of productivity or enterprise processes and the improvement in the evaluation systems.

Table 9
Topics in which the Business Administration Program can support with research

TOPICS	LEVEL OF IMPORTANCE 1	LEVEL OF IMPORTACE 2
Increase of productivity	4	3
Improvement of management processes	4	3
Improvement and added value in the productive chains	1	2
Creation and management of projects for the attainment of resources	3	2
Market research	3	0
Design, development and boost of new products	0	0
Business diagnostics	0	0
Increase of business efficiency and effectiveness	0	1
Production of income for the enterprise	0	0
Creation of studies and research to improve productive or enterprise processes	0	3
Improvement in the evaluation systems	0	1
Creation of new business	1	0

Source: Own elaboration.

Table 10
Areas to reinforce

AREAS	SHORT COURSES	DIPLOMA PROGRAMS	GRADUATE PROGRAMS
creation and evaluation of projects		x	x
finance			x
human resources	X		x
marketing			
tax regulation	X		
production			
planning			
Direction			
commercial and labor law	X		
Cooperativism	X		
environmental sustainability			
agricultural management			
touristic management			x
public management			
social responsibility			
marketing and international business	X	x	x

Source: Own elaboration.

Continuing and Formal Education

The productive sector indicates that, regarding the continuing and formal education the human resources of the organization, in order to improve its development it is necessary to strengthen the personnel in the areas of creation and evaluation of projects with diploma and graduate programs, the area of finance with graduate programs, the area of human resources with short courses and graduate programs, the area of tax regulation with short courses, the area of

labour law and business with short courses, the area of cooperation with short courses, tourism management with graduate programs, and the area of marketing and international business with short courses, diploma and graduate programs.

Table 11

Perception of the productive, business and institutional sectors towards PAE

	LEVEL OF PERCEPTION			
ITEM	EXCELLENT	GOOD	ACCEPTABLE	POOR
Perception about the preparation ideal professionals according to the social needs of the region	23%	53%	18%	6%
Perception about the development of research proposals and social projection that contributes to the solution of problems in the area	0%	37%	44%	19%
Perception about the offer of extension and training proposals according to the needs of the area	12%	44%	31%	13%
Perception about the leadership taken by the program towards solutions of regional problems of organizational and managerial nature	27%	40%	20%	13%

Source: Own elaboration.

Regarding the first item, 53% have a good perception, 23% have an excellent perception, 18% have an acceptable perception and 6% have a poor perception of the preparation of professionals in the Business Administration Program.

In the second item, 44% indicated that they have an acceptable perception, 37% have a good perception and 19% have a poor perception. Regarding the third item, 44% indicated that they have a good perception, 31% have an acceptable perception, 13% have a poor perception and 12% have an excellent perception.

Finally, about the fourth item, 40% of the managers that were interviewed said that they have a good perception, 27% have an excellent perception, 20% have an acceptable perception and 13% have a poor perception about this item.

Conclusions

From the approach of the productive sector of the county of Florencia and the formal relation with the Universidad de la Amazonia it was possible to identify the needs of the productive sector which creates challenges that the university will have to solve from their physical and intellectual capacity.

The R&D&i of the Business Administration Program were established in order to support the productive sector, the areas of performance related are the increase of productivity, improvement of administrative processes, added value in the production chains, creation and management of projects for the attainment of resources, market research and creation of new business, increase of management efficiency and effectiveness, improvement of productivity or enterprise processes and improvement in the evaluation systems.

The productive sector determined the flaws and indicated that the aspects to consider for the liaison of a professional from Business Administration are: written and oral expression, implementation of principles, techniques and methods for the solution of problems, work by goals and indicators, development of the skill of leadership and the management of resources and time, the mastery of ICTs and business programs, the ability to carry out group works, skills regarding the use of machinery and equipment of their area, decision-making, good command of interpersonal relations and the ability to summarize and establish processes or services.

Such flaws are the input for the curricular transformation of the Business Administration Program. Moreover, it is mentioned that the areas that have to be reinforced for the student preparation of the Business Administration Program in order to solve the needs of the sector are evident in the area of projects which was the one that got the highest grade regarding its need to be reinforced as well the areas of finance, direction and markets and international business.

Regarding the weaknesses in the practitioners and undergraduate students of the Business Administration Program, the productive sector concurs with the following: there is not a clear student profile, the flaws related to the critical analysis, oral expression, writing documents and competence in the community.

Also, to improve the student preparation, the productive sector agrees that it is necessary to modify internal processes for the placement of practitioners and interns such as the design of occupational and academic profiles for the correct designation in the enterprises according to their needs, attitudes and skills.

The perception of the productive sector regarding the experience obtained from the processes of coordination and the difficulties are considered by managers as good and satisfactory considering that they are taking advantage of skilled labour for the development and improvement of management as well as institutional processes and procedures of each organization. Regarding the difficulties, it can be seen that only one manager mention the low availability of students.

The main contributions or strengths identified by the productive sector in undergraduate students, practitioners and interns in the Business Administration Program are the availability of time of students and their commitment to the development of the activities established in the enterprise.

On the other hand, it can be seen that managers have a good perception regarding the good level of knowledge shown by undergraduate students, practitioners and interns and their willingness to learn the processes and procedures of the enterprise.

It can be concluded that the Universidad de la Amazonia, through the Business Administration Program can achieve the efficient connection that is missing so the link with the productive sector has an impact in the region through the development and implementation of projects that boost and support from the academy with the productive sector to the region and supporter of a curricular redesign for the Business Administration Program where it can be possible to solve the flaws identified in the undergraduate students or the needs for the sector at a labour level.

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Chapter 4

Sustainable Development and Culture
Wayúu Artisan

PHOTO BY EVIE SHAFFER ON UNSPLASH

Sustainable Development and Culture Wayúu Artisan

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Introduction

The knowledge systems and environmental management practices of indigenous and local people provide insights enabling better management of ecological challenges, preventing biodiversity loss, reducing land degradation, and mitigating the effects of climate change. (Unesco, 2019)

According to Unesco (2019) the framework for the 2030 Agenda, in spite of all the references to culture, has not adequately recognized culture's significant contribution to the implementation of the SDGs. The precise role and impact of culture on sustainable development needs to be systematically studied, measured, and operationalized. (Unesco, 2019)

In the Latino American context, handcrafts made by the distinct ethnic groups have been identified by trading practices of their products. In countries like Mexico, Uruguay, Nicaragua, Chile, and Colombia this type of marketing is part of their everydayness which allows them to better economic conditions in the

framework of their cultural relevance (way of dressing, accessories, sculptures, etc.).

In countries like Mexico, in the different states, handicraft activities have been decreasing significantly and in other cases have shown significant changes (production and appropriateness of new products). As a consequence, processes of loss of wool textile, the continuation of products such as coconut palm leaves and the emergence of new handcraft activities such as the plastic and palm leaves have been occurring in places like the Mixteca of Guerrero, Puebla, and Oaxaca (Ramos, 2004).

Likewise, it is worth noting the family participation of these ethnic groups in handcraft activities safeguarding the legacy of the last centuries and in some cases reorganizing themselves in organizations and improving handcraft specialities.

In the case of Colombia, this country keeps a close relationship with Mexico in the handcraft diversity, which may be distinguished in all parts of the country with leading products such as:

- The **Wayúu** indigenous people with their backpacks and bags.
- The inhabitants of the savannah of Cordoba and Sucre with the caña flecha hats.
- In San Jacinto (Bolivar) the main handicraft product is the woven hammock, like a net of an interwoven multi-coloured thread.
- Rope handicrafts are made in the Colombian Andes in Guacamayas (Boyaca) and are called spiral basketry.

Industrial handcraft may have its own characteristics, and among them are its unique small size and dispersed around the country. It is products are capable of improving its performance in the tourist industry and to provide job openings and opportunities for doing business. Places like Nariño, Amazonas, the "Santanderes and others", due to the influence of indigenous groups may consider this a common and representative activity within the culture of these populations (Jiménez, Domínguez and Martínez, 2009).

In addition, part of the commercial activities in the Cultural and Tourist District of Rioacha are led by the native Wayúu people, who came and established themselves in the Province of Padilla (South of Guajira-Colombia), Valledupar, Santa Marta and other populations of the Colombian Caribbean in

the XIX and XX centuries. They developed handcraft activities as their family economies.

In spite of the long existence, handcraft originating in the hands of the **Wayúu** indigenous people represented a significant evolution from the textile viewpoint. In this respect, Guerra (2003) states that the Wayúu weavers have used a wide range of techniques for elaborating their products starting from the most simple to the most complex structures. It should be bared in mind, also, that these handicraft products represent the lineage of each caste. This means, their uses provided status to the leader of the native clan, as well as respect and distinction.

In spite of this significant advance, from a productive and competitive standpoint, today the handcraft manufacture is viewed as a residual activity. Iguaran (cited in Guerra, 2003) states that among these kinds of handcrafts are: a) marked by a great deal of low prestige, b) there is a lack of cohesion as the sector, c) lack of training in entrepreneurship, design, and difficulties to access financial resources.

However, this productive factor has replaced other factors that historically have been, in terms of representation, the bases of this ancient culture. The geographical conditions of the great Wayúu nation have determined the strength of their activities, such as cattle-raising provided they count with large extensions of lands and fishing due to the natural closeness to the coasts of the Guajira Peninsula .

These are their main productive allies. These activities, in fact, had pushed handcraft activities behind, which were developed as residual activities in leisure time. As a consequence, handcraft work had been an activity of little importance from a productive point of view for a long time. And from a commercial perspective, it did not create such interest at the moment.

The natural conditions (climate and the lack of sea products) around the **Wayúu** indigenous people were submitted to structural changes, which they reached, that certain habits and productive customs of the ethnic group strongly impacted the native Wayúu. And especially, their most vulnerable populations such as “childhood”, that have been the object of highly dishonoured perverse indicators of death caused by malnutrition and hunger.

The natural scantiness and adversity guided the attention of natives toward the making of handcraft products as an element for survival and mainly the preservation of a natural richness represented by colourful products that, even when being recognized as "commercial products", are losing a whole tradition stamped in the Wayúu culture creed.

Ethnography

In developing studies where the understanding of the behaviour of the social subjects is required, ethnography comes into play. Martinez (2007) states that ethnography is a piece of research done on a certain group of people, on their customs and social practices, their lives and thoughts, as field research with the purpose of understanding the social life of the subjects who deeply interact naturally. This is why sociologists and anthropologists have used ethnography as a descriptive method of the way specific communities are, feel, think and behave.

According to Hammersley and Arkinson (1994), ethnography is a method for doing social research, which requires a wide range of sources of information. The immersion of the researcher, his or her decisive participation in the activities of observation allow him or her to make a deep analysis of the experience he or she lived through participating observation (Berry, 1989; Bechky, 2003, Holmes, 2013).

According to Galeano (2004), qualitative social research leads to the understanding of reality as a result of the process, which must be a historical construction based on the logic of the main characters. These must have internal optics in rescuing the diversity and particularity of the social context by making special emphasis on valuing the subjectivity and interaction among the subjects of the research.

However, ethnographic studies based on entrepreneurial research, its context of the application or commercial activity, and moreover research on marketing, are inceptive (Viconti, 2010).

Ethnic Marketing

Ethnic marketing integrates three main functions: 1. Comprehension of the consumers, 2. Gaining customers and 3. Keeping customers. These are grouped into a matrix of strategies where all disperse efforts come together in the immense panorama of modern businesses. Ethnic marketing also provides the basic elements for understanding the forms and characteristics of handcraft practices of the Wayúuu ethnic group (Paramo, 2004).

Ethnic diversity, mostly all minority groups are related to some type of economic underdevelopment of the regions (Robinson, 2013). A number of researchers suggest that an important barrier is the existing lack of trust between business people and producers, which limits a greater integration of the market (Fafchamps y Gabre-Madhin, 2006; Jayne, Mangisoni, Sitko and Ricker Gilbert, 2010).

However, as cited in Jamal (2003), these minority groups and their surroundings are increasing in size and they have a greater purchase power with an increase in political and cultural consciousness and ethnic pride (Cui, 1997; Penaloza and Gilly, 1999).

In that regard, many research results, providing empirical evidence that suggests that ethnicity is a dynamic concept, and as such technical questions of the traditional market segmentation can be applied to the commercialization of these types of ethnic minorities (Robinson, 2013).

Claims of Ethno-Marketing

Ethno-Marketing begins by creating a public and an express knowledge of the culture as the essence of the framework that drives contemporary businesses, from the viewpoint of the consumer as well as from the viewpoint of the organization and the market as such, and in which it operates.

It, finally, decisively, tests the contribution of anthropology, ethnography, and symbolism which at large stimulates the phenomenon of consumption that characterizes currently recognized consumption cultures. It is taken into account

that culture is not just a production of goods, but rather dynamic in its own rights (Páramo, 2005; Jaime Júnior, 2001; Zapata and Fioravanti, 2009).

Ethno-marketing discovers the predominant and hidden values and beliefs supported by a deep underlying world located right in the heart of cultural roots (Páramo *et al.* 2005). These considerations and premises propose that Ethno-marketing constitutes a related relevant social process for studying ethnic communities. These ethnic values are strongly related to consumer behaviour, seeing from an individual and group identity approach, and the particularities of the context.

Within the framework of uncertainties and the multiple doors open to face the consumer today, Ethno-marketing is envisaged as a discipline of thought and organizational action in which culture, from an anthropological point of view, is taken as the entrepreneurial and an overwhelming mechanism that stimulates and provides answers to commercial relations in each variable and sometimes impenetrable market segments, and relies on the following claims (Páramo, 2004a; 2004b):

1. The conception and practice of Ethno-marketing is supported by the relativist scientific paradigm, in open opposition to-not complementing-the positivist paradigm that prevails in marketing training schools.
2. Marketing, as a discipline, has a contextual feature. The validity of its operations depends, comprehensively and complementarily, on forcing actions which are analysed and interpreted.
3. The essence of this context is fully determined by patterns and dominant cultural frameworks.

The Market of ethnic handcrafts

Studies done by, for example, Van den Berghe (1995) in Mexico, an American country that is characterized by hosting a number of ethnic groups, has outlined the handicraft markets with the presence of an actor who makes possible this type of commerce, and identifies the mestee who sells handcrafts, while ethnic groups are characterized by street vendors, without ruling out hotels, restaurants, colonial churches, and cooperatives.

Due to the social and cultural differences, the participants in the commercialization of the ethnic handcraft markets network are not the ones who obtain larger profits. Intermediaries and stores seem to be the ones who participate in wider commercial dynamics and obtain greater profits. As a result, merchants economic achievements and a number of independent producers may sometimes increase the socioeconomic inequalities (Cohen, 2001).

The handcraft markets and objects made by some ethnic groups may become the representation of cultural objects generally loved by tourists who express their intention to learn and understand social behaviour. Tourists may experiment desire to purchase objects related to the sociocultural context they visit, and they are able to acquire artifacts that remind them of the places they had visited (Swanson and Timothy, 2012; Trinh, Ryan and Cave, 2014; Paraskevaidis and Andriotis, 2015).

The behaviour in purchasing autochthonous products, new interpersonal relations, and conditions may result from an unknown market, which is often attractive because of their features of differentiation. Polanyi (1944), as cited in Jaimovich (2015), thinks that modern markets are born out of the transition from a network of community reciprocal exchanges to other interactions of institutionalized markets.

As a matter of fact, the handcraft businessman does not come from the community, but does easily integrate himself into the conditions offered by the markets. As a result of the relations, the merchant of handcrafts acquires certain control between the customer and the producer of ethnic art. This merchant accepts the reality of the mix of emotions and opposition instead of clear emotional dominant steps, including this way the complexity and diversity of answers provided to individual tourists (Hottola, 2004).

Competitiveness

The Colombian National Planning Department (DNP) conceptualizes that competitiveness of a country or a region may be understood as

> "the capacity to produce goods and services that can successfully compete in globalized markets, and generate long term sustainable development which will contribute to improving the quality of life of the inhabitants" (DNP, 2007).

The prospective vision of Colombia in-competitiveness is clearly defined by the National Policy on Competitiveness, where the National Planning Department has proposed among its philosophical elements for the year 2032, the following:

> "In 2032 Colombia will be among the first three most competitive countries in Latin America and it will have a high level of income per person, similar to that of a country of medium-high income, stemming from an economy of exportation of goods and services that add value to businesses that prompt local and foreign investments, regional convergence, better formal job opportunities, and increase the quality of life and reduce the level of poverty".

Wayúu ethnicity

In Colombia, the Wayúu Artisan community is located on the Guajira Peninsula in an area of 1.080.336 hectares. Most Wayúu people settled in the Resguardo de la Alta Guajira and, other reservations located in the south part of the District and at the Carraipia Reservation. The estimated population is 144.003 people (20.5% of the national indigenous population). the **Wayúu** indigenous people are mainly settled in the Colombo-Venezuelan border and speak 9 of the Amerindian languages present in the Colombian linguistic repertoire.

The main economic occupations of the the **Wayúu** indigenous people are historically concentrated in cattle raising, goat raising, and sheep raising. Wayúu beliefs establish that the more animals own by a family the respect that family will obtain from other indigenous families and castes since at the time of families disputes compensations are paid in "dotes", which are represented in necklaces, beautiful stones, and animals such as cows, horses, sheep, and others.

Wark (2005) suggests that the indigenous people who have lived in the Guajira Peninsula have developed a lifestyle that has taught them to live in the arid peninsular desert. This is a society with a complex social structure and with a set of fixed values in unique circumstances. One of the main characteristics of the Wayúu culture is the textile production, which is extremely attractive to the Alijuna (the name given to other people who are not indigenous by the **Wayúu** indigenous people) (Quintero, 2015) and technically complex.

For many nomad and half nomad people, the expression of the richness is shown by the quantity and quality of textile and jewels they possess, along with the amount of cattle heads. A nomad may have very little or no material belongings because of the difficulty of transporting these goods.

The **Wayúu** indigenous people are not always nomads. Given the way they live they may be called half-nomads since they have kept certain particularities of their lifestyle, one of which is the appreciation for textile and its production (Wark, 2005).

According to Bueno (2008), the weave is a task developed by the Wayúu Artisan, which in coordination with other daily activities may be seen as a residual activity, taking into account that these are performed when they are traveling, during leisure time or during visiting time. Knitting has always been a tradition of the **Wayúu** indigenous people. For centuries, they have kept the ritual where they initiate the young ones in knitting different drawings, which mean respect; having many fine pieces of fabrics is a symbol of power and prestige.

Women specialize in knitting fabrics, hammocks, corsets, belts and handmade twisted funeral fabric for making beads, handbags knitted with needles and embroidered blankets. There is no knitting ritual for men (Bueno, 2008). One of these ancient handicraft products is now described.

Research Method

The present document is part of a piece of research developed between 2016 and 2017, in order to provide insight into the commercial handicraft products of these ethnic people represented in the department of Guajira – Colombia.

Qualitative research was developed using the ethnographic method for collecting data and supported by anthropology. Ethnology, understanding it as the organization, classification of documents collected by ethnography in order to create theories, establish relations, create hypotheses (Acevedo, 2011).

The object population of this study is located in the Tourist and Cultural District of Rioacha (Guajira, Col.), and its representation was selected due to the handcraft commercial activity with the support of different institutions that spontaneously lead the sustainability of handcraft business processes involving tourists and other consumers.

A number of significant interviews were randomly developed involving different actors, among which were fifteen (15) Artisans and sellers in the Wayúu Marketplace. The selected units for analysis according to the interest of the research were: 1. Eight (8) Wayúu women artisans, of which three (3) came from villages with outstanding products such as the Guajirito. Five (5) Artisan Women were selected from the street handcraft commerce in Rioacha (Camellón of the first street).

Of these, 60% were experienced female weavers and 40% were young weavers, who shared with Wayúu women artisans at the work site and telling their experiences in the process and the product commercialization. 2. Three (3) wholesalers of handcrafts who were well-known and of eight (8) years of experience in the locality were randomly selected. 3. Three (3) consumers were interviewed and selected to represent a certain consumer type (local, foreign and wholesaler), helping in having a greater understanding of the different possible behaviours in consuming Wayúu art crafts. 4. During the analysis of the interviews the participation of the Servicio Nacional de Aprendizaje – SENA was identified. Because of this, the Coordinator of Entrepreneur Rural Young SENA

from the Guajira region was selected as the validator, since he had stayed eight (8) years immersed in the work of the group.

Results and Discussion

The analyses were done once the interviews were literally transcribed. In support of the interpretation of information, a matrix for analysis was designed which served to provide insight into the saturation of the characteristics of the Wayúu Artisan Market. Likewise, the indicators created by the authorities were taken as benchmarks, which correspond to the local productivity and competitiveness, as revealed.

The organization of the results was coherent with the methodology used, based on reality as the result of a process stemming from the logic of the main actors, and making special emphasis on valuing the subject, his or her experiential life and his or her interaction with other subjects of the research, as proposed by Hammersley and Atkinson (1994), Berry (1989), Bechky (2003), and Holmes (2013).

The most significant results were outlined without ruling out any understanding. Thirteen (13) main characteristics of the Wayúu Artisans were identified and grouped into three different dynamics, as shown below.

Social dynamics

The subject of the social context was taken from the culture, within the framework and in the essence of contemporary businesses, on the part of the consumer as well as on the part of the organization and market. This social dynamic decisively tests the contribution of anthropology, ethnography, and symbolism that stimulate the consumer phenomenon (Páramo, 2004; Páramo, 2005; Zapata and Fioravanti, 2009).

Within this social dynamic, the relations established between the ethnic groups and people who they are in contact with to develop their commercial practices in the Rioacha market were identified.

Family tradition and support

Ethnicities were established by different families. In the handcrafted work each family would try to transmit Wayúu Art craft practices from generation to generation in order to provide economic support for the group while safeguarding the traditions and the use of handcraft skills. Also, there is support provided by older women to infants who receive the training in a natural way.

Phrases of the interviews: "Yes, I learned from my aunt and the day we did not have work, we had to weave handbags. She would explain it to us" (Artisan). "My name is Conchita and I came from the Orillú caste. That is the wife of my son who is with me now, and this is my grandson" (Artisan). "That little girl knits, it is their initiative, they are taught how doing it" (Artisan).

Adaptability

The local conditions to develop handcraft works is very scarce. The woman of this ethnic group is multifaceted who performs different roles such as mother, wife, artisan, and leader in marketing activities. She develops art craft activities in the middle of the marketing noise and in the group.

These may be identified as breastfeeding her child and weaving, doing the house chores and making handcraft, selling her pieces on the street and creating more products. Phrases identified in the interview: "Yes, always, but I am sometimes inside while I watch soap operas, and taking care of the meals and weaving" (handcraft). "We also create products in this place, she is handcrafting right now" (handcraft).

Resilience and commitment

The working hours for the **Wayúu** indigenous people are extensive. Many Wayúu women artisans are very committed, even when their work is not exclusive, but it constitutes most of their working time. A number of Wayúu women artisans are also committed to market their products and staying in the street is really tiresome.

Some phrases have been identified: "about three days, two days, it depends on the commitment" (handcraft). "It takes about ten days. We are all at this boardwalk right now" (handcraft). "Yes, we take it with us every day. We pick it up and we live in villages. We take public transportation to go to the boardwalk where we sell our products" (handcraft).

Monopolization

Diversification of prices and the creation of new products was not easy for the Artisan Wayúu. Those who acquired handcrafts created new continuous challenges and weakened the Wayúu main negotiation activities. Then, the monopolization by the buyer came about since they had the opportunity to acquire good, cheap and beautiful products at low prices and from a sole group.

Phrase identified in the interviews: "They arrive in the street and the wholesaler would buy their products at such a low price that sometimes the vendors sell for the only purpose to have money for buying food. Even tourists may take advantage of the Wayúu salespersons. This is a monopolization of their work" (Coordinator of the program "Entrepreneurship Rural Young SENA, Regional La Guajira").

Functionality

For people who buy Wayúu craft, they are functional artisan men. These products are described as objects for personal use that are part of their clothes and/or a token, the value of a culture or an appreciation for the culture. Phrases identified in the interviews: "People like the handbags, the regular size, the bigger ones of different colours where they can carry things, and at the same time it is a token".

