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ECORFAN Journal Republic of Peru

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The works must be unpublished and refer to topics of business, administration-administrative, management-SME, management-tourism, hotel, management-financial, administration and other topics related to Social Sciences.

Presentation of the Content

In Number is presented an article *Organizational culture and quality under the management perception of the hotel sector* by QUIJANO-GARCÍA, Román Alberto, BERTTOLINI-DIAZ, Gilda María and ARGUELLES-MA, Luis Alfredo with adscription at Universidad Autónoma de Campeche and Universidad Juárez Autónoma de Tabasco, in the next article *Designing a quality management system at ebpc engineering and business process consultants, S.C.* by RAMÍREZ-ROMÁN, Adolfo, SUÁREZ-ÁLVAREZ, Ángel, CHABAT-URANGA, Jacqueline and RODRÍGUEZ-RODRÍGUEZ, Luis Alberto with adscription at Universidad Veracruzana, in the next section *Study on knowledge management and open innovation* by ARREDONDO-SAFA, Judith, PEREZ-ROMERO, Luis Alfonso and CASTRO-VALENCIA, Alberto Merced with adscription at Universidad Autónoma de Guadalajara, in the next section *Proposal of customer service strategies for a micro tax and financial consulting firm* by ANDREW-SOTELO, María Elena, SOSTRES-FLORES, Paula Alejandra and DURÁN-MORALES, Carlos with adscription at Universidad Tecnológica de Chihuahua.

Content

	Article	Page
	Organizational culture and quality under the management perception of the hotel sector	1-11
	QUIJANO-GARCÍA, Román Alberto, BERTTOLINI-DIAZ, Gilda María and ARGUELLES-MA, Luis Alfredo <i>Universidad Autónoma de Campeche</i> <i>Universidad Juárez Autónoma de Tabasco</i>	
	Designing a quality management system at ebpc engineering and business process consultants, S.C.	12-23
	RAMÍREZ-ROMÁN, Adolfo, SUÁREZ-ÁLVAREZ, Ángel, CHABAT-URANGA, Jacqueline and RODRÍGUEZ-RODRÍGUEZ, Luis Alberto <i>Universidad Veracruzana</i>	
	Study on knowledge management and open innovation	24-37
	ARREDONDO-SAFA, Judith, PEREZ-ROMERO, Luis Alfonso and CASTRO-VALENCIA, Alberto Merced <i>Universidad Autónoma de Guadalajara</i>	
	Proposal of customer service strategies for a micro tax and financial consulting firm	38-47
	ANDREW-SOTELO, María Elena, SOSTRES-FLORES, Paula Alejandra and DURÁN-MORALES, Carlos <i>Universidad Tecnológica de Chihuahua</i>	

Organizational culture and quality under the management perception of the hotel sector

Cultura organizacional y la calidad bajo la percepción gerencial del sector hotelero

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Abstract

This study analyzes the dimensions of organizational culture and its possible influence in the quality of services offered by hotels in the city of Campeche that don't belong to big hotel chains. The research is descriptive with non-experimental transversal design, considering the small hotels as population under study, which were enumerated according to the data of the Mexican Business Information System; the obtained results indicate that the organizational culture is based on the levels of trust developed among the collaborators, but the leader must encourage an open communication that strengthens its building, transmission and preservation, since the managers consider that the provided services don't have an adequate quality level, so new strategies must be designed to improve the processes to innovate and remain in the market where they participate.

Resumen

Este estudio analiza las dimensiones de la cultura empresarial y su posible influencia en la calidad de los servicios que ofrecen los hoteles que no pertenecen a cadenas hoteleras en la ciudad de Campeche. La investigación es descriptiva con diseño no experimental transversal, considerando como población a los hoteles pequeños, los cuales fueron censados dado su número según los datos del Sistema de Información Empresarial Mexicano; los resultados obtenidos señalan que la cultura organizacional se ha construido con base a los niveles de confianza fomentada entre los colaboradores, pero el líder debe fomentar una comunicación abierta que fortalezca la construcción, transmisión y preservación de la misma, ya que los gerentes consideran que los servicios otorgados no reúnen niveles adecuados de calidad, debiéndose diseñar nuevas estrategias para la mejora de los procesos para innovar y permanecer en el sector donde participan.

