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Journal of Business and SMEs

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Presentation of Content

In the first article we present, *The impact of organizational culture on innovation for the development of tourism SMEs in the municipality of Caborca, Sonora*, by SAUCEDO-MONARQUE, Javier, HERNÁNDEZ-PONCE, Oscar Ernesto, VALDEZ-JUÁREZ, Luis Enrique, with ascription in the Instituto Tecnológico de Sonora, as next article we present, *Business competitiveness in manufacturing SMEs in Sonora*, by GONZALEZ-NAVARRO, Nora Edith, ASUAGA, Carolina, LOPEZ-PARRA, Ma. Elvira and ACEVES-LÓPEZ, Jesus Nereida, with ascription in the Instituto Tecnológico de Sonora, as next article we present, *Development of the value chain and supply chain for MiPymes of the municipality of Mixquiahuala de Juárez Hidalgo to generate networks of mutual collaboration*, by RODRIGUEZ-AGUILAR, Raquel, GARCÍA-ROJAS, Jesús Alberto, CRUZ-ÁLVAREZ, Arminda and LÓPEZ-HERNÁNDEZ, Karla Linive, as next article we present, *Diagnostic study of cost management in manufacturing SMEs in Colotlán Jalisco*, by LOMELI-RODRÍGUEZ, Sandra Eva, GUZMAN-AGUILAR, Ernesto, GONZÁLEZ-OROZCO, Raúl and VERGARA-MESA, Gerardo Alexander, with ascription in the Universidad de Guadalajara and the Universidad de San Buenaventura.

Content

Article **Journal of Business and SMEs**
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The impact of organizational culture on innovation for the development of tourism SMEs in the municipality of Caborca, Sonora

El impacto de la Cultura Organizacional en la innovación para el desarrollo de las SMEs turísticas en el Municipio de Caborca, Sonora

SAUCEDO-MONARQUE, Javier†, HERNÁNDEZ-PONCE, Oscar Ernesto*, VALDEZ-JUÁREZ, Luis Enrique

Instituto Tecnológico de Sonora.

ID 1st Author: *Javier, Saucedo-Monarque* / **ORC ID**: 0000-0002-8111-3909, **Researcher ID Thomson**: T-7019-2018, **CVU CONACYT ID**: 287325

ID 1st Coauthor: *Oscar Ernesto, Hernández-Ponce* / **ORC ID**: 000-0001-7169-8854, **Researcher ID Thomson**: X-2219-2018, **CVU CONACYT ID**: 284745

ID 2nd Coauthor: *Luis Enrique, Valdez-Juárez* / **ORC ID**: 0000-0002-3754-4349, **Researcher ID Thomson**: N-9772-2019, **CVU CONACYT ID**: 845468

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Abstract

The results presented in this study related the factor of organizational culture with innovation for the development of small tourist businesses (SMEs) in the municipality of Caborca, Sonora. For which an exploratory analysis of the model, was made to subsequently analyze the Association of variables through the model of the Chi-square and thus be able to check the predictive and explanatory power of the same by means of Probit and Logit analysis. The collection of data was used as measurement instrument a structured questionnaire was administered to managers or entrepreneurs of tourism SMEs in the municipality of Caborca, Sonora. Where was the reliability of the instrument for measuring, the R^2 and significance of the model Chi square statistical analysis was used to identify the relationship and association between the variables of the proposed model, obtaining the coefficient Gamma with a strong correlation between the variables, as well as Gamma, Probit and Logit values, acceptable values for the relationship between the dependent variable and the independent variable was observed. A higher rate and robustness of prediction of the variables with acceptable significance was also obtained.

Development, Innovation, Organizational culture, Small tourism businesses and Tourism

Resumen

Los resultados presentados en esta investigación relacionan el factor de la cultura organizacional con la innovación para el desarrollo de las pequeñas empresas turísticas (SMEs) en el Municipio de Caborca, Sonora. Para lo cual se realizó un análisis exploratorio del modelo, para posteriormente analizar la asociación de las variables a través del modelo de la ji cuadrada y así poder comprobar el poder predictivo y explicativo de las mismas por medio del análisis Probit y Logit. En la recolección de los datos se empleó como instrumento de medición un cuestionario estructurado que se administró a los gerentes y/o empresarios de las SMEs turísticas en el Municipio de Caborca, Sonora. Dónde se obtuvo la confiabilidad del instrumento de medición, la R^2 y significancia del modelo. Para identificar la relación y asociación entre las variables del modelo propuesto, se utilizó la Ji cuadrada para su análisis estadístico, obteniéndose el coeficiente Gamma con una fuerte correlación entre las variables, además de los valores Gamma, Probit y Logit, se observó valores aceptables de la relación entre la variable dependiente y la variable independiente. También se obtuvo un mayor porcentaje y robustez de predicción de las variables con un nivel de significancia aceptable.

Cultura Organizacional, Desarrollo, Innovación, SMEs turísticas y Turismo

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† Researcher contributing first author.

Introduction

Tourism companies such as lodging, food and beverage services, transportation, entertainment, tourist information, recreational activities, tourist guides, among others, are part of the structure of the tourism system, which, complemented by tourism infrastructure and superstructure, make up the complementary offer of any tourist destination, which serve to develop any tourist product composed of all natural and cultural tourist attractions, called the primary offer or tourist heritage and the complementary offer. Based on the above, it can be affirmed that the essence of tourism activity is the tourist service offered by tourism services companies; dedicated to meet the needs of tourists that make up the demand for this service. Demand that is generated by the attraction of the various products offered by a tourist destination and that depends on them whether the tourist product is competitive or not.

In this sense, innovation is a determining element to achieve competitiveness that supports the sustainable tourism development of a region. In other words, innovation is the way in which entrepreneurs can cope with change, generating opportunities in their businesses. In addition to providing resources that are capable of generating value, so innovation represents the creation of those resources, so Peter Drucker (1985) mentions that resources exist until man gives economic value to something natural. Innovation is a factor that can determine the long-term competitive advantage of any company, since the constant changes in the internal and external environment of any organization, forces to seek innovation to be competitive. Innovation is also a central idea in the popular imagination, in the media and in public policy. In sum, innovation has become an emblem of modern society and the panacea to solve many problems (Godin, 2008).

Innovation is generally born from the incorporation of scientific knowledge produced from the results of research and development (R&D) activities, whose successful application means a positive breakdown of the technological level prior to the time of innovation.

The capacity for innovation is linked to the education and training processes, playing an important role the capacity of R&D, professional and labor learning, the ability to identify and acquire knowledge, the ability to adapt technology, forming in this way An innovative organizational culture. Albornoz (2009), mentions that the government, universities, public science and technology institutions, professional associations, private consultants, industrial research associations and technological services institutes constitute the mesh that supports, makes feasible and gives relevance to the process of innovation However, it does not change the fact that the basic phenomenon is innovation and that, therefore, the main actors are companies (strictly speaking, they are the “subjects” of the innovation process).

Small and medium-sized tourism companies (SMEs) are unaware of what the innovation management process consists of and this is reflected in an incipient development of new products and processes compared to other sectors (Gallouj and Sundbo, 1998; Hjalager, 2002 ; Volo, 2004). International organizations such as UNWTO (2002) or OECD (2006), have encouraged small businesses and destinations to incorporate innovation as their competitive strategy, they still do not understand the sources and patterns of innovative tourism activity, what is indispensable for the development of better policies for your support (Monfort and Camisón, 2009).

SMEs have distinguished themselves by lacking medium and long-term plans, resulting in limitations and difficulties in adopting an organizational culture as part of their strategy. The main limitations that the literature exhibits are: the lack of financial budget, lack of trained human resources, high turnover of staff, lack of motivation, knowledge is tacit, little interest of managers and infrastructure is obsolete (Lee and Lan, 2011; Mageswari, Sivasubramanian and Srikantha Dath, 2015). Organizational culture is understood as the set of beliefs and meanings that have been naturalized by members of the organization (thinking habits), which characterizes and makes one company innovative from another. Companies are formed from their daily interactions, where their interactions become institutional behaviors and these in turn become individual behaviors.

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The foregoing highlights that organizations and individuals are entities that form and transform each other (Munduate, 1997). Change and innovation are necessary and are the purpose of organizations. Since these must change their current stability and order, with processes of change, innovation, the implementation of coordination and control mechanisms, as well as the promotion of their autonomy and creativity (Weick, nineteen ninety five).

The organizational culture becomes the habits and values that order the behaviors and activities of a company (García, 2006). This variable helps us understand the way of thinking and behavior of the organization where multiple relationships converge, which allows us to know the sources of power and control exercised in their activities and that can influence for or against the innovation activities that companies tourist plans to implement.

The organization culture is a phenomenon that produces culture and is a social instrument that produces goods, services and by-products as cultural artifacts. This is defined as a social glue that holds the organization together, expresses the values and beliefs shared by all the members of an organization and that are manifested through myths, legends, specialized language (Smircich,
1983).

In the intercultural communication model where it is established that the members of a nation are seen as bearers of a common culture that influences the behavior of organizations. Where members of the organization learn to create new forms of management and organization that goes beyond the cultures of its members (Adler, 1991, p. 108). The concept of culture has been taken from cognitive anthropology (Frake, 1983). Where the comparative, explicit and tacit cultural knowledge is sought, from which its social context is constructed.

For its part, Geertz (1973) describes culture detailing people, events and actions, as a product of history that itself is connected to a wider group of economic, social, political and cultural processes.

According to Schein (1985) the essence of culture is cognitive, rather than objective or symbolic. The values, norms, events and utensils are at an accessible level and can be considered as culture. Other researchers have used empirically derived categories (Sackmann, 1991) and others support the categories that result from a particular culture and are used in organizations (Kleinberg, 1989). Skarzynski, P. and Gibson, R. (2008), mention that in order to develop a strong capacity for innovation in the organization, a systematic effort is needed from everyone, from the support of the highest level executives, the existence of a structure of support, people motivated and trained in innovation techniques, the development of monitoring and orientation processes and tools, and the strengthening of a culture and values aligned with innovation are fundamental to success.

The degree of innovation of organizations depends on exogenous variables such as the relationship of companies in the field (Lugones, G., Peirano, F., Giudicatti, M. and Raffo, J., 2003) number of commercial alliances (Freeman, 1991; Hage and Alter, 1997; Lechner, C., Dowling, M. and Welpe, I., 2006).) The link with research institutions (DeBresson and Amesse, 1991; Freeman, 1991; Hage and Alter, 1997; Lechner et al., 2006) with whom he shares knowledge (Lugones et al.,2003; González and Gálvez, 2008).

The innovations in the organizations imply new methods of empowerment and responsibilities of the personnel, it also requires dividing the work into and the services provided, as well as the restructuring and integration of different activities that will undoubtedly affect or depend on the existing organizational culture. Considering the theory of the innovative company of Lazo Nick, focused on the way in which the strategy and the structure determine its competitive advantage, the companies of the service sector have shown to be important sources of innovation activities (Vila, J 2010).

The latest edition of the Oslo Manual (2006) states that its scope is about innovation in the business sector; it focuses at the company level; considers four types of innovation: product, process, organization and marketing; seeks dissemination to the level of "new for the company".

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Although the growth in the use of technology in the services and manufacturing sector for the knowledge of its processes, not all innovations are based on its use, but it is necessary that its staff be more qualified in its use, in addition of greater connection with other companies and research institutions, with a structure and culture that encourages learning and knowledge use.

It is also mentioned that a less hierarchical and flexible organization, with more autonomous jobs to make decisions and assume their responsibilities, is said to be more effective in generating radical innovations so a company can influence the efficiency of its innovation activities.

Learning is the element for personal and business improvement, through the improvement processes that prepare companies for their future. Recent studies have highlighted the need for SMEs to learn skills, have a more open culture and improve their leadership to ensure their growth (Smallborne, Leigh and North, 1995). At present there is a weak consensus about what the term culture means, how it should be measured and how it should be used for the benefit of organizations. Research indicates that explicit or implicit paradigms have been developed that influence the concepts and the global approach to their study (Barley, Meyer and Gash, 1988; Martín and Mayerson, 1988; Ott, 1989; Smircich and Calas, 1987; Van Maanen, 1988).

The first large-scale empirical study in cross-cultural management was conducted by Haire et al. (1966) where the dependent variable was the managerial attitude instead of the culture that was defined as independent and where the differences found were related to cultural differences. Subsequently, studies were developed considering culture as an independent variable (Ajiferuke and Boddewyn, 1970). Until 1972 where Triandis, defines culture as the characteristic way of a cultural group to perceive the part that man makes of their environment. And Hofstede (1980) defined it as the collective program of the mind that distinguishes the members of a human group from the members of another group.

From the constructivist approach organizations are "social constructions constituted by means of language and symbols, and constructed by interaction and a series of shared meanings. Therefore organizations not only have culture, but they are culture. In the empirical field there is a notable shortage of studies. Quantitative research indicates that there are universal elements in all cultures that can be applied to organizations, so there are common characteristics in all of them.

These use external research methods looking for several elements in different organizations. Companies can carry out innovations with objectives related to the product or service, their markets, efficiency, quality, learning capacity or the introduction of changes, but these may have internal or external obstacles such as lack of expert staff, lack of knowledge and legal or political factors. An important factor for innovation is the ability to appropriate the improvements of its activities. These companies can develop the innovations themselves or adopt them from other companies or research organizations. For this reason, it is necessary to know what is the impact that the factor of organizational culture would have on innovation for the development of small tourism businesses in the municipality of Caborca, Sonora, Mexico?

Method description

In the design of the present exploratory, descriptive quantitative research, with a non-experimental design, the documentary technique was considered to identify if there could be a relationship between innovation as an independent variable and the independent variable of market research, in addition to the use of the bibliographic technique in the elaboration of the frame of reference and finally in the field work a structured questionnaire was used, since it is the most used in quantitative research (Corbetta, 2007).