Phrases identified in the interviews: (handicrafts distributor). "When they arrive they first look at backpacks, if they fit they keep them, so we work so people can buy the products" (Artisan).

Production Dynamics

They try to produce the products in a continuous way in order to keep up with the market, as suggested by Paramo (2004). These considerations are consistent with the main three marketing functions: the understanding of consumers, opening of new markets and customers, in addition to creating a peculiar technique by the Wayúu craft producer.

Creativity

In order to have a distinctive original organized handcraft production, it was necessary to look at all possible options of how to wrap up productions. The Wayúu topped right into the diversity of handcraft figures, according to the clans or subgroups, integrating the meaning of handcraft symbols of their ethnicity and combine them with a variety of colours.

In spite of the fact that many products are just plain and/or without identification due to the figure colors, the weave becomes a way for creating an outstanding sensational piece for the buyer.

Phrases identified in the interviews: "It is a painting. The colours are the creativity added to it" (handcrafts). "Others sell very nice backpacks with beautiful weave because they are smart people, and people buy them (merchant).

Leading Product

The handbag is leading the race as the most commercialized Wayúu craft. This incites to more continuous production and a diversity of presentations shaped by strong colours and multiple twisted figures that reflect the skill of the craftsperson.

Phrases identified in the interviews: "The most solicited is the handbag, the big ones with designs" (merchant). "We only sell handbags" (Artisan woman). "The ones that are mostly sold are the handbags, well-decorated ones" (merchant).

Representativeness of Color

Strong colours are the ones that identify the Wayúu handcrafts and are the ones preferred by the customers. Colour usually influences the production and the selection of the customers. However, pink and brown colours are the most demanded ones.

Phrases identified in the interviews: "yes, and mostly when I have colourful products, and when I visit the market the Arijunas would buy my products" (Artisan woman). "I sell more when I have colourful products" (Artisan).

Diversity

The Wayúu weaved products are of a great variety such as hammocks, handbags, shoes, paintings, and even products that are typical of cold climate such as scarfs. The **Wayúu** indigenous people are open to using a diversity of techniques. Their creations, they were open to the scenarios of different cultures without abandoning their own. Diversity also refers to the use of a number of materials and shapes (mainly those created by the children).

Also, handcrafts-man traded pieces of handcrafts to the specialized markets owned by designers and companies who added the Wayúu label to their products. Phrases identified in the interviews: "Here there are products for all

tastes, cachacos who purchase Wayúu scarfs and added our weave" (handcrafts-person).

"It depends on the size, 15 or up to 40 threads, colours and weaves" (handcrafts-woman). "There are a variety of prices with designs, and sometimes they purchase the body, they sell the body, it depends on the handbag itself" (merchant).

Market Dynamics

The Wayúu handcraft products may differentiate themselves from other products since they are 100% handmade. The inspiration and skills are put to test every time a piece of handcraft is made. The aspect of survival reflects the minority groups as related to the underdevelopment of the regions in the marketing framework (Robinson, 2013), the existence of a barrier of integration of businessmen and producers (Fafchamps and Gabre-Madhin, 2006; Jayne *et al*., 2010), and the experiences and tastes coming from purchases related to the sociocultural context visited and getting the artefacts that remained you of the places themselves (Swanson and Timothy, 2012; Trinh, Ryan and Cave, 2014; Paraskevaidis and Andriotis, 2015).

Fashion

Fashion is taken as the Wayúu products coming from within the ethnic group in terms of creation, games, and presentation of the social ties. But, also, there is the influence fashion outside the Wayúu group which integrates their culture with others, providing an opportunity for other uses of handcraft pieces and other terminated products in the market in terms of size, colour, and style.

Phrases identified in the interviews: "They always teach us to weave, since we were kids, but then we combine and produce others" (Artisan woman). "We request what the designer asks for, and sometimes what is asked for are accessories, shoes, and bags" (Merchant). "When the cell phones arrived, we were requested to design cases for cell phones, this too is sold and we know to knit them likewise" (Artisan woman).

Consumption References

The consumption of Wayúu handcraft is unique and original. A direct competence of replication by non-artisan to the Wayúu handcraft pieces was not found anywhere; this is why when acquiring a Wayúu handcraft piece you have

acquired part of the history and the reflection of the language used in the weaving.

"People know they have bought a good product, handmade product from us, each piece is made by a Wayúu person, this is what people get, it is what we do" (Artisan woman). "one is always thinking when one weaves, for example, in the figures, knowing this piece was made by me and it was bought from me" (Artisan woman).

Negotiation

The **Wayúu** indigenous people are centred right into the heart of the negotiation of marketing of the Wayúu handcrafts, in the context of the final consumers or dealing with handcrafts businessman. The members of the ethnic group, who are the producers, lead the marketing exchange that occurs, from a) The negotiation opportunity: the ethnic handcrafts are very much demanded by visiting consumers and no natives who want to do business as well as entering other markets with the Wayúu handcrafts.

Acquiring Wayúu products at good prices to later resell is an attractive way of obtaining profits, even when in vacation time, it means major transit of people interested in purchasing handicrafts.

Business people were able to create strategies to maintain an international market "This is what calls the attention of tourists, especially the cachaco. Praises coming from the interviews: "Mostly, cachacos, inclusively from Spain…a person from Spain bought from me, a month ago, he bought around one million pesos worth of merchandise" (merchant). b) Negotiation for subsistence: The contribution of the Wayúu women is a way of surviving, marketing their products, the commitment to producing handcrafts mean producing to feed their children in order to survive.

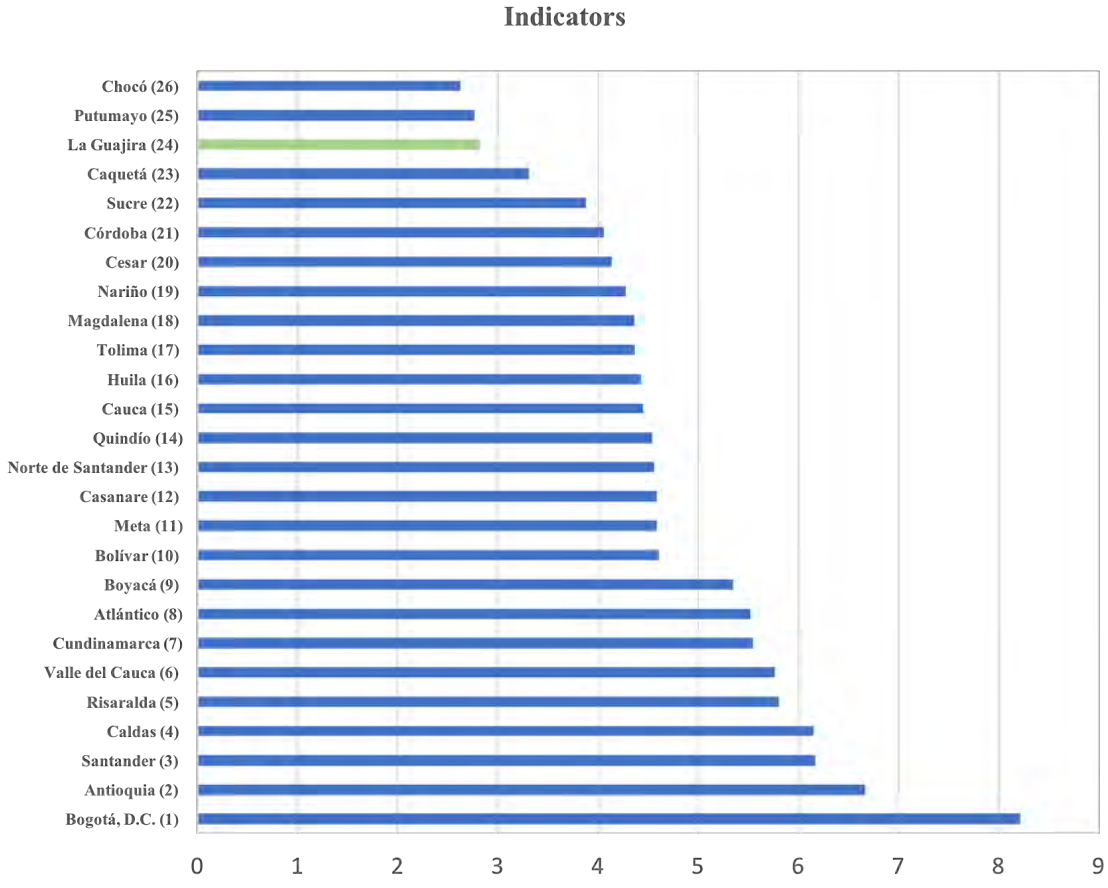
Handcrafts are taken to plazas and traditional commercializing specialized zones, where they are directly sold to the final consumers and/or even better yet, the commercialization of handcrafts is done with businessmen who purchase from handcrafts vendors and may exchange for another product of first necessity.

Phrases coming from the interviews: "We were not able to purchase them, they are not sure, then they do not carry the cooking oil, nor sugar, nor coffee, nor flour, these are bad times for this business, it is not only the exchange of products but also a help for buying food" (merchant).

Local Competitiveness

Into competitiveness term, the department of Guajira in Colombia is far from complying with the National Policy of Competitiveness, in spite of having the natural and Geo-strategic conditions for exporting. To date, the competitiveness indicators are not the best at all. According to the 2017 District Competitiveness index, calculated by the Competitiveness Private Consejo (CEPEC) of the Rosario University, the department of Guajira ranks number 24 (2.821%) of 26 Districts analysed in competitiveness. The last place is occupied by Chocó (2.63%), who has occupied this position in the last three reports measuring competitiveness. According to this report, the major challenges of competitiveness for this region is high school education, innovation, entrepreneurship, and health (Graph No. 1).

Graph 1
Rank of the District in 2017 competitiveness

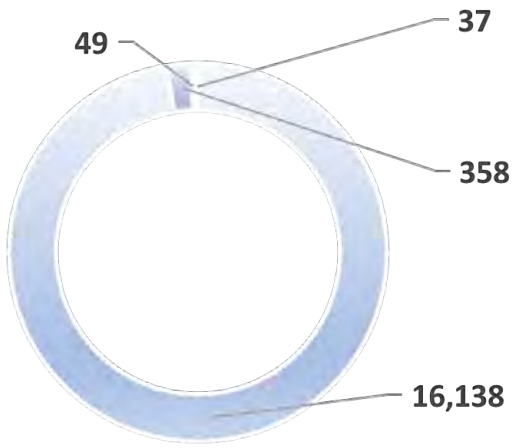


Source: CPC (2017).

It is worth noting that there is not a business structure the department of Guajira geared towards its growth and development. The Chamber of Commerce La Guajira reported in 2017, that according to business registration, there were 16.582 productive units, of which micro businesses mounted up to 163.1385 registrations.

This means 973.3%. There were 358 small businesses that represent 2.2%, followed are 49 middle businesses which make up 0.3%; and finally, there were 37 large businesses registered, mounted to 0.026% of the businesses in La Guajira. According to this report, then 99.8% of the companies in the La Guajira department are ranked as small and medium businesses. (Graph 2)

Graph 2
The competitiveness position SMEs. The La Guajira department (2017).



Source: The Chamber of Commerce La Guajira (2017).

Conclusion

The Wayúu ethnic group handcraft activity has been in the spotlight, moving from a residual type of economy (Guerra, 2003) to constituting itself into an activity of basic economy that satisfies the basic needs of the group. The basic change in the economy of this community is given by the impact of industrialization, technology.

Even the natural environment of the **Wayúu** indigenous people played an important role in the displacement of the production of their primary activities (cattle-raising, agriculture, and trading in some cases) to the production of handcrafts which represents the main characteristics that mark the originality of their ancient culture.

Today, there is a market for Wayúu handcrafts with specialized practices coming from the internal sociability of the group. This is, these practices are maintained from the inside of the Wayúu group by selecting who practice them and how they are practiced, offering the public at large an array of handcraft pieces of ancestral belongings and kept in mythical, political and cultural conditions with a static symbolic condition that identifies the specialized product.

The Wayúu market is located in the reality of human survival (Robinson, 2013). The social dynamic of the ethnic group limits the growth of the value of Wayúu craft, creating a monopolization by those intend to acquire it.

The majority of people who acquire the products are intermediaries who purchase handcraft pieces in a wholesale manner, creating consumption barriers, since they diversify and innovate the original products and interfere with the constitution of authenticity in such a way the conditions to understand and conserve the main actors of the Wayúu market (Páramo, 2004) become the responsibility of those who have transformed the Wayúu product.

Studies on ethnicity related to the commercial practices must also be done on the concept of the internal organization of the **Wayúu** indigenous people, taking into account the phenomena and the role and/or beliefs where the original activities originated. In addition, there is the possibility of developing scientific

studies that present insight into the consumption phenomenon of the Wayúu craft transfiguration.

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Chapter 5

Human Development and Agricultural Competitiveness in Michoacan, Mexico

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Human Development and Agricultural Competitiveness in Michoacan, Mexico

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Introduction

Recently, globalization has encouraged agricultural producers to improve their competitiveness, while agriculture has a high incidence in the employment generation in regional economies. However, there is an inverse relationship between the primary sector and development level; given the trend of economies by increasing the participation in the tertiary sector (Stern, 2007).

Worldwide, almost 50% of the population lives in rural areas (World Bank, 2014), 30 percent of the population is employed in the primary sector. The Prebisch-Singer hypotesis (Toye and Toye, 2013; Harvey *et al*. 2010; Bloch and Sapsford, 2000) assumes that peripheral countries that export raw materials find the trend deterioration of this price relationship as an external structural condition (Prebisch, 1950). This situation would affect human development, of

the countries that produce raw materials or food for export if at the same time these countries imports transformed goods.

The Mexican exports of the primary sector have increased 258%, during 1980 to 2015 period, the same time importing reduced 28% (Ayvar, Navarro and Delfin, 2018:10). For this country, the agriculture represents 3.8% GDP, but in Michoacan agriculture rises 10% of GDP (Ortiz and Navarro, 2018).

By other hand, Human Development Index (HDI) in Mexico was 0.762 (2016), occupied 77th place in the global ranking (UNDP, 2017). While, Michoacan was ranked 29th (of 31) on the national scale (UNDP, 2015) with 0.786 in HDI value (UNDP, 2016).

Michoacan has one of the lowest HDI in Mexico and the majority of its municipalities have been specialized in agriculture. While some municipalities are highly competitive in agriculture, participating in the main agricultural export products, such as avocado, lemon, mango, and berries. Meanwhile, other municipalities are at levels of agricultural subsistence and social backwardness. So the driving question of this work is: How are related, the agricultural competitiveness and the human development of Michoacan?

The aim of the present paper was to analyse the relationship between agricultural competitiveness and the human development index, both at the municipal level. The article is organized as follows: the first part presents a theoretical framework, followed by a contextual description. The following section explains the methodological procedure, after that, the next part presents results and analysis. Finally, there are exposed the conclusions.

Agriculture performance in economic development

Empirical and theoretical studies on agriculture and development, have a long tradition in economic theory, from A. Lewis, who already in the fifties warned that the own wages of the capitalist sector, depended on the performance of the subsistence sector (Flores, 1960).

It is not surprising that more than 500 million people are engaged in the field, mainly for maintenance (FAO, 2013). So the relationship between agriculture and economic development can also be highlighted from the historical point of view,

under which it is argued that developed countries, reached food sufficiency in the early stages of development, thanks to an increased production and surplus of the field (Comin, 2012; Carrión, 2018).

The agriculture importance in economic development its find in three aspects:

1. Development absence to the agricultural sector could impact overall development, especially if agriculture has a significant weight and there are no incentives for producers.
2. Agriculture performance is generally affected by the implementation of policies in other sectors such as incentives to industry, provision of public goods and commercial openness.
3. Macroeconomic policies have an impact on the agricultural sector since they directly influence the economic structure, so protection policies or liberalization of other sectors will have an impact on agriculture. (Bejarano, 1998: 11-12).

Empirical evidence shows the relationship between agriculture and development in a specific case, Pacheco and others (2018) showed the importance of diversification in economic growth, using different variables and design experimental methods, finding that the variables as gross added value of agriculture, the average total family income, and the economically active population; they had a positive influence on agricultural diversification.

While the variables: regional total gross value added, education level, unemployment rate and volume of credit, had a negative influence (Pacheco *et al*. 2018: 13). Although agriculture and development have a relationship from different points of view, the relationship between agriculture and human development is not as evident and the study of it has been less favoured.

The postulates on economic theories and social development have focused on regional, national or global conditions that contribute to the human development improvement.

The theme that is configured as a result of the interaction of many factors and that includes at least four elements:

1) A focus on the interior of the countries.
2) The systemic links of global integration.
3) The paradigm of the UN to specify indicators and measures of government, in the macro and local.

4) The conception of the nation projects (Reyes, 2009). The previous thing it would be necessary to add in the context of hyper-competitiveness that is generated from said global integration; mainly commercial, economic and financial.

Human development, economic performance, and agriculture competitiveness

Recently, it has been accepted that the traditional approach to economic development for social improvement has failed. What denoted a distribution lack of the economic growth benefits, therefore, the questioning of developmental policies was increasingly recurrent. That is why the search for development should focus on a human scale, looking for people to improve individually and collectively.

Therefore, the focus of capabilities and achievements has as its starting point the expansion of freedoms, aspirations, and achievements. The start point is the critique of utilitarianism, to propose a current grounded in a deeper philosophy in which development promotes freedoms, in capacities as in the search for human and personal transcendence (Sen, 1996; 2000).

On the other hand, competitiveness as a way of measuring the economy in relation to others is like a career, where it matters how well one is doing with respect to others. In other words, competitiveness is the ability to attract and retain talent and investment (IMCO, 2018).

The attraction of talent and investments combine a binomial for the promotion of economic and social development, a situation that implies a positive relationship between competitive territories and human development. How it is appreciated in the study of Ordoñez, (2011) who found a significant relationship between the HDI and the competitiveness index for the states of Mexico; without considering the per capita income index (Ordoñez, 2011: 13).

In this way, it can be mentioned that agricultural competitiveness consists in the development of internal capacities and strengths, which allow them to improve on their adaptation pattern to the new circumstances improvement of

yields, sales expansion and contribution of value in their own economic entities. and in the region of origin.

Agriculture competitiveness depends on factors, at least at two scales:

1) Production, in which yield performance per hectare is positively affected.
2) Marketing, in which the position is improved to obtain better prices and the placement of the products in the market (Ortiz, Infante, and Ortega, 2017).

In such a way, that the agricultural territories should show a relationship between competitiveness and human development, which would also be positive.

Methodological strategy

MACI

The indicators were grouped into six indexes, one for each of the variables, with the exception of infrastructure and irrigation. These indices were the result of the standardized added of the indicators. The value was obtained by dimension, the addition of each index was made by dimension [technology + infrastructure and facilities + irrigation - surface quality + traction + access to financing (credits and insurance)], as can be seen in equation 2. (Ortiz *et al.*, 2016).

$$MACI = \sum_{i=1}^{n} \left[(Tec + I + Irr - Sc + Tr \right] + Af) \qquad \text{(Eq. 1).}$$

Agriculture Relative Specialization

$$\mathrm{ARS} = [(\mathrm{Vij} / \Sigma\mathrm{iVij}) / (\Sigma\mathrm{jVij} / \Sigma\mathrm{i}\Sigma\mathrm{jVij})] \qquad \text{(Eq. 2).}$$

It is a measure that expresses relative importance of economic activity in relation to a territorial reference.

The participation of agriculture (i) in region "j" and the participation of the same sector in the referred region, is used as a measure of "relative or inter-regional specialization".

The relative specialization of a region in the present case, in agriculture, occurs if, ARS > 1 (Lira, 2003; Lira and Quiroga, 2009). To obtain the ARS, municipal

information on the value of production in monetary values was compiled for the following economic activities: agriculture, livestock, forestry (forestry), fishing, mining, industry, commerce, and services.

Data

There is municipal information on human development, the economic value of agriculture and municipal agricultural competitiveness. The calculation procedure was carried out in the following way, first, a linear regression between human development and agricultural competitiveness was estimated, with the OLR method, under the assumption that exists a significant direct relationship between both variables;

$$HDI = \alpha CMACI + A \qquad \text{(Eq. 3).}$$

According to the expected, to greater agricultural specialization, less human development, because agriculture has low participation in income and there is a general relationship in the phases of development, in which the dominance of commerce and service in the economy as a higher phase, according to Stern (2007).

The third step assumes that there would be no relationship between MCAI and the ARS, given that they are elements, so the regressive run was made to verify and with that, move to the model that could explain whether these two variables together they would be related to well-being, measured from the HDI at the municipal level

$$HDI = \alpha ARS + A \qquad \text{(Eq. 4).}$$

In this way, the relationship between the HDI and the Municipality Competitiveness Agriculture Index (MCAI) for Michoacan from Ortiz and others (2016). To in a second moment take the MCAI * PV. The Relative Agricultural Specialization Index (ARSI) is also used. Under the assumption that agricultural competitiveness would have a positive relationship and that specialization would have a negative relationship,

$$HDI = \alpha MCAI * VAP - \beta ARS + A \qquad \text{(Eq. 5).}$$

Competitiveness and human development

The results in the first model, using Ordinary Least Square, show that there is a consistent relationship between the HDI and MCAI. Because on the one hand R2 indicates low goodness of fit and, on the other hand, the P test is acceptable at 94%. While for the MCAI, the correlation is low, although the P value would indicate acceptance to 94%.

On the other hand, as it was supposed at the beginning, the human development keeps a negative relation with the ARS, although, with a goodness of low adjustment, the parameter is negative and acceptable, with an elasticity relation of 0.017, that is to say; The greater the ARS in a percentage unit, the human development reduces 0.017 or 1.7%.

Table 1
Model ORL, HDI, and MCAI, Michoacan (Equation 3)

$$HDI = \alpha MACI + A$$

R^2	0.032					
Source	GL	Square sum	Average square	F	Pr > F	
Model	1	0.002	0.002	3.643	0.059	
Error	111	0.068	0.001			
Model coefficients:						
Source	Value	Standard Error	t	Pr > |t|	Lowest Lim. (95%)	Higthest Lim. (95%)
Constant	-0.108	0.017	-6.423	< 0.0001	-0.142	-0.075
MCAI	0.073	0.038	1.909	0.059	-0.003	0.148

Source: Own elaboration with data from Appendix 1.

Table 2
OLS between HDI and ARS by municipalities (Equation 4)

Model: $IDH = \alpha ARS + A$						
R^2	0.134					
Source	GL	Square sum	Square M.	F	Pr > F	
Model	1	0.009	0.009	17.163	< 0.0001	
Error	111	0.056	0.001			
Constant	112	0.065				
Model coefficients:						
Source	Value	Standard Error	t	Pr > |t|	Lowest Lim. (95%)	Higthest Lim. (95%)
Constant	-0.135	0.002	-56.278	< 0.0001	-0.140	-0.131
ARS	-0.017	0.004	-4.143	< 0.0001	-0.024	-0.009
R^2	0.134					

Source: Own elaboration with data from Appendix 1.

Table 3, presents a model to partially explain the behaviour of human development in the Michoacan municipalities, can be raised as to greater agricultural competitiveness with greater contribution to human development, greater relative specialization in agriculture with lower human development. In this sense, MCAI as a weighting of the Value of Agricultural Production (VAP) which helps to indicate agricultural competitiveness, with greater precision when considering both variables (Ortiz *et al.* 2017).

In this way the equation 5, is proposed, to verify if an acceptable relationship with the HDI is found. The Table 3 shows that the relationship of the proposed model has acceptable goodness indicators, reaching a correlation of 0.50 and an R2 of 0.25, as well as the incidence of MCAI would be positive, while the specialization would show a negative relationship; both less than proportional at a rate of 1.5% and 2.3% respectively.