Organizational culture, Quality, Hotel sector

Cultura empresarial, Calidad, Sector hotelero

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Introduction

The last planning document of the Mexican government (Six-Year Development Plan), establishes that the tourism sector is a source of wealth for the country, and occupies the third place in the generation of foreign currency after the oil activity and the remittances of dollars that Mexicans who work abroad send, therefore, the promotion of tourism activity is essential for job creation and economic stability (National Development Plan, NDP 2013-2018).

According to the data of the National Statistical and Geographic Information System of Tourism (SNIEGT, 2019) at the end of 2018, the tourism sector generated 4,187,000 direct jobs, which represents 8.9% of the total economically active population employed, its contribution to National GDP is equal to 8.7% at the end of the third quarter of the same year.

For its part, the government of the state of Campeche, through the State Development Plan (PED 2015-2021), designed strategies and lines of action to strengthen tourism potential and thus generate jobs and economic growth along with the social welfare of the population through the organization of the sector, promoting a greater flow of direct investment and financing by raising the competitiveness of the activity in a sustainable way.

As main tourist assets, the State has the fortified city of Campeche, the only walled city in Mexico that has the UNESCO Cultural Heritage badge granted by UNESCO in 1999 as well as the Mixed Heritage (cultural and natural) granted to the ancient Mayan city and protected tropical forests of Calakmul since 2014. There are 16 archaeological areas open to the public where you can appreciate the Mayan culture, two site museums and 9 museum spaces (PED 2015-2021).

This work considers as part of the literature review studies developed on the quality of services in companies that participate in the tourism sector, as well as the way in which their organizational culture is developed and transmitted; In the methodology section the type and design of the study is established, as well as the participating variables, in addition to the characteristics of the population studied and the definitions of the instrument used to obtain information.

The statistical treatment of the data obtained is included in the results section, to finally be discussed and contrasted with the information of previous investigations that are part of the literature of the subject and that contribute to establish the final conclusions.

Problem Statement

Given the resurgence of the crisis in the oil sector that has consequences at international and national level, the strategies proposed in the economic planning documents seek to promote tourism investments of MSMEs, promoting the care and preservation of the country's cultural, historical and natural heritage (PND , 2013-2018). Based on the above, studies are required that contribute to the strengthening and development of the companies that participate in this sector, to turn them into organizations that offer competitive services at international level as required by globalization.

The hotel sector needs to be integrated by organizations that know their strengths and weaknesses at the level of infrastructure and processes under the leadership style of the decision maker, to position themselves in a market that demands quality in comprehensive services for national and foreign tourism.

Objectives

The organizational culture represents the set of processes and values created and transmitted by the administration to the collaborators of the companies (Velázquez 2005), therefore, this study intends the following objectives: a) Identify the elements that integrate the organizational culture in the MSMEs of the hotel sector of the city of Campeche, b) Identify the dimensions of quality in the operations of the participating organizations and c) Establish the perception of managers regarding culture and its impact on the quality of hotel services in the city

Theoretical framework

Organizational culture in the tourism sector

Wallingre (2005) considers that it is necessary to implement an innovative organizational culture in hotel SMEs, as this activity is a fundamental factor for the socio-economic development of countries.

Synergy, commitment and creativity in collaborators contribute to the management of organizational culture by favoring teamwork, (Goncalvez, Goncalvez and Narloch, 2006); Therefore, every company has an implicit organizational system according to its level of structure. On the other hand Uzcátegui, Solano and Matute (2017), consider that the Quinn model provides the methodological framework to diagnose organizational culture and business performance.

Tarore (2016), analyzed the organizational culture and learning to establish its effects on commitment and empowerment and notes that organizational commitment has no effect on performance while learning and empowerment are factors that contribute to the results of Business.

The strategic planning of the companies is the reflection of the organizational culture and those with market orientation favor intensive work and develop defensive strategies, while those of ad hoc style compete through the differentiation of the products and services they offer. (Esparza and García, 2011).

Several studies indicate that culture and its values favor innovation by interacting with management to design new and better processes that facilitate adaptation to constant changes in the market through commitment, training and motivation of human resources, (Pérez 2003, Kyriakidou and Gore 2005 and Gálvez 2011).

