

Technological development of the food service MSMEs of Matamoros from a systemic perspective

Desarrollo tecnológico de las MiPyMes de servicios de alimentos de Matamoros desde una perspectiva sistémica

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Abstract

The present investigation shows the results of a study focused on the technological potential of the MiPyMes of food service in the municipality of Matamoros. The research is carried out with a quantitative approach, through a transversal design- Descriptive. A questionnaire prepared by the Latin American Administration and Business Network (Aguilar Rascón, Oscar, Posada Velázquez, Rafael, and Peña Ahumada, Nuria Beatriz: 2018) was used as an instrument, applied to 60 business owners of food services. According to the results, a use of the technologies is concluded more in personal than in commercial purposes. Currently, companies are forced to choose to seek and optimize their processes to be more efficient in the production of their products or services, as well as managing finances and improving customer relations. In order to be able to improve both the operation and reduce costs, innovation or support with technology is necessary. Of the systemic analysis in inputs (Human Resources) more weakness, in Processes in the handling of cash and not to get indebted with the institutions are the vulnerable points. In results there is little importance of the environment and CSR.

Technological Potential, MSMEs, System

Resumen

La presente investigación muestra los resultados de un estudio enfocado en el potencial tecnológico de las MiPyMes de servicio de alimentos en el del municipio de Matamoros, Tamaulipas. La investigación se realiza con un enfoque cuantitativo, a través de un diseño transversal-descriptivo. Se utilizó como instrumento un cuestionario elaborado en la Red Latinoamericana de Administración y Negocios (Aguilar Rascón, Oscar; Posada Velázquez, Rafael, y Peña Ahumada, Nuria Beatriz: 2018), aplicado a 60 dueños de negocios de servicios de alimentos. De acuerdo a los resultados se concluye un uso de las tecnologías más en fines personales que comerciales. En la actualidad, las empresas se ven obligadas a optar por buscar y optimizar sus procesos para ser más eficientes tanto en la producción de sus productos o servicios, así como también el manejo de las finanzas y mejorar las relaciones con el cliente. Para poder llegar a mejorar tanto la operación y reducir costos es necesario la innovación o el apoyarse con tecnología. Del análisis sistémico en insumos (Recursos Humanos) más debilidad, en Procesos en el manejo de efectivo y no endeudarse con las instituciones son los puntos vulnerables. En resultados existe poca importancia del entorno y de RSE.

Potencial Tecnológico, Mipyme, Sistemas

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Introduction

Currently, it can be mentioned that SMEs consider that technological innovation is only carried out by large companies, since it can be carried out with the integration of each and every one of those involved, seeking the best way to achieve substantial changes in processes and raise competitiveness.

According to Ghezán, cited by (Moreno Loera, 2014), SMEs in most cases have remained on the side-lines in terms of the implementation of some formal system, which causes a loss of benefits. On the other hand, the globalized environment causes uncertainty and high competitive pressure, which determines the technological development of small and medium enterprises (SMEs) that are characterized by their greater difficulty in innovating and identifying technological demands, whether due to the severity of their economic or organizational problems, such as their lack of access to market information and lack of frequent links with the technological offer.

MSMEs are the main generators of employment in the country, providing almost three quarters (73.8%) of the sources of employment generated in the economy (FNE, 2016). However, its participation in the Total Gross Production (PBT) reaches only 34.7%. In this context, it is identified that the main problem facing MSMEs in Mexico in general is the lack of productivity, because the participation of MSMEs in Total Gross Production (PBT) at the national level is very low in relation to their participation in employment and in relation to the proportion of MSMEs that exist in the country.

Effective administrations of small businesses in Mexico represent 99.8%, which would trigger the nation's social, economic and development welfare potential. For micro, and small businesses, it is a great challenge to be able to stay in the market, but they have the advantage that they force the members of the organization and the organization to move with skill, using their resources, potential, facing them to combat achieving satisfactory results (Nuño De León, 2012).