Table 3
HDI as a function of MCAI*VAP - ASR in Michoacan municipalities

Model (HDI): $HDI = \alpha MCAI * VAP - \beta ARS + A$ Eq. 5.						
R^2	0.253					
Source	GL	Square sum	Square M.	F	Pr > F	
Model	2	0.016	0.008	18.669	< 0.0001	
Error	110	0.049	0.000			
Correction	112	0.065				
Model coefficient (HDI):						
Source	Value	Standard Error	t	Pr > |t|	Lowest Lim. (95%)	Higthest Lim. (95%)
Constant	-0.245	0.026	-9.351	< 0.0001	-0.297	-0.193
MCAI*VAP	0.015	0.004	4.196	< 0.0001	0.008	0.022
ASR	-0.023	0.004	-5.684	< 0.0001	-0.031	-0.015
$R^2 = 0.253$						

Source: Own elaboration with data from Appendix 1.

Conclusion

The human development index is one of the indicators that give an approximation to social welfare, in the Michoacan case, it is located in the last places of human development in Mexico, which at the same time occupies the 77th place in the world. Understanding the factors that promote human development helps the design of public policies. In this context, competitiveness is a fundamental element in the human development promotion.

The present work focused on knowing the contribution of agricultural competitiveness for human development in the Michoacan municipalities. From the perspective of the proposed correlation models, competitiveness as a weighting of the value of agricultural production and the index of relative agricultural specialization would be suggesting that for each unit that increases competitiveness 1.7% contributes to human development.

The work presents a structured methodological contribution in two stages basically:

1) the relationship between municipal human development and the VAP, the HDI and ASR indices, separately. The three indices with low statistics of kindness.

2) The relationship between MCAI and ASR was then proceeded, which was not statistically significant, which provided elements to move to the second phase, in which the MCAI * VAP, and ASR were taken to evaluate the statistical contribution of the variables.

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Appendix 1. Part 1/3. Data of HDI, VAP, ASR and MCAI in Michoacan Municipalities

Municipality	HDI	VAP (Thousands Mexican Currency 2012)	ARS	MCAI
Acuitzio	0.73	$38,679,727	1.85	0.34
Aguililla	0.70	$156,990,642	2.27	0.31
Alvaro Obregón	0.74	$154,615,826	5.80	0.40
Angamacutiro	0.73	$114,581,798	2.20	0.43
Angangueo	0.74	$6,265,766	0.79	0.33
Apatzingán	0.75	$359,511,460	0.58	0.40
Aporo	0.72	$7,618,212	2.16	0.31
Aquila	0.63	$99,342,940	2.78	0.29
Ario	0.72	$842,389,523	6.58	0.49
Arteaga	0.69	$11,388,898	0.31	0.33
Briseñas	0.76	$91,650,033	4.12	0.29
Buenavista	0.71	$367,214,700	4.15	0.59
Carácuaro	0.67	$56,852,950	4.45	0.45
Coahuayana	0.75	$191,520,538	6.08	0.28
Coalcomán	0.71	$50,432,806	1.15	0.48
Coeneo	0.74	$33,433,862	1.45	0.35
Contepec	0.69	$134,580,305	5.63	0.43
Copándaro	0.71	$42,542,437	5.09	0.31
Cotija	0.74	$99,927,360	1.85	0.35
Cuitzeo	0.73	$25,290,417	0.37	0.34
Charapan	0.65	$24,281,896	2.02	0.29
Charo	0.73	$56,813,509	2.86	0.31
Chavinda	0.75	$113,108,602	4.70	0.32
Cherán	0.72	$15,526,744	0.59	0.30
Chilchota	0.70	$46,641,804	1.37	0.30
Chinicuila	0.68	$50,986,713	5.31	0.26
Chucándiro	0.71	$6,667,244	1.76	0.28
Churintzio	0.77	$21,812,597	1.84	0.32
Churumuco	0.64	$20,736,087	1.31	0.30
Ecuandureo	0.75	$277,459,606	9.06	0.33
Epitacio Huerta	0.68	$70,169,964	5.40	0.36
Erongarícuaro	0.73	$33,091,435	2.92	0.35
Gabriel Zamora	0.72	$145,814,620	2.82	0.29

Appendix 1. Part 2/3. Data of HDI, VAP, ASR and MCAI in Michoacan Municipalities.

Municipality	HDI	VAP (Thousands Mexican Currency 2012)	ARS	MCAI
Hidalgo	0.74	$83,895,019	0.21	0.52
La Huacana	0.68	$143,290,338	2.55	0.87
Huandacareo	0.75	$13,052,594	0.43	0.27
Huaniqueo	0.73	$16,888,553	2.00	0.30
Huetamo	0.71	$241,082,485	2.06	0.49
Huiramba	0.74	$8,740,053	1.27	0.26
Indaparapeo	0.72	$96,238,008	4.94	0.32
Irimbo	0.72	$26,343,402	1.86	0.36
Ixtlán	0.73	$134,551,987	7.47	0.30
Jacona	0.76	$213,011,986	0.65	0.37
Jiménez	0.76	$63,648,204	2.36	0.41
Jiquilpan	0.78	$69,339,729	0.65	0.32
Juárez	0.73	$130,213,010	7.78	0.28
Jungapeo	0.73	$316,956,222	7.71	0.37
Lagunillas	0.75	$6,858,067	0.44	0.31
Madero	0.67	$56,794,631	2.18	0.28
Maravatío	0.72	$232,100,634	1.23	0.45
Marcos C.	0.80	$13,113,994	0.21	0.30
Lázaro Cárdenas	0.79	$84,964,660	0.05	0.34
Morelia	0.83	$86,275,716	0.01	0.40
Morelos	0.73	$20,763,749	1.73	0.28
Múgica	0.73	$177,092,858	1.07	0.39
Nahuatzen	0.67	$31,883,341	0.82	0.46
Nocupétaro	0.62	$20,042,161	2.31	0.27
N. Parangaricutiro	0.74	$750,629,218	6.86	0.33
Nuevo Urecho	0.70	$72,101,400	7.84	0.33
Numarán	0.74	$43,501,593	2.76	0.35
Ocampo	0.68	$17,879,337	1.26	0.35
Pajacuarán	0.73	$144,903,791	4.82	0.37
Panindícuaro	0.73	$90,174,275	3.99	0.36
Parácuaro	0.72	$303,339,627	7.50	0.34
Paracho	0.73	$22,233,225	0.30	0.37
Pátzcuaro	0.76	$29,472,216	0.13	0.32
Penjamillo	0.73	$131,689,432	6.65	0.39
Peribán	0.75	$1,395,569,621	8.72	0.33
Piedad, La	0.79	$76,838,919	0.10	0.37
Purépero	0.78	$29,838,824	0.40	0.29
Puruándiro	0.74	$285,328,655	1.89	0.52
Queréndaro	0.74	$40,586,948	2.71	0.34
Quiroga	0.74	$19,213,075	0.29	0.34
Cojumatlán de R.	0.73	$41,718,185	3.34	0.29

Appendix 1. Part 3/3. Data of HDI, VAP, ASR and MCAI in Michoacan Municipalities

Municipality	HDI	VAP (Thousands Mexican Currency 2012)	ARS	MCAI
Los Reyes	0.76	$777,754,774	3.43	0.38
Sahuayo	0.77	$65,445,076	0.20	0.31
San Lucas	0.70	$88,835,873	2.21	0.36
Santa Ana Maya	0.74	$63,671,900	4.05	0.30
Salvador Escalante	0.70	$806,317,898	7.58	0.65
Senguio	0.72	$51,612,541	5.91	0.30
Susupuato	0.63	$44,517,349	6.87	0.33
Tacámbaro	0.72	$1,039,729,443	4.96	0.50
Tancítaro	0.69	$2,006,470,642	11.98	0.46
Tangamandapio	0.70	$63,440,707	2.21	0.31
Tangancícuaro	0.74	$446,291,470	5.76	0.32
Tanhuato	0.76	$225,477,590	6.07	0.43
Taretan	0.74	$88,231,605	1.03	0.34
Tarímbaro	0.73	$125,788,665	1.54	0.50
Tepalcatepec	0.73	$172,003,508	2.13	0.38
Tingambato	0.73	$175,734,063	5.29	0.38
Tingüindín	0.75	$519,424,491	9.22	0.40
Tiquicheo	0.64	$20,484,195	1.15	0.47
Tlalpujahua	0.71	$25,836,400	0.97	0.34
Tlazazalca	0.73	$21,217,682	1.00	0.27
Tocumbo	0.76	$145,450,804	4.68	0.35
Tumbiscatío	0.62	$18,173,760	1.32	0.28
Turicato	0.65	$139,727,762	4.52	0.49
Tuxpan	0.74	$154,734,227	5.52	0.29
Tuzantla	0.65	$107,865,870	4.26	0.40
Tzintzuntzan	0.72	$15,373,115	1.26	0.27
Tzitzio	0.62	$58,741,191	7.86	0.30
Uruapan	0.78	$1,900,014,372	1.08	0.58
Venustiano Carranza	0.76	$128,129,928	4.51	0.50
Villamar	0.73	$187,439,096	8.75	0.38
Vista Hermosa	0.76	$248,228,362	2.33	0.50
Yurécuaro	0.76	$327,021,391	3.63	0.45
Zacapu	0.79	$79,403,273	0.17	0.46
Zamora	0.78	$427,881,752	0.44	0.39
Zináparo	0.74	$20,018,584	2.08	0.38
Zinapécuaro	0.76	$101,488,844	1.72	0.56
Ziracuaretiro	0.72	$132,032,855	3.91	0.44
Zitácuaro	0.75	$239,119,565	0.50	0.55
José Sixto Verduzco	0.75	$214,415,032	4.30	0.45

Source: Ortiz and others (2017).

Chapter 6

Innovation Drivers for the Future Development of Societies

Photo by Aditya Chinchure on Unsplash

Innovation Drivers for the Future Development of Societies

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Introduction

Whichever the context where the innovation concept is developed, it is aimed at the competitive advantage creation by incorporating new technologies or knowledge, either in the cost reductions, the differentiation of the products or service that help to achieve better conditions in the market or in the action sector in which the entity develops.

Several international organizations are emphasizing the importance of innovation and competitiveness, arguing that innovation generates greater productivity is a fundamental resource for increasing company competitiveness and economic prosperity. (OAS, 2008; OECD, 201; WEF, 2017; Cornell University-INSEAD-WIPO, 2016).

What has driven, on the other hand, traditional elements of investment and labour, considered basic to achieve economic growth, are being exceeded as the only elements capable of increasing economic growth?

Based on this strategic position for the future development of societies, a broad study of the central role of innovation in boosting competitiveness and, therefore growth is required.

The growing importance that innovation has taken on this last concept both empirically and because of the increasing complexity of its study, reasons are emerging that lead to the relevance of specific spatial study of units that are the first to attract investments, where knowledge is constructed, circulated and transferred (Huggins *et al*. 2014).

Identification of the factors that make nations successful finds references in various proposals. One of them is the competitiveness measurement in the world. Based on this approach, countries establish measures to mitigate the recession's effects that are part of economic cycles and seek to eliminate structural restrictions that impede their progress.

Currently, two institutions stand out in the measurement of nation's competitiveness, currently considered one of the most efficient conceptualizations to determine the conditions that make one country more successful than another: the World Economic Forum (WEF, 2017), and the Institute of Administration and Development (IMD, 2017).

The Global Competitiveness Index (GCI) constructed by the WEF is based on the Porter diamond model (1990), builds its model by means of categories called pillars, which give countries a position regarding the type of stimulus that drives its competitiveness being the highest stage driven by the innovation drivers.

The elements that measure the innovation pillar refer to the quality of scientific research institutions, the expenditure of business in Research and Development (R & D), university-industry collaboration with R & D, availability of scientists and engineers and creation of patents (WEF, 2017).

The IMD, for its part, develops its indicator based on four categories, one of them called Infrastructure incorporates five sub-indices, three of which correspond to aspects related to innovation.

It is indicators measure the technological infrastructure (telecommunications, computers, connectivity, Internet, engineers, imports, and exports of high technology, among others), the scientific infrastructure (total R & D expenditure, national and private as GDP %, researchers, postgraduate graduates, scientific articles, Nobel Prize winners, patents, among others) and Education (public

spending on education as per capita and per-pupil GDP %, average level of medium and higher education, PISA evaluation, among others). (IMD, 2017)

In each of these indices, it is found that innovation is one of the highest-ranking factors in obtaining competitiveness, which is observed in the nations that have the best positions in competitiveness, being also leaders in innovation, such as Switzerland, Singapore, the United States, and Germany.

In the Mexican case, the global indices that measure competitiveness (IMD and GCI) shows average performances, which do not allow it to be located among the nations with the best competitive performance. In this way, over the last few years, the country has not improved its competitive position. In 2010, it ranked 47th out of 58 nations and in 2017, it fell to 48th out of 63, (IMD, 2017).

In the GCI, prepared by the World Economic Forum, Mexico registers superior performance with different behaviour in terms of its overall competitive trajectory. There is a clear improvement trend with an advance of 15 positions in the same period from 2010 to 2017, rising from 66th place out of 139 countries to 51st out of 137 in the period. In this case, the innovation sub-index gains 22 places.

Worldwide innovation is measured individually by the Global Innovation Index (GII) developed by the institutions, Cornell University (SC Johnson College of Business), INSEAD (The Business School for the World), and WIPO (World Intellectual Property Organization) includes seven aspects related to the theoretical endogenous approaches conditions, that innovation take into account as drivers, among them, the R&D expenditures of both companies and governments, the levels of coverage and efficiency of education, emphasizing the tertiary level related to Science and Technology (S&T), as well as the results of it, focused on products such as patents, utility models, high technology exports, investment flow foreign direct (IED), and online creativity such as high-level domains, editions in Wikipedia and other publications on the Internet.

The result of an average of 134 countries since 2011 reflects that Switzerland has been able to maintain first place over the years, the United States have registered an upward trajectory to reach the 4th place.

The records for Mexico show, although slowly, a tendency towards improvement, in the analysis period the country has advanced among the 134

countries of place 69 to 58 with a possible tendency to occupy better places in the future (Cornell University -INSEAD-WIPO, 2018).

In Mexico, IMCO (2016) has managed competitiveness and some aspects of the innovation measure over time. The innovation definition is in line with those established in the world indexes, the degree of innovation and sophistication of companies with the recognition that value creation is increasingly associated with the generation of new knowledge and new technologies. It is composed of five indicators: patents, companies certified with ISO 9000, researchers, industrial GDP growth, and service GDP growth.

The lag that innovation has Mexico is reflected in the weakness present in some drivers of innovation such as low R&D spending both public and private, the low linkage between the productive apparatus and academic institutions and the low generation of capital highly specialized human element that keeps Mexico at intermediate or low levels in the competitiveness-innovation rankings.

This panorama is sharpened when observing that the lag in innovation is not the only characteristic, but that this is coupled with the economic behaviour inside the Republic. That presents a great heterogeneity in the level of development observed throughout the country, in the different levels that the entity GDP has and its relationship with the per capita GDP.

According to 2015 figures (INEGI, 2018) it is possible to identify four groups of federative entities: group1, corresponding to the States that have a higher performance in the size of their GDP and their GDP per capita (Mexico City, Nuevo Leon, Jalisco, State of Mexico, Guanajuato, and Veracruz).

In number 2 are those with a relatively low GDP have a GDP per capita higher than the last two groups (Tabasco, Queretaro, Coahuila, Sonora, Quintana Roo, Tamaulipas, Aguascalientes, Baja California Sur, Baja California, and Colima).

In the 3 are eleven states with a lower GDP and with lower GDP per capita (Chihuahua, San Luis Potosi, Sinaloa, Yucatan, Durango, Morelos, Hidalgo Hidalgo, Nayarit, Puebla, and Michoacan).

And in the last group, number 4, there are four entities with the lowest GDP and per capita GDP of the Republic (Tlaxcala, Guerrero, Oaxaca, and Chiapas). An atypical case is the state of Campeche that with a state GDP that would place it in group 2 presents a GDP per capita of more than double the two states with

the highest GDP and GDP per capita, Mexico City and Nuevo Leon (Galicia, Coria and Ortega, 2018)

Nations like Mexico require a strategy that achieves both a boost to innovation as a source of added value creation that drives growth, and that the strategy allows improving the living conditions of the entire population.

Methodology

The purpose of this research, derived from the project financed by the National Polytechnic Institute with No. 20190150, has identifies the characteristics of the innovation performance, diversity in Mexico, considering innovation drivers registered in two high-performance innovative countries, with the purpose of identifying behaviour patterns within the Mexican Republic. Contributing to the knowledge of relevance, innovation drivers in Mexico.

The present is a qualitative study with transverse temporality and descriptive scope that, by means of the information analysis, generated by the INEGI, CONACYT, and ANUIES, in Mexico and by the WEF at an international level collects information from two groups of innovation drivers, derivatives of the endogenous growth theory related to technological progress and knowledge, complemented by Porter's contributions related to the environment in which companies can be able to improve and innovate. The selected indicators have shown empirically importance in leading innovation countries.

A performance appraisal scale was applied from the best to the one with deficiencies. The lowest result was about 16 points and a maximum of 32. In the analysis of results, two groups were formed at the beginning. From this assessment, a polarization was detected at the extremes, so they were subdivided, resulting in the identification of four groupings throughout the Mexican Republic.

To obtain a perspective of the differences existing in Mexico with respect to the situation that the innovation drivers keep: knowledge and technological progress throughout the country. Identifying the differences with respect to the registered in the United States of North America and Japan, that were selected because the first one is the nation with the best innovative performance, and in the case of

Japan for having promoted, in the 90s of the past century, its economic advance with a determined policy of innovation stimulus that came to displace countries with better conditions of productive factors, in the ranking of innovators.

Innovation Measurement

The innovation study has required a large number of ideas from many different fields, although its origin is located in the economic focus that directed its first interests, currently there are a large number of studies with multiple views on it (Fagerberg, Fosaas, and Sapprasert, 2012).

From the best-known definitions of innovation, it is possible to identify the existence of this variable. Kline and Rosenberg (1986) characterize it as the creation and commercialization of the new, which alone and in combination make the result of innovation a highly uncertain process.

Therefore, an important and useful way to take the innovation process into account is to see it as an exercise in management and reduction of uncertainty. In the case of the most recent Oslo Manual (OECD, 2005) the definition is centred in the necessary relation of the invention-market:

Innovation is the implementation of a new or significantly improved product (good or service), a process, a new marketing method or a new organizational method, in the internal company practices, the workplace organization or external relations.

For the innovation measurement approach from the point of view of the inputs, R & D expenditure has been considered as the most important, however, it is necessary to consider other inputs such as training activities.

On the other hand, Patel and Pavitt (1997) point to the idea that this indicator underestimates the innovative capacity of small businesses, which in the case of Mexico is a great limitation given the large proportion (99.7%) represented by micro units, small and medium-sized enterprises of the total productive units (INEGI, 2014).

There is also the concept of innovation in terms of ideas, learning and the creation of knowledge or in terms of competencies and capabilities (Archibugi *et al*. 1994)

In this context, analysing the causal relationships between R&D expenditures, innovation and economic growth in high-income OECD countries, Guloglu and Teking (2012) show that the relationships between R&D&i, R&D and economic growth, and economic growth and innovation are all positive and significant, which ensures that the R&D activity generates technological changes.

Buesa and others (2002) use the function of knowledge production in the study of the autonomous communities of Spain, they include eight regressor variables that incorporate regional, public and private R&D data from the macroeconomic environment, the infrastructure that supports innovation, the interaction of system agents, the quality of universities and human resources in R&D.

They find that 97.5% of the variability in the number of patents in Spain it originates, in the first place from the R&D expenditure made by the companies as well as by the economic and scientific business structure of the region. In the study, there is no evidence of impulse derived from universities or the quality of human resources.

Charlot, Crescenzi, and Musolesi (2014) analyse innovation at a regional level in 25 European Union nations, their results provide evidence on the adverse effects that investments in human capital or R&D have on the backward regions if they are not considered.

They establish 20% of the population with tertiary education for the first and between 2 and 3% of R&D expenditure as a proportion of GDP for the second. Identify that these two variables are complementary and therefore simultaneity is required to achieve the impulse of innovation.

In the Mexican case, Borrayo and Quintana (2018) obtained results indicating greater technical efficiency on the northern border and in the Valley of Mexico in the central zone of the country, while the lowest values were grouped in the southeast of Mexico.

According to the results of the index prepared by the IMCO (2018), the state with the best position in innovation is Querétaro, followed by Morelos, Aguascalientes, Sonora, and Nuevo Leon, Mexico City ranks number 6. Among those who register the lowest levels in Innovation are Quintana Roo, Guerrero, Nayarit, Chiapas and Michoacan.

In addition, these results are associated with the existence of great heterogeneity among the companies that make up the production plant, since on one side of the high-performance companies are large groups of micro and small enterprises, which operate far below the border of innovation, with basic technology and low levels of human capital (ECLAC, 2010), are also associated with the greater existence of gradual rather than radical innovations and the traditional idea of adopting technologies that, by themselves, do not encourage the best performance of companies (Cornell University, INSEAD and WIPO, 2015)

One more element, which allows verifying the inequality of the conditions of state competitiveness from the point of view of innovation, is the very low level of companies that are considered high technology (OECD, 2011) among which are Electronics, Pharmaceutical, Computer and Computing, Precision and Aerospace Equipment.

In Mexico, there are 1856 of these companies that represent 0.04% of the total number of companies. In as much as they generate a gross value of the production in average annual by the company of 217.7 million against the average of the rest of the manufactures that are about 3.31 annually million on average.

Table 1
High Technology Companies in Mexico 2014

High Technology Companies	No of Companies	Gross Total Production*	Average GTP per company
Pharmaceutical	686	152646.79	222.52
IT and computing.	155	39501.27	254.85
Electronics	921	195738.32	212.53
Aerospace	94	16162.66	171.94
TOTAL	1856	404049.04	217.69

*Millions of pesos
Source: Own elaboration based on INEGI, 2018

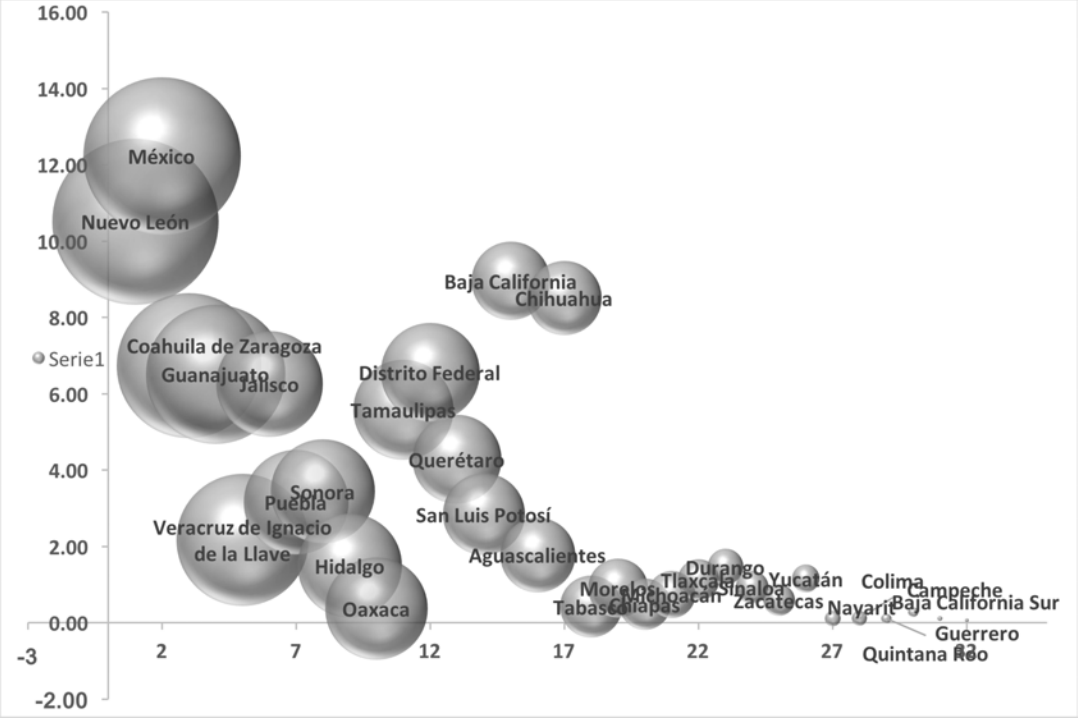
There are entities that do not have any of these companies: Baja California Sur, Colima, Guerrero, Nayarit, and Quintana Roo. 71.6% of the companies are in 7 States that have more than 100 companies in their territory, Baja California, Chihuahua, Mexico City, Jalisco, State of Mexico, Nuevo Leon and Sonora.