Ortiz, Daza and Labarcés (2014), studied the development of strategies to favor the increase of productivity, identifying the organizational culture through physical working conditions, work environment and organizational behavior; its results indicate that the collaborators who claim to have good interpersonal relationships and communication; They feel support in the way in which conflicts are resolved, they are satisfied with the working conditions, equipment and security offered to them, these elements together allow maintaining acceptable levels of productivity to achieve the objectives.

Quality in SME hotel services

Monsalve and Hernández (2015), consider as several authors that the service offered in the hotels is fundamental for the sustainable development of tourist destinations and as part of their research they identified management variables that influence the quality of service among which They highlight the loyalty, promotion, innovation, promise of sale, equipment and training of human talent, conclude that a successful tourist destination requires citizen participation, business and government groups, in addition to education institutions, to prevent deterioration and resource depletion, integrating the local community into the project.

When studying a business case González and Vilalta (2007), they designed and implemented a guide for self-diagnosis of quality as a tool for their management that allowed them to specify ideas and align the efforts of the work developed to improve it.

Gutiérrez and Rubio (2009) considered the need for a change in the culture of tourism businesses and identified the human factor as a fundamental element in the management of service quality, the above when observing the increase in competition linked to the improvement of quality and its management systems, where the human factor is finally mentioned but not involved as a key piece in the development of services to achieve customer loyalty and satisfaction; The foregoing defines the client as the sole evaluator of the quality and subjectivity of their perception. Guerra and Cardozo (2010) considered that the management by competences is a tool that contributes to guarantee the quality of the service in the tourist inns of Tachida Venezuela, these researchers consider the human factor as essential in the sector, therefore, they identify the need to train and train staff in a planned way, measure their performance and thus together with other elements to evaluate the service.

The recognition of the quality of hotel services influences the satisfaction obtained by the client, Fuentes, Hernández and Morini (2016) were able to establish that the average quality of services in five-star hotels is high and the client does not observe a difference significant; the differences are greater in three-star hotels, where managers often have little guidance on how to establish whether the experience of the service provided to the customer is satisfactory. Reyes, Guzmán and Morales (2015) elaborated a work that allowed them to know the expectations and perceptions of the tourist regarding lodging in Acapulco, Gro., Using the Servqual model, among their findings it highlights that the best evaluated variable was the human resource, for above expectations, but not in the case of facilities and equipment, which allowed them to point out the need to modernize the traditional areas of the tourist destination to recover the level of occupation and competitiveness.

Ibañez (2011), made a diagnosis of the quality and competitiveness of the tourism sector in Mexico considering that the globalization of the economy intensifies competition between destinations, pointing out the need to undertake efforts to maintain the privileged position that Mexico had, who has not yet It has consolidated the culture of quality and competitiveness which originates its tendency to lag in the ranking of the main tourist destinations in the world, for which it recommends implementing programs that certify the training of personnel, granting facilities for companies and workers to obtain certifications in quality, originate truthful and up-to-date information from government institutions, improving access to information; incentivize socially responsible companies to promote the use of alternative energy and revalue the human resources of all levels, which has an impact on the image that the company, the destination and the country offer the tourist.

Research methodology

Descriptive study because information is measured or collected on the analyzed variables, with a non-experimental cross-sectional design since data were collected at a single moment in their natural context, through questionnaires administered to the MSME managers of the hotel sector.

The method used for the collection of quantitative information is through fieldwork and the technique used is the survey (Hernández, Fernández and Baptista, 2016).

Subjects in the study

The population conformed with tourist MSMEs of the hotel sector, specifically those that do not belong to chains or franchises of the city of Campeche and whose culture was previously studied by Quijano, Arguelles, Medina and Fajardo (2017); The companies identified were 26, according to the Mexican Business System directory as of February 2, 2016. Of the 26 hotels identified, 23 agreed to participate.

Instrument

Questionnaire formulated by Mul, Mercado and Ojeda (2013) who designed it to study how knowledge is managed in companies in southeastern Mexico and includes reagents related to organizational culture, the integration of the instrument is described in Table 1.