In this context, the study carried out in MSMEs of the food sector in Matamoros, seeks to analyze from a systemic perspective the situation of this subsector, since for the services they provide, it should be thought that having technological support facilitates the increase in sales, utilities improved the performance of these micro businesses.

It is considered necessary to carry out this research since it will result in benefits for MSMEs, in addition to constituting a relevant contribution to society, since the social projection of this sector is aimed at raising awareness about the importance of technologies. With the results of this work, it is intended to contribute to knowledge in the access of ICTs in the business sector, emphasizing its importance both for financial operations, customer capture, that lead them to have a competitive advantage, improve the taking of decisions, optimize their processes, in a practical way it is intended to implement a training program for the owners of this small sector in the use of technology that allows them to increase their competitiveness. Hence the objective was to detect the technological development of the Matamoros MSMEs from the systemic perspective.

MSMEs in Latin America

At present, MSMEs in Latin America have become the main axis of economic development in many countries, especially the most impoverished, showing that not only large companies are capable of generating economic growth and employment. Thus, based on the growth and development of these types of companies, one of the main problems facing Latin American countries, unemployment, has been fought.

The role of small and medium-sized enterprises in developing countries is considered important for income generation, as well as for job development.

In Latin America, small businesses represent a significant percentage of employment in these countries, for example:

- Peru is estimated that 60% is the labour force, provides 85% of internal transportation, in number they fluctuate between 300 thousand and 500 thousand.

- In Chile it is estimated that the small industry comprises 49% of the establishments, employs more than 300 thousand people and is made up of 40 thousand establishments
- Ecuador where it is estimated that 95% of the establishments are represented by the micro and medium-sized enterprise, provides work to more than 500 thousand people and is made up of 10 thousand establishments in this country.

Classification of MSMEs in the world

There is no homogeneity regarding the classification of MSMEs, each country according to its own characteristics and needs have established a series of criteria among which are: number of personnel, sales figures and levels of investment in assets. According to the Organization for Economic Cooperation and Development (OECD), companies are classified by the number of workers according to table 1.

Criterion	Very small	Little	Medium	Big
No. of Workers	0-19	20-99	100-499	500+

Table 1 Classification of companies according to the OECD

Source: (Saavedra García & Hernández, 2008)}

In Latin America there is a diversity of criteria, table 2 summarizes some of them:

Criteria / Country	Job	Sales	Assets	Others
Argentina		X		
Bolivia	X	X	X	
Brazil	X	X		
Chile	X	X		
Colombia	X		X	
Costa Rica	X	X	X	X
El salvador	X		X	
Guatemala	X			
Mexico	X			
Panama		X		
Peru	X			
Uruguay	X	X	X	
Venezuela	X	X		X

Table 2 MSMEs classification criteria

Source: (Saavedra García & Hernández, 2008; 125)

According to the table, the predominant criterion is the number of workers. According to (INEGI, 2015) the stratification by sector according to the Official Gazette of the Federation in Mexico is presented in table 3.

Sector	Personal	Sales Amount	Personal	Sales Amount	Personal	Sales Amount
Industry	0-10	Up to \$ 4	11-50	4.01-100	51-250	100.1-\$ 250.
Commerce	0-10	Up to \$ 4	11-30	4.01-100	31-100	100.1-\$ 250.
Services	0-10	Up to \$ 4	11-50	4.01-100	51-100	100.1-\$ 250.

Table 3 Company Stratification DOF 2009

Source: (INEGI, 2015)

Micro, small and medium enterprises are engines of economic growth in Mexico, since they generate 8 out of 10 jobs and more than half of the country's wealth, however, despite their importance they face limitations for their growth.

In Mexico, according to the economic census of INEGI 2004, 99.69% of the companies correspond to the MIPYMES segment, with microenterprises being 95% of the total business units, which would be indicated according to Zarur (2008), cited by (Arias Pérez, 2017) who have managed to face the process of commercial opening that has been experienced in recent years, since they generate 50% of employment and 45% of gross domestic product.

