

Business competitiveness in manufacturing SMEs in Sonora**Competitividad empresarial en las SMEs manufactureras en Sonora**

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Abstract

Business dynamics and global openness have opened the possibility for small and medium-sized enterprises (SMEs) to market their products in a variety of markets. The objective of the present work is to identify the areas that influence competitiveness under the systemic competitiveness model at the micro level and that are based on the decision making made by the owners or administrative managers of these entities. The research methodology is descriptive, not experimental, cross-sectional. An instrument was applied 60 questions in Likert scale, it was considered a sample of 50 entities. The findings identified the active participation of managers in decision making, which influence the day-to-day operation of these organizations and which are aimed at achieving the level competition of a regional market. Some of them with the opportunity to participate in global markets. Finally, industrial companies in Sonora, seek to be in competition and the permanence of them is a clear example of this. It should be noted that work has still to be continued at all levels as indicated by the systemic model to take advantage of business opportunities in an international environment.

Systemic competitiveness, Small and medium businesses, Manufacture

Resumen

La dinámica en los negocios y la apertura global han abierto la posibilidad para que las pequeñas y medianas empresas (SMES) puedan comercializar sus productos en una diversidad de mercados. EL objetivo del presente trabajo es identificar las áreas que influyen a la competitividad bajo el modelo de competitividad sistémica a nivel micro y que se sustentan en la toma de decisiones que realizan los propietarios o gerentes administrativos de dichas entidades. La metodología de investigación es de carácter descriptivo, no experimental de corte transversal. Se aplicó un instrumento 60 preguntas en escala de Likert, se consideró una muestra de 50 entidades. En los hallazgos se identificó la participación activa de los gerentes en la toma decisiones, las cuales influyen en la operación cotidiana de estas organizaciones y las cuales se ven encaminadas a lograr la competencia nivel de un mercado regional. Algunas de ellas con oportunidad de participar en mercados globales. Finalmente, las empresas industriales en Sonora, buscan estar en la competencia y la permanencia de ellas es un claro ejemplo de ello. Cabe señalar que aún se tiene que seguir trabajando en todos los niveles como señala el modelo sistémico para aprovechar las oportunidades de negocios en un entorno internacional.

Competitividad sistémica, Pequeñas y medianas empresas, Manufactura

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Introduction

The issue of competitiveness has been a watershed in recent years. Companies seek to work with this new style so that their businesses progress and remain in the market. Openness in the global world requires reflection on how to organize as an entity and the key elements that should be considered as part of administrative management inside and outside the business environment.

To identify the internal areas of this group of manufacturing companies and see what characteristics they possess and that emanate properly from the definition of the concept of competitiveness and which is also based on a systemic model, whose philosophy was based on the neoliberal approach to economic policy that it previously called in the twentieth century, and leaving the responsibility of being competitive in the hands of the owners or owners of organizations and / or economic entities García de León (2014)

The systemic model of business competitiveness handles four levels and on the micro level is that the study of manufacturing companies in the State of Sonora is carried out. The importance of this concept of competitiveness is that you have to identify which of the great diversity of meanings that essentially shows competitiveness, and which may be based on the capacity of economic agents that involves the sale of goods and services offered in commercial activities as mentioned by Sepúlveda (2010).

The manufacturing industry in Sonora participates with the Gross Domestic Product (GDP). The statistics reflect the annual evolution of the participation of the manufacturing sector in the gross domestic product (GDP) in Mexico from 2007 to 2017. From 2013, it was detected that the percentage participation of this sector in Mexican GDP increased gradually, passing from 15.8% in 2013 to 17.2% in 2017. (INEGI, 2019).

López (2018) describes that this manufacturing sector grew in real terms by 6.5% in this year and according to INEGI data (2018) it maintains an occupation of 12 126 new jobs.

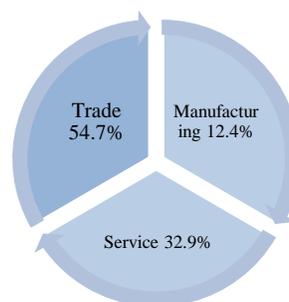


Figure 1 Economic support from the federal government to the economic sectors in Mexico

Source: INEGI 2018

As part of the competitiveness, companies must have both federal and specific support programs according to the economic branch; Without a doubt, the government must encourage them in order to achieve and maintain growth and also allow them to generate added value as a business.