Dimension	Operational definition	Reagents	Proportion
Open communication	Process by which knowledge is transferred among the members of the entity.	53, 55, 58, 70, 71, 72	15.70%
Trust	It is the willingness to share knowledge fluidly.	46, 47, 48, 49, 50, 54	15.7%
Collaboration and support	It is the management intervention to facilitate and encourage knowledge to permeate throughout the organization.	51, 52, 64, 66, 67, 69	15.7%
Clear structure	They are the processes or mechanisms that facilitate the acquisition and transmission of knowledge.	56, 57, 59, 60, 61, 62, 63, 65, 68	24.0%

Table 1 Elements of the organizational culture questionnaire applied to hotel managers

Source: own elaboration with data from Mul, Mercado and Ojeda (2013)

The instrument has a section that collects socio-demographic information and the manager's administrative profile, as well as the company's positioning in the market. In the case of the quality variable, the questionnaire designed by Parasuraman, Zeithaml and Berry (1985) was used. This instrument is linked to the objectives of the investigation by contributing to the identification of the expectations and perception that hotel managers have regarding the services offered by participating companies, (Table 2).

Dimension	Operational Definition	Reagents	Proportion
Tangibility	It is the operational and administrative infrastructure that serves as the basis for the services offered by the organization.	1, 2, 3, 4	22.2%
Reliability	These are the processes developed by the company's personnel through which the services are provided.	5, 6, 7, 8, 9	27.7%
Answer's capacity	Operations carried out by the organization's employees in a timely manner.	10, 11, 12	16.7%
Warranty	Performing processes by staff with attitude and vocation of customer service.	13, 14, 15	16.7%
Empathy	They are the processes developed by the collaborators with a sense of identity towards the client.	16, 17, 18	16.7%

Table 2 Definitions of the quality questionnaire administered to hotel managers

Source: own elaboration with data from Parasuraman, Zeithaml and Berry (1985)

Both instruments consider scores assigned on a Likert scale with values ranging from 1 = Strongly disagree, 2 = Disagree 3 = Agree and 4 = Strongly agree.

Instrument Reliability

The pilot test of both instruments was developed with 10% of the population to adapt them to the participating population; Cronbach's alpha was determined with a value of 0.800 for organizational culture and 0.902 for quality. When the test is replicated, the values in general for each variable and dimension are shown in Table 3.

Variable	Dimension	Number of items	Cronbach's alpha
Culture		27	0.961
	Open communication	6	0.841
	Trust	6	0.876
	Collaboration and support	6	0.900
Quality	Clear structure	9	0.919
		18	0.937
	Tangibility	4	0.887
	Reliability	5	0.874
	Answer's capacity	3	0.770
	Warranty	3	0.720
	Empathy	3	0.535

Table 3 Reliability of the organizational culture and quality questionnaires administered to managers

Source: own elaboration based on statistical information

The questionnaires were personally applied to hotel managers with a duration of twenty minutes each, and the data was processed through SPSS version 21 software.

Results

From the initial section of the instrument related to the sociodemographic aspects of the collaborators (established in previous studies on knowledge management Quijano, Arguelles and Fajardo, 2017), it was established that the age range with the highest frequency is between 41 and 50 years, having as business experience between 9 and 12 (30.4%). From the administrative profile of the organizations it is observed that 69.6% of the companies have between 5 and 13 employees, 50% of the respondents consider having a good level of competitiveness indicating that their main competitive advantage is the price of the services they provide (42.4%), followed by their quality (27.3%) and in the same percentage the type of service.

Regarding the commercial relations with the sectors to which they provide services, 47.8% consider that they are good with the government sector, with the private sector 78.3% and in the social sector 60.9%. 73.9% of the companies have as main objective the obtaining of profits, which is affected by the difficulties to hire qualified personnel (24.6%) and the competition (13.8%) and to face these challenges, a true internal and external communication. It is the strategy that has worked best for 26.8% of respondents.

The organizational culture questionnaire includes three dimensions and the five quality one, through the calculation of the mean and standard deviation, the closest and most distant reagents of the values assigned in the instruments were identified, being able to observe the degree of dispersion of the responses, (Table 4).

Dimension	N	Minimum value	Maximum value	Mean	Standard deviation
Organizational culture					
Open communication	23	1	4	2.81	4.003
Trust	23	1	4	3.00	3.813
Collaboration and support	23	1	4	2.86	4.238
Clear structure	23	1	4	2.95	6.861
Quality					
Tangibility	23	2	4	2.94	2.0879
Reliability	23	2	4	3.21	2.5568
Answer's capacity	23	2	4	3.05	1.6693
Warranty	23	2	4	3.31	1.2960
Empathy	23	1	4	3.17	1.3440

Table 4 Descriptive statistics of the leadership and quality variables

The table indicates the average of the values assigned by the respondents with respect to the variables studied, in no case the averages reach the highest value established, the above is corroborated with the dispersion in the responses. Source: Statistical information obtained from the survey previously determined by Quijano et al (2017).