According to (INEGI, 2015), micro and small businesses usually concentrate a very high percentage of the workforce. However, the percentage of the Gross Domestic Product they contribute is close to 25%, which denotes a lack of productivity and exploitation of the economies when compared to that enjoyed by the largest companies.

Barriers faced by SMEs

The MSMEs face multiple barriers that impede their development, among which are: poor organization, little or no financing, financial restrictions that prevent them from carrying out profitable projects reducing profitability and their growth possibilities and lack of leadership on the part of people who are leading these companies to achieve their competitiveness, at least this is detected in the works presented in (Robles Francia, de la Garza Ramos, & Medina Quintero, 2008) (Pérez-Nieves, 2017).

If we add that the majority are family businesses whose owners have little training and experience, especially in terms of technology management, presenting a lack of knowledge and experience to undertake processes of selection and negotiation of technologies. All of this makes it difficult to use marketing strategies that, with the support of technology, could result in a better performance of the organization.

In addition to the above, there is a predominance of equipment with second, third or older generation technologies, especially in small businesses. One of the most serious problems of SMEs is that they do not carry out research and development activities, their organizational structure is not flexible and does not favour them to achieve their objectives as a company, in addition to not having the capacity to identify problems for the improvement that help you be more competitive.

Development and competitiveness of SMEs

In Mexico, practical studies have been carried out to know the level of competitiveness of companies, particularly MSMEs, they highlight the different meanings which are summarized in table 4.

Source	Definition
World Economic Forum (2010, p. 4),	Competitiveness the set of institutions, policies and factors that determine the level of productivity
Labarca (2007, p. 161)	Competitiveness will be measured by the attained standard of living and its growth, the level and growth of aggregate productivity and the ability of national companies to increase their penetration into world markets through direct foreign exports or investments.
Abdel y Romo (2004, p. 9)	Business competitiveness derives from the competitive advantage that a company has through its production and organization methods (reflected in price and quality of the final product) in relation to those of its rivals in a specific market
Centro de Estudios para la competitividad (Cabrera, López, & Ramírez, 2011)	It establishes that the competitiveness of the company derives from the competitive advantage that it has in its production and organization methods, in relation to those of its rivals in a specific market.

Table 4 Competitiveness Definitions
 Source: (Ibarra Cisneros, González Torres, & Demuner Flores, 2017)

Successful organizational performance is associated with the organizational capacity to anticipate and react to the demands of the markets, which implies having a management capacity to be flexible to market changes.

Technological Potential

The importance of Technology impacts the extent to which companies, regardless of their size, business and sector, incorporate into their competitive strategy.

Technologies such as e business, and commerce, having a telephone with internet access, use of social networks like Facebook, WhatsApp business, billing electronically.

The importance of ICTs is no longer to have a sustainable competitive advantage for large companies, the problem today is how to make the most disadvantaged sectors such as SMEs, can create strategies to make them compete and manage to increase the period of Mortality (2 years).

Systemic analysis

The study of companies can be approached from multiple perspectives; however, the company is not an isolated entity, hence the theory of systems is taken as a frame of reference. According to this theory, a system consists of a series of interrelated elements that make sense only based on their relations with the other elements of the system and that once integrated have a more transcendent effect than the effect of the separate parts (von Bertalanffy, 1976) cited by (Posada, Aguilar, & Peña, 2015). The system is supplied with inputs and outputs and makes it immersed in an environment that can have more or less interference in the system processes.