The remaining 28.4% is distributed among the other 19 States, of which 10 have 10 or fewer companies. The State of the Republic that concentrates the greater number in Mexico City with 298 companies followed of Jalisco with 205; while in extreme states of Tlaxcala and Chiapas have only 3 and 4 respectively (Table 1).

The localization of the industries also shows concentration, according to the 2014 Economic Census by establishments stratification (INEGI, 2014) the large manufacturing companies have preferred a few States for their location, giving rise to 50% of the gross value of the production (GVP) is generated in only 6 entities in 32, Nuevo Leon, Mexico City, Guanajuato, Coahuila, Veracruz and Jalisco. In the extreme Baja California Sur, Guerrero Campeche and Quintana Roo together contribute only 1% of the manufacturing GVP.

Figure 1

The relationship between % of large companies per State and creation of GVP



Source: Own elaboration (INEGI, 2014).

This behaviour is associated with a trend towards concentration of GVP in the States where the largest companies in Mexico are grouped. As shown in Figure 1, to the extent that the percentage of large companies decreases in the states (% of the national total of large companies represented on the vertical axis), the GBP generated by each entity also decrease (represented by the bubble size).

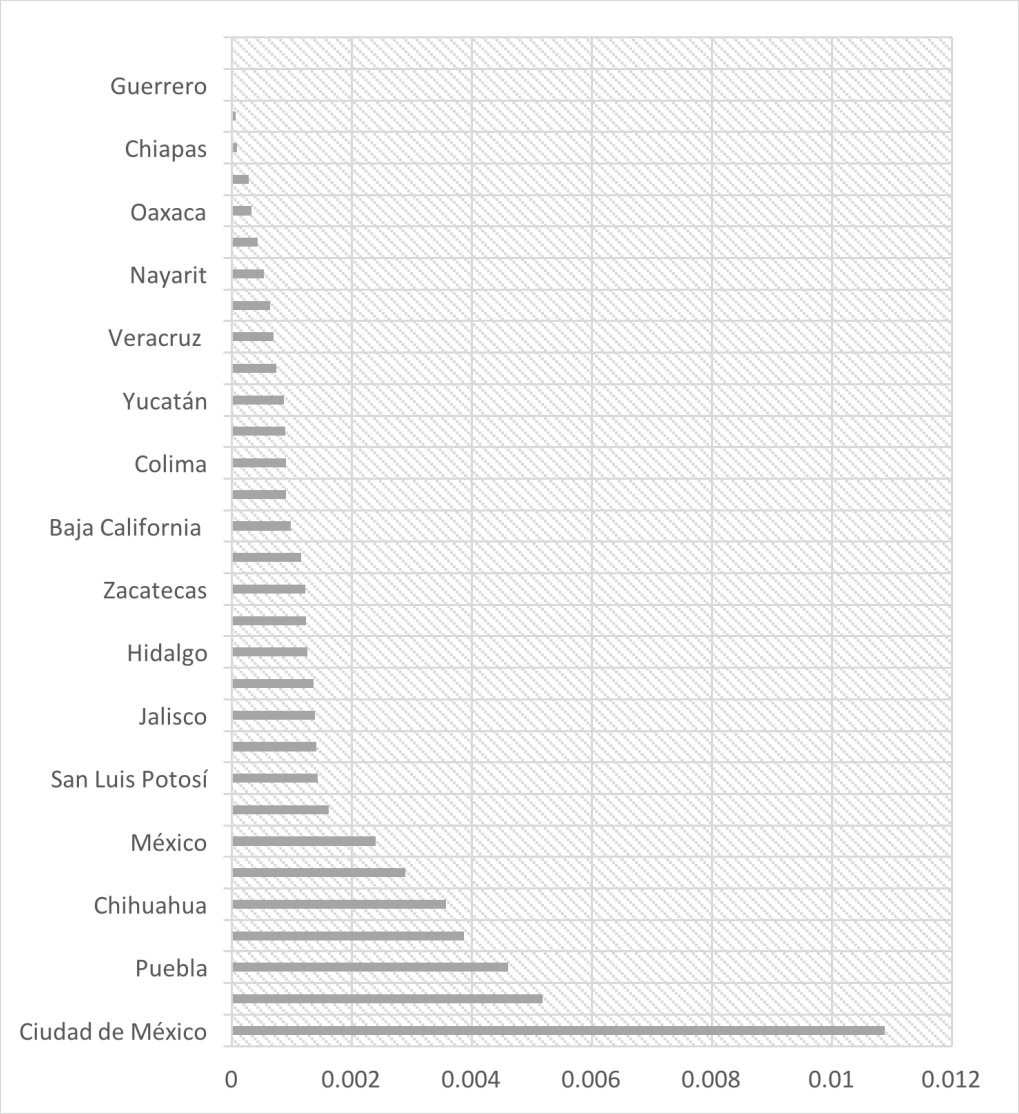
The economic growth behaviour of the Mexican States presents adverse conditions for the development of their communities, both in the creation and in the distribution of wealth, which leads to scarce opportunities to create competitive advantages in the regional level that accentuate the disparities in development at the national.

From the approaches of the endogenous growth theory (Arrow, 1962; Solow, 1957; Romer, 1994), innovation indicators focused on the promotion of technology and knowledge were selected, complemented with a Porter's proposal (1990). The importance of the environment in which companies can be able to improve and innovate.

The first element to identify the level of innovation in the States is the expenditure that companies make in Research and Development (INEGI, 2016). From the data presented in Figure 2, it is possible to appreciate that the level of investment made by companies is extremely low since most do not exceed 0.002% of GDP, only two (Puebla and Querétaro) exceed 0.004% and the Mexico City with the highest percentage contributes 0.01% of GDP.

In terms of the innovation drivers that derive from knowledge, there is a bachelor's degree that corresponds to the areas of science and technology (Engineering and Technology, Health Sciences, Agricultural Sciences, Natural Sciences and, Exact Sciences).

Figure 2
Expenditure on R&D of Companies% of State GDP



Source (INEGI, 2016)

Where the great disparity is observed in the geographical distribution of the students since 50% of them are concentrated in the first 6 States, Mexico City, State of Mexico, Veracruz, Guerrero, Jalisco, and Puebla. While 10% is registered in 10 states Durango, Zacatecas, Morelos, Aguascalientes Nayarit, Campeche, Tlaxcala, Quintan Roo, Colima and Baja California Sur and the remaining 40% in 16 entities. (ANUIES, 2017)

Researchers from the regions present a performance that can be considered to contribute both to the knowledge and to the technological development, that is relevant to the possibility of having the largest number of them in the development of innovation that drives the improvement and creation of new high technology companies. And given that most of them are located in universities, they contribute to the creation of highly specialized human capital.

Table 2
Members of the S & T SNI by State

	State Members SNI	S&T SNI	% S&T Total		State Members SNI	S&T SNI	% S&T Total
Mexico City	8129	5227	32.31	Sinaloa	389	256	1.58
State of México	1456	913	5.64	Chihuahua	423	254	1.57
Morelos	1034	871	5.38	Oaxaca	297	224	1.38
Nuevo Leon	1043	757	4.68	Baja California Sur	252	222	1.37
Jalisco	1286	747	4.62	Chiapas	314	161	1.00
Guanajuato	865	698	4.31	Tamaulipas	231	156	0.96
Puebla	936	629	3.89	Durango	184	150	0.93
Baja California	779	552	3.41	Tabasco	165	126	0.78
Queretaro	657	532	3.29	Colima	200	120	0.74
San Luis Potosi	628	507	3.13	Zacatecas	199	119	0.74
Veracruz	738	487	3.01	Aguascalientes	201	118	0.73
Yucatán	591	461	2.85	Campeche	137	110	0.68
Michoacan	710	446	2.76	Tlaxcala	151	93	0.57
Sonora	559	408	2.52	Nayarit	119	83	0.51
Coahuila	365	324	2.00	Guerrero	113	79	0.49
Hidalgo	362	270	1.67	Quintana Roo	134	77	0.48

Source: CONACYT (2015)

A clear majority of researchers is also located in Mexico City, 32.3% of the total. In the rest of the States, the proportion falls from 5.64% in the State of Mexico to 0.48 and 0.49 in the states of Quintana Roo and Guerrero (CONACYT, 2015) See Table No. 2.

For Porter (1990) in the creation of competitive advantages at the national level, the role of innovation is to give impetus to the new advanced sectors, from which the nation can generate an environment in which companies improve and innovate, with the existence of a government policy that allows entrepreneurs and directors to know and meet the needs of the sector in which they operate, stimulating investment in the improvement of qualifications and the exchange of ideas among companies.

From this framework, two indicators are included: the seniority years created by the State Science and Technology Law (FCCT, 2014) and the schooling years of the population (CONEVAL, 2016). Of the 32 states, 65% of them (21) have more than 10 years of having issued their law, which is a sign that the state government policy considers the importance of innovation since the beginning of this century.

On the other hand, to know the result of the efforts in terms of the population skills, the average number of schooling years has been considered, which would reflect the population values and customs and the interest of the government and employers in the population formation with less formal knowledge.

The average number of Mexicans schooling years in 2015 was 9.2, which is the equivalent of a completed secondary school. In most states, however, there are still four, Chiapas, Oaxaca, Guerrero, and Michoacán that have an education lower level, which is equivalent to truncated secondary school. To these add another seven with averages around 8 years of formal education and which implies that there are 11 States with an educational lag of the national average equivalent to the secondary level (CONEVAL, 2016)

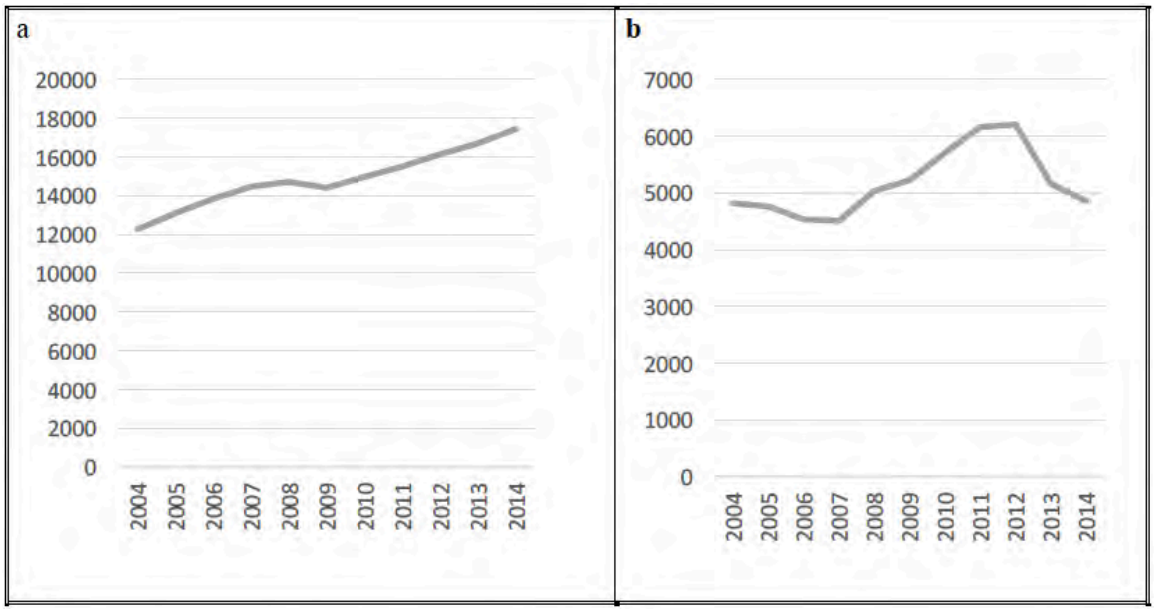
These results compared to those reported by two leading nations in the innovation field are far away. In the case of the American Union, its R&D expenditure shows a reduction derived from the 2008 crisis, which recovered as of 2012 and which is constantly rising, in addition to representing 2.75% of GDP.

A similar case is that of spending in Japan that is also affected by the crisis, it faces more rapidly than North America, since 2010 the recovery begins and for 2014 its spending is higher than before the crisis, currently, it is 3.6% of the GDP. Levels well above those registered by Mexico, 0.5% of GDP.

In the case of researchers in the United States, they add up to 423.9 per million inhabitants, in Japan, they reach 5,386.2, much higher than 241.8 that Mexico has. The only different case among these countries is in their trajectory with respect to the patent production since in the United States their tendency has been upward without having suffered losses due to the 2008 crisis; in 2005 they amounted to 356,943 patents and in 2014 they were 578,802. Not so the case of Japan, prior to the crisis, since 2005 the production of patents has fallen significantly, while in 2004 generated 423,081 patents in 2014 its maximum was 325,989, a loss of just over 100,000 patents in the period.

The result observed in the trajectory of these two countries in terms of GDP growth in the period 2004 to 2014 results in a growing GDP in the case of the United States, see Figure 3a, and a slowdown in the case of Japan, see Figure 3b.

Figure 3
The growth trajectory of the US and Japanese GDP 2004-2014



Source. World Bank, 2018

These two innovation indicators, belonging to the endogenous approach to growth, clearly show that the current situation of the innovation drivers in Mexico is lagging, being valuable instruments for boosting the national competitiveness and development.

Results and discussion

From the previous results, four levels of High, Medium, Low, and Insufficient performance were integrated for each indicator presented. The axis of the classification was in the performance of the average level of performance of each indicator.

To locate the groupings, two upper groups and two lower than average were built. A high concentration is observed in the high-performance levels (only 4 entities), in the middle level, on the other hand, most of the entities (12 entities)

are located, while in the low and insufficient levels, the groupings are integrated the same number of entities (8 each) See Table No. 3

The first grouping consists of only 4 States: Mexico City, the State of Mexico, Jalisco, Nuevo León, which in general terms shows high and medium performances in the seven indicators, highlighting that three of them have high-ranking technology companies resulting from its human capital endowment of great specialization, as well as the percentage of R&D expenditure, except for Jalisco that is in the low group.

The performance of Mexico City is by far the best performance of all, based on the innovation driver's concentration. It can be identified by the fact that it concentrates the largest number of high-tech companies as the result of a highly trained human capital and in significant quantities.

What resembles the point made by Charlot, Crescenzi, and Musolesi, with the proviso that it has not been possible to make a quantitative comparison like that of these authors, but that responds completely to the existence of the two variable technological advance and human capital of high level. This characteristic of concentration can be attributed to the fact that in the rest of the country the importance of innovation drivers is very small and therefore with little effect on growth.

Table 3
State Grouping for innovative performance

Mexico City	32	Yucatan	22
The State of Mexico	30	Aguascalientes	21
Jalisco	29	Baja California Sur	21
Nuevo Leon	28	Durango	21
Chihuahua	27	Tabasco	21
Puebla	27	Chiapas	20
Coahuila	26	Hidalgo	20
Sonora	26	Michoacan	20
Baja California	25	Zacatecas	19
Guanajuato	25	Campeche	18
Morelos	25	Colima	18
Veracruz	25	Oaxaca	18
Queretaro	24	Tlaxcala	18
San Luis Potosí	24	Quintana Roo	17
Sinaloa	23	Guerrero	16
Tamaulipas	23	Nayarit	16

Source: Own elaboration.

In the second group, there are twelve entities: Chihuahua, Puebla, Coahuila, Sonora, Baja California, Guanajuato, Morelos, Queretaro, San Luis Potosi,

Sinaloa, Tamaulipas, and Veracruz. The characteristic of this group is its location in general terms in the middle and low group with some locations in deficient.

The lower performance is due to the results close to the average in most of the indicators, characterizing a group that requires impulses in the formation of human capital, especially in the number of SNI members in the knowledge category. Regarding technological development, it is found in the lower concentration of high technology companies and low percentages of R&D expenditure in relation to its GDP.

The penultimate group has greater weaknesses in which the indicators have behaviours below the average, constituted by 8 states: Yucatan, Aguascalientes, Baja California Sur, Durango, Tabasco, Chiapas, Hidalgo, and Michoacan. With generally low values with some deficiencies. They are entities where the indicators of technological development and those of knowledge are minimal but positive.

The 4th group made up of eight states: Zacatecas, Campeche, Colima, Oaxaca, Tlaxcala, Quintana Roo, Guerrero and Nayarit, require great efforts to encourage the innovation drivers against minimum results in all indicators. The fact that these entities include four of the 5 entities that lack high-tech industries and the smaller number of members of the SNI is what places them at the lowest level of development in Mexico.

In the case of the environment indicators, only the years of schooling were considered, which presents values in line with the level recorded in the innovation drivers. In the case of the Science and Technology State Law the results were not included since the driver behaviour does not present a similar behaviour, existing cases in which, being the states with more years of having put into operation the Law, they present low and even deficient, so it is necessary to perform a more detailed analysis of its effects.

Conclusions

Innovation is at this moment a crucial element in boosting the economic growth of nations, after a long period of slow progress. With the prospect of recovering a faster pace, there is uncertainty about the effects on the growth of trade, because

of the trade war that the American Union maintains with China, mainly and with the rest of the world to a lesser extent.

Therefore, investment in science and technology, as well as that made in human capital, has gained strength in all nations, not only in high-income countries such as the United States and Japan, because of its ability to increase the competitiveness of nations (Cornell University -INSEAD-WIPO, 2018).

It is imperative to stimulate the growth of the R&D expenditure of the federation as well as that carried out by the States, given the existence of insufficient amounts of less than 10% of what has been done in the USA and Japan. Promote, from the different levels of government, a more homogeneous distribution of highly trained human capital, both for students and researchers. According to that, to incorporate high-tech and larger companies that provide large amounts of added value requires having the relevant human capital for its operation.

This study presents an initial and a general view of the behaviour of the innovation drivers throughout the country, given the need to obtain greater knowledge about the importance of the impacts on growth and competitiveness that these variables have in the rhythm of growth of nations, for which it will be necessary to abound in reliable sources of quantitative information that will illuminate, in greater detail, the real effects of innovation.

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Chapter 7

Well-being Promotion in Competitiveness and Economic Terms

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Well-being Promotion in Competitiveness and Economic Terms

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Introduction

The first and most important responsibility of a government is to ensure and promote the well-being of its citizens (Veenhoven, 2000; Swyngedouw, 2005; Ovaska and Takashima, 2006; Diener, Diener and Diener, 2009), and for that purpose, it provides them with goods and services of public value to attend to their most pressing needs, especially for lower-income groups.

However, society does not seek that its varied needs are met by its government, but that it contributes to generating the conditions that promote the generation of wealth and growth; with them, people dispose and take advantage of development opportunities to achieve their well-being, thereby strengthening social cohesion (Bachtler and Michie, 1994; Berger-Schmitt, 2000; Berkman, 2000; Berger-Schmitt, 2002).

The greatest challenge of a government is then to contribute effectively to the creation of such conditions, without ignoring, of course, that it must also implement programs that meet the social needs of its population, particularly those of marginalized groups.

At the end of the day, these are not conflicting responsibilities, but complementary, and note that the attention of basic social needs such as health and education, generate the conditions for economic growth because of the potential of the labour force increases and with it the productivity of an economy.

In the case of governments with a federal system, this task becomes even more complex because they different orders of authority have governmental powers and thereby offer public actions to meet both commitments.

In this order of ideas, we analyse here the strategies undertaken in terms of economic promotion and competitiveness in the order of municipal government, and given the number and diversity of these governments, we only specify three of the most important in the country (Pineda, 2018).

The selection is based on the assumption that these municipalities, due to their high budget and given their importance, have a higher institutional development and can, therefore, implement more solid public policies; these municipalities are Monterrey in the north of the country, Guadalajara in the Center-West and Tlalnepantla in the centre.

On this basis the following section, the second, we do a joint review of what literature understands for competitiveness by linking it to economic promotion, and the third part we study the so-called cycle of public policies because it is precisely in it where the actions that we study are.

In the following section, we study the most relevant characteristics of our municipalities and their choice is justified, while in the penultimate section, the most important part of the essay, we analyse the effort made by them to promote growth and competitiveness. Finally, the conclusions offer a general reflection on the main findings of this work.

Competitiveness and Economic Promotion

The concepts of competitiveness and economic promotion are fully intertwined and converge towards a common objective, that is, by far, the most ostensible goal of a government: to improve the welfare of the people ((Layard,1980; Reiljan, Hinrikus and Ivanov, 2000; Solomon and Authority, 2003; Makin, 2008; Morgera and Savaresi, 2013).

In fact, with the Mexican Institute for Competitiveness, IMCO (2017), we understand by Competitiveness the ability of a country (a state, a city) to attract and retain investment and talent, and it is precisely the economic promotion actions of a government which is a central way are oriented towards that purpose. With higher investment rates that are reflected in the creation of employment and with better-qualified workers -attraction, training, and talent retention- the income of the population rises and with this, their welfare levels are improved.

Now, along with the aforementioned definition, there is a rich discussion about what is meant by Competitiveness and in that sense, we return to the classification proposed by INEGI (2017: 8-9) that divides the literature around this concept into three groups.

First, there are macro-economic currents that affirm that competitiveness is determined both by the business aggregate and by the macro environment, which includes, but is not unique to, economic and financial variables such as the gross domestic product. (GDP) and GDP per capita, the rate of inflation and economic growth, as well as the balance of payments and the whole set of policies that influence them (fiscal, monetary, exchange, economic promotion...).

In second place are the approaches that link competitiveness with the macroeconomic context where company performance play the fundamental role. There are those flaws that in different degrees link macro to micro. According to Porter, competitiveness is based on the interrelation of the following four components:

> "i) conditions of the factors (infrastructure and physical, human and financial capital); ii) demand conditions (composition of local demand); iii) related and support industries (national suppliers that are internationally competitive); and iv) the business strategy, structure and rivalry (creation and organization of companies, and internal rivalry) ". (INEGI, 2017: 8)

Esser and other (1996) develop the concept of systemic competitiveness, and who, like Porter, integrate a series of planes or dimensions to which the creative interconnection between them determines the level of such competitiveness. The authors develop this concept in the following terms:

> "The most competitive countries have: i) at the meta-level, basic structures of legal, political and economic organization, social capacity for organization and integration, and capacity of the actors for strategic integration; ii) a macro context that demands greater efficiency of the companies; iii) a structured meso-level where the State and social actors develop specific support policies, encourage the formation of structures and articulate learning processes at the society level, and vi) at the micro level a large number of companies that they simultaneously seek efficiency, quality, flexibility and rapidity of reaction, many of them articulated in networks of reciprocal collaboration." (Esser *et al.* 1996: 41).

As can be seen, in this third stream, the vision is more comprehensive and brings together a greater number of variables and actors, and assumes that competitiveness is not only based on a public strategy that, however solid, is insufficient if it is not they have woven networks of collective learning and reciprocal support, as well as the commitment to continuous improvement of the companies themselves and the adequate provision of factors that allow them to make a difference.

Additionally, and not less important, are government actions not only in terms of support targeted to the productive sector, but also a macro performance that is friendly to investment and growth.

In order to delimit the plans and the specific variables of the socioeconomic environment, as well as the institutional framework of relevance for the analysis of competitiveness, the following table summarize the factors considered in two important models for the understanding of the phenomenon in Mexico. This is the aforementioned IMCO Competitiveness Index and the National Competitiveness Index prepared by a group of institutions headed by INEGI (Table 1).