In the case of the organizational culture variable, the highest average is 3 and corresponds to the dimension "Trust" and the lowest 2.81 and belongs to "Open communication", which indicates that in these companies the strategic decisions are not quickly transmitted to the staff of the organization and that the conflicts are not openly commented, although they have achieved a high level of "face-to-face" interaction with the employees and the ideas of the employees are heard, under a climate of trust and openness, Table 5.

Reagent	Minimum value	Maximum value	Mean	Standard deviation
48. There is a high level of face-to-face interaction between workers in the workplace.	1	4	3.04	1.065
47. In the company there is an atmosphere of trust and openness.	1	4	3.17	0.650
46. The company promotes job security and the existence of little uncertainty.	1	4	3.13	0.626
49. Information flows easily at all levels of the organization.	1	4	2.74	0.864
54. The company values informal communication networks.	1	4	2.83	0.778
50. In the company the ideas of the employees are heard.	1	4	3.09	0.793

Table 5 Descriptive statistics regarding the trust dimension

Source: Statistical information obtained from the survey, previously determined by Quijano et al (2017)

In the case of the quality variable, none of the five dimensions obtained values close to 4, the highest corresponds to the "guarantee" dimension, and the lowest "tangibility", which indicates that the managers of the companies consider that the personnel inspire customer trust, but facilities and infrastructure must be improved. On the other hand, "reliability" is the dimension that obtained a greater dispersion in the responses, which indicates that in most organizations, personnel need to commit more to the service policies offered by companies in terms of time and characteristics, (Table 6).

Reagent	Minimum value	Maximum value	Mean	Standard deviation
5. If your establishment's staff agrees to do something for a certain period of time, it complies	2	4	3.17	0.650
6. When a customer has a problem, the staff of your establishment shows a sincere interest in solving it	2	4	3.17	0.576
7. The staff of your establishment provides an agile and timely service.	2	4	3.30	0.635
8. The staff of your establishment provides / concludes its services in the promised time	2	4	3.22	0.518
9. The staff of your establishment informs the client of the characteristics of the product or service that you are receiving	2	4	3.22	0.736

Table 6 Descriptive statistics regarding the reliability dimension of the quality variable

The smallest dispersion in the opinions of the respondents was obtained by the “guarantee” dimension, which indicates that in general the personnel of the participating companies transmit confidence to the clients, inspiring them security (Table 7).

Reagent	Minimum value	Maximum value	Mean	Standard deviation
13. The staff of your establishment inspires / transmits trust to customers	2	4	3.13	0.458
14. Customers of your establishment feel safe in their facilities	2	4	3.30	0.635
15. The staff of your establishment is always friendly with customers	3	4	3.52	0.511

Table 7 Descriptive statistics regarding the guarantee dimension of the quality variable

To assess whether sociodemographic and business factors affect the variables, the Student's T test was determined for independent tests (gender and marital status), and the ANOVA to determine the most relevant differences between variances of the values grouped into ranges; In both procedures, no statistical differences were identified for the organizational culture variable.

In the case of the quality variable when analyzing gender, significant differences were obtained in the “guarantee” dimension, which allows us to infer that this factor affects subjective aspects such as customer trust towards staff, according to the opinion expressed by the management; Similarly, the “tangibility” dimension reported differences in assessing the type of school where the last studies were conducted, whether public or private, as well as the seniority of the manager in the position and the number of employees of the organization, which may originate of the experience acquired when performing the duties of the position; In the case of the number of workers who collaborate in the company and the type of school, it is inferred that this element of the administrative profile affects the decision to participate in courses of non-governmental instances, organize formal training for employees, share project information and in the hiring of specialized personnel.

On the other hand, the “response capacity” dimension presented statistical differences with respect to the age factor, which represents an important aspect to evaluate, since according to management's opinion it can affect the moment of carrying out operations without errors or availability to solve customer questions from other collaborators.