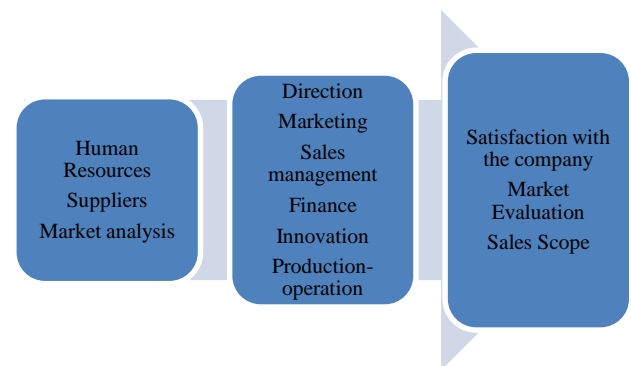


Figure 1 Systemic perspective of the company
 Source: Own elaboration

Methodology to develop

The study is with a quantitative approach, through a cross-descriptive design. A questionnaire was applied was prepared by Dr. Rafael Posadas and Oscar Aguilar Rascón and Nuria Peña leaders in the Network of Latin American Studies of Administration and Business (Relayn) instrument used in 2018. A convenience sample was made to 60 micros entrepreneurs dedicated to serve banquets.

The instrument contained according to systemic theory a structure that allowed measuring all processes: inputs, outputs and environment from the perspective of the owner. It was validated through Cronbach's Alpha (.493). The questions had response options using the Likert scale: Strongly agree, agree, disagree, strongly disagree and does not apply. For the measurement of the Technology variable, the options were regarding the use, in some dichotomous questions (Yes-No), in another section the Likert Scale of Always, sometimes, when I need it, rarely and Never.

The information was processed through the SPSS package and Micro Soft Office Excel.

Results

Demographic characteristics of the owners of banquet companies.

1. Start Year	2000 to 2005	2006 to 2010	2011 to 2015	2016 to 2018
	23%	37%	30%	10%
2) Choose from the following options which type of association best describes your company:	A.- It is constituted as a company (S.A., S.R., etc.).	B. Company with owner without registration in SAT	C.- Company with several owners without registration in SAT	D. Natural person with Business Act.
	17%	43%	30%	7%
3a) Number of people work permanently in the company	0 to 10 people	11 to 20 people	21 to 30 people	
	7%	70%	23%	
3b) No, women work permanently in the company	0 a 6	7 a 13	14 a 18	
	0%	67%	33%	

Table 5 Demographic characteristics of the banquet business

Source: Own Elaboration

It can be seen in Table 5, that 73% of owners lack registration in the SAT, have 11 to 20 people, the female gender prevailing among workers.

53.3% of the owners of this type of company are male, 43% are between 31-40 years old, and 34% are 41-50. 40% of them live in free union, and 37% ceased. Minimum schooling is baccalaureate, 70% unfinished.

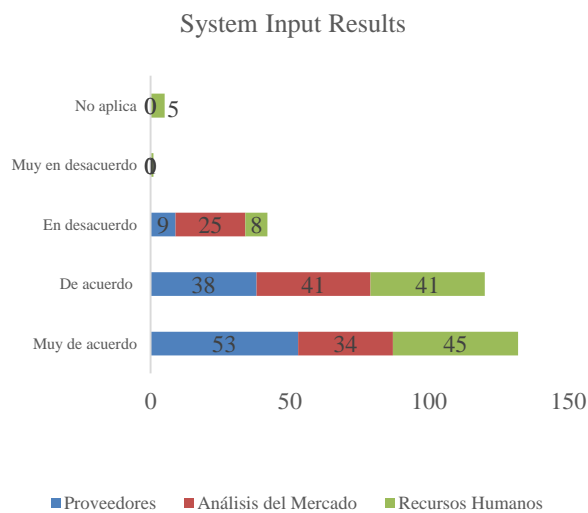
Regarding the use of Technologies, greater personal use was found than labor use.