Measurement instrument design

The "subject" based approach that addresses the innovative attitudes and activities of the company as a whole was considered. Preparing a questionnaire that was applied so that they were representative of each sector of activity such as tourism in this case and that they can be comparable internationally. (Oslo Manual, 2005).

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The standardization of the stimulus is a fundamental characteristic of the sampling survey, which makes it possible to buy the answers and analyze them with statistical techniques (Corbetta, 2007). For this reason the questions were standardized so that all subjects were asked the same questions formulated identically.

The instrument aimed to analyze the impact of organizational culture on innovation for the development of tourism businesses in the municipality of Caborca, Sonora, Mexico, which was announced at the beginning of the questionnaire, as well as the purpose of measuring the perception that the employer and / or manager has of the relationship and impact that the aforementioned factors have.

The instrument was developed in four sections with 44 items, where the first consisted of seven items related to the general information of the interviewee and his company; the second was elaborated with five direct questions about the knowledge of innovation in tourism businesses; the third consisted of eight items related to the measurement of innovation, the next four with market research, continuing with four others concerning tourism policies, continuing with four items related to knowledge management; the penultimate section was formed of four items related to the use of technology and finally four items regarding the organizational culture); The fourth and last one consisted of four items to weigh the relationships of processes, services, organization and marketing with each of the independent variables.

Measurement scale

The role of measurement is an essential factor so that the process of observing people, objects and other subjects of the reality studied makes sense. Therefore, by means of measurement and quantification, numbers are assigned to objects or events that are taken as the unit of analysis, considering certain rules (Rositas, 2006). This process is known as the operationalization of the concepts to which values are assigned to the indicators that empirically measure the phenomenon to be studied.

For the operationalization of the variables in the design of this research, the items that support its measurement were developed.

Using the Likert scale for each of the responses of the reagents used in the measurement of the dependent and independent variables, where one (1) strongly disagrees; two (2) disagree; three (3) is Neither agree nor disagree; four (4) agrees and five (5) totally agree.

Population and census

The tourist activity is characterized by a combination of joint actions by the private initiative and the public sector and it is the tourism services companies that play an important role in the development of this activity, where, like other sectors, the small micro, medium enterprises (SMEs), form the backbone of the national economy and therefore for its impact on job creation and national production. As an analysis unit, the 120 tourism companies that the municipality of Caborca, Sonora, Mexico has been considered, according to the information provided by the management of the Office of Conventions and Visitors of the same municipality (OCV, 2016) and that of according to Manson (1993) they are in the fifth level as an organization, where they are considered as a social system with goals and instruments, plans and patterns and with different positions and roles.

Considering the population as "the totality of elements or individuals that have certain similar characteristics and on which it is desired to make inference" (Jany, 1994). A census was carried out, being surveyed in a non-probabilistic way, in this way 120 instruments were counted, which had a greater reliability in the results obtained. Of which 34.5% were hosting companies, 37.5% food and beverage companies, 15% general services, 5.4% entertainment and .8% transportation.

Instrument validation

The validation of the instrument was carried out with experts on the subject and the pilot test of the instrument was applied to twenty-three tourism entrepreneurs in the hotel and restaurant industry, through a personal interview, since they can have an overview of the companies and handle the concepts of the variables. To ensure that the results obtained have the necessary reliability and validity of the data to be collected.

Once the surveys were applied, the data obtained were tabulated, using the SPSS program for the analysis and results of the following statisticians: the reliability analysis (Cronbach's Alpha), descriptive statistics, descriptive analysis of the sociodemographic information of the respondents, as well as knowledge of innovation in tourism businesses.

Analysis of results

An exploratory analysis was carried out where it was observed that the model did not comply with the homoscedasticity assumption, which according to Hair, Black, Babin and Anderson (2010) refers to the equality of variances between the independent variables, being able to be metric or non-metric, in relation to the independent variable, so a descriptive analysis of the variables of the model was performed, subsequently the association of the variables was analyzed by means of the chi-square model and check the predictive and explanatory power of the same through Probit and Logit analysis.

This model represents the probability that an individual chooses a certain alternative. For this reason, the value of 1 was considered for the responses in the Likert scale used from 4 to 5 and for 0 on the scale from 1 to 3.

This model appears in the 19th century and was used by Joseph Berkson in 1944, to later be linked to the Theory of Discrete Election by McFadenn in 1973 where later the existing theory was unified to the Probit and Logit models.

The logit analysis, also called logistic regression, is an alternative to the discriminant analysis of two groups when the dependent variable is binary. The logit model calculates the probability of a binary event. Unlike the statistical regression analysis, the logit model establishes the restriction that the probability must fall between 0 and 1.

Unlike the discriminant analysis, the logistic regression calculates the standard errors of the estimated coefficients, which allows to evaluate their significance (Marhlote, 2010).

Results

The tabulation of the reliability results of the model is shown in Table 1. On the one hand, these results indicate that there is a relationship between the dependent variable "Y" of Innovation with the independent variable: Organizational Culture. This demonstrates the reliability of the instrument, since the Cronbach alpha indices obtained are acceptable according to the standard that sets a lower limit of 0.70 and up to 0.60 in exploratory research (J. Hair, R. Anderson, R. Thatam & W. Black, 2007). Obtaining in all variables a Cronbach Alpha above 0.80 which are acceptable.

Variable	Cronbach's alpha	N of elements
Y= Inovation	0.862	7
X3= Organizational Culture	0.894	5

Table 1 Data reliability analysis / Cronbach's Alpha
Source: Self Made

The data shown in Tables 2 comes from the application of the statistical tests that show an acceptable R^2 of .639 and a level of significance of .000 shown below.

					Exchange Statistics				
				Standar d error of					
		R	R square	the	Change in R	Change	gl1	gl2	Next Change
Model	R	squared	adjusted	square	estimate	in F			in F
1	.799[a]	.639	.623	.33667	.639	40.358	5	114	.000

a Predictors: (Constant), CULTURORG, POLITUR, USODETEC, INVESTIGAC, GESTIONC

Table 2 Model Summary
Source: Self Made

In the statistical analysis, the Chi square was used to identify if there was a relationship and association between the variables of the proposed model and to justify its corresponding analysis. In the processing of the data by means of the Chi-square, two of them were eliminated since they were considered atypical, so that in total there were 118 cases analyzed. Of which the following results were obtained.

The chi-square test between the dependent variable Y = Innovation and the independent variable = Organizational Culture obtained a p-value corresponding to $\chi 2 = 26.55$, turned out to be <.05 (Pearson's chi-square) with 1 gl, as shown in table 2, so it can be stated that the independent variable = Organizational Culture and the dependent variable Y = Innovation, if they are related to each other and have a significant association of 0.000.

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	Value	gl	Significance asymptotic (bilateral)	Significance exact (bilateral)	Significance exact (unilateral)
Pearson's Chi-square	26.550[a]	1	.000		
Continuity Correction[b]	24.685	1	.000		
Likelihood ratio	27.643	1	.000		
Fisher's exact test				.000	.000
Linear association by linear	26.325	1	.000		
N of valid cases	118				

Table 2 Chi-square tests - X3. Organizational culture
Source: Self Made

Table 3 indicates that a Gamma coefficient of .775 was obtained indicating that there is a strong correlation between the independent variables = Organizational culture and the variable Y = Innovation, with an acceptable level of significance of 0.000, as a complement to the Ji test Pearson's square made to the organizational Culture.

		Valor	Standardized error asymptotic[a] T approximate[b]		Approximate significance
Ordinal by ordinal	Tau-b of Kendall	.474	.081	5.849	.000
	Tau-c of Kendall	.474	.081	5.849	.000
	Gamma	.775	.084	5.849	.000
N of valid cases		118			

Table 3 Symmetric measures. Organizational culture
Source: Self Made

Considering the results of the cross tables of the independent variable where the percentage of relationship that the explanatory variable (x) has with the explained variable (Y) were shown. A PROBIT analysis was performed on the independent variable, which allows the dependence of an ordinal response on an independent variable to be shaped and is used as a complement to the Logit model. This analysis can be seen in Table 5 where a higher prediction percentage of the variable X was obtained. Organizational culture of .454, indicating a good estimate since it is within the lower and upper limits. Having an acceptable level of significance.

Parameter	Estimate	Next	Lower limit	[Upper limit
X3. CULTURORG*	.454	.000	.219	.689

Table 5 Probit analysis - predictive, * 95% significance
Source: Self Made

Parámetro	Estimación	Sig.	Límite inferior	Límite superior
X3. CULTURORG*	.771	.000	.366	1.176

Table 6 Logit analysis - explanatory, * 95% significance
Source: Self Made

Conclusions

The results obtained show the Organizational Culture variable with an important impact with the innovation-dependent variable, reflecting the link with innovation as a result of the flow of knowledge between companies and other organizations for their development and dissemination of innovations.

Learning is the element for personal and business improvement, through the improvement processes that prepare companies for their future. Recent studies have highlighted the need for SMEs to learn skills, have a more open culture and improve their leadership to ensure their growth (Smallborne, Leigh and North, 1995).

The organizational culture becomes the habits and values that order the behaviors and activities of a company (García, 2006). This variable helps us understand the way of thinking and behavior of the organization where multiple relationships converge, which allows us to know the sources of power and control exercised in their activities and that can influence for or against the innovation activities that companies tourist plans to implement.

The innovations in the organizations imply new methods of empowerment and responsibilities of the personnel, it also requires dividing the work into and the services provided, as well as the restructuring and integration of different activities that will undoubtedly affect or depend on the existing organizational culture.

Considering the theory of the innovative company of Lazo Nick, focused on the way in which the strategy and the structure determine its competitive advantage, the companies of the service sector have shown to be important sources of innovation activities (Vila, J 2010).

The results confirm what Skarzynski, P. and Gibson, R. (2008), mention that in order to develop a strong capacity for innovation in the organization, a systematic effort of all is needed, from the support of the highest level executives, the existence of a support structure, people motivated and trained in innovation techniques, the development of monitoring and orientation processes and tools, and the strengthening of a culture and values aligned with innovation are fundamental for success.

In addition to the degree of innovation of organizations depends on exogenous variables such as the relationship of companies in the field (Lugones, G., Peirano, F., Giudicatti, M. and Raffo, J., 2003) number of commercial alliances (Freeman , 1991; Hage and Alter, 1997; Lechner, C., Dowling, M. and Welpe, I., 2006).) The link with research institutions (DeBresson and Amesse, 1991; Freeman, 1991; Hage and Alter, 1997; Lechner et al., 2006) with whom he shares knowledge (Lugones et al., 2003; González and Gálvez, 2008).

Finally, the organizational culture becomes the habits and values that order the behaviors and activities of a company (García, 2006). Organizational culture is a controllable factor that must be created from research and knowledge of the internal and external environment that through the use of technology is achieved to achieve business and tourism sector objectives, complying with policies existing tourist.

References

Abajo, E. G., & de Santos, P. G. (2017). Medición de la competitividad turística internacional. Sesgos en la encuesta de opinión del índice de competitividad turística del Foro Económico Mundial. *International journal of scientific management and tourism*, *3*(2), 299-322.

Albornoz, W., Del Tronco, J. (2009). Políticas Públicas comparadas: Las reformas estructurales y sus resultados en América Latina. México: FLACSO-México.

Aldebert, B., Dang, R. J., & Longhi, C. (2011). Innovation in the tourism industry: The case of Tourism@. *Tourism management*, *32*(5), 1204-1213.

Arzola, M., & Mejías, A. (2007). Modelo conceptual para gestionar la innovación en las empresas del sector servicios. *Revista Venezolana de Gerencia*, *12*(37).

Bazantes, S. G. B., Trujillo, P. E. A., & Rivera, D. V. (2017). ESTRATEGIA DE MARKETING Y LA INNOVACIÓN EMPRESARIAL DE LA QUESERA COMUNAL PÍMBALO EN LA COMUNIDAD DE PÍMBALO, SIMIATUG–GUARANDA.

Berkson, J. (1944). Application of the logistic function to bio-assay. *Journal of the American Statistical Association*, *39*(227), 357-365.

Brida, Ramon, Such y Driha. (2016). «The Inverted-U Relationship Between the Degree of Internationalization and the Performance: The Case of Spanish Hotel Chains». *Tourism Management Perspectives*, vol. 17, pp. 72-81.

Camisón y Monfort. (2012) "Measuring innovation in tourism from the Schumpeterian and the dynamic-capabilities perspectives". Tourism Management 33(4): 776–789.

Carvalho, L. y Costa, T. (2011). Tourism Innovation–A Literature Review Complemented by Case Study Research. *Tourism & Management Studies*, 23-33.

Čivre, y Omerzel. (2015) "The behaviour of tourism firms in the area of innovativeness". Economic Research- Ekonomska Istrazivanja 28(1): 312–330.

Corbertta, P. (2007). *Metodología y Técnicas de Investigación Social*, Mc Graw Hill, México, Pág. 145. COTEC, F. (2007). Las relaciones en el Sistema Español de Innovación, Libro Blanco.

Dena, J. M. M. (2019). Impacto económico del cambio climático en el cultivo del trigo en regiones productoras de Sonora, México.

Díaz, M. & Horrillo, M. (2013). Innovación, capital intelectual y capital social territorial: enfoques clave para el éxito de la empresa turística en el nuevo entorno socio económico. *Cayapa. Revista Venezolana de Economía Social*, *13*(25), 9-33.

Drucker, P. F. (1985). Innovative and Entrepreneurship, Practice and Principles. *New York: Harper & Row*. Retrieved April, 7, 2013.

Echevarría, J. (2008). El manual de Oslo y la innovación social. *Arbor*, *184*(732), 609-618. Escauriaza, M. J., Subirana, J. T., & Torres, X. T. (2001). *Innovación en servicios*. Cotec.