Company size	Number	Of people	Occupied by the sector
	Manufactures	Commerce	Service
Micro	1-10	1-10	1-10
Little	11-50	11-30	11-50
median	51-250	31-100	51-100

Table 1 Stratification of companies by economic sector
Source: Mexico, the National Institute of Statistics and Geography (INEGI), the National Entrepreneur Institute (INADEM) and the National Foreign Trade Bank (BANCOMEXT), present the National Survey on Productivity and Competitiveness of Micro, Small and Medium Enterprises (ENAPROCE) 2015

The stratification of companies by sector in Mexico, show the employment occupation generated and captured by the industry ranging from 51 to 250 employees, so this is also a key element for the Mexican industry to seek to be competitive. In the specific case of Sonora, it has major issues in which it works to be competitive in the manufacturing sector, always taking care of legal and innovative aspects, as well as the logistics and security of companies, industrial parks and products, whether of national and / or international consumption. For what the manufacturing industry requires to integrate inputs or raw materials, as well as: national parts and components in its supply chain, this will be possible as long as the suppliers that contemplate through the management administration or the managements that they carry out internally managers, managers or managers take care that they meet high standards of certification of their subjects (Altamirano, 2019).

The composition of the industry in Sonora is as follows:

Manufacturing sector	% of GDP	
Automotive	4%	20% production in manufacturing
Aerospace	In full growth	64 companies in the state
Mining sector	10% national territory	25% participation in mining
Electronic	22% growth	50 companies
Energy	Starting its growth	
Technology and information	5000 direct jobs	300 companies
Food industry (manufacturing)	value creation aggregate and industrialization in the regional products of the Entity	210 companies
Others more		

Table 2 Composition of the manufacturing sector in Sonora

Source: Government of the State of Sonora "Diagnosis of Sonora, 2018"

In order for these Sonoran companies to generate business competitiveness, it is necessary to engage with their clients in providing better products and services, for this it is necessary to have an area of human resources that helps the training and training of the person¹. Establish a strategic direction of the company internally and externally that lead to good strategic decisions (De la Cruz, Martínez and García; 2013)

You must also develop the part of good prices, registration of operations and financial information, as well as technological information systems and always taking care of the environment. These are key internal elements for an entity to prepare and face competition as observed by the systemic competitiveness approach at the micro level.

If these companies are not initially aimed at complying with these eight dimensions, they will most likely have problems to face the competitive environment in business for business management, so the following question arises: How are they contemplated within manufacturing organizations in the State of Sound with compliance with business management under the systemic approach to competitiveness at the micro level?

Under these premises, interest and / or objective arose to identify within the areas or dimensions contemplated by the systemic model of competitiveness in manufacturing companies in Sonora.

Theoretical framework

The concept of competitiveness according to Morales, Pech (2011) "refers to companies that export products and compete in international markets" other definitions mention and when applied in the business field is the ability to obtain a profitability higher than that of its competitors Roldan mentions it in economipedia (2019).

Competitiveness can be worked in two areas: external and internal. For this investigation, we worked with the elements that are developed in the internal part of the entities and that measure the capacity of response in the decisions taken by the administrators, owners or managers of the same. Here companies will work to improve on themselves and will always seek that the work areas comply with the elements of quality and continuous improvement which help to achieve that competitiveness according to the forces of Porter (2010).

The concept of competitiveness is often confused with productivity since these definitions are oriented at the same levels of: company, industry and country mentioned by the center of competitiveness studies (2019). As the level of industry is well known, competitiveness is based on productivity as it seeks to optimize costs by offering quality products. This situation can also be observed in the way they participate in international markets, that is, if the industry participates with its products in world markets, it is a sign that they are being competitive.

There is also another assumption to measure competitiveness that is according to the level that is measured or analyzed its competitiveness. This the same center of studies of competitiveness of the ITAM, mentions depends on the level that is analyzed is worked in the following: the company at the micro level, the industry or region at the meso level, the country at the macro level and the culture at the target level.

Under this measurement it is known as systemic competitiveness, which describes the following figure.

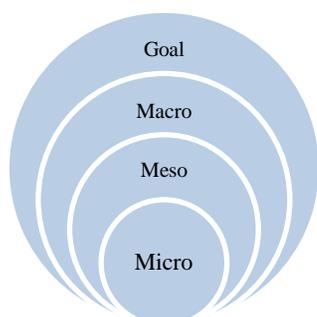


Figure 2 “Systemic model of Competitiveness”

Source: “ITAM Center for Competitiveness Studies in Mexico

In relation to the Competitiveness system it can be seen that it differs by four levels and the link with elements to the economies of production. The systemic competitiveness model proposed by the Economic Commission for Latin America (ECLAC) to Small and Medium Enterprises, and with the methodology proposed by Saavedra (2013) in its study, “Determination of the competitiveness of SMEs at the micro level: in the case of the Federal District” where it describes the four levels of competitiveness: Macro (economic environment), Meso level (Regional environment), Meta level (socioeconomic) and Micro (internal business factors).