Table 1
The conceptual framework around the dimensions of competitiveness

National Competitiveness Index. INEGI		Link between both	Competitiveness Index. IMCO	
Components	Subcomponents and number of variables		Subscripts	Indicators
Macroeconomic performance	Macroeconomic environment, 11 variables (v). Market size, 6 v. Productivity, 2 v.	It is mostly associated with the following subscript (s): VII, VIII, IX and X	I. Reliable and objective law system	Homicides Kidnappings Criminal incidence Security perception Contract compliance
Institutions	Security, 9 v. Government Efficiency, 11 v.	It is mostly associated with the following subscript (s): I and V.	II. Sustainable management of the environment	Treated volume of wastewater Loss on surface covered by trees Proper disposal of solid waste Energy intensity in the economy Number of certified clean industry
Capacities	Basic education, 8 v. Advanced education, 4 v. Health, 4 v.	It is mostly associated with the following subscript (s): III and VI.	III. Inclusive, prepared and healthy society	Poverty Wage equity Illiteracy Life expectancy Hospital beds
Infrastructure Basic	Infrastructure, 13 v. Technological Infrastructure, 5 v.	It is mostly associated with the following subscript (s): VII, VIII and X	IV. Stable and functional political system	Perception of corruption Citizen participation Equity in Congress Assaults on journalists Equal marriage
Business efficiency	Market of goods, 5 v. Financial market, 7 v. Labor market, 7 v.	It is mostly associated with the following subscript (s): VI and VIII	V. Efficient and effective government	Labor informality. Interaction with the government by electronic means. Registration of a property. Opening a company Budget information index
Innovation	Incentives to innovation, 6 v. Results of the innovation, 7 v.	It is mostly associated with the following subscript (s): VII, VIII, IX and X	VI. Efficient factor market	Labor contribution to growth Average income of workers Wage inequality Absorption of higher education Job training
Environment and social inclusion	Environment, 8 v. Social inclusion, 6 v.	It is mostly associated with the following subscript (s): II and III	VII. Stable economy	GDP per capita GDP growth Public debt Economic diversification Economic dependence
			VIII. World-class precursor sectors	Homes with internet access Availability of ATMs Collection of savings Advanced road network Flow of air passengers
			IX. Taking advantage of international relations	Certification for medical tourism Flow of international air passengers Tourist GDP IED Exports
			X. Innovation of the economic sectors	Economic complexity in innovation sectors Total factor productivity Researchers Patents Companies and scientific and technological institutions

Source: Own elaboration with IMCO (2016) and INEGI (2017).

Of two indexes, it is important to note that their designers claim that they have been formulated with the necessary analytical rigour to be able to establish that there is indeed a close correlation between the performance of the aforementioned variables and competitiveness, understood in the terms already mentioned.

In this way, the IMCO points out that the model identified 10 different factors associated with competitiveness, which "arise from economic theory, international experience and common sense" (IMCO, 2016: 180), based on the which each factor was constituted in a subscript that is broken down into a set of indicators, as it appears in the table. In this sense:

> "The base of the index are the indicators of investment and talent. The rest of the indicators belonging to the 10 sub-indices are compared against the first ones in order to establish relationships that allow guiding the design of public policies. The construction of the index is in function and revolves around the first and therefore we call them anchor variables" (IMCO, 2016: 181).

On the other hand, the INEGI INC was constructed with the calculation of the simple average of the indices of the seven components where all of them have the same weighting, while the index of each component is also obtained from the simple average of all its subcomponents. Finally, the index of each subcomponent is obtained from the simple average of the indices of the variables that make it up (INEGI: 18).

Given that the determinants of competitiveness are reasonably established by the literature and they are considered in our two references, in the third column of the table the components of INC are associated with those of the IC. In this way and very tight fit the following considerations.

The first component of the INC, Macroeconomic Performance, links to the following sub-indexes of the IC: a stable economy, world-class precursor sectors, exploitation of international relations and innovation of economic sectors. It is mainly about macro aspects that affect the good progress of a company as well as its potential to innovate and its productivity, on the one hand, and on the

stability of the environment that generates certainty for investment and growth, on the other.

The second component of the INC, Institutions, is related to the following sub-indexes of the CI: Reliable and objective law system and efficient and effective government. This section considers the strategic issue of security and with it the performance of justice procurement institutions, as well as the operation of the government and the facilities it provides for the creation of new sources of employment; In particular, this last point is associated with corruption, while the obstacles that governments establish for the opening of a company (apparently with good reasons) are a constant source of extortion by unscrupulous inspectors.

The third component of the INC, Capacities, is associated with the following sub-indexes of the IC: Inclusive, prepared and healthy society and efficient factor market. As can be seen, here the related themes of elementary social rights, health and education are considered, and the capacities that derive from them, that is, higher qualifications of the work factor; This is the field in which social policy and economic promotion actions are most closely linked.

For its part, the fourth component of the INC, Infrastructure, is strongly related to the following sub-indexes of the IC: stable economy, world-class precursor sectors, as well as innovation of the economic sectors, in particular, because the infrastructure in communication as well as Technological cutting-central but not unique in ICTs-are key to growth and thus both indices recognize it. In the same sense, the potential and dimensions of an economy are strongly influenced by all its infrastructure.

The fifth component of the INC, Business Efficiency, links to the following sub-indexes of the IC: efficient factor market and world-class precursor sectors, while both include Labour and Capital, key factors for productivity, and retributions that correspond to them in the production process, which are the central element to attract and retain them.

The penultimate component of the INC, Innovation, is associated with the greater number of CI factors now listed: a stable economy, world-class precursor sectors, exploitation of international relations and innovation of economic sectors.

This circumstance only highlights that, in fact, the key to competitiveness in the contemporary world is innovation and with it, it is possible to insert the global economy in better terms, while it generates an advantage over the competition.

Finally, the component Environment and social inclusion are associated with the sub-indexes of the IC: Sustainable management of the environment and Inclusive Society, prepared and healthy. This last component emphasizes that competitiveness is necessarily linked to the preservation of resources and that therefore shows a close relationship with the welfare of a society in the medium and long terms.

Having made this brief review of what Competitiveness is and what elements make it up, as well as analysing its close proximity to the Economic Promotion, in the following section we stop at what is known as the Cycle of Public Policies, since it is in it the one that is inserted the government actions oriented to this promotion.

The Cycle of Public Policies

In this study, the economic promotion strategies of a sample of large municipal governments in Mexico are analysed, and for this, it is necessary to study how such strategies are conceived, designed and executed, all of which refers to the so-called Public Policies Cycle.

The concept is a family category in the analysis of the management of government and refers to the idea that, in effect, the attention of a social demand or need has its origin, in the first place, in the fact of being considered in the Public Agenda, from which the context in which it is presented is defined, that is, a diagnosis is made, and general objectives are established, all of which is part of the so-called Planning stage.

After this, the most general stage of public policy, the aforementioned objectives are inserted into specific public programs, be they sectorial -that is, referred to a policy field, such as the Economist or the Social-, or institutional - corresponding to a public entity or dependency.

These programs, thus desegregate the general goals of planning and establish more specific strategies and lines of action for the achievement of the general goals of planning, from which, in a third moment, budgets are defined, based on which approved public resources are undertaken contemplated actions.

From the execution of such actions, conceived in a causal scheme by which they meet the demands by modifying the environment in the desired sense, the established objectives are achieved, or at least progress is made in that sense. To what extent they have been achieved can be verified through specific indicators that show the level of compliance with the goals, which is known as the Evaluation.

Now, it is clear that reality is much more complex and what is described is only an explanatory model -the rational model of the stages- of the most extensive and eventful exercise of public policy operation, where there is not necessarily an adequate link between a stage and the one that theoretically would follow, and even more is not always clear what these stages are, nor is it a simple linear scheme of irremovable sections or stages.

For Parsons (2007), however, among other benefits of this model is that it is formulated with a clear explanatory purpose of a specific phenomenon, that is, as an explanatory model seeks to "demonstrate how something happens in the way that ago "(92). In this sense, the model provides a useful reference to explore and investigate the government's operation in meeting its goals, and thus, "the stages or the cycle of public policies illustrates an important 'heuristic' model in the analysis of public policies" (Parsons, 2007: 92).

The truth is that the legal framework for the operation of public policies in Mexico contemplates a differentiation of stages, and in that sense, the model also has a normative component. In this framework, the first stage is that of planning, for which the Mexican State has an entire institutional architecture and so the art. 25 of the Constitution states that "It corresponds to the State the rectoría of national development to ensure that it is comprehensive and sustainable"; for that purpose in art. 26 states that:

The State will organize a system of democratic planning of national development that imprints strength, dynamism, competitiveness, permanence, and equity to the growth of the economy for the independence and political, social and cultural democratization of the nation (Article 26, CPEUM).

On this basis, the same article states that "there will be a national development plan to which the programs of the Federal Public Administration will be subject," adding that the law "will determine the bodies responsible for the planning process and the bases for the Federal Executive coordinate through agreements with the governments of the federal entities... ". As you can see, it is a process that is not exclusively federal but of a national nature, where the states are involved and, within them, the municipalities.

The Mexican municipalities

Mexico is a very diverse country with a federal legal-political regime which means, in a very synthetic way, that within it the political units that compose it, the federal entities, have important governmental powers with relative independence from the federal order, and within them, although with less autonomy, the municipalities also have planning and policy execution faculties.

Of these, the heterogeneity is its most characteristic feature and thus of the little less than 2,500 municipalities we have an important number that is very small with a small population, and others of large dimensions and with a significant population as well as resources of great depth.

This great municipal heterogeneity, as well as its number, makes it difficult to select a group of representative municipalities, and for this reason and due to space limitations, we only consider the study of three municipalities among the most important in the country.

The selection is based on the following criteria and on the relevance of the same, of course, there will always be conflicting opinions. First, consider that for the good design and execution of public policy the institutional capacities of each government matter, and it is clear that the small municipalities -and to a different extent also the medium ones- do not have such capacities.

Due to their size, in addition, small municipalities do not have a relatively broad productive base, and this already necessarily constrains the number of public programs for economic promotion, the central theme of this study. For these two reasons, we only stop here in large municipalities that, it is assumed in principle, do not have these two limitations.

Constrained thus too important municipalities, it was decided to choose those that formed part of the three urban spots of greater economic and political weight in the country, this is the Metropolitan Zones -ZM- of Guadalajara, Monterrey and the Valley of Mexico. Given that they concentrate the generation of a significant proportion of the total product, they are also those that present a reasonable diversity of economic promotion programs, which have a varied degree of institutionality.

Table 2
Study municipalities, basic sociodemographic indicators, and place in competitiveness

	Municipality	Guadalajara, Jalisco	Monterrey, Nuevo Leon	Tlalnepantla, State of Mexico
Social perspective	Population	1´495,189	1´135,550	700,734
	Urban Average Density (hab / ha) and annual growth	149.5/-0.5%	107.7/-0.5%	155.4/1.1%
	Degree of municipal marginalization and its national place	Very low; 2,446	Very low; 2,440	Very low; 2,413
Economic perspective	Group of the municipality in the urban ranking of Competit	suitable	suitable	high
	GDP per capita of the group of C. to which it is ascribed	160.6	160.6	180.0
	Place of the state in the ranking of C.	9	4	16
	Budget per capita	4,380.00	4,086.00	4,854.00

Source: Own elaboration (Conapo, 2011; INEGI, 2018; IMCO, 2015; IMCO,b, 2015) and Income laws and budget of municipal expenditures. The penultimate column budget is in millions.

Note first that the three are very populated municipalities, and although Guadalajara more than doubles the population of Naucalpan, both have practically the same demographic density, higher than the one of Monterrey who is between both in the number of inhabitants.

Note also that the two capital municipalities have a demographic growth rate that is already reflected in a sub-user of their housing infrastructure, while Naucalpan continues to grow. The main reason for the phenomena in the first two is an aggressive property policy in the periphery of the ZM, with new housing developments but with insufficient infrastructure and with strong mobility problems. The problem in Naucalpan, although it is relatively different, also shows marked insufficiencies in urban infrastructure.

The fourth column of the table shows the degree of marginalisation of our municipalities and the place they occupy at the national level in this area. Conapo (2011) defines this concept by pointing out that marginalisation is a "multiple structural phenomenon that value dimensions, forms, and intensities of exclusion in the development process and enjoys its benefits" (Conapo, 2011: 14); in this sense, marginalisation measures the level of deprivation that a territorial unit (colony, municipality, state...) has in four socioeconomic dimensions, namely: education; living place; distribution of the population and monetary income.

Note that in such a column that our three municipalities have a very low level of marginalisation which means that the degree of the shortages cited is lower in all of them, which is also seen in the fact that they occupy the last places in this concept at the national level.

The remaining columns refer to the main topic of our interest, the economic one, and see that in the sixth the place occupied by our municipalities in the urban competitiveness group of the IMCO is recorded and we have previously reviewed their components. Here stands out the best positioning of Tlalnepantla who is in the Alto competitiveness group while the other two, although with a reasonable positioning, the Adequate, are below that.

It is already known that higher competitiveness generates a great product and thus, the per capita GDP corresponds to the Adequate competitiveness group amounts to 160 thousand pesos (of 2012) while the group to which Tlalnepantla belongs has 180 thousand. However, the place occupied by the state where this municipality is is frankly mediocre, number 16 of 32, while Nuevo Leon is undoubtedly among the best places, the fourth and Jalisco is between the two previous ones in the ninth place

Finally, it can be seen in the last column that the municipal budget per capita is similar among the three, favouring Tlalnepantla, although not far from it is the Guadalajara one; note also that practically the same distance between these two is the one between Guadalajara and the less favoured of the three, Monterrey.

Strategies for Economic Promotion

After presenting a very synthetic photograph of the municipalities studied, the substantive theme of our research is analysed, the economic promotion strategies proposed in them and their impact on their competitiveness.

It is worth noting for the analysis of this section that the institutional development in Mexican Municipalities is poor, which is reflected not only in the low levels of accountability, transparency, adherence to legality and citizen participation with which they operate, but also -and due to the above- in the poor sustainability of its public policies; At the end of the day this is seen in the deficiencies of the programs reviewed here and helps to document the challenges facing municipalities in Mexico.

Table 3
The main axis of the PMD for Economic Promotion and its disaggregation

Economic development. The Strategic Objectives and their Projects are included	**Progressive Municipality** The most relevant objectives and strategies are listed	**Guadalajara prosperous and inclusive** It is disaggregated into two Objectives
Business Development and Development • Start Up Monterrey • Microcredits for entrepreneurs • Regio Emprende	**Job goals** Improve the municipal employment service, as well as an optimal link between companies and applicants, to achieve a greater number of people integrated into the labor market	**O1.** Increase competitiveness by improving the conditions for the attraction of investments, the operation of companies and the use of talent. Promote opportunities to access a decent job or start a business
Investment • Promotion of business investment	**Industrial modernization Goals.** Promote the creation and strengthening of new entrepreneurs as well as micro, small and medium enterprises	**O2.** Reduce poverty levels and improve the living conditions of people with greater lag, with emphasis on educational lag, increase income and expand pension coverage
Tourism • Visit Monterrey	**Tourist Promotion. Goals.** Increase the quality of the services with tourism of conventions and of promotion of tourist places generating income and employment when improving, diversifying and consolidating the tourist offer with regulation arranged with the companies	

Notes: E.T .: Transversal axis.
Source: Own elaboration.

Now, what are the strategies and lines of action in our field of interest can be seen in the following table, the information that comes from their respective Municipal Development Plans, PDM. The title of each of the columns is the same as that of the economic axis of the plan and what appears in them is the desegregation of that axis in its various components.

As can be seen, the structure of each PDM is different and it could not be otherwise given the municipal autonomy already referred to, as well as its varied governmental capacities to define and operate policies and its different socioeconomic environment; The truth is that the quality of the three PDM is also different and particularly that of Monterrey, which shows the greatest limitations.

Taking as a reference the content of this table, let us now see to what extent specific ideologies derive from this ideology to evaluate the efficiency and effectiveness of its execution; of these actions we will have to give off our central research objective: to what extent the execution of public policies contributes to raising the competitiveness of our municipalities.

In principle, see in the following table how in effect, based on what is established in the previous table, governments operate and carry out various public actions and programs, which appear in their second column. Now, in Table 1, we review what elements the literature considers to be relevant for competitiveness, but it is clear that municipal policies do not cover -can't cover- all that spectrum; For this reason, in order to classify them here, we take as reference the indices considered in the "Sustainable Economic Development" Quadrant of the International Standard ISO 18091: 2014. (IOS, 2008)

As is known, the Standard in question is a Quality Management Model for Local Governments and is composed of 4 "quadrants" that correspond to the major fields of intervention of these governments, namely: Institutional Development; Sustainable Environmental Development; Inclusive Social Development, and Sustainable Economic Development.

Table 4
Execution of Economic Promotion Policies in the study municipalities

Strategic objectives and projects	Executed actions	Indicator ISO Standard
Monterrey Economic Development Hub		
Business Development and Development: Start Up Monterrey Microcredits for entrepreneurs Regio Emprende	Regal impulse. Credit programs for women with subsidized interest rates for timely payment Start Up. Support to micro and small entrepreneurs with tools to start their business credits Regio Emprende. Business training in coordination with the cameras and NAFIN and self-employment	2 4 1
Investment: Promotion of business investment	In order to promote the investment, links were made with the embassies of several countries as well as with federal agencies Companies are attended to facilitate their installation and permanence Participated in the Sister Cities Fair to attract capital Significant investment amounts were captured and the companies involved are cited	8 8 1 8
Tourism: Visit Monterrey	Music festivals that attract tourists Events related to convention, health, sports and entertainment tourism were held.	5 5
Inclusive Employment: Use MTY Employment Agency	Employment Fairs in coordination with federal agencies Employment Brigades in poor communities for people with disabilities and older adults Employment Brigades in poor communities for people with disabilities and older adults	2 2 2
Strategic Projects	Several economic and technological cooperation agreements were signed	1
Strategic objectives and projects	Executed actions	Indicator ISO Standard
Guadalajara prosperous and inclusive		
O1. Increase competitiveness by improving the conditions for the attraction of investments, the operation of companies and the use of talent. Promote opportunities to access a decent job or start a business	Crédito Programa Emprende. It allows you to obtain a loan to start or continue a business. Training in Business Training. It allows to offer practical knowledge to start a business. Vacancy Publication Employment Program near you. Help find the right candidate for the vacancy of a company. Job Exchange Allows you to consult the job offer to choose the best option. Training for Tourist Companies. It helps to professionalize the staff of these types of companies. Attention to committees organizing Congresses. Helps to smoothly develop the main activities of the event Attention to international delegations in commercial missions. Advice on Municipal Tax Incentives. Attention to exit commercial missions. Offers consultancy for delegations that want to venture into foreign markets Support to foreign trade. Offers advice in the export and import branch	2 4 2 2 5 1 1 8 8
Tlalnepantla Progressive municipality.		

Job. Goals. Improve the municipal employment service, as well as an optimal link between companies and applicants	Agreements with business chambers to have a job bank for women. Work training courses for economically active people. Realization of job fairs to link plaintiffs with job seekers	2 4 2
Industrial modernization Goals. Creation and strengthening of new entrepreneurs as well as micro, small and medium enterprises	Online incubation program to train women in productive projects Economic support for women entrepreneurs Promotion of family gardens Self-employment training courses of the Bécate program. Dissemination of federal and state programs that are oriented towards self-employment Programs for the promotion of exports Management so that companies can access financing sources Municipal system of microloans Realization of business opportunities projects	1 2 7 4 2 8 8 2 8
Tourist Promotion. Goals. Improvement in the quality of services with tourism generating income and employment by improving and diversifying the offer	Campaigns to promote points of tourist interest Public events of tourist promotion with participation of the social and private sector. Campaigns to promote crafts and tourism activities	5 5 5

Source: Government Report and page of the town halls.

In particular, the latter is one of our interest that is integrated with the following indicators: 1. The promoter of innovative economic alternatives; 2. The promoter of decent work opportunities; 3. Responsible for food safety; 4. The promoter of local job training; 5. Tourism Promoter; 6. Responsible for sustainable mobility, communication, and interconnection routes; 7. The promoter of the economic development of the Primary Sector, and finally, 8. The promoter of the development of industry, commerce, and services. Note that in the third column of the table, the indicator of the Standard is assigned to each program or action.

In principle, these elements show that despite the dimensions of our municipalities of study and the accumulation of human and material resources available to their governments, their initiatives are limited and partial, and therefore do not provide sufficient to raise your competitiveness.

Note well of both tables, 3 and 4, that is a very important part of their efforts focuses on training and financing for the micro-entrepreneur, as well as tourism promotion and support for the international promotion efforts of their companies.

There are also initiatives to attract foreign investment, without specifying whether or not it is international, in all sectors, although it is only a municipality that proposes something in the primary sector of economic activity.

More specifically, Monterrey makes an important effort to reduce the gaps in information between job seekers and job seekers, and it is the municipality that shows a greater commitment to the promotion of women, granting loans to them so that they can undertake a micro business and additional efforts to advance in inclusive employment.

Also, this is the municipality that undertakes the most serious actions to attract investment with different actions, such as the mechanism of the Sister Cities and the connection with embassies and the support for federal programs in the matter. Finally, this municipality stands out for a variety of actions in terms of tourist attraction in its different forms.

With regard to Guadalajara, it also stands out for channeling a good part of its efforts in the field of job placement, through different strategies to bring employers with candidates to the places. An important weighting of their actions can also be seen in job training, particularly training in the tourism sector that is undoubtedly a field of relative significance in the economic activity of the municipality, the highest among the three under study; In this sense, it also shows various initiatives for the promotion of the sector.

This is the only municipality that offers advice in the fiscal field for entrepreneurs, and it is surprising that the others do not report actions on the subject, given that there have always been windows of opportunity in matters of regulatory improvement in this order of government.

It reports, interesting initiatives at the international level, both for the support to local delegations for their promotion efforts abroad and for the visit of businessmen from other countries.

Tlalnepantla for its part, is the municipality that offers the most alternatives to women and the only one that has initiatives for the primary sector of the economy, as well as in the artisanal field. For the rest, like the other two, it also offers programs on job placement and training, as well as the export promotion.

In a special way, it presents initiatives to promote the programs of the other two levels of government and this undoubtedly allows to strengthen synergies and to reduce program duplication. Finally, it is the only one of the three that offers online training, which undoubtedly facilitates its use and extends its coverage.

From this brief review it can be seen that there are items in the standard where there are practically no public policy actions, such as those related to the promotion of the primary sector or innovative economic activities, or some more than food security (the number 3) if they are served with actions such as public traces or markets but that we do not register here because in the strict sense they are not of economic promotion.

As regards training for employment and micro-credits, as well as various initiatives in favour of tourism, present in all municipalities, they face the problem of all municipal programs: their weak institutional framework, which reduces their effectiveness and certainty because their continuity is not guaranteed.

The foregoing could still be solved partially if solid coordination was established with the other two levels of government, particularly with the federal one, since in them and particularly in this there already exists a reasonable institutional development.

Conclusion

The order of municipal government is of particular importance in the first place because it is the one with the closest connection with society and that is why it can best meet its most elementary demands for goods and services of public value. But also and secondly, this order is of significance because it can lay the foundations for a comprehensive policy of economic development.

This is explained by the fact that at the end of the day companies and entrepreneurs are established in specific places, the municipal level, and these places thus require adequate spaces for the attraction and retention of such actors.

However, the institutional limitations that municipalities have -understanding the low development of their governmental capacities and their relatively limited budget- limit their possible contribution to local competitiveness. But this general reflection, however, does not prejudge the unequal effort that these governments undertake, particularly the large ones studied here, to improve their strategies for economic promotion.

To appreciate these efforts in the trial, we review what factors affect competitiveness -with the IMCO, we define this as the capacity of a municipality or other entity to attract and retain investment and talent- and we find that the largest number of such factors is beyond the powers of a municipal government. This would mean that such governments struggle, so it goes to the promotion of growth, in an institutional and socioeconomic atmosphere in which they can do little and are therefore rather partial passive figures of their context.

Based on this and on the consideration of this relatively small impact on competitiveness, we here make a punctual review of the planning framework of public policies of our municipalities analysing their Development Plans, to stop at the strategies of economic promotion. With them, we verify which of the planned ones were actually executed and we classify them based on the quadrant Economic Development of the ISO Standard of local governments (IOS, 2008).

This exercise gave us a common framework for its analysis and we found that the actions were undertaken have a strong concentration in very few areas of action, among which are varied programs in the tourism sector, job training, job fairs, and employment strategies, as well as the attraction of investments.

Given that the municipalities studied are among the most important in the country, it can be affirmed from this analysis that the management of local government in Mexico does not offer a solid and diversified policy framework that can provide a competitive advantage for local development.

The foregoing, however, is by no means a fatality, and in this sense, the study should be taken as a wake-up call for local governments to systematically enter and with a greater effort in economic promotion. Given the differentiated and concurrent attributions among the three levels of government, this effort should be undertaken considering the related programs that already exist in the other two orders.