Etzkowitz, H. (2008): Innovation in action: the Triple Helix of university-industry-government relations". *Social Science Information*. Vol, 42, n.º 3, pp. 293-337.

Fidalgo, A., Sein-Echaluce M. L., & García F. J. (2017). Aprendizaje basado en retos en una asignatura académica universitaria. *IE Comunicaciones, Revista Iberoamericana de Informática Educativa*, *25*, 1-8.

Formichella, M. (2005). La evolución del concepto de innovación y su relación con el desarrollo. *Argentina: INTA*.

Gallouj, F., Sundbo, J. (1998). *Innovation in services in seven European countries.* Roskilde University. Roskilde.

Gaviria, M., & Yamid, E. (2019). Estudio de caso: aplicación del Modelo Intellectus y aproximación a la gestión del capital intelectual en una empresa industrial y comercial de la ciudad de Popayán– Cauca, en el II semestre de 2018.

Godin, B. (2008): Innovation: the History of a Category. Paper no. 1. Project on the Intellectual History of Innovation. Montreal. INRS.

González De La Fe, T. (2009). El modelo de Triple Hélice de relaciones universidad, industria y gobierno: un análisis crítico. *Arbor*, *185*(738), 739-755.

Gössling, S. (2017). Tourism, information technologies and ustainability: an exploratory review. *Journal of Sustainability Tourism*, *25*(7), 1024-1041.

Hair, J., Anderson, R., Taham, R., Black W. (2007). *Análisis Multivariable* (5a. ed.). Madrid: Prentice Hall Iberia.

Hashemkhani, S., Sedaghat, M., Maknoon, R., & Zavadskas, E. K. (2015). Sustainable tourism: a comprehensive literature review on frameworks and applications. *Economic Research- Ekonomska Istrazvanja*, *28*(1), 1-30.

Hjalager, A. (2012). A review of innovation research in tourism. *Tourism Management*, 31(1), pp1-12. Islas, M. A. A. L. T. (2019). Relación entre estilos de liderazgo y responsabilidad social empresarial en las organizaciones productoras de uva de mesa sonorense.

Jacob, Tintoré, Aguiló, Bravo y Mulet. (2003) "Innovation in the tourism sector: Results from a pilot study in the Balearic Islands". Tourism Economics 9(3): 279–295. Jany, E. (1994). *Investigación integral de mercados*. Bogotá: Mc Graw-Hill.

Jasso, J. (2004). *Relevancia de la innovación y las redes institucionales*. Red Aportes. Jiménez, J. R. R., Villalobos, J. P. D., & Andrade, J. M. G. Cuatro décadas de Sociología en la Universidad de Sonora.

Jovicic, D. Z. (2014). Key issues in the implementation of sustainable tourism. *Current Issues in Tourism*, *17*(4), 297-302.

Krizaj, Brodnik y Bukovec. (2014) "A tool for measurement of innovation newness and adoption in tourism firms". International Journal of Tourism Research 16: 113–125.

Lee, M. y Lan, Y. (2011). Toward a unified knowledge management model or SMEs. *Expert Systems with Applications*, *38*(1), 729-735.

León, G. (2017). Evolución de la política de I+ D e innovación en la UE. Consecuencias y oportunidades para España.

Mageswari, S. U., Sivasubramanian, C., & Dath, T. S. (2015). Knowledge management enablers, processes and innovation in small manufacturing firms: a structural equation modeling approach. *IUP Journal of Knowledge Management*, *13*(1), 33.

Malhorta, N. (2005). *Investigación de mercados con enfoque práctico.* México: Prentice-Hall.

Martínez-Román, J. A., Tamayo, J. A., Gamero, J., & Romero, J. E. (2015). Innovativeness and business performances in tourism SMEs. *Annals of Tourism Research*, *54*, 118-135

McFadden, D. (1973). Conditional logit analysis of qualitative choice behavior.

Monfort, V., Camison, C. (2009). Innovación en la empresa turística. (Documento en línea). Ponencia presentada en la Primera Conferencia Internacional sobre la Medición y el Análisis Económico del Turismo Regional. Donostia.

Montoya, D. A., Carreón, F. Á., & Ortega, A. P. P. (2018). La gestión del conocimiento y el capital intelectual en la competitividad de las SMEs manufactureras de Morelia, Michoacán. *Red Internacional de Investigadores en Competitividad*, *8*(1).

Mowforth, M., & Munt, I. (2015). *Tourism and sustainability: Development, globalisation and new tourism in the third world*. Routledge.

Nordin, S. (2003). *Tourism clustering and innovation.* European Tourism Research Institute.

OCDE. (2002). Frascati manual: proponed Standard practice for surveys on research and experimental development, Paris: OECD Publishing.

OCDE/ European Communites. (2006). Manual de Oslo. Guía para la recolección e interpretación de datos sobre innovación. 3ª. Edición. España.

OCV. (2015). Entrevista personal con Eduardo Monteverde, gerente de la Oficina de Convenciones y Visitantes del municipio de Caborca, Sonora, México.

OMT. (2013). Reporte anual de la actividad mundial del turismo. http://www2.unwto.org/es/annual- reports.

Orfila y Mattsson. (2009) "Innovation behavior in the hotel industry". Omega - The International Journal of Management Science 37: 380–394.

Peters, M. y Pikkmaat, B. (2006). *Innovation in hospitality and tourism*. Binghamton, NY: The Haworth Hospitality Press.

Pikkemaat y Peters. (2006) "Towards the measurement of innovation - a pilot study in the small and medium sized hotel industry". Journal of Quality Assurance in Hospitality & Tourism 6: 89–112.

Pivcevic, y Pranicevic. (2012) "Innovation activity in the hotel sector - The case of Croatia". Ekonomska Istrazivanja 1(1): 337–363.

Prats, J. O. (2008). Revisión crítica de los aportes del institucionalismo a la teoría y la práctica del desarrollo. *Revista de economía institucional*, *9*(16).

Rastrollo, M. (2001). Resources and capabilities of tourism firms in the knowledge economy: Towards a framework in Sheldon, P., Wober, K, Fesenmaier, D. *Information and Communication Technologies in Tourism*. Springer Verlag, Canadá.

Romero, J. O. (2019). Percepciones de un estudio de caso sobre el Desarrollo Local. Revista Economía y Desarrollo (Impresa), 138(2).

Rositas, J. (2006). Factores críticos de éxito en la gestión de la calidad y su grado de presencia e impacto en la industria manufacturera mexicana, Monterrey, México: UANL.

Rubalcaba, L. (2015). La innovación en los servicios. *2015). La innovación y la nueva economía de servicios en América Latina y el Caribe: Retos e implicaciones de política. Montevideo: Editorial Centro de Investigaciones Económicas (CINVE, Uruguay).*

Rubalcaba, L. (2015). La innovación en los servicios. En: Aboal, D.; Crespi, G. y Rubalcaba, L. (Ed.) (2015). *La innovación y la nueva economía de servicios en América Latina y el Caribe: Retos e implicaciones de política.* Montevideo: Editorial Centro de Investigaciones Económicas (CINVE, Uruguay).

Sánchez, A. (2011). ¿Los principales destinos son también las principales potencias en la Investigación en turismo? *Estudios turísticos*, (188), 91-111.

Șchiopu, Padurean, Țala, y Nica. (2016). «The Influence of New Technologies on Tourism Consumption Behavior of the Millennials». *Amfiteatru Economic*, nº 10; número especial.

Sorensen, G. (2007). *Democracy and democratization: processes and prospects in a changing world*. Hachette UK.

Volo, S. (2004). Foundation for an innovation indicator for tourism. In Keller, P., Bieger, T. (eds.). The future of small and medium sized enterprises en tourism. *AIEST, St. Gallen*, pp. 361-376.

WEF, F. E. M. (2016). The Global Competitiveness Report 2016-2017. World Economic Forum.

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Business competitiveness in manufacturing SMEs in Sonora

Competitividad empresarial en las SMEs manufactureras en Sonora

GONZALEZ-NAVARRO, Nora Edith*†, ASUAGA, Carolina, LOPEZ-PARRA, Ma. Elvira and ACEVES-LÓPEZ, Jesus Nereida

Instituto Tecnológico de Sonora, Directorate of Administrative Economic Sciences

ID 1st Author: *Nora Edith, Gonzalez-Navarro* / **ORC ID**: 0000-0002-7112-8082

ID 1st Coauthor: *Carolina, Asuaga* / **ORC ID**: 0000-0003-2442-0686

ID 2nd Coauthor. *Ma. Elvira, Lopez-Parra* / **ORC ID**: 0000-0003-2442-0686

ID 3rd Coauhtor: *Jesus Nereida, Aceves-López* / **ORC ID**: 0000-0003-3552-3517

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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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*Correspondencia al Autor (Correo electrónico: eblen@tecmartinez.edu.mx)
† Investigador contribuyendo como primer autor.

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.

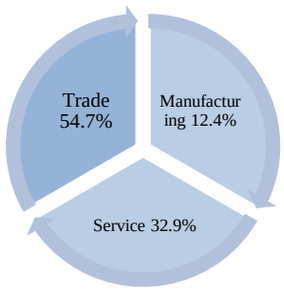

Figure 1 Economic support from the federal government to the economic sectors in Mexico
Source: INEGI 2018

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).

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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.

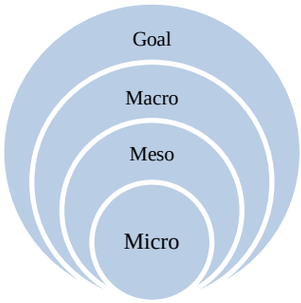

Figure 2 "Systemic model of Competitiveness"
Source: "ITAM Center for Competitiveness Studies in Mexico

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.

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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

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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.

References

Altamirano, M. Javier (2019) Industria Manufacturera de Exportación recuperado en agosto del 2019: https://www.ambienteplastico.com/industria-manufacturera-de-exportacion/

Arana, David (2018) SMEs mexicanas, un panorama para 2018 Bajo crecimiento, poca escalabilidad y crédito limitado son algunos problemas que enfrentan las pequeñas y medianas empresas. Fecha de recuperación 28 de agosto. https://www.forbes.com.mx/SMEs-mexicanas-un-panorama-para-2018/

Castellanos, O., Gálvez, B., Montoya, L. Lagos, Y. y Montoya (006) "Medición del potencial de investigación y desarrollo de las SMEs a partir de su capacidad de gestión organizacional citado por Ibarra, González y Demuner (2017) "Competitividad empresarial de las pequeñas y medianas empresas manufactureras de Baja California.

De la Cruz, O. Marcelino, Martínez V. Carlos D. y García G. Mayra (2013) "Competitividad Empresarial: Labor De Recursos Humanos En Las Organizaciones fecha recuperación: http://www.eumed.net/cursecon/ecolat/mx/2013/competitividad.html.

Flores, B. y González, F. (2009) La competitividad de las SMES morelianas. Cuadernos y CIMBAGE.

García de León., P. Guadalupe (2014) "El concepto de competitividad sistémica" recuperado agosto 2019. file:///C:/2019%20%20ARTICULO%20PRESENTADO%20PARA%20CICA%202019/25-8.pdf

Gracia. (2006) La competitividad sistémica: Elemento fundamental de desarrollo regional y local, ciencia y Mar, (29). Recuperado de http://repositorio.cepal.org./bistream/handie/11362/4972/1/50111978 es pd.f.

Ibarra Cisneros Manuel A., González Torres Lourdes A. y Demuner F. Ma. Del Rosario (2017) "Competitividad empresarial de las pequeñas y medianas empresas manufactureras de Baja California" Editorial Estudios. Front. Vol.18 # 35.

INEGI (2010) Instituto Nacional de Estadística y Geografía

INEGI (2019) Evolución anual de la participación porcentual del sector manufacturero en el producto interno bruto (PIB) en México desde 2007 hasta 2017 fechhttps://es.statista.com/estadisticas/596877/participacion-del-sector-manufacturero-en-pib-mexico/a de recuperación agosto 2019. https://es.statista.com/estadisticas/596877/participacion-del-sector-manufacturero-en-pib-mexico/

Medina, M. y Naranjo, I. (2014) Variables relevantes en el diseño de estrategias para la competitividad en SMES. Orbis. Revista científica Ciencias Humanas,9(27); 116-129

México, el Instituto Nacional de Estadística y Geografía (INEGI), el Instituto Nacional del Emprendedor (INADEM) y el Banco Nacional de Comercio Exterior (BANCOMEXT), presentan la Encuesta Nacional sobre Productividad y Competitividad de las Micro, Pequeñas y Medianas Empresas (ENAPROCE) 2015. "Estadísticas Detalladas Sobre Las Micro, Pequeñas Y Medianas Empresas Del País" recuperado en agosto del 2019: https://www.bancomext.com/comunicados/14237

Morales González, María Antonia y José Luis Pech Várguez. "Competitividad y estrategia: el enfoque de las competencias esenciales y el enfoque basado en los recursos" en *Contaduría y Administración [en línea]*. México, D.F.: Universidad Nacional Autónoma de México, Fondo Editorial de la Facultad de Contaduría y Administración, 2000- [citado 03 noviembre 2011]. Trimestral. Abril-junio, 2000. No. 197 Disponible en: <http://www.ejournal.unam.mx/rca/rca_index.html>. ISSN-0186-1042. pág. 49.

Paula Nicole Roldán(2019) " La competitividad" Economía: Haciendo fácil la economía" fecha de búsqueda agosto/2019: https://economipedia.com/definiciones/competitividad.html

Por Eduardo López (2018) "Manufactura muestra buen comportamiento" fecha recuperado agosto 2019. https://www.elimparcial.com/sonora/sonora/Manufactura-muestra-buen-comportamiento-20190423-0147.html

Porter, M. E. (2010) Ventaja competitiva. Creación y sostenimiento de un desempeño superior. Editorial Diana, México.