Use of electronic applications or programs	Personal use		Labor use	
	SI	NO	SI	NO
Have an account on social networks	100.0%	0%	76.7%	23.3%
Have email	83.3%	16.7%	80.0%	20.0%
It has a website	23.3%	76.7%	73.3%	26.7%
Use of internet banking	50.0%	50.0%	46.7%	53.3%
Use of Spreadsheet	23.3%	76.7%	43.3%	56.7%
Use of word processor on the computer (Word)	43.3%	56.7%	43.3%	56.7%
PowerPoint use	53.3%	46.7%	76.7%	23.3%
Use of database programs (Access, Sql, Oracle, etc.)	0%	100.0%	0%	100.0%
Use of an internet search engine	100.0%	0%	100.0%	0%
Parcel handling for point of sale, accounting, inventories, sales, etc.	13.3%	86.7%	13.3%	86.7%
Use of production support computer programs (SAP, MRP, ERP, etc.)	0%	100.0%	0%	100.0%
I use email on my cell phone	86.7%	13.3%	80.0%	20.0%
You use the office parcel cell phone (Spreadsheets, Word, PowerPoint).	60.0%	40.0%	46.7%	53.3%
Using WhatsApp on the cell phone	100.0%	0%	100.0%	0%
You use other social networks on your cell phone (Facebook, Instagram, YouTube, etc.)	100.0%	0%	100.0%	0%
Do you make electronic invoices for your customers?			40.0%	60.0%
Have you acquired technology for your company that you never use? For example, apps or applications, computer programs, computers, machinery, etc.			56.7%	43.3%

Table 6 Use of technology

Source: Own Elaboration

In the systemic analysis, in the category of Inputs, he understood (Suppliers, Market Analysis and Human Resources), the importance they give to suppliers is evaluated so that they have the products that entrepreneurs require in quantity and quality and the power of Negotiation with them. Regarding the market analysis, the use of effective methods to assess the needs of customers, the quality of service compared to other companies was assessed. Regarding human resources, the search for honest, responsible, capable employees and the concern for the improvement of workers was measured.



Graphic 1 System Input Result

Source: Own Elaboration

The results of graph 1 reflect that there is greater agreement in relation to suppliers, there is a greater disagreement in the strategies to perform analysis of the environment and a lack of concern for human resources.

In the Processes of the system, the evaluation of the Direction, the businessmen state that they are very in agreement with carrying out practices aimed at achieving the objectives of the company, strategically planning, however, the management of cash and not borrowing from the institutions are the points vulnerable. Likewise, regarding sales management, they say they have good practices to add new customers, promote sales and make adjustments that increase them, except for promotions that allow them to increase sales. The major weakness in the processes section is reflected in the lack of innovation practices, where it stands out that they neither pay to develop and innovate, nor do they consider changes proposed by employees, and do not implement business promotion strategies at fairs, events.

Regarding the operation part, the owners of banquet services companies say they consider the quality of the services, adapt them to the needs of the customers, although they lack cost analysis of the areas of the company.

In the marketing category, they focus on providing good service, with few or no credit strategies to customers. Regarding financial management, owners of this type of business are unaware of the value of their inventory, and the handling of money with family members and acquaintances.

Finally, in the Results section, the vulnerable part is that the company does not leave enough to live better. They say they have competitive advantages in relation to the services they offer, showing customers preferences for service in price and quality.

Regarding the scope of sales, the results reflect little importance of the business owners of banquets in the area, their location, other companies and those abroad. Regarding CSR, 83% are unaware of practices that allow them to respond to society for the activities they carry out. The welfare of workers is also manifested.

Acknowledgement

To the leaders of the Latin American Network of Administration and Business for their contribution with the instrument.

Conclusions

The main factors of permanence and development of MSMEs are diverse, since it depends on the management and administration of the entrepreneur that leads the organization of the company, what is certain is that each entity must work on what it has to improve to achieve success and be able to reduce the death rate of a company.

After having applied the support material (surveys) to know the situation of MSMEs in Matamoros, it was observed that SMEs have great potential for growth, only that the tools provided by the technology are not used correctly for the organization administration and control.

That is why, regardless of the size and sector of the SME, every entrepreneur must question the possibility of developing in relation to technologies, how technological tools make grow and develop your company, for this, the main challenge to which they face, and on which the possibility of achieving success depends largely, is the generation of an entrepreneurial capacity that allows it to operate efficiently and effectively, to be able to change course in an agile way when the opportunities and threats of the environment and internal strengths and weaknesses so warrant.

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