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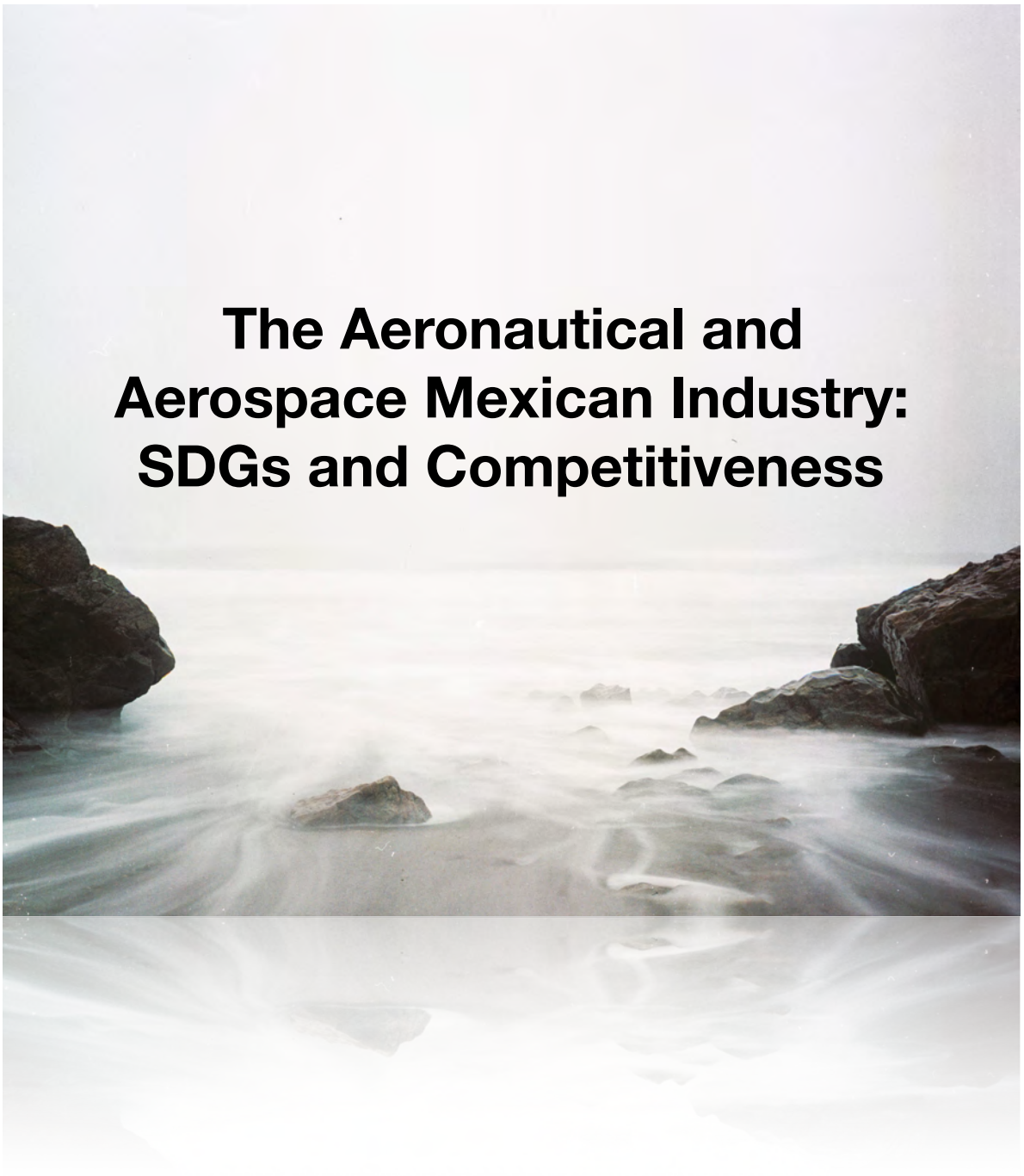
Chapter 8



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The Aeronautical and Aerospace Mexican Industry: SDGs and Competitiveness

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Introduction

In recent years, Mexico has transformed itself in becoming a major recipient of international investments in the aeronautics and aerospace industry (A&A) sectors. Because it is a dynamic, strategic industry with a productive complexity of long production cycles (Vesey, 1991; Benkard, 2000; Millar and Salt, 2008; Guffarth and Knappe, 2019).

The aeronautical and aerospace industry has a role to play in 15 of the 17 SDGs, some in small ways and others with much more significant influence. (ATAG, 2017)

One of the important contribution is Build technical capacity of transport planners and implementers, especially in developing countries, through partnerships with international organizations, multilateral development banks, and governments at all levels, to ensure equitable access to markets, jobs,

education and other necessities. (ATAG, 2017; Flores, Medellín, and Villarreal, 2018).

Another contribution considered in this chapter is to promote sustainable transport technologies through outcome-oriented government investment and policies that encourage private sector investment and action through various incentive structures. (ATAG, 2017)

As well as an industry in which state support, the relationship with research centres and universities, innovation, the use of new materials and processes with the support of modern technologies create an intense reciprocal network that favours the growth and the generation of a great variety of products and services, vital for the functioning of transport, communications and security (Casalet, 2013).

To understand the competitiveness of Mexican A&A industry, its strategic role in the manufacturing sector must be analysed, derived from the formation of the aerospace cluster, technological spills, and internationalization. States such as Baja California, Chihuahua, Nuevo Leon, Queretaro and Sonora have become the main aerospace cluster in the country, providing employment to thousands of people, fostering development and engineering, and providing high-level infrastructure due to the sophistication and the requirement of the standards in the industry (SE and ProMéxico, 2015; ProMéxico, 2012; Casalet, 2013).

The A&A industry is considered within the structure of Advanced Manufacturing (AM). According to Casalet (2016) and Dutrénit (2015), the AM is the generation and application of cutting-edge knowledge and technology for the creation of products, components and associated services with high added value.

This includes the improvement of materials, processes, media, and systems. Covering all the production phases, since it is a programmable set of technologies with a high level of efficiency, greater flexibility of the activities involved in the design, planning, execution, and control of operations. The organization facilitates by improving communication flows and external collaboration (Dutrénit, 2015; Casalet, 2016; Payán *et al*. 2018).

Moreover, according to the Executive Office of the President (2012), AM is a collection of activities that 1) depend on the use and coordination of information, automation, computing, software, detection, and networks; and/or 2) make use

of avant-garde materials and emerging capabilities that are enabled by the physical and biological sciences, such as nanotechnology, chemistry and biology).

It is, therefore, new ways of manufacturing existing products, such as the manufacture of new products that emerge from new technologies. Thus, the aeronautics and aerospace industry is very competitive and demands very particular requirements in the production process, where Mexico begins to position itself (Burgos and Johnson, 2018).

It is an industry with a pyramid structure dominated by leading companies, namely original equipment manufacturers (OEM) that control the design and sale of the final product. These OEM firms delegate to suppliers the responsibility to innovate.

The demand in this industry is international rather than local and the production activities are carried out in different parts of the world, with a constant flow of knowledge within the entire production chain.

A number of the SDGs, including SDG 1 (no poverty), SDG 8 (decent work and economic growth) and SDG 10 (reduced inequalities) have a focus on economic development and are in many ways interconnected. These are areas in which the aeronautical and aerospace industry already makes a significant contribution, but increased cooperation with governments can unlock further economic potential and support sustainable development. In some regions of the world, unnecessary and burdensome regulations remain in place, hurting competitiveness and suppressing the consequential social benefits of better air links. (ATAG, 2017)

It is a strategic industry for many nations as A&A encourages the development of high added-value products, creating high-skilled jobs. It does, however, require a long development cycle with a large investment in research and development (R&D), requiring 5 - 20 years to recoup investments and is sensitive to global social and economic events (Niosi and Zhegu, 2010; Casalet, 2013).

Mexican A&A industry competitiveness was analysed, specifically investigating the impact of R&D and high technology as the production depends mainly on innovation. This phenomenon was explored by drawing upon concepts related to competitiveness, including Porter's (1990; 1997) positioning and international competition (Krugman, 1997), among others.

Derived from the analysis, A&A competitiveness is influenced by macro factors such as globalization, industry factors such as technological spillovers and micro factors such as R&D and high technology investments (Eriksson, 2000; Niosi and Zhegu, 2005; Burgos and Johnson, 2018; Reis, Mendonça, and Urbina, 2018; Yun *et al*., 2018). Data were collected with a survey of 56 Mexican firms, using various statistical techniques, including correlation analysis.

The document proceeds as follows. In section two it has described the characteristics of the Mexican A&A sectors. The third part presents a literature review on competitiveness. The following section discusses methodology, while section five explains the results. Finally, the conclusions are presented.

The Mexican aeronautical and aerospace industries

To investigate the competitiveness of the Mexican A&A industry, it is necessary to understand its development, structure, productivity, location, and capabilities as well as its interaction with governments, industry, and universities. The industry has seen important growth over the past few years with A&A firms becoming international industry leaders with the building of new plants, increasing installed capacity, and funding of investments (Casalet, 2013).

With over a century in Mexico, the development of the A&A industry began in earnest in the 1970s with investments in automation, chemicals, and maquila industry, among others. Beginning in the 1990s, programs were put into place to foster the creation of different conglomerates, particularly in automotive, electronics, biotechnology, information technology and communication, aeronautics, and aerospace (ProMéxico, 2012; SE and DGIPAT, 2012).

However, A&A has seen its most important growth in the last 15 years with increasing investments from transnational firms in different parts of the country (ProMéxico, 2012). The root of this growth is multifaceted. Carrillo and Hualde (2017, 2013) argue that universities have developed programs catering to the industry that has developed a supply of a well-educated and trained workforce.

Contreras and Bracamonte (2013) advanced that capabilities developed in the electronics, metalwork, and automation have been a magnet for A&A firms. Moreover, the arrival of Bombardier in Queretaro since the mid-2000s had an

important impact on the industry's development (Villavicencio, Hernández, and Souza, 2013; Hernández, 2017) along with initiatives with the Aeronautical University of Queretaro (Universidad Aeronáutica de Queretaro, UNAQ) that has trained 70% of Bombardier's workforce (Flores, 2016).

This growth has led to a number of world-class firms (Honeywell, Bombardier, Grupo Safran, EADS, ITP Ingenieria y Fabrication, before ITR) establishing themselves in Mexico (SE and ProMéxico, 2015), particularly in the northern and central parts of the country, leading to the emergence of clusters.

Many engineering design centres emerge given competitive wages and the availability of a highly qualified workforce. For example, General Electric employs 1,200 engineers in the design of engine turbines and Honeywell 300 in the A&A sector (SE and DIGIPAT, 2012; Morán and Mayo, 2013).

The OEM companies as well as being Systems Integrator are responsible for the final product and the delivery of the aircraft, in turn, they are subdivided into two groups: super prime and niche prime. In the first category are companies that manufacture aircraft with more than 120 seats, also known as long distance. While in the second segment those who build regional aircraft or planes for executives that are smaller than 120 seats (Montoro and Migon, 2009; Casalet, 2013).

The configuration of the A&A industry is established as the following: at level 1 the companies that assemble the fuselage and sell the finished product; level 2 equipment manufacturers, responsible for installing systems, propulsion, and structures, these companies, in turn, require numerous suppliers and subcontractors that are located at level 3; and, in level 4 are the companies that provide the raw materials for the whole production chain (Casalet, 2013).

Strong investments in R&D and high technology, as well as in innovation are very important in the A&A industry for the development of technologically complex products, in this first decade of the 21st century, the industry has been strengthened in the decentralization process of the activities along the productive chains (Guerra, Alves and Ferreira, 2010).

The A&A Mexican companies are responsible for the design, engineering, development, manufacture, and assembly of aircraft parts, maintenance, repair and operation of aircraft (MRO) (SE and ProMéxico, 2015). The product cycle

consists, apart from the statements, in the generation of R&D, testing, certification, and maintenance activities (López *et al*. 2012).

Also A&A industry is characterized by large investments and very long production cycles where the high technological level in design and manufacturing, the complexity of the production system and the multiplicity of disciplines that have an influence on production, determine a decentralized management of the production dominated by the large assembly companies that operate internationally (Casalet, 2013).

From 2007 to 2014, Canada (USD$ 791 million), the USA (USD$ 604 million) and Japan (USD$ 105 million) invested a total of $ 1.4 billion dollars in Foreign Direct Investment (FDI) in the A&A sectors, representing almost 77% of all investments (SE and ProMéxico, 2015; FEMIA, 2016).

From 1999 to 2014 about USD $3.2 billion in FDI was invested in the A&A industry in Mexico. From 1999 to 2014, FDI in the A&A was estimated in USD$ 3.2 million, it reached 0.8% of total Growth Domestic Product (GDP). US was the country with the highest FDI in the A&A Mexican industry with USD$ 8.2 million, the second country was Canada with an FDI of USD$ 7.9 million (SE and ProMéxico, 2015).

In 2014, there were 52 US firms and six Canadian firms operating in the Mexican A&A sector. From a trade perspective, from 2004 to 2014, exports in the A&A sector increased by 17% annually, reaching US$7.2 billion in 2015 with imports into the A&A sector of US$5.4 billion (SE and ProMéxico, 2015; FEMIA, 2016).

The Mexican A&A Industry has over 290 firms distributed over 16 states: Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon, State of Mexico, Mexico City, Guanajuato, Queretaro, Jalisco, Puebla, Aguascalientes, San Luis Potosi, Tamaulipas, Yucatan and Zacatecas.

The vast majority are certified by the National Aerospace and Defence Contractors Accreditation Program (NADCAP) and meet AS9100 quality norms. However, five specialized aerospace cluster has emerged, distinguishing themselves in infrastructure, the specialized workforce in manufacturing, MRO, engineering, and design. Moreover, the low cost of labour and its proximity to the North American market – the largest in the world – make Mexico a privileged location (SE and ProMéxico, 2015).

Economic Characteristics of the Main Aerospace cluster

The main economic factors influencing the development of this industry in Mexico are the geographic proximity with the U.S.A., the low cost of the workforce, the existence of qualified human capital, the strengthening of intellectual property rights, commercial benefit on a North American trade agreements (NAFTA) for the advantages it offers for the incorporation of products and designs on the American market (Casalet 2013; SE and ProMéxico, 2015).

As well, the signature of the Bilateral Aviation Safety Agreement (BASA) with the U.S.A., the national experience in automotive and electronics industries which facilitates the existence of suppliers who have the capabilities to integrate supply chains.

Moreover, the presence of universities, technological institutes and technical schools for the preparation of the human capital and research centres help with industrial conversion projects and research. There are also specific factors, as showing in the discussion below, of the five most developed aerospace cluster in the country (SE and ProMéxico, 2015; INEGI, 2016):

I. **Baja California:** The economy of Baja California represented 2.8% of the Mexican Gross Domestic Product (GDP) in 2013, up 0.7% from the previous year. The US attracts 2/3 of the state's exports with the balance going to Canada, England, France, and Germany. Baja California has 40 years of experience in the A&A industry, with the highest concentration of companies in this industry nationally. This is related to its proximity to California and Arizona as well as the availability of a highly qualified workforce (SE, 2014; INEGI, 2015).

II. **Chihuahua:** The GDP represented 2.8% of the national GDP for 2013 and increased by 5.4% compared to the previous year. In this state more than 30 businesses and entities support the A&A industry, of which four are OEM: 1) Cessna builds electrical wiring systems for aircraft; 2) Textron builds structures and cabins for helicopters; 3) Hawker Beechcraft builds metal

components; and 4) Honeywell builds reaction engine components. State exports are worth approximately US$455 million, representing 11% of all national exports for this sector with again the US, Germany, France, and Canada as primary destinations (SE, 2014; INEGI, 2015).

III. **Nuevo Leon**: In 2013, the state contributed 7.1% to national GDP. There are 28 companies in A&A, including Honeywell, Hamilton Sundstrand, Rockwell Collins, Frisa Aerospace, Viakon, MD Helicopters, Tecmaq, among others. The sector generated around 1490 direct jobs and exports more than USD$ 150 million per year. The main products manufactured here are: supports, parts for heat diffusers, helicopter fuselages, precision machining, hoses, plastic injection components, rings for turbines, maintenance and repair of turbines and engines, fuselages, electrical and electronic systems, landing systems and wires and wiring for harnesses (Hernández, 2015; SE, 2014; INEGI, 2015).

IV. **Queretaro:** In 2013 the GDP of the state represented 2.1% of national GDP. There are 52 A&A companies, of which 48 are dedicated to manufacturing activities, three for MRO and five for services. There are also three innovation and development centres, five design and engineering centres, three educational institutions and one innovation and research network (CONACYT, 2009; SE, 2014; INEGI, 2015; SEDESU, 2016; Casalet, 2013).

V. **Sonora:** The GDP of Sonora in 2013 represented 3.0% of the national GDP. The state houses one of the most mechanized groups of companies in the Mexican A&A industry; it is a centre of excellence in the manufacturing of blades and components for turbines, including and wind, (casting process, machining, among others). Over 60 firms operate in the sector and exported close to USD$ 190 million, with the US being the main export destination, given the geographic proximity (Urbina, 2010; CONACYT, 2009; SE, 2014; INEGI, 2015).

Competitiveness: Theoretical elements and analysis

Since competitiveness is a relative concept, there is no consensus around a definition of international firm competitiveness. Competitiveness is a multidimensional concept that can be applied to different levels and firm activities. There are both qualitative and quantitative factors that impact competitiveness (Flores, 2008).

All companies are similar in terms of production functions, technology, costs, skills, location, structure, but a competitive firm is one that can maximize profits (Varian, 1994).

In one approach, international competitiveness is viewed through a productivity gains lens. Other definitions focus on the firm's ability to compete in international markets, the ability to attract investments, or being able to lower unit costs, among others (Martínez *et al*., (2009).

The indicators of international competitiveness are related to many micro and macroeconomic variables, cultural aspects, abilities, and attitudes specific to a company. What stands out is that even the most basic approach to competitiveness cannot be based around a particular variable (Bonales, 2011).

The literature review reflects some of the different definitions found in the literature, various levels of analysis, and distinct approaches to measuring competitiveness of a company or economic unit level. For example, the Global Competitiveness Report (GCR), there are three different levels of competitiveness: country, sector, and company.

The first level examines to what extent the national environment is favourable to business. The second level assesses if a sector, in particular, offers growth potential and an attractive return on investment. The third level considers the ability to design, produce and merchandise goods and services where the price and other benefits are more attractive than what competitors offer.

Rubio and Aragón (2006) argue that the key to a company's competitiveness is critical resources and capabilities that need to also be identified in small and medium enterprises (SME).

On the other hand, De la Cruz and others (2006), argue that the development of capabilities in a sector boost the competitiveness of a range of products and services and can also have spillover effects on other products, firms, and sectors. These sectoral capabilities influence investments, risk appetite, and speed-to-market for firms to position themselves competitively.

Essentially, as Solleiro and Castañón (2005; 2012) argue firm competitive performance depends on its ability to manage its internal resources and capabilities, including product quality, technology, human capital training, and price and logistics are as well as the quality of its relations with its supply chain and interactions with its environment (Bonales *et al*., 2015).

Quiroga (2003) made similar conclusions for the competitiveness of SMEs. It is the key to success for SMEs, governments must allow enacting policies that favour competitiveness (Jeppesen, 2005; Bhasin and Venkataramany, 2010). However, within the SME population, micro-firms are not as competitive as the larger SMEs, suggesting that policies may need to be rethought in some situations while industrial-sector firms outperform trade and services sectors.

One specific approach to competitiveness is offered by the OECD (1992). It highlights that companies need to successfully manage:

A. Production flows, raw materials and inventories.
B. Mechanisms between planning, marketing, research, and development, design, engineering and industrial production.
C. R&D and other innovative-based relationships with universities and other companies.
D. Demand and adjustments to changing market conditions through design and production.
E. Relationships with suppliers and customers.
F. Workforce training through specific investments to increase quality and worker independence.

Moreover, the existence of different national approaches towards competitiveness offers distinct competitive contexts in which companies operate. In terms of competitiveness, criteria such as comparative advantage, competitive advantage, structural competitiveness, and systemic competitiveness must also be present (Bonales, 2011).

At the company level, according to Lerma (2005), firm competitiveness is based on the following:

A. Production: Capacity, flexibility, costs, and technology.

B. Products: Price, quality and perceived product value must be evaluated.

C. Firm competitiveness: structural and market positioning elements should allow for the identification of advantages and disadvantage with respect to rivals.

D. Merchandising systems: distribution channels and points of sales and service must facilitate customer access.

E. Publicity: Firm and product recognition to stimulate sales and adoption into the consumption routine.

F. Services: Pre- and post-sales support as a differentiator and product added value.

The competitiveness of a firm is based not only on R&D and technology adaptation in the A&A sector, but also on administrative, R&D, marketing, production and process control, market knowledge, product design and development, finances, human resources, and data processing functions (OECD, 2002; Escorsa and Valls, 2005; Chauca, 2003).

However, as many authors have noted, R&D and investments in high technology are the basis for increasing competitiveness in many of the areas previously cited where R&D includes the creative work carried out systematically to increase the volume of knowledge and to apply this knowledge to create new applications (OECD, 2002). More specifically, it includes three activities (OECD, 2002):

A. Basic research consisting of experimental or theoretical work to obtain new knowledge on observable phenomena and events without necessarily seeking any practical application.

B. Applied, original research to acquire new knowledge directed towards a specific practical objective.

C. Experimental development, research or practical experience dedicated to a new material, product or device development, to the start-up of new processes, systems, and services, or to the substantial improvement of existing ones.

The focus on R&D began the early 20th century where firms created their own research laboratories, recruiting scientists primarily for product development around the research of new technology, the design of new businesses or product lines, or both (Escorsa and Valls 2005).

Three R&D generations emerged over the years. First, 1950-1975 was characterized by a focus on input allocation and productivity with research teams centrally organized without an explicit technological strategy.

The second generation, from 1975-1990 stood out for promoting R&D at the divisional level. In the third and latest period, from 1990-2005, the formulation of a technology strategy, increased coordination between central and divisional R&D departments and a focus on basic research and generic technologies emerged (Escorsa and Valls, 2005).

However, one must also consider that product development or innovation, in general, does not necessarily arise from only internal development (OECD, 2002). Externally sourced R&D may be obtained from organizations or institutions, public or private, including the purchases of machinery and equipment. Technological knowledge can be made from the purchase of patents, unpatented inventions, licenses, expertise transfers, factories, brands, design studies and models allowing for product or process innovation activities.

Internal R&D activities include the innovations: of the product and the process. Product innovation corresponds to the introduction of a significantly improved or repurposed good or service. Process innovation applies to both production and distribution; it is intended to improve efficiency, cost, or quality through significant changes to techniques, processes, materials and/or software used (OECD, 2002).

Along with R&D, high technology investments are critical for improvements to productivity. While the notion of technology has evolved over time and may mean different things to different managers within the firm, it is generally accepted that it revolves around applied science and is part of the science-technology-production relationship (Osorio, 2002).

Technology is an ordered set of empirical or scientific knowledge, resulting from accumulated experiences and observations, by written or oral means used in the elaboration of products or services. (Chiavenato, 1993; Chauca, 2003).

Knowledge, know-how or physical manifestations of that knowledge, machinery, equipment, or installations, among others, enables the development of transformation techniques of inputs into products and/or services (Chauca, 2003).

Other interpretations of technology consider

A. Physical processes combined with knowledge through which inputs are transformed into products to be used by other organizations or sub-systems of the same organization.
B. A body of knowledge that can be studied, codified and taught to someone else (Nonaka and Takuchi, 1996).
C. The totality of the means used to provide well-being and subsistence to humans; the motivation is to create technology to obtain more or better things for people.
D. An essential production element that can be sold and sourced through markets as the product. Technology can be considered as having value and as a medium of exchange. Value of use is instrumental knowledge applied to production, organization and merchandising while exchange value is a privately owned asset that generates rents for its owners.
E. Technology is embedded in individuals that allows them to understand their role in the production process and in the sector in which the company competes (Sábato, 1978; Ivancevich, Lorenzi and Skinner, 1997; Luchi and Paladino, 2001).