Saavedra, M., Milla, S. y Tapia, B. (2013). Determinación de la competitividad de la PYME en el nivel micro: El caso del Distrito Federal, México. FAEDPYME International Review, 2 (4) 38-52.

Sepúlveda Villarreal, Ernesto (2010) Temas *económicos y sociales de actualidad en México. Charlas en mangas de camisa*. México: Museo Interactivo de Economía, pág. 287. En la página de la Secretaria de Economía, fecha de búsqueda agosto, 2019: http://www.2006-2012.economia.gob.mx/economia-para-todos/abc-de-economia/competitividad/217-competitividad.

Shirley Benavides, Juan José Muñoz y Álvaro Martín Parada Gómez (2004) "El Enfoque De Competitividad Sistémica Como Estrategia Para El Mejoramiento Del Entorno Empresarial. Economía y Sociedad, N 24. pp 119 – 137

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Development of the value chain and supply chain for MiPymes of the municipality of Mixquiahuala de Juárez Hidalgo to generate networks of mutual collaboration

Desarrollo de la cadena de valor y cadena de suministro para las MiPymes del municipio de Mixquiahuala de Juárez Hidalgo para generar redes de colaboración mutua

RODRIGUEZ-AGUILAR, Raquel†, GARCÍA-ROJAS, Jesús Alberto, CRUZ-ÁLVAREZ, Arminda and LÓPEZ-HERNÁNDEZ, Karla Linive

ID 1st Author: *Raquel, Rodriguez-Aguilar*

ID 1st Coauthor: *Jesús Alberto, García-Rojas* / **ORC ID**: 0000-0002-0292-0789, **Researcher Thomson ID**: I-9224-2018

ID 2nd Coauthor: *Arminda Cruz-Álvarez*

ID 3rd Coauthor: *Karla Linive, López-Hernández*

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Abstract

The present investigation intends to follow up the results of the activities that are part of the work previously carried out by the academic body of the Superior Technological Institute of the West of the State of Hidalgo, which was to identify the current situation of the economic development of MSMEs of the municipality of Mixquiahuala de Juárez Hidalgo, as these are the largest economic impact in the region and as the strategic management and use of information and communication technologies, as well as the tools and methods they used, in order to detect opportunities for improvement and propose alternative solutions based on this information. Therefore, thanks to the results obtained from the previous study, we intend to manage the collaboration networks through a model of the value chain, as well as one of the supply chain using the affected mechanisms, which affects their development. Another important point was the necessary elements for the creation of both the value chain and the supply chain since both depended on its turn and size because while some companies need certain specific areas, others do not, due to their characteristics. Thanks to their creation, the aim is to achieve the growth of MSMEs on the one hand, and on the other the management of the collaboration networks among themselves.

Online and offline market, Technology, Economy

Resumen

La presente investigación tiene la finalidad de darle seguimiento a los resultados de las actividades que forman parte del trabajo realizadas anteriormente por el cuerpo académico del Instituto Tecnológico Superior del Occidente del Estado de Hidalgo, la cual fue identificar la situación actual de desarrollo económico de las MiPymes del municipio de Mixquiahuala de Juárez Hidalgo, por ser estas las de mayor impacto económico en la región y como aplican la gestión estratégica y el uso de las tecnologías de información y comunicación, así como las herramientas y métodos que utilizan para ello, a fin de detectar oportunidades de mejora, y proponer alternativas de solución basadas en esta información. Por lo cual gracias a los resultados obtenidos del estudio anterior, se pretende gestionar las redes de colaboración mediante un modelo de la cadena valor, así como uno de cadena de suministro utilizando los mecanismos adecuados, que permitan el desarrollo de las mismas. Otro de los puntos importantes que se consideraron a favor, fueron los elementos necesarios para la creación tanto de la cadena de valor, como la cadena de suministro, pues ambas dependerán tanto de su giro, como de su tamaño, ya que mientras algunas empresas necesitan de ciertas áreas esencialmente , otras no, debido a las características de las mismas. Gracias a la creación de éstas se aspira a lograr por un lado el crecimiento de las MiPymes, y por otro la gestión de las redes de colaboración entre ellas mismas.

Cadena de valor, Cadena de suministro

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†Researcher contributing first author.

Introduction

The importance of creating and developing Micro, Small and Medium Enterprises (MSMEs) is to be taken into consideration within any economy, since their contributions have become an excellent means to promote the economic and social development of a region, contributing with a better distribution of its resources and wealth; besides, they are the largest generators of jobs (above large corporations) contributing with certain stability to the labor market (Gómez V. , 2007) In our country, in particular, it is necessary to highlight the importance of the SMEs since, together with the microenterprises, they represent more than 99% of all companies, that is: 2,899,196 microenterprises, 101,003 small and 27,319 medium enterprises, while they are 19,996 large companies. (H., 2007)

In Hidalgo, there are 21 245 companies, 99.94% are MSMEs, and the remaining 0.06% are large enterprises, as in the rest of the country. The problem of MSMEs lies in the lack of competitiveness in both markets, local, national and international, to allow the survival and consolidation of a favorable position. About eight years ago the town started to see the arrival of renowned shopping centers (Bodega Aurrera, Coppel, malls, Oxxo, 3b, etc.) which are the main competition for small businesses in Mixquiahuala, so it is necessary to involve collaboration networks; this means that the local MSMEs join together to work for a common goal, which in this case would be to make their profits grow through the mobile application called "PYME ONLINE" as a competitive advantage to make orders online and sent to the homes. This is done in order to revive the market and thus help the Mexican economy since the vast majority of these commercial chains are of foreign origin, increasing their foreign earnings, rather than the Mexican economy. (Cordero, 2009)

A company's value chain is part of a more extensive system of activities that encompasses the value chains of its suppliers and those of any partner in the distribution chain involved in delivering the product to the end-users. Supplier value chains are relevant because suppliers perform activities and incur costs to create and deliver the inputs acquired and used in the company's value-creating activities.

A company's value chain activities often have a close link to the value chains of its suppliers and their partners in later stages of distribution or the customers to whom they sell. The Supply Chain is a chain of suppliers, factories, warehouses, distribution centers, and retailers through which raw materials are purchased, processed, and shipped to the customer.

Supply chain management encompasses the planning and management of all supply-related activities, procurement and conversions of all activities. It also includes the coordination of partners who may be intermediary suppliers, suppliers and customers. In general, supply chain management integrates supply and demand within and across companies. (David, 2008)

The supply chain is all the parties involved in the manufacturing processes of the products or services, whether in direct or indirect ways. The supply chain is not only about producers and suppliers but also about stocks, processors, wholesalers and retailers, even the customers themselves. The supply chain involves the reception and delivery to the final customer, i.e. all the processes followed to reach the final product. Throughout the development of the article we will address how the product will reach the customer considering the application that will be used.

Literature revisión

When starting with the value chain, we begin by identifying two sources that are essential for its development: cost leadership and differentiation, where, according to Porter, these two depend on all those activities that take place in the company.

The value chain is a succession of actions carried out to install and enhance the value of a successful product or service in a market through a viable economic approach.

Any company or association, value-creating organization wishing to improve its competitiveness can achieve its objectives if it is based on the value chain. It is a precious strategic management tool, as it acts in the positioning of a product or service in the market.

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It has three objectives:

– The improvement of services.
– The reduction of costs.
– The creation of value.

This model, in fact, allows interested organizations to successively analyze all of their activities with the aim of improving each stage as much as possible in order to constitute and optimize a competitive advantage. (Robben, 2015) The chain begins with the supply of raw materials and continues throughout the production of parts and components, manufacturing and assembly, wholesale distribution and so on until it reaches the end user of the product or service.

A generic value chain consists of three basic elements:

– Primary Activities are those related to the development of the product, its production, logistics and commercialization, and post-sales services.
– The Support Activities to the primary activities are composed of the administration of human resources, purchases of goods and services, technological development (telecommunications, automation, process development and engineering, research), business infrastructure (finance, accounting, quality management, public relations, legal advice, general management).
– The margin, which is the difference between the total value and the total costs incurred by the company to perform the value-generating activities.

The primary activities of the business, which consist of:

a. Incoming logistics: made up of the activities of reception, storage, handling of materials, inventories, vehicles, returns, among others.
b. Operations: composed of the transformation of the final product (machining, assembly, labeling, maintenance, verification and installation operations).
c. Outbound logistics: consisting of the distribution of the finished product (storage of finished goods, material handling, delivery vehicles, orders and scheduling).
d. Marketing and sales: integrates the activities involved in the induction and easy acquisition of the products (advertising, sales force, quotas, channel selection, channel relations, prices).
e. Service: it consists of those activities that try to maintain and increase the value of the product after the sale (installation, repair, training, supply of spare parts and adjustment of the product).

To define the business support activities, the same criterion used in the definition of the main business actions is used, thus defining the following support activities:

a. Purchasing: made up of those activities involved in the acquisition of primary materials, supplies and consumables as well as assets.
b. Technology development: composed of those activities involved in the knowledge and training acquired, procedures and technological inputs required for each activity in the value chain.
c. Human resources management: composed of those activities involved in the selection, promotion and placement of the institution's personnel.
d. Institutional infrastructure: made up of those activities involved in general management, planning, information systems, finance, accounting, legal, government affairs and quality management. (Sanchez, 2006)

In competitive terms, value is the amount that buyers are willing to pay for what a company provides them; it reflects the scope of the product in terms of price and units that can be sold. A business is profitable if the value it imposes exceeds the costs involved in creating the product. Creating value for buyers that exceeds the cost of doing so is the goal of any generic strategy. Value, not cost, should be used in analyzing competitive position. (Deadline: 2019)

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The analysis of the value chain allows the optimization of the production process since it can be seen, in detail and at each step, the functioning of the company. The reduction of costs and the search for efficiency in the use of resources are usually the main objectives of the entrepreneur when reviewing the value chain. (Merino, 2012)

In the case of global value chains, large corporations take the lead in organizing the division of labor among participating companies, exercising greater or lesser control over the development of activities, structure, and dynamics of the chain. In turn, this leading role allows the large corporation to retain a greater portion of the total added value generated in the chain.

Following Humphrey and Schmitz (2002), four channels of improvement can be identified within global value chains:

1. Process improvement: implies efficiency gains in the transformation of inputs into outputs, thanks to the development or adoption of a superior technology or production system.
2. Product improvement: consists of the development of new, more sophisticated, or higher quality products that provide more usefulness/satisfaction to the consumer.
3. Functional improvement: it implies the assumption of new functions, in such a way that the knowledge content of the activity developed by the company is raised globally. In this way, the company can move from the mere assembly of imported components to the physical manufacture of and, from there, to assume the design or marketing of products under its brands.
4. Inter-sector or chain improvement: this consists of the abandonment by the company of the activity it had been carrying out in order to enter other sectors or other cvg, in which it has a greater capacity to generate and retain added value. (Luna, 2009)

The emergence of "Value Chains" as an organizational structure reflects the continuous evolution of the market economy, representing a marked change in the behavior of "management" and organizational strategies.

The value chain is created when companies have a shared vision and common goals. It is formed to bring together specific market objectives to meet the needs of consumers. This allows for joint decision making as well as the sharing of risks and benefits. It also allows for cooperative intelligence: cost structure, marketing, and organizational information are shared to increase the profit and competitiveness of the value chain. The value chain, therefore, provides the framework for conducting business transactions, responding to consumer needs; it implies trust and opens communication among its participants, and the results are mutually beneficial to all parties involved.

Value chain members will need to work on identifying and prioritizing business spaces, developing and implementing an action plan to respond to those spaces, and reviewing the results of the planning against objectives (Pearce, 1997). (Iglesias, 2002)

A supply chain is a set of elements that allow companies to have the necessary organization to carry out the development of a product or service and that this fulfills the main objective, which is to satisfy the needs of the final client.

The supply chain is a strategy and logistics that involves three parts or consists of three essential elements, which are: supply, manufacturing, and distribution.

Supply: this part refers to the raw materials with which the company works. It is essential to answer specific questions such as where the material comes from, how it is obtained, and the time it takes to get it to the places where it is required. If this step is not well taken care of, the whole chain will likely be affected, so it must work correctly.

Manufacturing: the phase of assembling or processing the product from the raw materials, to finally have a finished product.

Distribution: in this section, as its name indicates, the process of distributing the articles through a transport network, warehouses, premises, traders, to reach the final consumers.

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The supply chains can vary depending on the type of company we are talking about. These can be industrial, service, and marketing companies.

Industrial companies: they have a supply chain with great logistics, which will have different characteristics according to the size of the company, production lines, and public to which they direct their product. In it, we find the marketing, the development of new products, among other functions.

Service companies: they have hierarchical chains, that is, management, production, commercial, and distribution manager. They depend on human resources.

Marketing companies: they obtain and sell products, receive requests from customers, and are responsible for fulfilling them. (Arcia, 2017)

When we talk about the supply chain, we are referring to the union of all the companies involved in the production, handling, distribution, storage and marketing of a product and its components, in other words, it integrates all the companies that make it possible for a product to come to market at a given time. This includes raw material suppliers, manufacturers, distributors, transporters, and retailers.

The supply chain incorporates (in addition to logistics activities) other types of activities that are not directly linked in the field of logistics, that is, those support activities that are required for the optimal functioning of the organization, but that do not directly relate to the planning, manufacture, handling, storage, and distribution of the product. These support activities, according to Michael Porter, could include Human Resource Management, Technology, Infrastructure, Administration, and Maintenance, among others.

An indispensable requirement to achieve and reach a good Supply Chain Management process is, first, to make a good management process and logistic integration inside each company; it is not possible to pretend to reach high levels of performance on a global scale if each organization tolerates operational inefficiencies and does not make a good use of its processes and resources.