Another example applied to the systemic competitiveness model is undoubtedly in the countries of Brazil and Mexico which have adapted these four levels. For the study of competitiveness in manufacturing SMEs in the State of Sonora, this project began with the micro part, given the interest that is had to identify the part in which the administrators, owners and managers participate with decisions that help to fulfill the elements that are part of this micro environment for your competition.

For the micro level of competitiveness, some authors identify key elements for achieving this as they are:

- a. Cost efficiency
- b. Quality
- c. Diversity of products
- d. Ability to give a favorable response to the client and its suppliers. According to (Gracia,2006).

The systemic competitiveness model proposes that studying and seeking the economic contribution in a market competition, describes that the world does not compete only entities, they also act within supply systems, financial system, technology and others that are part of the context where organizations are located (Benavides, Muñoz and Parada, 2004).

Systemic competitiveness undoubtedly requires all infrastructure in the political, social, cultural, financial senses that are very aligned with external factors, while the internal factor is aimed at a business culture in which it has to prioritize and coordinate resources of the companies.

The micro factors that contribute to competitiveness are directly related to the production of goods and services that go directly to the administration of the company according to (Ibarra, González and Demuner 2017)

Consequently, the systemic approach to business competitiveness can be distinguished eight dimensions:

Dimension	Internal indicator
Strategic planning	goals Goals Policies Surrounding analysis Contingency plans.
Production and operations	Productive processes Certifications Productive flexibility Development of new products Materials and supplies planning.
Quality assurance	Normativity Workgroups and feedback Certified processes
Commercialization	Sales policy Distribution Supplier Customer Relationship Customer satisfaction Market research,
Accounting and Finance	Cost structure Financial administration Tax strategies Tax payment Inventories
Human Resources	Selection and recruitment processes Development and Training Inventory rotation Safety and hygiene Compensation
Environmental management	Waste management programs Recycling policies Normativity
Information system	Information technology

Table 3 Dimensions of business competitiveness

Source: Ibarra, González and Demuner (2017)

The concepts and definitions identified to these eight dimensions are described:

Strategic planning describes Castellanos, Gálvez, Montoya, Lagos and Montoya (2006) is a stage of the administration that guides companies to have a horizon in the short, medium and long term the actions that they should perform as an entity, forming their vision, mission, objectives and values, analysis of their strengths, weaknesses, opportunities and threats in order to have a business business guideline.

Production of operations. It shows quality production processes, certifications, planning of inputs or materials among other aspects, but that in an agile and facial way respond to the demand and needs of the market and its customers in particular (Medina and Naranjo, 2014)

Quality assurance implies supervising the production areas and all those required by the company and that also involve being certified and giving validity and confidence in competitiveness (Flores, González 2019)

Marketing under this precept is where operations are carried out, the relationship between suppliers, company, customers and maintaining trade in the market (Flores, González 2019)

Accounting and finance work as an accounting and administrative information system that under the financial information scheme validates the growth, liquidity, profitability and usefulness of the operations carried out by the business entities, Medina and Naranjo comments (2014)

Human Resources in this aspect requires the training, training, induction of the personnel of the entities, in addition to maintaining a good organizational climate and benefits for the personnel whose intention is to contribute to the mission and vision of the organization. (Flores, González 2019)

Environmental management is the contribution of environmental care standards and the responsibility for the care that must be taken when preparing or producing a good or product without contaminating, damaging or deteriorating the natural resources Ibarra González and Demuner (2017)

Information systems companies must have comprehensive systems for their substantive functions and adopt technologies that support the operation and development of their activities, functions and products (Flores, González 2019)

From these dimensions, it is how business competitiveness can be analyzed in small and medium-sized enterprises (SMEs), these are described as those generated from the economy in Mexico, whose share makes 99.8% in the economy according to Arana (2018)

Of the 4.2 million economic entities registered in the country, only Small and Medium Enterprises (SMEs) are considered, which contribute 42% of the Gross Domestic Product (GDP) and generate 78% of direct employment in the country (Arana, 2018).

In this sense, it is necessary to seek the achievement of business competitiveness and maintain in favorable indicators the 8 dimensions of the internal factor that SMEs require and improve each of these elements.