Technology and knowledge evolve over time and in the way that they are accumulated – sometimes innovations are incremental and, at other times, radical. The challenge remains that there is no widely accepted definition, but is often defined by the sectors, products, and services its impacts.

Nonetheless, if the technology is a set of knowledge that allows for the production of new goods and services; it is characterized both as complex and highly dynamic; it requires a continuous effort in research and a solid technological base (OECD, 1995).

High technology today will not be the high technology of tomorrow as technological efforts are not uniform across economic sectors, necessitating the establishment of classification methodologies (OECD, 1995).

Innovation is a substantial element of economic competence, through which cycles and long-term trends of accumulation are influenced. While not new to today's economists, authors like Schumpeter (2017) had pointed out that innovation becomes more important; the new technical-economic paradigm has been consolidated. It is now based on the massive implementation of new information and communication technologies (TIC), accompanied with other links to biotechnology, new materials and the aerospace sector (OECD, 2006).

Determining competitiveness: methodological instrumentation

There are a variety of parametric and non-parametric techniques available for analysis. A statistical correlation analysis using Pearson coefficients of determination was employed.

The survey was based on widely-identified variables of competitiveness in the research of Mexican A&A industry companies. Our sample is drawn from Mexican companies in the A&A sectors as identified by the Ministry of Economy, ProMéxico (2016) and with data from the National Flight Plan, We identified 290 companies established in the following states: Aguascalientes, Baja California, City of Mexico, Coahuila, Chihuahua, Durango, State of Mexico, Guanajuato, Jalisco, Nuevo Leon, Queretaro, Puebla, San Luis Potosi, Sonora, Tamaulipas, and Yucatan.

For the calculation of the sample size, we applied the following finite population formula:

$$n = \frac{N\left(Z^2\right) \times p \times q}{(N-1)\,E^2 + \left(Z^2\right) \times p \times q} \qquad (1)$$

Where N is the size of the population; Z is a constant that depends on the level of confidence assigned; E is the desired sample error; p is the proportion of individuals who possess the study characteristic in the population; q is the proportion of individuals who do not possess that characteristic; and n is the required sample size (Levin and Rubin, 2004).

To determine the size of the sample, we use the following data: $N = 290$; $Z = 1.96$; $p = 0.05$; $q = 0.95$; $E = 0.05$. This yields a result of 58.4745. We contacted the firm by phone or email with a manager. Once confirmed participation, we sent a questionnaire through the electronic survey platform we used. Fifty-six companies answered the survey. Our questionnaire had 83 questions, separated into 13 sections.

A Likert-type scale measured our survey questions. This approach presents a number of possible options/statements reflecting an attitude (usually measured from 1 to 5) in relation to a topic or question. In order to corroborate the validity and reliability properties of the instrument, we applied the test of Cronbach's Alpha. Its results being of 0,974, we can establish that the instrument is viable and consistent for the purposes that were established (Gliem and Gliem, 2003).

Aeronautical sector competitiveness: results and analysis

The results of the statistical analysis for competitiveness, R&D and high technology for the A&A industry are the followings:

a) Competitiveness, the average value was 96.0 placing it above the average of the companies (94.5) which represents a good competitiveness.
b) R&D of the firms is good since the median (148.0) was higher (145.4).
c) High technology of the firms is good since it was observed that the average (47.9) was lower than the median (49.0) (see Table 1).

Table 1
Final results of the statistical analysis

Variables/ Measures of central tendency	R&D	High technology	Competitiveness
Average	145.38	47.91	94.55
Median	148.0	49.0	96.0
Standard deviation	30.15	10.77	19.04
Curtosis	1.46	1.73	1.21
Asymmetry	-0.61	-0.93	-0.89
Sum	8141.0	2683.0	5295.0

Source: Own preparation with data obtained from the case study (2017) and using IBM SPSS software (2017).

Table 2 presents the correlation matrix of the variables studied in this research. The highest correlation is the one linking R&D with high technology with a value of 0.790 while R&D and the competitiveness are 0.710, establishing a considerable positive correlation between the variables. The correlation coefficient between high technology and competitiveness showed a moderate and substantial correlation with a value of 0.678.

Table 2
Matrix of the correlation coefficient of Pearson (r) bivariate

Variables	I. Innovation and development	II. High technology	III. Competitiveness
I. Innovation and development	1.000		
II. High technology	0.790**	1.000	
III. Competitiveness	0.710**	0.678**	1.000

** The correlation is significant at a level of 0.01
Source: Own preparation with data obtained from the case study (2017) and using IBM SPSS software (2017).

Given the results of the instrument applied, it could be seen in particular that the performance of competitiveness in terms of production capacity has been increasing, and it is observed that the manufacture of aero parts is considered competitive since the coefficient of correlation is higher than 0.480.

The result that contributes to situate the country in the international market as one of the main manufacturers of parts and components. The A&A Mexican companies pose flexibility in their capacity of the production (with a correlation coefficient of 0.500), which allow them to cover the growing demand and be competitive.

The product quality dimension shows a very high level of correlation with competitiveness (0.607) since foreign companies require it to be part of their cluster. Another element that stimulates the competitiveness of the industry is the price of manufacture parts and components, with an incidence of 0.450.

In this sense, the marketing channels used by the companies' plays a fundamental role in competitiveness (with a correlation coefficient of 0.482). In the case of support facilities for the sale of the product, a result of 0.429 is

obtained, since it has the backup from government institutions, with short and long-term programs (Table 3).

The use of advertising to publicize the product showed an incidence of 0.430 in the competitiveness of the industry. This is due to the fact that advertising is an important task for companies in order to spread their capacity and professionalism and thereby generate confidence for investment.

Finally, the dimension of sales and after-sales services had a result of 0.518, because all companies seek to strengthen the relationship with their consumers and provide a quality service that accompanies a product with the same characteristics (see Table 3).

Survey results indicate various areas where industry competitiveness can be strengthened, such as product innovation, external process innovation, human resources, machines and techniques, organization, and access to information.

Table 3

Matrix of the correlation between significant indicators and competitiveness

Variables	Production capacity	Production flexibility	Product Quality	Price products	Quality marketing Channels	Support facilities for sales	Advertising to publicize	Quality sales and after-sales dimension services
Competi-tiveness	0.48	0.5	0.607	0.446	0.482	0.429	0.429	0.518

Source: Own preparation with data obtained from the case study (2017) and using IBM SPSS software (2017).

Conclusion

The A&A Mexican sector needs to strengthen firms that focus on manufacturing, and assembly of parts and components (79% of industry firms); MRO (11%), engineering and design (10%) to encourage innovation and technological advances to increase competitiveness on the world stage.

The development of this industry is fundamental to socioeconomic progress and the overall manufacturing sector in Mexico (Casalet, 2013). It is important to recall that industries may lose competitiveness if investments and national policies do not support expansion through R&D and technology investments; the

loss of the A&A industry could have repercussions for all secondary manufacturing in Mexico, given the number of spillover effects possible.

These negative repercussions may include loss of export competitiveness and the relocation plants to other countries. Currently, A&A is a central axis of economic development with efforts to be more competitive in international markets.

The evidence confirms the importance of R&D and high technology investments. Strategies must be established that support and strengthen competitive advantages. The results also suggest opportunities to bolster the A&A industry in Mexico through industry-university cooperation for new technology development and focused workforce training, acquisition of existing technology for productivity gains, and cooperation in engineering and design throughout the supply chain for innovation, machine design and efficiency gains.

Production capacity can also increase competitive performance internationally well, particularly in MRO, engineering and design, and civil and military aircrafts markets. Moreover, these firms demonstrate significant flexibility, allowing for increased production to serve more international markets.

Results have also allowed us to identify areas where respondents believe improvements may be able to help the competitiveness of the Mexican A&A industry.

- Product quality. Many indicated that while product quality is at a high standard, firms should take the opportunity to seek various quality certifications (e.g. ISO 900), to meet quality, safety, and reliability standards. It would allow them to better position themselves for opportunities with foreign multinationals.
- Sales. Price and marketing were highlighted by a number of individuals. It is important to note that while pricing is an important element, increasing quality can support justifying a higher price while also decreasing costs allows the flexibility to lower it when necessary. Gains need to be realized both at the firm-level and across the whole supply chain. Government plays an important role in providing financing facilities (e.g. Bancomext – Mexico's export credit agency) to buyers to purchase Mexican goods and services as well as to local manufacturers (e.g. increase capacity, buy equipment) to help

meet customer order. Marketing in the A&A sector is viewed as a critical component, primarily achieved through trade show participation.

- Service. The last dimension, pre, and post-sales service are seen as a primary key success factor. There is a national strategy to encourage aerospace cluster that serves the complete cradle-to-grave cycle of aircraft manufacturing. The emergence of a few multinational firms, especially with the close cooperation between Bombardier and Airbus and between Boeing and Embraer, along with the emergence of China as a more relevant player in this sector, Mexican firms need to focus on constant improvements as upstream players become more concentrated. These developments may result in even greater integration of supply chains and may even see their rationalization. Mexican firms need to invest and plan appropriately to be well-positioned to respond. On the other hand, a number of SMEs need to consider certification and perhaps associating with each other to create consortia.

A number of actions need to be taken to leverage R&D and high technology investment to ensure competitive advantage, beyond low-cost labour and geographic proximity. The industry needs to ensure that innovation becomes a central strategic imperative to move away from being and being viewed as simply a low-cost supplier. Innovation will certainly help beyond the A&A sector as spillover effects support learning and SME development.

The areas where the competitiveness of the A&A sector can be further strengthened are 1) cooperation with universities for the generation of technology; 2) collaboration with national suppliers in the design of technology for production processes; and 3) cooperation active with organizations in the elaboration of projects of innovation and adaptation of machinery.

Finally, it is necessary to undertake specific actions to foster R&D and high technology investments and adoption. For this, three processes have to occur: 1) direct foreign investment with sufficient technological capacity to stimulate technological learning and transfers; 2) Mexican SMEs to become specialized and value-added suppliers in this complex production chain; and 3) clusters to manufacture, or at least participate, in the complete aircraft production cycle.

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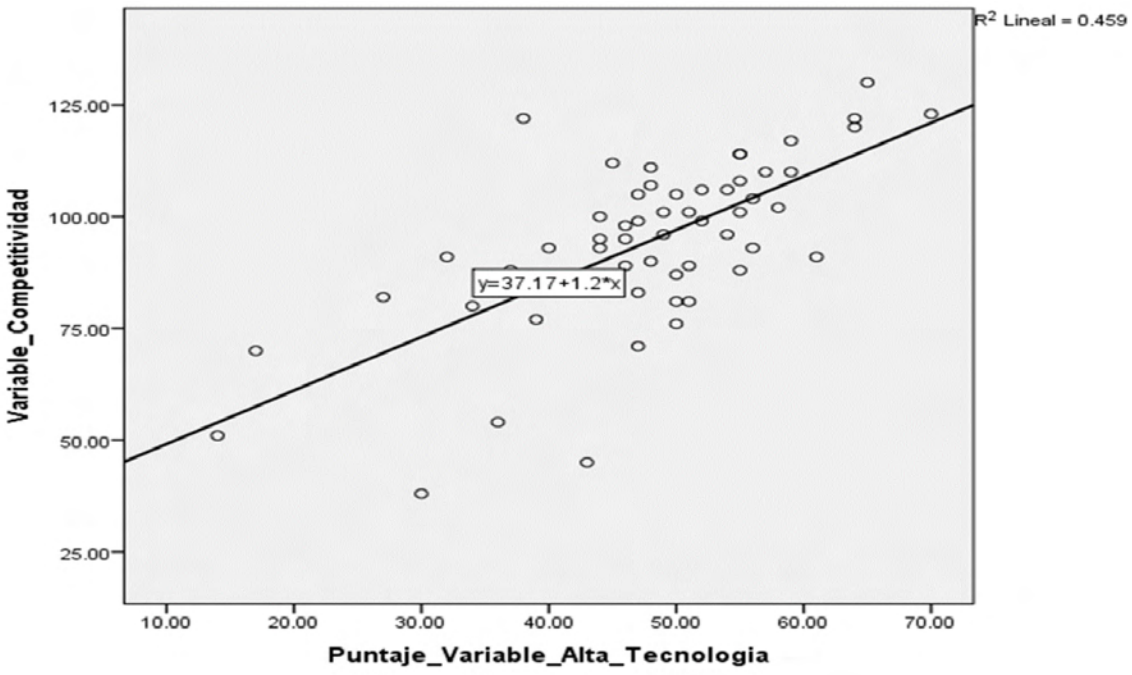
ANNEXE

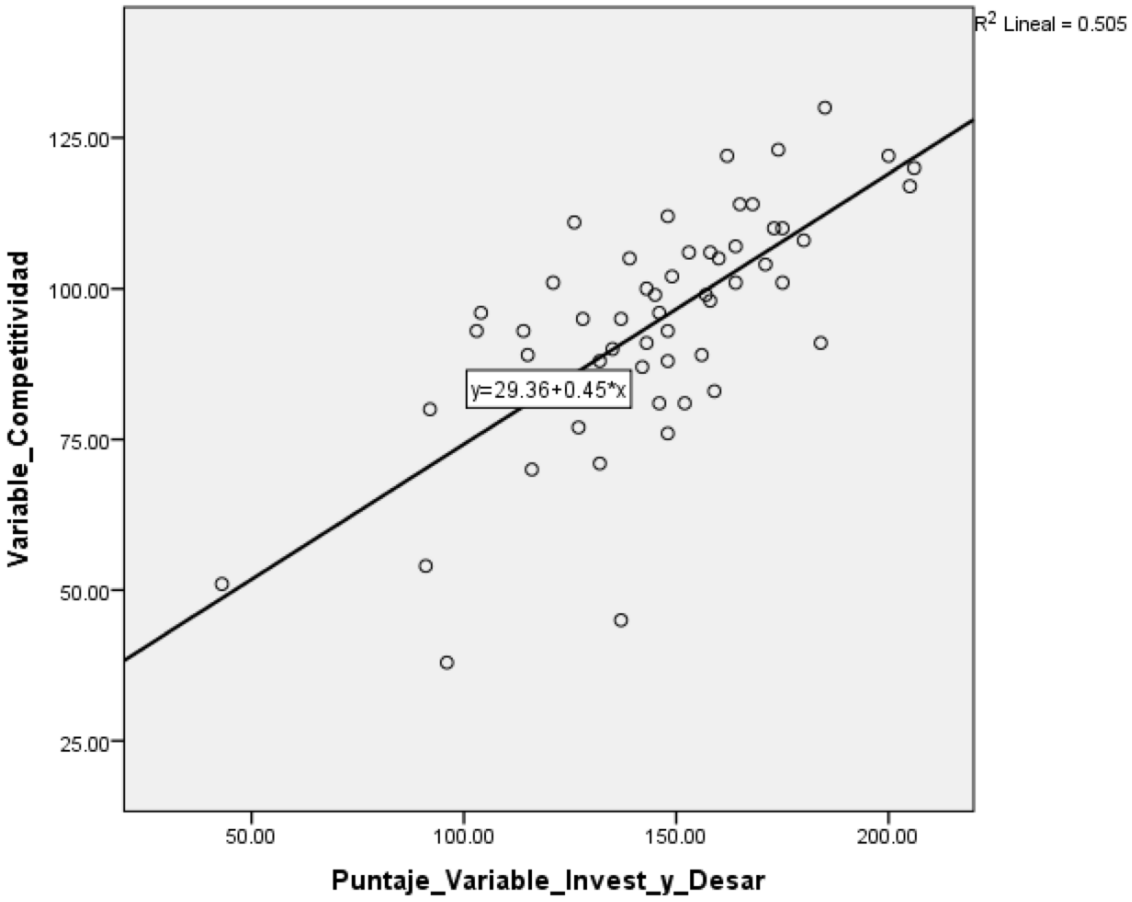
Graphics 1 and 2 present the scatter diagrams of the variables analyzed in this research. In both cases they show a positive correlation and high between the indicators, which means the cloud of points is elongated, ascending and narrow. In a specific way, you can see in graphic 1 that there is a high degree of correlation between the variables high technology and competitiveness. As well as in the case of the indicators R&D and competitiveness (see graph 2), which strengthen the results the results in Table 2.

Graph 1
Scatter Plot: High technology and competitiveness



Source: Own preparation with data obtained from the case study (2017) and using IBM SPSS software (2017).

Graph 2
Scatter Plot: R&D and Competitiveness



Source: Own preparation with data obtained from the case study (2017) and using IBM SPSS software (2017).

Chapter 9

The Perception and Cultural Practices by International Craft

Photo by EMILE SÉGUIN on Unsplash

The Perception and Cultural Practices by International Craft Companies

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Introduction

The main of this chapter is to analyse the perception of the environment (Goodstein and Polasky, 2005) of those who compete internationally by running companies that produce handicrafts. Based on the Competitive Advantages Theory (Grant, 1991; Barney and Clark, 2007; Algieri, Aquino and Succurro, 2018; Liu and Atuahene-Gima, 2018; Makadok, Burton and Barney, 2018; Teece, 2018; Salunke, Weerawardena and McColl-Kennedy, 2019; Buckley & Casson, 2019), the analysis and identification of craft companies that sell in foreign markets. The field visits, the systematic observation, the application of a questionnaire and the interviews allowed to know this perception and its relationship with international activities.

Entrepreneurs consider themselves better than the competition in terms of strategies and generating competitive advantages; although, they are usually prudent when evaluating the possibility of being imitated by competitors.

It is considered that the research results of this project seek an answer to the possibility of an own and autonomous economic development, to the indigenous representativeness, as well as the right to maintain and develop their cultural practices, remains a constant demand of a rich country in ancient cultures.

Given the new poverty profiles, migratory flows and climate change; as well as the geopolitical reconfiguration that has been developed in recent years, the studies are directed to companies that generate social value.

International organizations encourage the study and implementation of policies and programs that support inclusive, resilient and value-creating economic activities with a positive impact on local development. Especially if these organizations have proven to achieve higher competitiveness in international markets.

This last statement is related to the present work, which exposes the way in which artisans operate in various regions of the world without abandoning the traditional mode of production to compete.

In the way they increase their international activity, they strengthen the traditional way of production and keep alive the historical roots through crafts inherited from their ancestors.

Hence the importance of identifying how the craft sector conceives, what benefits it gives them, to what extent they are considered better than the competition, how this perception relates to the decision to operate internationally.

The Ethnic Environment in Mexico

There are 68 ethnic groups that turn in 364 variants throughout the national territory, covering the 32 states of the Mexican Republic (Table 1). These groups have borne the enormous responsibility of preserving natural resources, traditions, and customs despite the urban and industrial development that has undermined their environment.

The indigenous municipalities are agglomerated, while the municipalities with indigenous presence and dispersed indigenous population are distributed throughout the country (INEE, 2017).

Table 1
Indigenous peoples by state

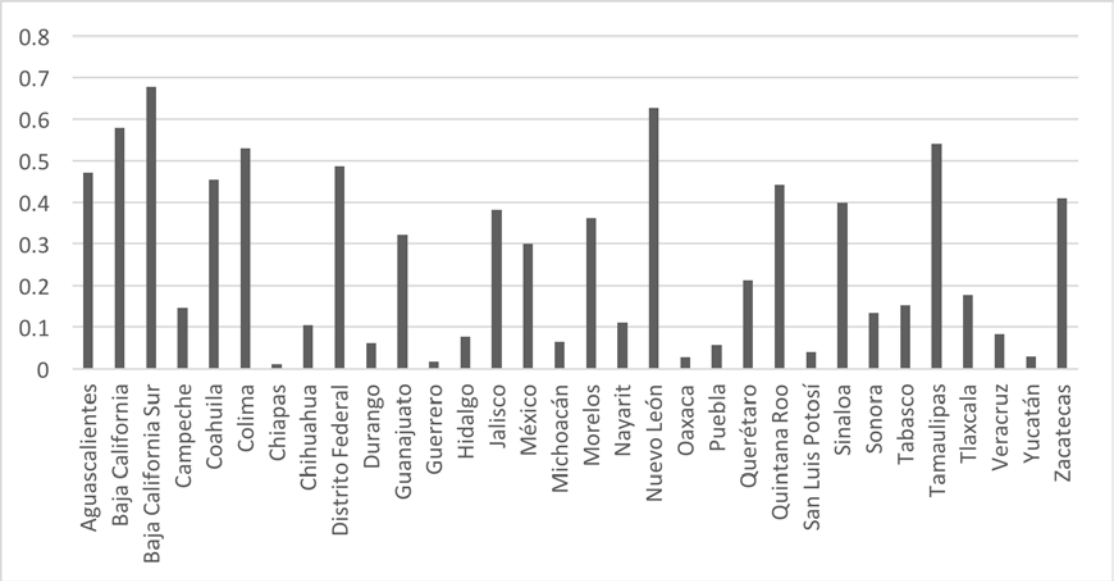
State	Settlements	Groups	States	Settlements	Groups
Baja California	5	Cochimí, Cucapá, Kiliwa, Kumiai y Paipai	Morelos	1	Náhuatl
Campeche	4	Maya	Nayarit	2	Cora y Huichol
Ciudad de México		Maya, Mazahua, Mazateco, Mixe, Mixteco, Náhuatl, Otomí, Purépecha, Tlapaneco, Totonaco y Zapoteco	Oaxaca	15	Amuzgo, Chatino, Chinanteco, Chocho, Chontal, Cuicateco, Huave, Ixcateco, Mazateco, m Mixe, Mixteco, Triqui y Zapoteco
Coahuila	1	Kikapú	Puebla	2	Chocho, Mixteco, Náhuatl y Totonaca
Chiapas	11	Cakchiquel, Chol, Jacalteco, Kanjobal, Lacandón, Mame, Mochó, Tojolabal, Tzeltal (tseltal), Tzotzil (tsotsil) y Zoque	Querétaro		Otomí y Pame
Chihuahua	3	Guarijío, Pima, Tarahumara y Tepehuán	Quintana Roo		Maya
Durango	1	Tepehuán	San Luis Potosí	2	Huasteco, Náhuatl y Pame
Estado de México	3	Mazahua, Náhuatl y Otomí	Sinaloa	2	Mayo
Guanajuato	1	Chichimeca Jonaz	Sonora	5	Mayo, Pápago, Pima, Seri y Yaqui
Guerrero	4	Amuzgo, Mixteco, Náhuatl y Tlapaneco	Tabasco	1	Chontal y Chol
Hidalgo	2	Náhuatl y Otomí	Veracruz	2	Náhuatl, Tepehua, Popoluca y Totonaca
Jalisco		Huichol	Yucatán	1	Maya
Michoacán	1	Mazahua, Otomí y Purépecha			

Note: migratory flows result in indigenous migrants dispersed in all states.
Source: Own elaboration based on the Cultural Information System (SIC, 2018, SNTE, 2018)

Due to this situation, indigenous communities have had to fight against high rates of poverty and precarious social conditions. According to the Ministry of Culture (2017), the indigenous population in the country rises to more than 11

million inhabitants, a percentage greater than 10% of the total population of Mexico (Graph 1).

Graph 1
Percentage of the Mexican indigenous population that was not born within the entity in which they reside, 2015



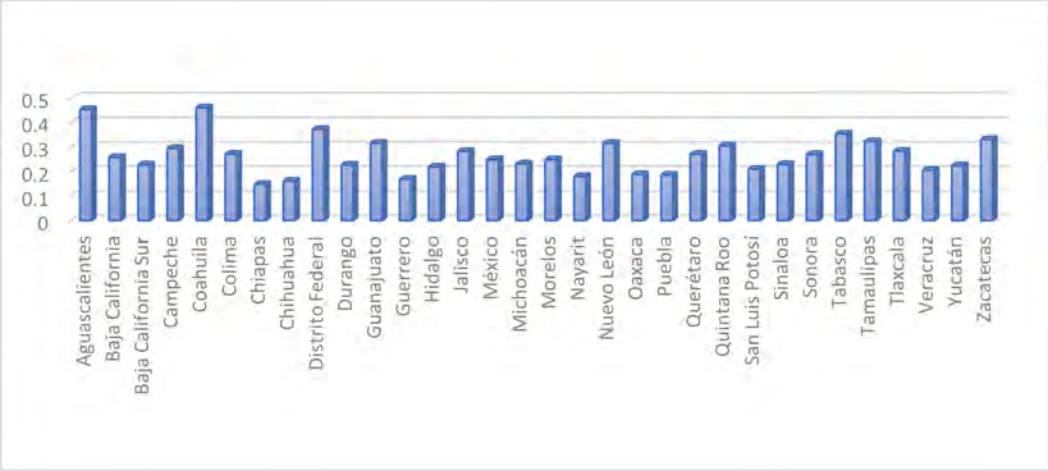
Source: Own elaboration based on INEGI (2015).