Therefore, the first step in the search for excellence in Supply Chain Management is to have a high level of performance in the internal logistics of companies, in which all logistics processes must be observed as interrelated and interdependent parts, in such a way that improvements are always sought that focus on the entire logistics process and not only on each particular element. (Gómez G. S., 2008)

The supply chain is based from the reception to the delivery to the final customer; that is, all the processes followed to reach the final product. These functions include, but are not limited to, the development of a new project, marketing, operations, distribution, finance, and service. The supply chain is contrasting, i.e., it involves a constant flow of information, products, and different points of view between personnel and the stages through which the product or service passes.

A supply chain can contain several stages, such as the following:

– Clients
– Retailers
– Wholesalers and retailers
– Manufacturers
– Suppliers of components and raw materials

A supply chain is made up of all those parties directly or indirectly involved in satisfying a customer's request. The supply chain includes not only the manufacturer and the supplier but also the transporters, warehousemen, retailers (or retailers), and even the customers themselves. Within each organization, like the manufacturer, it encompasses all the functions involved in receiving and fulfilling a customer request. These functions include, but are not limited to, new product development, marketing, operations, distribution, finance, and customer service. The objective of a supply chain should be to maximize the total value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the costs the chain incurs to fulfill the customer's request. For most supply chains, the value will be closely correlated with the profitability of the supply chain (also known as supply chain surplus), which is the difference between the revenue generated by the customer and the total cost of the supply chain. (Peter, 2008)

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Supply Chain Management is nothing other than the management system that establishes and controls the supply chain, a system that cannot be the traditional authoritarian one, but must be a system that contemplates all the components of the chain in all its magnitude and manages the chain as a whole, achieving the absolute involvement of all its components. The objective should be to seek the benefit for the whole chain and, starting from the whole, to reach the individual benefits of each of the links, contrary to the traditional model, in which each component sought the benefits individually.

If these premises are fulfilled, the application of knowledge management models to the supply chain will, in principle, be feasible. Supply Chain Management is nothing other than the management system that establishes and controls the supply chain, a system that cannot be the traditional authoritarian one, but must be a system that contemplates all the components of the chain in all its magnitude and manages the chain as a whole, achieving the absolute involvement of all its components. The objective should be to seek the benefit for the whole chain and, starting from the whole, to reach the individual benefits of each of the links, contrary to the traditional model, in which each component sought the benefits individually. If these premises are fulfilled, the application of knowledge management models to the supply chain will, in principle, be feasible. (Capó-Vicedo & Expósito-Langa, 2007)

Methodology to be developed

In this developmental phase, the impact of obtaining data on the time and emotional state of the student will be reflected, directly impacting the results. In addition to using the quantitative and qualitative method with the application of surveys in order to know the opinions of different students (Figure 1).

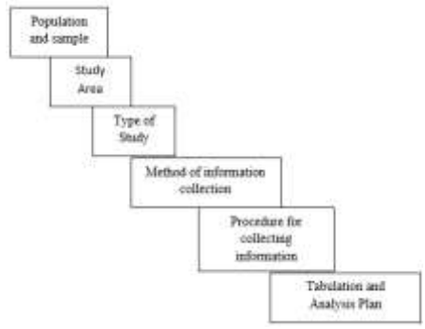

Figure 1 Procedure for the quantitative analysis of information Source: Prepared by the authors

Table 1 shows the total number of businesses surveyed per colony in the Municipality of Mixquiahuala de Juárez, Hgo., where it is observed that the largest population assisted for this research was the neighborhood called Centro, which has the largest population.

	Reforma	Teñhe	El Danfhi	La Estación	El Centro	El Calvario
Bakeries	1	2	1	4	13	6
Purifiers	0	1	0	0	0	0
Tortilla shops	7	8	3	4	13	10
Groceries	18	32	11	17	68	40
greengrocer's shop	2	2	0	1	15	3
Poultry shops	9	3	0	4	16	4
Butcher shops	4	5	0	1	17	5
Others	0	0	0	0	0	0
	41	53	15	31	142	68

Table 1 Neighborhoods surveyed in Mixquiahuala, Hgo
Source: Prepared by the authors

Table 2 shows the continuation of businesses surveyed in the municipality of Mixquiahuala de Juárez, Hgo., noting that the Taxhuada neighborhood is the largest, since it is the second most populated within the municipality.

	La Peña	Los Tigres	Taxhuada	Dos Cerros	El Bondho	La Vega	Tercera Demarcación
Bakeries	2	5	3	0	2	0	0
Purifiers	1	0	1	0	0	0	0
Tortilla shops	8	3	10	0	8	1	0
Groceries	25	10	69	0	35	1	1
greengrocer's shop	2	2	7	0	1	0	0
Poultry shops	1	2	7	0	5	0	0
Butcher shops	1	1	6	0	2	0	0
Others	0	0	0	1	0	0	0
	40	**23**	**103**	**1**	**53**	**2**	**1**

Table 2 Neighborhoods surveyed in Mixquiahuala, Hgo
Source: Prepared by the authors

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Results Analysis of the surveys

Stationery stores

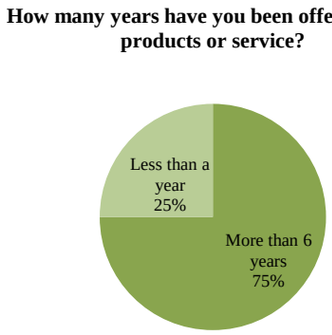

Figure 2 Stationery question 1
Source: Prepared by the authors

Figure 2 shows that the response obtained is focused with the antiquity of the business and we obtained that most of the businesses are more than 6 years old.

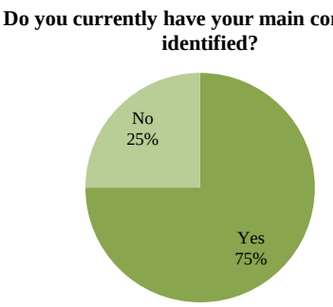

Figure 3 Question 2 on stationery
Source: Prepared by the authors

Figure 3 shows that most owners know who their main competition is.

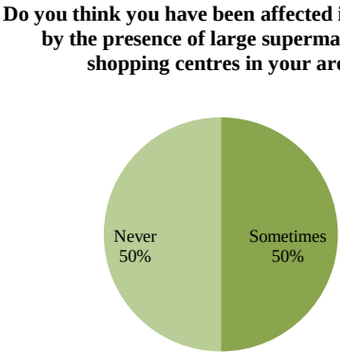

Figure 4 Question 3 on stationery
Source: Prepared by the authors

Figure 4 shows that half of the businesses have experienced a great impact from large supermarkets or shopping centers because sometimes their sales decrease, however 50% say that the businesses are not affected by the fact that there are such companies around them.

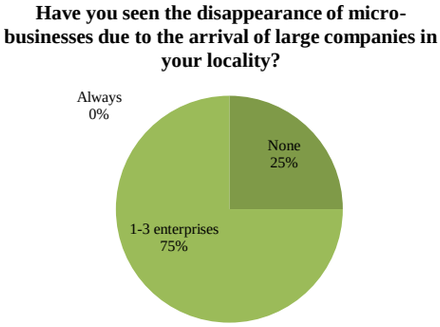

Figure 5 Stationery question 4
Source : Prepared by the authors

Figure 5 shows that with the arrival of large companies, more than 70% of businesses have only disappeared in one to three microenterprises, that is, the arrival of large companies does not directly affect microenterprises.

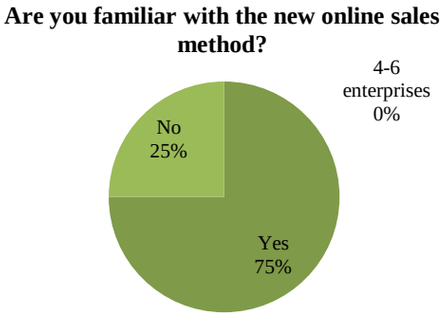

Figure 6 Stationery question 5
Source: Prepared by the authors

Figure 6 shows that more than 70%, i.e. most of the businesses surveyed, are aware of this modality.

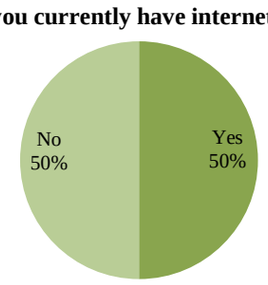

Figure 7 Stationery question 6
Source: Prepared by the authors

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Figure 7 shows that the online market still needs to be spread, as only half of the traders have purchased a product by this means.

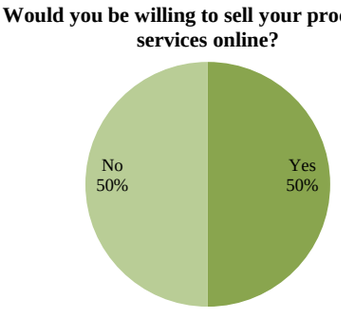

Figure 8 Stationery question 7
Source: Prepared by the authors

Figure 8 shows that half of the merchants are not willing to sell their products online, this is due to the belief that online trading is not efficient, as well as being very complex at the time of selling, while the other half of the merchants are willing to sell online as they consider it to be an effective way of marketing their products.

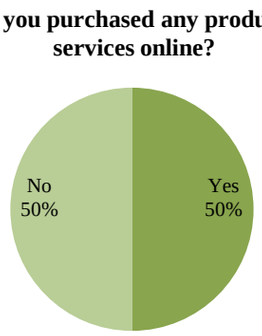

Figure 9 Stationery question 8
Source: Prepared by the authors

Figure 9 shows that half of the businesses have internet service, while the other half of the businesses do not have this service for different reasons, one of them being their socioeconomic level.

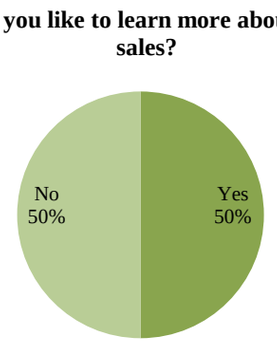

Figure 10 Stationery question 9
Source: Prepared by the authors

Figure 10 shows that half of the businesses are not interested in knowing the modality of online sales, since they are businesses that are still closed to opportunities or in their case due to lack of capital, while the other half are interested in knowing this modality because they are aware that it is an opportunity to increase their sales in the market.
Tortilla shops

Figure 11 Question 1 tortilla shops
Source: Prepared by the authors

Figure 11 shows the antiquity of the businesses, and one of the outstanding data is that half of them have been offering their products for 1 to 5 years.

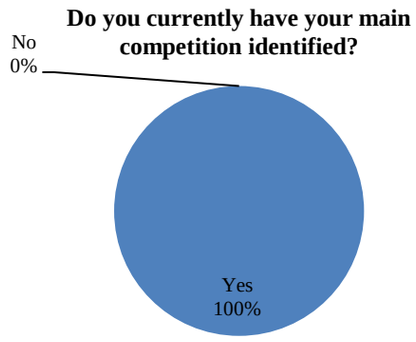

Figure 12 Question 2 tortilla shops
Source: Prepared by the authors

Figure 12 shows that all traders are aware of their main competition and the strengths they possess.

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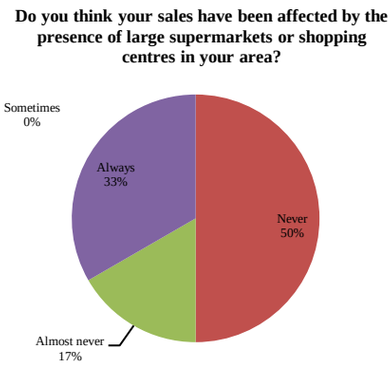

Figure 13 Question 3 tortilla shops
Source: Prepared by the authors

Figure 13 shows that slightly more than a third of traders were affected by the arrival of large shops or supermarkets, while the other half claim to have had no damage to their sales or any impact.

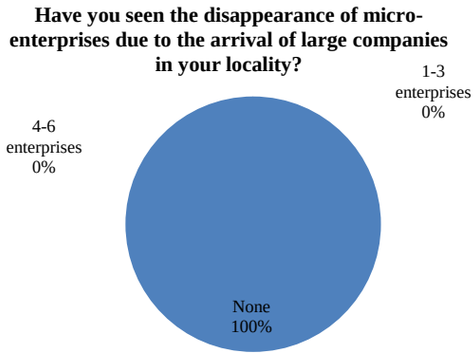

Figure 14 Question 4 tortilla shops
Source: Prepared by the authors

Figure 14 shows that a MSME has never disappeared from the locality due to the appearance of large companies.

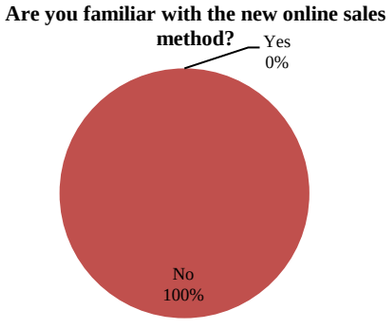

Figure 15 Question 5 tortilla shops
Source: Prepared by the authors

Figure 15 shows that tortilla merchants have no idea about online sales.

Figure 16 Question 6 tortilla shops
Source: Prepared by the authors

Figure 16 shows that no merchant has ever purchased or contracted for a product online.

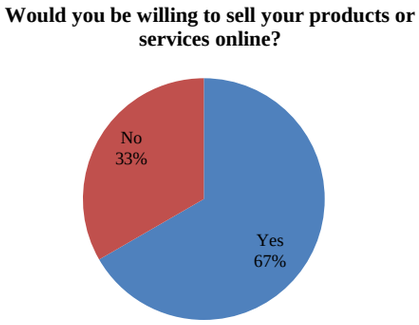

Figure 17 Question 7 tortilla shops
Source: Prepared by the authors

Figure 17 shows that this result is a consequence of their mistrust of collaborative networks as well as online sales, but they would be willing to learn more from it in order to market their products.