Methodology

This research is descriptive, non-experimental and consists of analyzing the areas that place the eight internal dimensions in a group of small and medium-sized manufacturing companies in the State of Sonora. This project worked on the micro level that supports the systematic model of business competitiveness validated and developed by ECLAC as described by Saavedra (2013).

For this, four stages were established in the research process, where it begins with an analysis of the statistical data of the entities that are part of the sample as the first stage.

The second one concentrates a series of questions aimed at each dimension of the systemic model of competitiveness and the possible indicators that measure the micro level. The next two stages, for the purposes of this investigation, are related to the process of quantifying the dimensions of the aforementioned systemic model.

As for the materials used, it is a research instrument composed with questions oriented to each of the dimensions and structured under a Likert scale, this same document was used in the research carried out by the proposed study (Ibarra, González and Demuner 2017). Called business competitiveness of small and medium-sized manufacturing companies in Baja California and that served as the basis for the development of this research.

The difference regarding the research instrument is that it was only adapted electronically to facilitate the application process and was also applied to Sonoran companies through an electronic process of said instrument.

The procedure worked for this project was as follows:

1. Stage of statistical data by location in the State of Sonora and its cities or municipalities
2. Quantification of the instrument applied to manufacturing SMEs.
3. Stratification% of manufacturing SMEs in Sonora.
4. Dimensions of the systemic model of competitiveness.

Results

The results shown are presented as achievements an initial phase to this project, which involved identifying a number of registered companies, located in the State of Sonora, in the main cities and municipalities according to INEGI data (2010).

The achievements were based on the identification of manufacturing companies, their stratification%, the location by the state of Sonora, the number of questions related to the dimensions that the systemic competitiveness model handles at the micro level and based on business management; showing in each table these data and validating the existence of competitiveness. Table 4 locates the place of the companies in the state of Sonora:

Registered Population 70% current	Sonora State Manufacturing Companies
Location	
– Brown water	18
– Heroic Caborca	11
– Obregon City	78
– Hope	1
– Splice	12
– Guaymas	18
– Hermosillo	183
– Navojoa	10
– Walnuts	36
– Puerto Penasco	12
– San Luis Rio Colorado	15
– Rest (small municipalities)	6
Total	400
	SMES

Table 4 Number of manufacturing companies in Sonora by city and / or municipality

It shows the composition of the number of manufacturing companies in Sonora and competing in the market.

Dimension	Number of questions by areas at the micro business level.
Strategic planning	6 questions
Production and operations	5 “
Quality assurance	5 “
Commercialization	7 “
Accounting and Finance	14 “
Human Resources	12 “
Environmental management	5 “
Information systems	6 “
Total Items	60 questions

Table 5 Number of questions asked by dimensions at the micro business level

Each dimension was analyzed and questioned by what the systemic competitiveness model measures (Saavedra, 2013).

Type of industry	Quantity	%
Food	96	24%
Textile	4	1%
Sausages and packaging	19	4.75%
Pharmaceutical	4	1%
Technological	9	2.25%
Industrial processing	61	15.25%
Building	17	4.25%
Electronics	8	2%
Other (services)	182	45.5%
Total	400	100%

Table 6 Composition% of the manufacturing industry in Sonora

8 Dimensions of the Competitiveness Model	Very low	Low	Medium	High
Strategic planning			xx	
Production and operations			xx	
Quality assurance			xx	
Commercialization				xx
Accounting and Finance			xx	
Human Resources			xx	
Environmental management			xx	
Information systems			xx	

Table 7 Dimensions under the systemic model of competitiveness

Under the data in this figure, progress is shown in the investigation of competitiveness under the 8 dimensions of the systemic competitiveness model endorsed by CENEPAL as described by Saavedra (2013).

Conclusions and Recommendations

Manufacturing companies in Sonora because they are valid can be said to be competitive in the local market or where they are established. The systemic model of competitiveness endorsed by CENEPAL and that values in four levels such as Mesa, Meta, Macro and micro as it is in this case the dimensions of this last level contemplate a series of functions that are on the way to fulfill under the managerial function of the owners, businessmen and / or administrators of these entities to take care of the fulfillment of these functions mostly.

Another important fact is that manufacturing in its diversity of stratification allows to show the variety in which manufacturing companies can operate in the state of Sonora.

Finally, the advances that were achieved in this initial investigation are the statistical data of the stratified composition of the manufacturing industry, the% of participation, as well as the eight dimensions described by the model according to CENEPAL and Saavedra (2013) and the firm conviction to subsequently show the total result of the systemic competitiveness model and fulfilling the objective proposed here of this project.

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