Middle high education was added as part of compulsory education in 2012. In addition to imparting knowledge of the socially productive activity, it has a propaedeutic character that allows continuing with higher education (Graph 2). With a scarce presence are the careers of the technical professional model, which have a terminal character (INEE, 2017).

The bilingual artisan is a bridge between two or more cultures, allows the insertion and preservation of indigenous art, as well as the fusion of new knowledge in the global economy. This also makes them agents of change in the face of improving the quality of life in the locality, in parallel with their craft activities.

The language represents the conception one has of reality, the uses and customs. This largely determines how we interact with the world, what we dress, eat and celebrate. Bilingualism and even multilingualism are a key element to recognize, preserve and sustain the pluricultural wealth of Mexico in the system.

Graph 2
Percentage of the Mexican indigenous population with more than fifteen years of age and with higher and/or higher education by state



Source: Own elaboration based on INEGI (2015).

Mexican Artisan Sector facing the world

In Mexico, each group has a particular identity that is reflected in pieces with unique and diverse materials, giving rise to 17 particular branches of crafts (Table 2). Suarez and Zapata (2007) qualify handicrafts as part of the vision of indigenous peoples who manage to unite economic, social and cultural aspects of their beliefs.

According to the latest report by IMARC Group, titled "Handicrafts Market: Global Industry Trends, Share, Size, Growth, Opportunity, and Forecast 2018-2023", the global handicrafts market reached a value of US$ 526.5 Billion in 2017. the market value is projected to reach approximately US$ 984.8 Billion by 2023, expanding at a CAGR of more than 11% during 2018-2023.

Table 2
Artisanal branches in Mexico

1	Pottery and Ceramics	9	Papel
2	Textile	10	Saddlery
3	Wood	11	Lacquer
4	Wax	12	Stonework
5	Metals	13	Huichol Art
6	Goldsmith	14	Bone
7	Jewelry	15	Shell
8	Vegetal fibers	16	Glass
		17	Feathers

Source: Own elaboration based on the Manual of Differentiation between Handicrafts and Handicrafts of the National Fund for the Promotion of Crafts (2009)

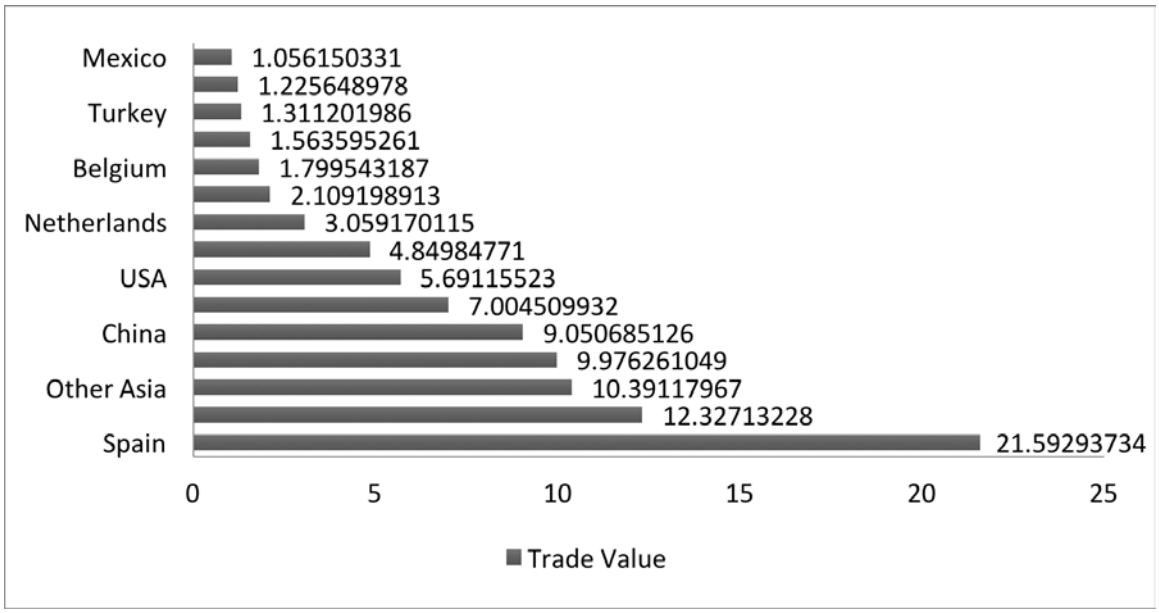
The United Nations Organization for Education, Science and Culture (UNESCO, 2001) recognizes that the artisanal sector plays a decisive role in local economic development and the fight against poverty.

If the production and commercialization of handicrafts are analysed from an economic perspective, handicrafts cease to be only an expression of culture and are transformed into business opportunities (Hernández, 2003).

Additionally, ceramics are the product in the position number 657 most traded in the world and is in the position 914 of the Product Complexity Index according to the data of the Observatory of Economic Complexity (OEC) in 2017. For all this, the study focuses on these companies.

Unfortunately, of the universe of 18 thousand Mexican companies (mostly made up of micro and small companies) dedicated to the sector, only 12% of exports (Fonart, 2014). There are other countries in which the export figure far exceeds the Mexican one (Graph 4).

Graph 4
Craft exporting countries



Artisanal line: pottery and pottery. Represented in thousands of dollars.
Source: Own elaboration based on comtrade.un.org (2017).

Competitive Advantages and Strategic Management for competitiveness.

The main actions of the company are directed towards competitiveness. Business organizations focus on a large part of their resources and daily activities on this action since it is what allows them to remain in the changing market.

Competitiveness is the means that companies must generate profitability, taking into account strategies and competitive advantages can face the current critical situation due to abrupt changes in the way of doing business, the demand of consumers and new environmental standards that should be considered. For this reason, competitiveness has become indispensable in the action plan of companies to obtain the desired results in the market.

Over time, the concept of competitiveness has been addressed through the vision of different authors; Such is the case of Dussel (2001) who defines it as "the

process of dynamic integration of countries and products into international markets, depending on both supply and demand conditions".

In turn, Padilla (2006) conceptualizes competitiveness as "the ability to increase the standard of living of the inhabitants, to generate sustained increases in productivity, to successfully insert themselves in international markets".

However, the contribution of these authors has a macroeconomic vision, they integrate the performance of countries and internationalization in their writings, and it is necessary to address competitiveness from a business perspective. In the Mexican environment, during the last years, several research works have been developed to focus on the competitiveness of the company.

One way to approach the competitiveness of the company in a more limited way is based on a competitive advantage. This focus emphasizes that the unique intrinsic and/or extrinsic resources that a company possesses, which allows it to differentiate itself from competitors having a superior position, so that companies focus their efforts on finding strategies that allow them to increase their performance in the market through the implementation of its sustainable advantage, obtaining much greater benefit.

Exactly what Herrmann (2005) thought: "Strategic management has sought from its principles to answer the fundamental question of how companies achieve sustainable competitive advantage."

The first model, developed by Caves and Porter in 1977, and subsequently deepened by Porter in 1980 known for studying the competitive advantage environment with an external analysis is based on opportunities and threats under the assumption that all companies within an Industry or sector are similar in terms of the relevant strategic resources, their level of control and the strategies they carry out to achieve their objectives. In this way, the competitive advantage is related to the perception of the strategist. The latter is the one who formulates the strategies in terms of their interpretation of market signals.

The multiplicity of resources within a group tends to be very short or limited sense, these same resources are those that are being used and being the specific motives to apply the strategies that they pose from the beginning.

Research Method

The evidence obtained is strictly based on Jalisco ceramic craft companies that present international activity. The artisanal sector is one of the most representative in the state of Jalisco, however, despite the efforts are obstacles to achieve establish an accurate record of the companies that comprise it.

For this reason, with the support of the Institute of Jalisco Crafts (IAJ), a census was conducted throughout the state, which in turn resulted in the registration and information of 10,241 companies dedicated to this activity for the year 2017.

With the information gathered in conjunction with the IAJ, it was possible to create a database with the necessary fields to classify the companies by their location, craft branch, tools used, financial status, international presence, sales, among other important points creating a relevant cartography of the current panorama of the sector in Jalisco.

A second filter was applied, delimiting a group of 163 companies (1.59% of 10, 241) artisan in the state that are strictly dedicated to the production of ceramic elements. Mexico is privileged since it has a unique ceramic branch for its shapes, texture, and patterns, which directs the study to identify the specific informants in this artisan branch.

Using a third filter, 12 companies were obtained (7.36% out of 163) that have an international presence through exports, this is because they intend to identify the intangible resources and dynamic capabilities of these companies that allowed them to generate competitive advantages in the face of competition and therefore adapt to the environment to generate local development through internationalization.

According to the filters applied, the gathering of evidence is limited to the 12 informants, who are artisan ceramic companies located in the state of Jalisco; mainly in the municipalities of Guadalajara, Tlaquepaque, Tonalá and Puerto Vallarta.

Based on this last filter, the study group made up of the 12 artisanal ceramic companies is applied a questionnaire in a particular way to each one to get to know the internal situation of the same and in this way identify the resources

and dynamic capacities that they are the support for the international competitive advantages they enjoy.

Analysis of Results

In the state of Jalisco, 163 ceramic companies were identified. The majority of these are located in municipalities in the metropolitan area of Guadalajara where the largest commercial and productive activity in the state is concentrated.

A characteristic is a way in which the craftsman acquires the trade. According to the results achieved, 59.5% of the total ceramic artisans in Jalisco learned this activity through family inheritance. The production process is transferred from generation to generation, maintaining cultural value.

The activity is characterized by having ancestral elements that add particular details to the production and make it representative of a specific geographic group.

14% of the artisans obtained the knowledge of the ceramic artisan technique by means of self-learning looking for a way to generate economic income. At the same time, it can be observed that 12% obtained an approach to this activity through a workshop. The same percentage (12%) is learning through the training of an institution.

Once the trade is acquired, it is important to have training that raises the value of artisanal work along the production chain. Based on the information collected, artisans express the need to obtain greater knowledge in areas such as artisanal technique and design, administration and marketing, marketing, computing, and technologies, as well as the possibility of acquiring an additional language to the one already used for extending the possibility of marketing your product with foreign consumers, this is where the sector is related to and its participation in the Tourism GDP into the Mexican economy.

Regarding the 163 companies, 111 have requested a certain type of financing, 79.27% of the 111 have done so for the acquisition of raw material. Despite this, 2.70% have used the liquidity of this type of instrument for the remodeling of their work area, the workshop.

The ceramic artisans have a particular way of marketing their products, due to the size of the companies have positioned themselves in the mind of the consumer so that he himself feels comfortable and confident of the quality of the product he is acquiring.

The production process in the workshop becomes a showroom for the client. Of the 163 companies identified, 47.23% sell their product directly in the workshop, while 22.69% sell in craft markets. 13.49% of these companies have positioned themselves in the market through the sale of their handicrafts in their own premises.

In addition to these points of sale, there are other options that artisans use, such as: marketing their products at points outside the town (5.52% of 163); in fairs and exhibitions (2.45% out of 163) and in a case, it is marketed in IAJ.

With respect to the capacity of companies to export, only 12 craft ceramic companies in the state of Jalisco have managed to apply the internationalization strategy. This represents 7.36% of the total of companies dedicated to this artisanal branch, leaving a very high number of companies that do not carry out this activity and that could be wasting the opportunity.

With this context, knowing that intangible resources and the dynamic capabilities that generate a competitive advantage for this type of companies can take advantage of and better implement the internationalization strategy for the development of companies, the sector, and the local economy.

The twelve companies that export have managed to market their products both in America and in Europe and Asia. To mention a few countries, it can be said that there is a profitable market in the United States, Spain, Italy, Australia, Canada, and even Russia.

In the twelve companies studied, it is a common distinguishing feature that the form of organization is totally familiar, so that business management tends to be different between each organization.

It has been observed that when comparing companies among themselves, from the point of view of the artisan strategist, 83.33% of the organizations (10 of the companies studied) consider that their strategies are better than the competition.

This includes establishing a general and long-term vision of the objectives, the creation of strategic plans, routines, tasks, communication, salary policies, human resources, and even marketing.

The other 16.66% of the companies that were considered for this study, established the impossibility of comparing their tasks with those of other companies, emphasizing the fact that one of their strengths was having identified the actions that have led them to success. without the need to investigate the actions of the competition, isolating themselves from the ceramics business community.

It could be said that these companies do not cooperate with the rest, unlike the 10 companies mentioned above, who have managed to identify the tasks in which they differ from the competition due to cooperation and collaboration to stay current in the market.

One of the most important characteristics of these companies is the possibility of differing among themselves; which generates competitive advantage and promotes the growth and development of the sector. Because of this, the attributes of the products must adapt to the demands of the market.

The total of companies considered for this research agrees that the price, functionality, availability, aesthetics, quality, service, innovation and customer suitability, are the most important characteristics to achieve consistent marketing of your product and brand in the local market.

It is important to emphasize that, thanks to the approach that was had with each one of the companies it was possible to observe that, in spite of working with the same type of raw material, the final product, in each one of the workshops, was different.

Each company and an artisan print a particular style of the ceramic pieces, which reflects their experience, knowledge, and growth as artists and human beings, which allows them to offer the consumer, either local or foreign, a range of possibilities in terms of the art of ceramics is concerned.

These craft companies have achieved the position of their businesses through the reputation of their products, preferred by customers due to their traditional production process and ethnic/regional value.

The originality, creativity and specialized distribution of each of the ceramic product lines reinforce the preference of the buyers before the art due to the exclusivity that each piece emits.

However, despite having these competitive advantages and achieving a special place in the market, each company has had to overcome the weaknesses of the sector in which it is located, considering it from a national point of view.

The entrepreneurs interviewed expressed very clearly that the commercialization of their unique products, reflecting years of traditions and culture, involved overcoming economic, legal and fiscal barriers in Mexico.

In order to understand the internationalization of the artisan enterprise, from the twelve companies, considered important cases, field visits and interviews with at least seven businessmen were achieved. From the results of these visits were able to identify their perception of the artisanal sector, particularly its closest competitors.

A characteristic of these entrepreneurs is that, for the most part, they have higher education. They are not bilingual in the sense of speaking an indigenous language at the same level as Spanish; however, they do have a multicultural profile.

When comparing the strategic capacity of the company in comparison with the competitors, it could be observed that in general, they consider better their strategies than the competition (table 3).

Table 3

Own valuation in relation to the other companies in the sector: strategies

Code	Professional Management	Overview of the objectives	Long-term vision	Preparation of strategic plans	Definition of organizational design	Establishment of organizational routines	Assessment of threats and opportunities
2791	Better	Better	Better	Better	Better	Better	Equal
1045	Better	Better	Equal	Better	Better	Better	Equal
1395	Better	Equal	Better	Better	Equal	Doesn´t know	Better
2694	Better	Better	Equal	Worse	Equal	Worse	Better
5668	Worse	Equal	Doesn´t know	Equal	Equal	Equal	Doesn´t know
6936	Better	Better	Better	Better	Better	Better	Equal
8566	Better	Better	Better	Equal	Better	Doesn´t know	Doesn´t know

Source: own elaboration based on the results achieved in the project "Generation of value and international cooperation in the smallest companies in Ibero-America" UDG-CA-484.

However, when addressing the comparison on the establishment of organizational routines that lead to the achievement of the objectives, only three entrepreneurs were considered better than the others in the market.

There was a case of an interview that didn't know how the competition acted and, therefore, did not know how to evaluate the company. Another entrepreneur claimed that was worse than the competition.

This point draws attention if one considers that they are workshops with deep-rooted values, in which the organization of the production is closely linked to the quality of the craftsmanship.

Regarding the comparison of policies and organizational programs, responses were more diversified, although the trend to be considered Better remained (table 4). There is the case of an entrepreneur who indicated a lack of knowledge in each of these points about what does the competition make.

Table 4
Own assessment in relation to the other companies in the sector: programs and policies

Code	Coordination of tasks	Internal communi-cation	Definition of sanctions and incentives for staff	Human Resources Policy	Salary policy	Marketing Policy	Finance Policy	Production Policy
2791	Better	Better	Better	Better	Equal	Better	Better	Better
1045	Equal	Equal	Equal	Equal	Better	Better	Better	Better
1395	Better	Better	Equal	Equal	Better	Equal	Equal	Better
2694	Equal	Better	Worse	Equal	Better	Worse	Equal	Equal
5668	Doesn´t know	Doesn´t know	Doesn´t know	Doesn´t know	Doesn´t know	Doesn´t know	Doesn´t know	Doesn´t know
6936	Equal	Better	Equal	Equal	Better	Equal	Better	Better
8566	Better	Better	Doesn´t know	Better	Better	Better	Better	Better

Source: own elaboration based on the results achieved in the project "Generation of value and international cooperation in the smallest companies in Ibero-America" UDG-CA-484.

Then questioning the competitive advantage of the company, the informant was directed to different factors that contribute to it (table 5). Based on the assessment of the difficulty considered by the competition to imitate them, a tendency towards high difficulty was identified.

Table 5
Level of difficulty to be imitated

Code	Price	Quality	Esthetic	Availa-bility	After sales service	Inno-vation	Adjustment to the needs of the consumer	Functio-nality	Image
2791	Low	Low	Low	Low	Medium	Low	Low	Low	Low
1045	Medium	High	High	Medium	Medium	Medium	High	Medium	High
1395	High	High	Medium	Medium	Medium	Medium	Medium	Medium	Medium
2694	High	Medium	High	Medium	Medium	High	High	High	High
5668	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Low
6936	Medium	High	High	High	Low	High	High	High	High
8566	Medium	High	High	Medium	Medium	High	High	Medium	High

Source: own elaboration based on the results achieved in the project "Generation of value and international cooperation in the smallest companies in Ibero-America" UDG-CA-484.

There were only six occasions in which some factor was classified as easy to imitate (low difficulty). Rather, it was identified that one of the entrepreneurs shows a more prudent view of the competition (code 2791), while the others express a more optimistic view as to their position in relation to competitors and, more specifically, the difficulty to be imitated.

Table 6
Benefits obtained in the artisanal sector

Code	Identified benefits
2791	2
1045	6
1395	13
2694	12
5668	15
6936	3
8566	4

Source: own elaboration based on the results achieved in the project "Generation of value and international cooperation in the smallest companies in Ibero-America" UDG-CA-484.

All entrepreneurs identify the benefits of the sector (table 6). Three of them indicated more than 13 benefits; while four of them had six and even two benefits that the artisanal sector gives them. The benefits in which the majority of coincided are location, brand, and personal contacts.

Conclusion

In relation to the question, how do the entrepreneurs who have managed to internationalize the artisanal sector conceive? You can answer based on the results that you perceive to the sector in a positive way, consider that it is a sector that offers benefits. Entrepreneurs consider themselves better than the competition in terms of strategies and generating competitive advantages; although, they are usually prudent when evaluating the possibility of being imitated by competitors.

The reality with respect to the competitive advantages of ceramic artisan firms in the state of Jalisco is determined by the capacity for differentiation thanks to the particular strategies taken by the artisan/strategist of each organization. This shows the importance of bilingual education and higher education.

The identification of the characteristics and nuances of this type of companies in the artisan sector ensures a broader vision of the success stories of these business organizations that operate internationally through the commercialization of cultural elements that are highly linked to the evolution of the country.

This broad vision leads to work proposals and prescriptive models that can facilitate internationalization with favourable results for those artisans who have not yet ventured into other markets.

The number of artisans in Jalisco is numerous in comparison to the quanta that have internationalized. This shows the importance of learning from these success stories in order to induce or provoke new experiences favourable to internationalization in parallel with sustainable development.

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Competitiveness against the sustainable development goals
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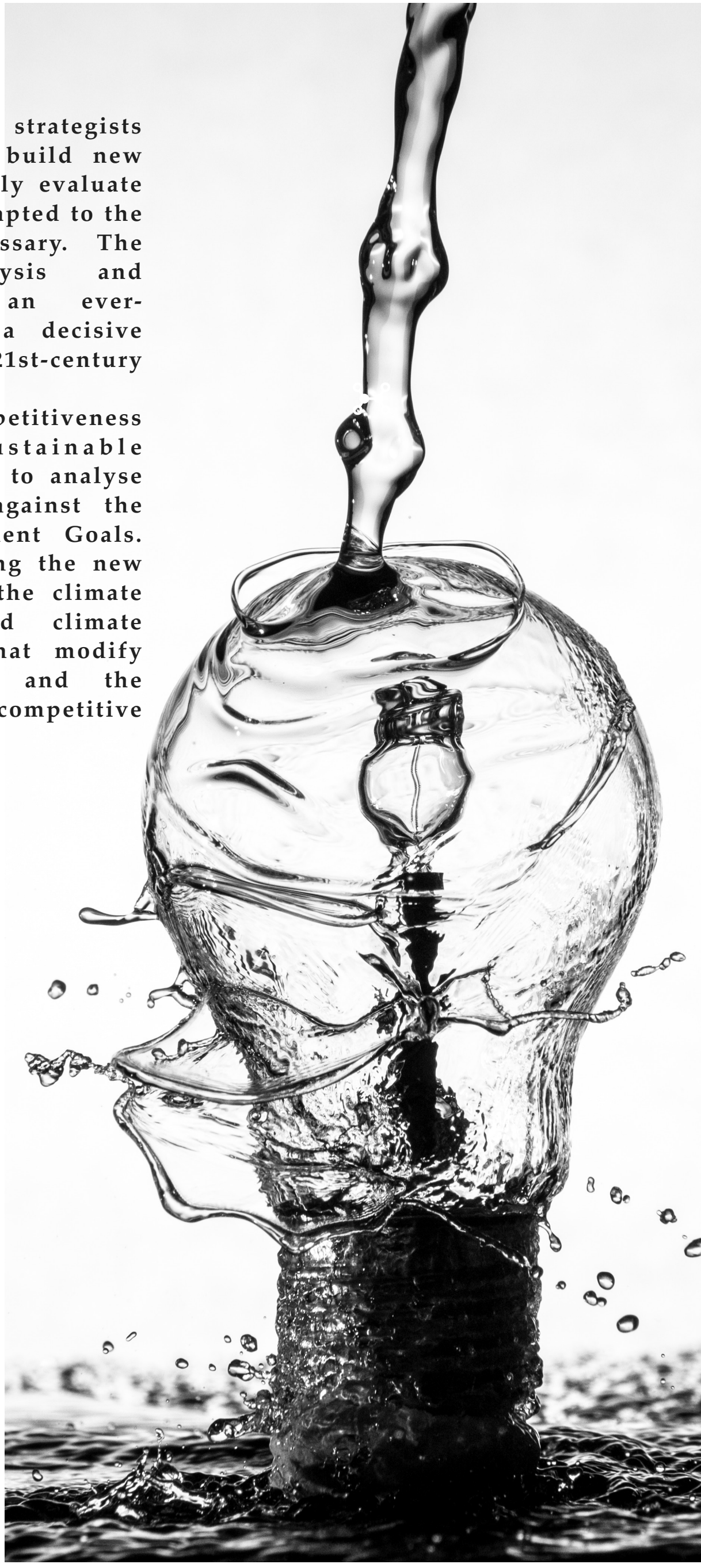
The existence of strategists with the capacity to build new scenarios and constantly evaluate emerging strategies adapted to the new reality is necessary. The capacity for analysis and transformation in an ever-changing system is a decisive element in the 21st-century competitiveness.

The aim of Competitiveness against the Sustainable Development Goals is to analyse the competitiveness against the Sustainable Development Goals. This implies addressing the new poverty profiles and the climate change. Poverty and climate change are factors that modify strategist perception and the construction of competitive advantages.



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PIENSA Y TRABAJA