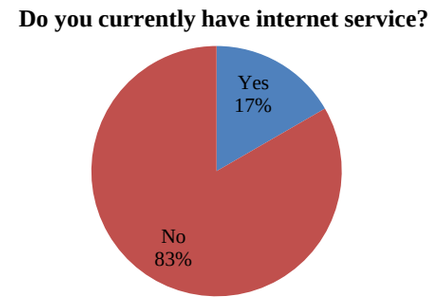

Figure 18 Question 8 tortilla shops
Source: Prepared by the authors

Figure 18 shows that more than 80% of merchants do not have internet service, but would be willing to have it to improve their profits.

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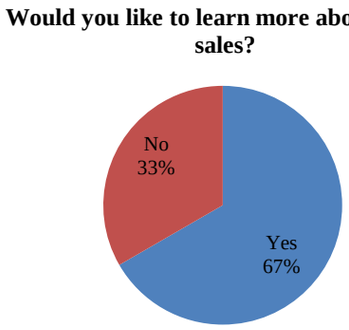

Figure 19 Question 9 tortilla shops
Source: Prepared by the authors

Figure 19 shows that although the vast majority of merchants are not aware of online services, they are willing to learn more about them in order to use them as a sales tool and multiply their profits.

Butcher shops

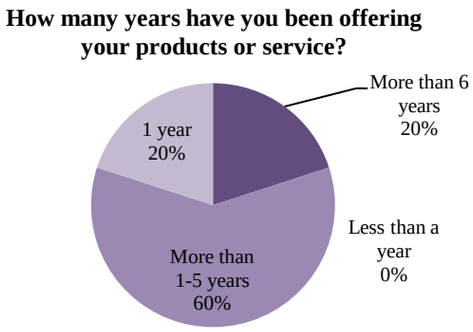

Figure 20 Question 1 Butchers
Source: Prepared by the authors

Figure 20 shows that more than 50% of the butchers in the municipality of Mixquiahuala have been offering their products and/or services for more than 1 year up to 5 years, which indicates that they have been in the market for some time.

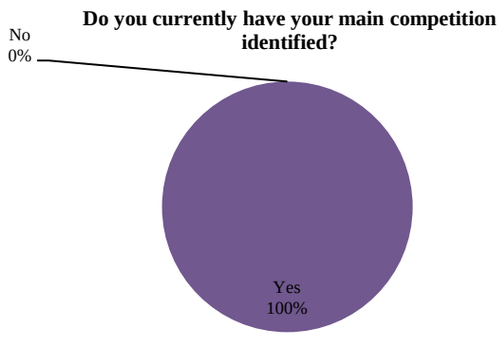

Figure 21 Question 2 Butchers
Source: Prepared by the authors

Figure 21 shows that all the businesses surveyed in Mixquiahuala have currently identified their main competition in the market.

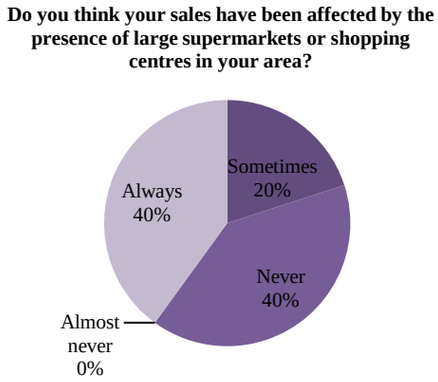

Figure 22 Question 3 Butchers
Source: Prepared by the authors

In Figure 22 the responses show that at least 40% of businesses are never affected by the presence of large supermarkets, while the other 40% say that they are always affected, since people prefer to buy their products either for price or convenience, while the remaining 40% say that sometimes they are affected and that is reason enough for their sales to decrease.

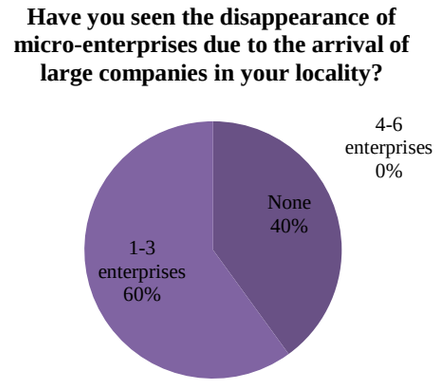

Figure 23 Question 4 Butchers
Source: Prepared by the authors

Figure 23 shows that the majority of businesses indicate that at least 1 to 3 microenterprises disappear due to the arrival of large companies, which means that the arrival of these directly affects those existing in their environment.

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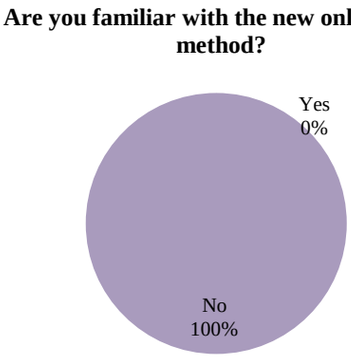

Figure 24 Question 5 Butchers
Source: Prepared by the authors

Figure 24 shows that none of the businesses that were surveyed know how to sell products and/or services online.

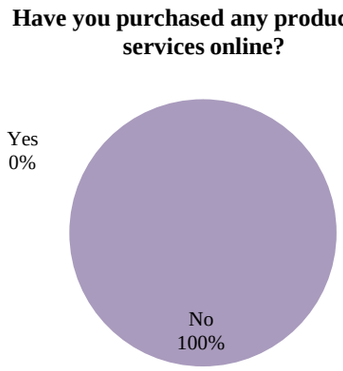

Figure 25 Question 6 Butchers
Source: Prepared by the authors

Figure 25 shows that none of the businesses that were surveyed have purchased or contracted any type of product or service online, because they do not trust such networks, they think it is a very difficult way to acquire it.

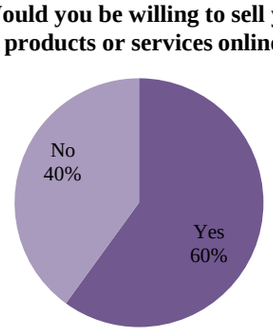

Figure 26 Question 7 Butchers
Source: Prepared by the authors

Figure 26 shows that most businesses are willing to sell their products and/or services over the Internet as it is a new way to increase their sales, satisfying the customer in an efficient way.

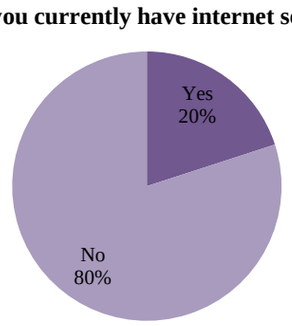

Figure 27 Question 8 Butchers
Source: Prepared by the authors

Figure 27 shows that more than 75% of businesses do not have Internet service, mainly due to lack of capital in microenterprises, or simply due to lack of knowledge about technology, while 20% do have Internet service since they consider it an indispensable tool for day-to-day improvement.

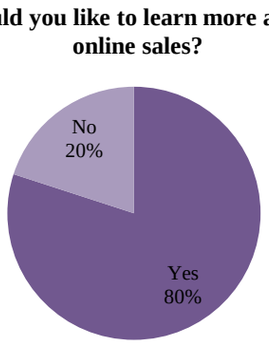

Figure 28 Question 9 Butchers
Source: Prepared by the authors

Figure 28 shows that at least 80% of the microenterprises are interested in learning more about the online sales modality since they know that this can have a positive change for their businesses, while the remaining ones would not like to know, for fear of change.

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Groceries

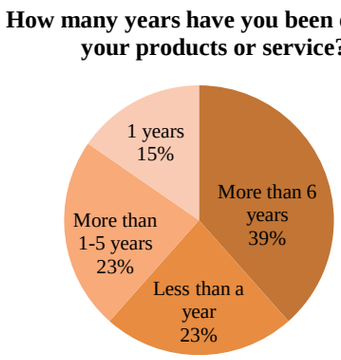

Figure 29 Question 1 Groceries
Source: Prepared by the authors

Figure 29 shows that more than 30% of microenterprises have been offering their products on the market for more than 6 years, this being the most relevant data.

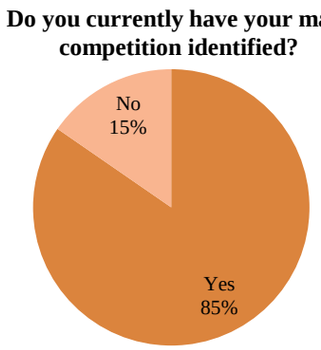

Figure 30 Question 2 Groceries
Source: Prepared by the authors

Figure 30 shows in the above graph that most traders have well identified their main competition.

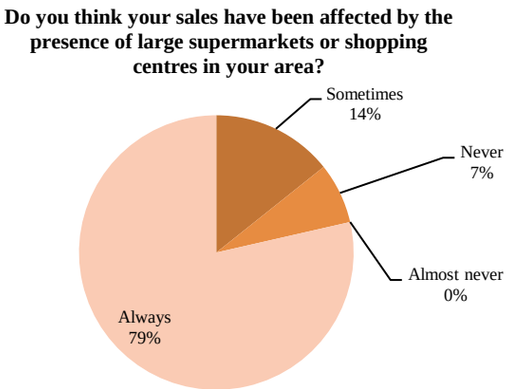

Figure 31 Question 3 Groceries
Source: Prepared by the authors

Figure 31 shows that as a result, more than 70% of traders claim to be affected in their sales as a result of the arrival of large supermarkets.

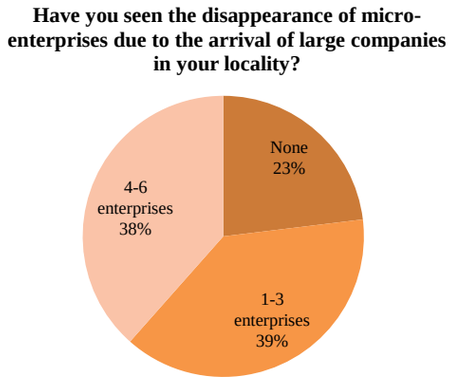

Figure 32 Question 4 Groceries
Source: Prepared by the authors

Figure 32 presents data that at least 39% say they have seen 1 to 3 MSEs disappear due to the arrival of the supermarkets, while 38% say they have seen 4 to 6 disappearances, being two of the most relevant data.

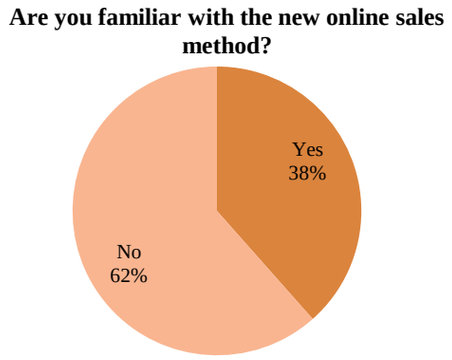

Figure 33 Question 5 Groceries
Source: Prepared by the authors

Figure 33 shows that the vast majority of grocery stores in Mixquiahuala say they have no idea about online sales.

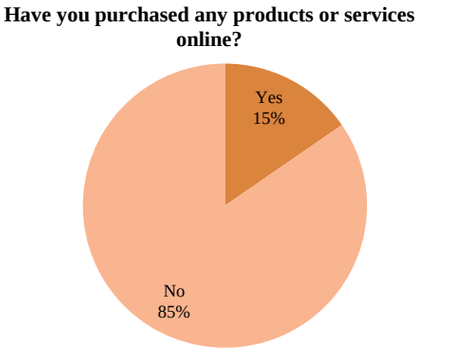

Figure 34 Question 6 Groceries
Source: Prepared by the authors

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Figure 34 shows that as a result of the previous question, to which it refers that they have no knowledge of online sales, they indicate that they have never purchased in this mode.

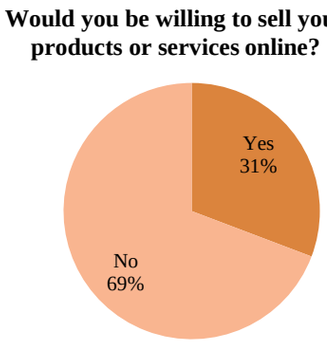

Figure 35 Question 7 Groceries
Source: Prepared by the authors

Figure 35 shows that most grocery merchants in Mixquiahuala are not interested in selling their products online.

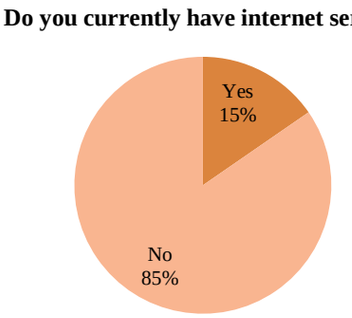

Figure 36 Question 8 Groceries
Source: Prepared by the authors

Figure 36 shows that over 80% of merchants, i.e. the vast majority of businesses, do not have internet service.

Backeries

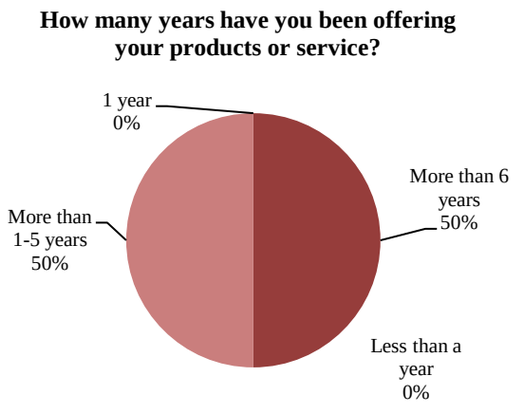

Figure 37 Question 1 Bakeries
Source: Prepared by the authors

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Figure 37 shows that half of the bakers have been in business from 1 to 5 years, and the other half are over 6 years, i.e., the years are high considering the parameters compared to the others.

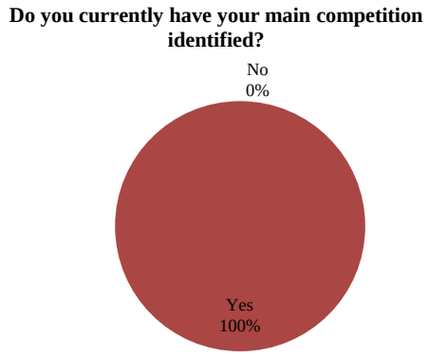

Figure 38 Question 2 Bakeries
Source: Prepared by the authors

Figure 38 shows that, as in the previous answers, all traders have identified their main competences.

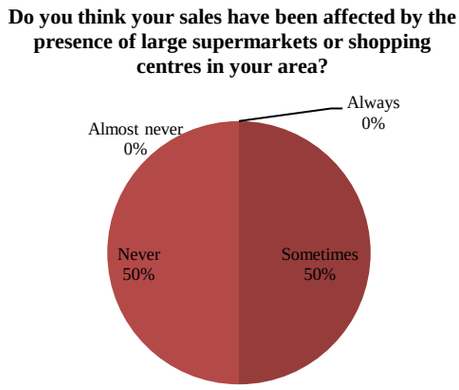

Figure 39 Question 3 Bakeries
Source: Prepared by the authors

Figure 39 shows that half of the bakers claim to have been affected by the appearance of the shopping centres, while the other half claim to have had no effect on their sales.

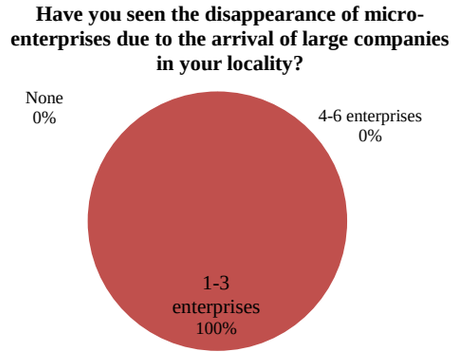

Figure 40 Question 4 Bakeries
Source: Prepared by the authors

Figure 40 shows that all the bakers have seen the disappearance of at least 3 companies as a result of the shopping centres that have been installed in Mixquiahuala.

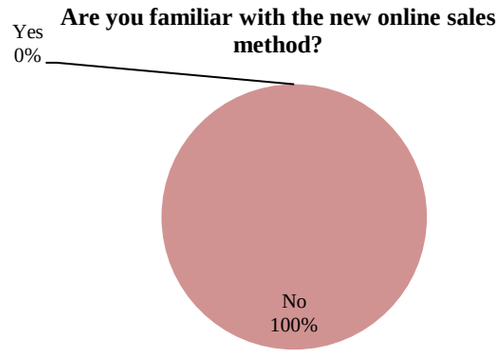

Figure 41 Question 5 Bakeries
Source: Prepared by the authors

In Figure 41 the results show that none of the bakers in the municipality of Mixquiahuala know anything about selling online.

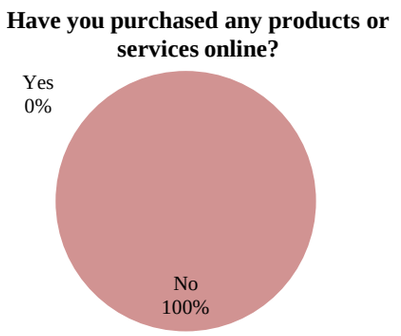

Figure 42 Question 6 Bakeries
Source: Prepared by the authors

Figure 42 shows that as a consequence of not having knowledge about selling online, they have never bought in this modality.

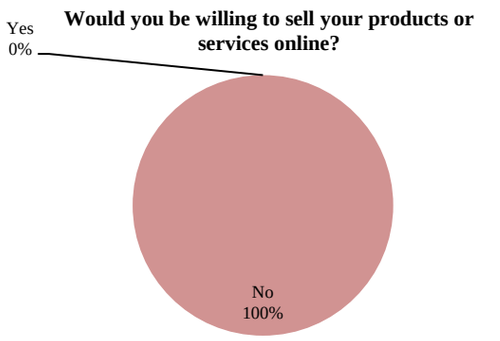

Figure 43 Question 7 Bakeries
Source: Prepared by the authors

Figure 43 shows that none of the bakers are interested or willing to sell their products online.

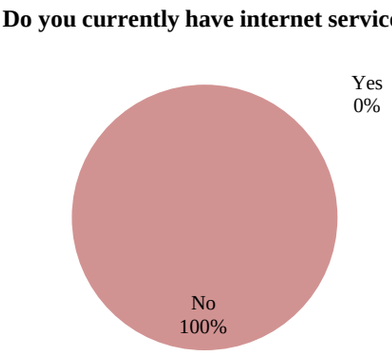

Figure 44 Question 8 Bakeries
Source: Prepared by the authors

Figure 44 shows that none of the merchants have Internet service, either because their possibilities do not allow it or because they are not interested in it.

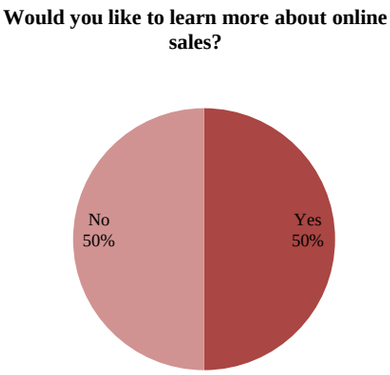

Figure 45 Question 9 Bakeries
Source: Prepared by the authors

Figure 45 shows that half of the bakers are interested in knowing more about this modality for its implementation, it is worth mentioning that the other half does not show the same interest.

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Administration: Provision of resources for the implementation of the Research Project: Planning and Administration Area of ITSOEH linked to the Municipal Presidency of Mixquiahuala de Juárez Hidalgo.						
Human Resources						
Students from Professional Residence, Social Service, ITSOEH Collaborating Teaching Staff.						
Financial Providers **Support from SMEs in the region**						
Bancomer	Santander	Banamex	Banco Azteca	Elektra	Banorte	HSBC
Service Providers Technological and social infrastructure						
Computer and Network Service Provider		Telecommunication Service Provider (Internet)		Logistic Operators or Parcel Services Municipal Presidency of Mixquiahuala		
Technology		**Sales**		**Marketing**	**Customer Service**	
Department in charge of the mobile application system i.e. to manage and update the system containing the App.	Database integration in statistical software. Integration of catalogue of companies of the Municipality.	Integration of work teams with students and members of the CA. Development of collaboration agreements with the municipality and inter-institutional collaboration networks.		To design marketing and advertising strategies for the promotion of micro enterprises in the region Use of electronic advertising through the Internet.	It is the department in charge of attending and managing the complaints and suggestions made by the client to the company in order to be a better organization	

Figure 46 Value Chain Model
Source: Prepared by the authors

Figure 46 shows the value chain model which is made up of the main areas that help improve the mobile application and better performance inside and outside the organization, which are management, human resources, financial suppliers, technology, sales, marketing and customer service.

Supply Chain

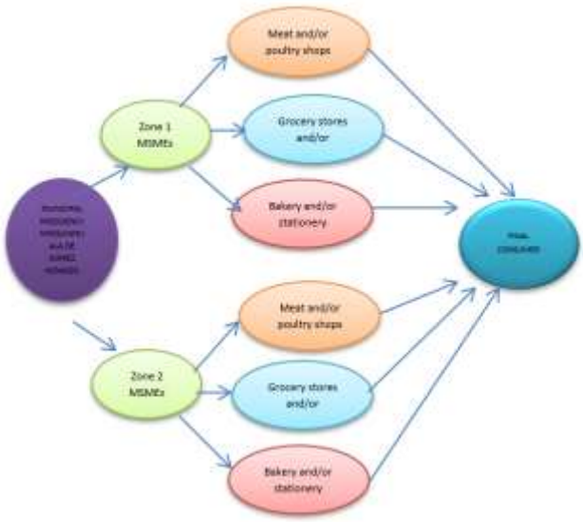

Figure 47 Supply Chain Model
Source: Prepared by the authors

Figure 47 shows that the supply chain is fundamental concerning the value chain, although they are linked. The supply chain is responsible for distributing the products through a network of facilities whose function is to obtain materials and thus distribute them so that they reach the end consumer, without leaving aside the fact that the product has to arrive on time and in the correct form, thus satisfying their needs.

That is why the supply chain for the distribution of the product was designed in this way because in the municipal presidency will be located the office receiving data so that the distributors arrive at the place to receive the receipts of the sale that will be made to continue with the main process of the network of collaboration SMEs ONLINE; therefore will be classified by area of the Municipality of Mixquiahuala de Juarez Hidalgo.

Main process of the collaborative network

Figure 48 Main process of the collaborative network
Source: Prepared by the authors

Figure 48 shows the process that the collaboration network will follow, that is, the steps that will make up the steps from the time the purchase order is generated, through the notifications that alert the orders, and the areas that intervene within them, as well as the human and material resources required to provide the complete service to each customer.

When analyzing the surveys conducted among the MSEs in the municipality of Mixquiahuala de Juárez, Hgo. of the different lines of business (stationery stores, tortilla shops, butcher shops, grocery stores and bakeries) it was found that most of them have a market presence of between one and five years and even more than six years, as well as most of the merchants have their competitors well identified which in turn allows them to see both their strengths and the level of presence in the market.

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Also the arrival of large companies, in one way or another, has affected them, resulting in reduced sales which generate losses; on the other hand, the results show that there is also the disappearance of the MSEs thanks to the arrival of large companies, as well as is reflected the little knowledge of selling online, usually because there is no knowledge of this mode; purchases or some hiring of services or products online is usually zero, as for the disposition of the different merchants of the municipality is usually present due to different causes, either because they want to increase their profits or because they do not want to leave the market so easily, which is why they mostly prefer not to hire some type of service that offers internet.

It should be mentioned that most shop owners are older people; therefore, they do not have the same ideology as younger people, but once raised the situation, they were interested in this new implementation and although the road is long for its completion, they are in the best disposition to learn to use these networks of collaboration in order to increase their sales.

It is said that there is a horizontal structure, which means that leadership is of great importance since it is not imparted nor much less submitted, but rather that decisions are made together, taking into account the common goal always seeking the joint benefit, reaching greater productivity. Therefore, it is very important to implement collaboration networks, since leadership is formed mainly by work team, formed by the benefactor institution that supports the MSEs of the municipality of Mixquiahuala de Juárez Hidalgo, being the Municipal Presidency who has supported this Application project, in order to increase the sales of the MSEs of the municipality.

Figure 49 below shows the distribution channels that will help in this application, which will be the following, seeking to reduce both time and expenses, thus increasing the profits of each of the components of this channel.

Figure 49 Distribution channels

The distribution of the products based on the application once the orders have been made will be divided from the moment of requisition to the different merchants according to the customer's order, in turn promoting delivery to the customer's home, taking into account it as a competitive advantage, through the use of motorcycles for delivery, in order to reduce costs knowing that it is a means of transport that does not exhaust the fuel as quickly as others, which will generate fewer costs. Continuing with the characteristics that this application will have, it is worth mentioning that the payment will be made according to the needs of the clients since there will be two forms of payment:

– The first will be in cash, making this payment at the time of delivery of the product.
– The second will be by electronic payment (debit or credit card).

Finally, once it has been delivered to the final client or consumer, the implementation of the product will be finished, and therefore the purpose will have been fulfilled.

Conclusions

In conclusion, this application will be to support the MSEs of the municipality of Mixquiahuala de Juárez Hidalgo, since it is an innovative instrument seeking that all collaborate to increase their sales and to reduce or to eliminate competitiveness among the MSEs of the area, taking advantage of the enormous impact of technology, not only to use it as a distraction but occupying its benefits to grow the market and to obtain a competitive advantage of the ICTs. The collaboration networks are structured by a team, so all the MSEs that wish to belong to this project must be motivated and oriented towards a common objective, without considering as rivals other micro-enterprises.

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But as an opportunity to make their business grow, with the purpose that all march towards the same objective, the one to increase their profits and to have a more objective vision on the ICT, beginning with few companies and to support with training, and that they are in the best disposition to even acquire a mobile phone, which can work with mobile data.

References

Arcia, M. (July 17, 2017). *Entrepeneur*. Recovered on August 07, 2019, from https://www.entrepreneur.com/article/316908

Capó-Vicedo, J., & Expósito-Langa, J. V.-M. (2007). La Gestión del Conocimiento en la Cadena de Suministro. Análisis de la Influencia del Contexto Organizativo. *Información tecnológica* , 127-136.

Cordero, A. T. (2009). *UAEH*. Recovered on 07/08/2019, from https://www.uaeh.edu.mx/investigacion/productos/4830/las_micro__pequenas_y_medianas.pdf

Gómez, G. S. (2008). Cuantificación de valor en la cadena de suministro extendida. En G. S. Gómez, *Cuantificación de valor en la cadena de suministro extendida* (págs. 12-15). Del Blanco Editores.

Gómez, V. (2007). Recovered on July 30, 2019, from https://s3.amazonaws.com/academia.edu.documents/44452942/559-1735-1-PB.pdf?response-content-disposition=inline%3B%20filename%3DCompetitividad_Para_Las_Micro_Pequenas_y.pdf&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWOWYYGZ2Y53UL3A%2F20190730%2

H., R. R. (2007). Las MiPYMES en Latinoamerica. En R. R. H., *Las MiPYMES en Latinoamerica* (pág. 277). EUMED.

Iglesias, D. H. (Febrero de 2002). *CADENAS DE VALOR COMO ESTRATEGIA:LAS CADENAS DE VALOR EN EL SECTOR AGROALIMENTARIO*. Recovered on 09 2019, from Estación Experimental Agropecuaria Anguil: https://inta.gob.ar/sites/default/files/script-tmp-cadenasdevalor.pdf

Luna, I. R. (2009). Pymes y cadenas de valor globales.Implicaciones para la política industrial. *Redalyc.org*, 199-216.

Merino, J. P. (2012). *Definicion.de: Definición de cadena de valor* . Recovered on August 07, 2019, from Definicion.de: Definición de cadena de valor : https://definicion.de/cadena-de-valor/

Peter, C. S. (2008). *Administración de la cadena de suministro* . Mexico : Pearson. Prentice Hall.

Plazoala, F. O. (2019). Cadena de Valor. *Estrategia Magazine*, 1-3.

Robben, X. (2015). La cadena de valor de Michael Porter. En X. Robben, *La cadena de valor de Michael Porter* (págs. 6-8). Mexico: 50 Minutos.

Sánchez, J. Q. (2006). La cadena de valor: Una herramienta del pensamiento estratégico . *Redalyc.org*, 377-389.

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Diagnostic study of cost management in manufacturing SMEs in Colotlán Jalisco

Diagnostic study of cost management in manufacturing SMEs in Colotlán Jalisco

LOMELI-RODRÍGUEZ, Sandra Eva[1]†*, GUZMAN-AGUILAR, Ernesto[1], GONZÁLEZ-OROZCO, Raúl[1] and VERGARA-MESA, Gerardo Alexander[2]

[1]*Universidad de Guadalajara, Centro Universitario de la Ciénega. Departamento de Contaduría y Finanzas.*
[2]*Universidad de San Buenaventura, Colombia*

ID 1st Author: *Sandra Eva, Lomeli Rodríguez* / **ORC ID**: 0000-0003-1161-6989

ID 1st Coauthor: *Ernesto, Guzman-Aguilar* / **ORC ID**: 0000-0002-7640-0604

ID 2nd Coauthor: *Raúl, González-Orozco* / **ORC ID**: 0000-0003-3742-4344

ID 3rd Cauthor: *Gerardo Alexander, Vergara-Mesa* / **ORC ID**: 0000-0003-1764-4104

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Abstract

Cost control in companies plays a vital role in decision making, regardless of size. Before this investigation, there was no precise information regarding the situation of cost management in manufacturing SMEs in Colotlán Jalisco, Mexico. When carrying out this research work, information was obtained according to the measurement, analysis, and cost management of these companies. The methodology used was a quantitative type by applying an instrument/questionnaire to a sample of the study universe. The surveys were applied to 51 companies, which were selected in a multivariate way with respect to each economic activity. The universe of manufacturing SMEs in Colotlán Jalisco was taken from the National Statistical Directory of Economic Units (DENUE) of INEGI. The sample was calculated with 95% confidence and an error margin of +/- 5%. (DENUE, 2019) By having this information, it will be possible to have indicators that will work as a basis for the generation and application of projects that have an impact on the improvement of the integral management of the SMEs under study. Projects that will be carried out in conjunction with the research group of the University of Buenaventura Colombia.

Cost, SMEs, Manufacturing

Resumen

El control de costos en las empresas juega un papel importante para la toma de decisiones sin importar su tamaño. Antes de esta investigación no se contaba con información precisa respecto a la situación que guarda el manejo de los costos en la PYMES manufactureras de Colotlán Jalisco, México. Al realizar el presente trabajo de investigación se obtuvo información respecto a la medición, análisis y gestión de costos de estas empresas. La metodología utilizada fué de tipo cuantitativa mediante la aplicación de un instrumento/cuestionario a una muestra del universo de estudio. Las encuestas fueron aplicadas a través de la visita a 51 empresas, las cuales fueron seleccionadas de manera multivariada con respecto a la actividad económica. El universo de PYMES manufactureras en Colotlán Jalisco se tomó del Directorio Estadístico Nacional de Unidades Económicas (DENUE) del Instituto Nacional de Estadística y Geografía (INEGI). La muestra se calculó con una confianza del 95% y un margen de error de +/- 5%. (DENUE, 2019) Al contar con esta información será posible contar con indicadores que servirán de base para generación y aplicación de proyectos que repercutan en la mejora de la gestión integral de las PYMES objeto de estudio. Proyectos que se llevarán a cabo en conjunto con el grupo de investigación de la Universidad de Buenaventura Colombia.

Costos, PYMES, Manufactureras

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*Correspondence to Author (email: sandylome@hotmail.com)
†Researcher contributing first author.

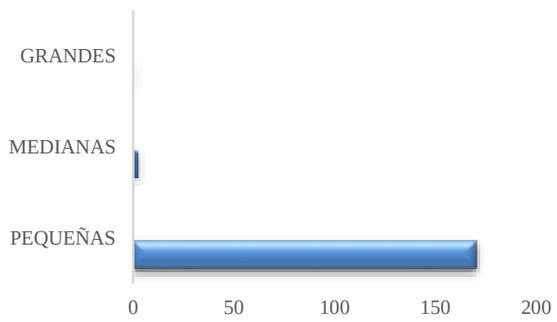
Introduction

The northern region of Jalisco is made up of 10 municipalities; the one with the most significant economic development is Colotlán Jalisco. It is one of the least populated regions since, according to the Institute of (INEGI, 2005), it only has 1.1% of the total population of the state. A large part of its population is of the Huichol ethnic group.

In this zone, the economic development has been deficient, so with this investigation, we intend to make a diagnosis that serves as a basis for projects aimed at the development of the region. Specifically, the study is carried out in the municipality of Colotlán Jalisco.

Colotlán is a municipality and town in the Northern Region of the State of Jalisco, Mexico. This area is one of the least populated regions of Jalisco. It has an extension of 10,360 km2, which represents, as already mentioned, 1.1% of the total population of the state. The node municipalities are Colotlán and Huejuquilla el Alto.

Colotlán had a total of 6,008 economically active individuals in the year 2000. The manufacturing sector employs the plurality of this population (30.6 percent), followed by the commercial sectors (wholesale and retail) 13.6 percent, while agriculture and livestock 12.0 percent. Currently, there are 172 manufacturing companies according to data from the National Statistical Directory of Economic Units - INEGI (2019). Of these manufacturing companies, 163 have from 0 to 5 workers, 7 have from 6 to 10 workers, and only 2 companies have from 11 to 20 workers.



Graph 1 Manufacturing companies in Colotlán
Source: DENUE (2019)

This investigation focuses on manufacturing SMEs, specifically on cost control.

Costing management in companies of all sizes plays a vital role in decision making. With this research, the current situation of cost management in manufacturing SMEs in Colotlán Jalisco, Mexico, will be accurately known.

The general objective is then to generate a diagnosis on the current cost systems or cost programs of the manufacturing SMEs in Colotlán Jalisco.

With this information, it will be possible to have indicators that will serve as a basis for the generation and application of projects to improve the comprehensive management of the SMEs under study. Projects that will be carried out jointly with the research group of the University of Buenaventura Colombia.

The first part of the article explains the importance of cost management for decision-making in enterprises. The second part presents the methodology used to apply the diagnosis, to continue with the presentation of results, and to close with the conclusions.

Cost management

So far, in the 21st century, a time of significant development in the use of technology, the Internet, and the maturation of globalization, relevant changes can be observed in the fiscal, economic and financial fields of companies worldwide. Also, there is intense business competition, handling of cutting-edge electronic information, and new forms of marketing. These are aspects that Management Accounting cannot ignore.

According to him (Arredondo, 2015), "cost accounting supports financial accounting and management accounting to provide information on costs and expenses for decision making."

Likewise, (Valeria & Soto, 2017) state that cost indicators serve for the control, evaluation, completion, and development of cost information systems for organizations.

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To start from a solid base, it is determined that the cost system is integrated by the following phases: The first is the Cost System (CS), which produces data that should be useful for the management and formulation of projects; and the second phase is the Output data which is integrated into the Cost Information System (CIS) which includes strategic data for the measurement, analysis, and management of costs. It can be understood more clearly in Figure 2:

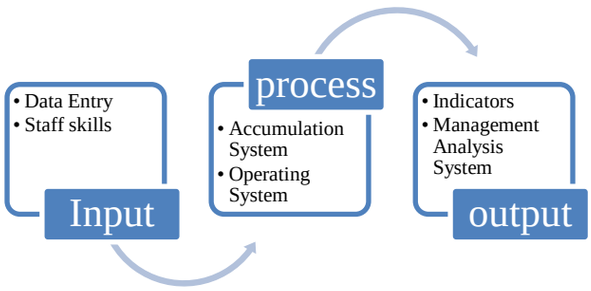

Figure 2 Cost information system
Source: Prepared by the authors (2019)

Methodology

Population. 172 entrepreneurs from SMEs dedicated to manufacturing in the municipality of Colotlán Jalisco, Mexico, were identified as the study universe.

For the development of the companies, it is necessary that the generators of information know precisely how to determine their costs, for correct decision making.

Sample. Obtained through proportional probability sampling, the number of entrepreneurs of manufacturing SMEs was determined, considering the data: size and subsector to which the company belongs. (Bernal, 2010)

The statistical sample determined that 51 surveys were applied, with a degree of reliability of 95% and a margin of error of +/- 5%, which were applied in a multivariate way concerning the economic activity carried out by the SMEs.

Instruments. A 22-question questionnaire was constructed to obtain the required information in an objective and reliable manner.

Results

In Colotlán of the 172 manufacturing companies: 26% are from the food and beverage industry, 46% tanning and finishing of leather and fur (saddlery), 7.5% carpentry, 9% marble and brick and the remaining 11% from others.

70.6% of its owners are male, and only 29.4% female.

The level of schooling of the entrepreneurs 41.2% finished high school, 19.6% high school, 27.5% elementary school, 7.8% university studies, 2% master's degree, and 2% have no academic preparation.

The age range of entrepreneurs is very varied: from 18 to 25 years 7.8%, from 26 to 30 years 11.8%, from 31 to 35 years 9.8%, from 36 to 40 years 13.7%, from 41 to 45 years 23.5%, from 46 to 50 years 11.8% and over 50 years 21.6%.

Production lines that handle: 1 line 12%, 2 lines 47.9%, 3 lines 18.7% and 4 lines 20.8%.

Organized their production processes: 2% not and 94% if they have identified their production processes. However, they have no record of it. They manage it intuitively.

Process Map: 94.1% do not have the supports, graphics, or digital formats. Only 5.9% do.

Classification of activities: 84.3% do not have identified and classified activities and only 15.7% if they have it in a rudimentary way.

Certainty in the calculation of costs: 86.3% have uncertainty in the calculation of costs, and only 13.7% consider that they calculate them with certainty.

In the question, How do they do it? The answers were: Because the price is determined based on what each product generally sells for, I have a craft house that calculates it for me by telling me approximately how much it costs, because I calculate the costs at the time of selling, because I have many years making them and I know how much it costs to make a belt.

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Those who answered that they have cost control, 70.6% consider using the system of costs by orders, 23.5% by processes and the rest none; 74.5% do not use any software for the process of accumulation of costs, the remaining 25.5% affirm they use excel, contpaqi, other; 91% do not have indicators for the measurement and management of costs; 94.1% do not prepare financial statements or cost statements by product line, nor do they calculate profits by product line; 97% of companies do not have standardized forms for the preparation of products; 98% do not calculate the cost of waste. No company has analytical protocols for the engineering area.

Acknowledgments

The present project was carried out with the collaboration of three students from the DELFIN 2019 Research Summer.

Conclusions

In reviewing the results, it was concluded that the small and medium-sized manufacturing companies in Colotlán Jalisco do not have systems for calculating the costs of the products they manufacture. Therefore, it is necessary to establish projects that help with cost management in manufacturing SMEs in Colotlán, as well as the generation and implementation of projects that have an impact on improving the comprehensive management of SMEs.

Establish a business incubator to support the development of training programs for existing and new companies in the northern area of Jalisco.

References

Arredondo, G. M. (2015). *Contabilidad y análisis de costos.* Mexico: Grupo Editorial Patria.

Bernal, C. A. (2010). *Metodología de la Investigación, administración, economía, humanidades y ciencias sociales.* Colombia: Pearson Educación.

DENUE . (August 30, 2019). *Directorio Estadísticio Nacional de Unidades Económicas*. Obtenido de Instituto Nacional de Estadística y Geografía: https://www.inegi.org.mx/app/mapa/denue/

INEGI. (December 31, 2005). *Instituto Nacional de Estadística y Geografía*. Obtenido de Conteo de Población y Vivienda: https://www.inegi.org.mx/programas/ccpv/2005/

Valeria, G. S., & Soto, C. (2017). *Contabilidad de Costos.* Mexico: ECOE.

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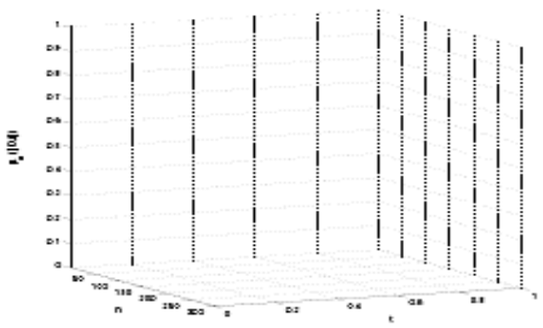

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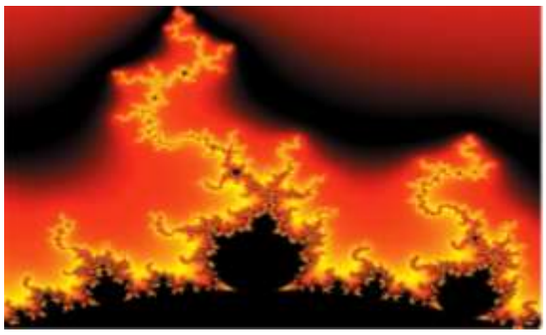

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