With the values obtained from the instrument, indices were designed that facilitate interpreting the perception that the management body has regarding the influence of the organizational culture on the quality of the services offered; They were called the Organizational Culture Index (OCI) and Quality Index (IC) which were determined by expressing as a percentage the ratio of the division of the individual scores of each company between the maximum value that could be obtained according to the number of reagents each instrument

A greater value of OCI and IC, means that the manager has a better perspective of the organizational culture and its impact on the quality of the services provided by the hotels, (Table 8).

Business	Organizational Culture Index			Quality Index		
	Company Score	Top Score	OCI (%)	Company Score	Top Score	IC (%)
1	64	108	59.26	43	72	56.40
2	60	108	55.56	64	72	55.81
3	68	108	62.96	48	72	47.09
4	95	108	87.96	66	72	81.98
5	106	108	98.15	64	72	83.14
6	95	108	87.96	67	72	86.63
7	82	108	75.93	53	72	69.77
8	108	108	100.00	69	72	94.19
9	102	108	94.44	64	72	59.88
10	81	108	75.00	54	72	67.44
11	103	108	95.37	60	72	86.63
12	64	108	59.26	62	72	56.40
13	75	108	69.44	51	72	60.47
14	77	108	71.30	57	72	69.77
15	77	108	71.30	57	72	69.77
16	80	108	74.07	53	72	57.56
17	76	108	70.37	54	72	58.14
18	80	108	74.07	54	72	58.14
19	67	108	62.04	50	72	45.93
20	67	108	62.04	48	72	45.93
21	35	108	32.41	48	72	31.98
22	73	108	67.59	54	72	43.02
23	73	108	67.59	50	72	43.02

OCI = Organizational culture index = Maximum score / Score x 100. The result can be interpreted as the manager's perception of the organizational culture present in the organization.
 QI = Quality index = Maximum score / score x 100. The result obtained for each company is the manager's perception of the services offered and their quality.
 Source: self made.

Table 8 Organizational Culture Index (OCI) and Quality Index (IC)

According to the results of Table 8, the average of the OCI is 72.7%, therefore, formal communication networks must be reinforced and the responsible behavior and willingness of employees to learn to strengthen teamwork should be valued; The average obtained from the CI of the population studied is 62.13, which gives an idea of the opinion that managers have regarding the quality of their services, and that contrary to what one might think they do not consider them to be adequate.

The results of Table 8 were compared to study the relationship between managers' perception regarding the impact of organizational culture on the quality of services provided by each organization and assess whether there is a correlation between the variables, through the analysis Linear regression determined the Pearson coefficient ($r = 0.84103$) and the coefficient of determination ($r^2 = 70.7\%$), which was obtained by squareing the previously obtained value of the Pearson coefficient. (Lind, Marchal and Wathen, 2012).

Conclusions

Discussion of results

When comparing the results of the investigations considered in the literature review with those obtained in this study, the importance of disseminating the strategic planning elements of the participating organizations and that the collaborators know their mission, vision, values and objectives can be pointed out. as an integral part of the organizational culture and achieve the differentiation of its services as proposed by Esparza and García (2011); Likewise, the structures of the processes and the reward schemes that foster commitment and values among the collaborators must be clearly defined in order to have a permanently motivated human resource, as proposed by Pérez (2003) and Gálvez (2011). Among the results analyzed, trust stands out as the dimension best perceived by collaborators in the organizational culture, which indicates that in companies there is an open environment with job security, which minimizes the existence of uncertainty among staff, whose Ideas are heard favoring teamwork and coincide with what was studied by Goncalvez et. to (2006). It is observed that the means obtained as a whole for the quality dimensions will not be considered high since their average value ranges from three, the dimension with the lowest value being tangible, which indicates that infrastructure investment is not sufficient for standards that national and foreign guests demand according to the opinion of the managers of the organizations participating in the study, which is in contrast to what was suggested by Ibañez (2011), who points out that the image of tourism companies as a whole raises their level of occupation and competitiveness, therefore, it is desirable to assess whether the physical investment made to date is adequate according to service standards.

On the contrary, the dimension called guarantee reached the average with the highest average, which indicates that employees are friendly to customers and generates a climate of trust and security, which confirms that the human factor is a fundamental element in the Quality management, and should be involved in the service delivery processes. The above is necessary to achieve customer loyalty and satisfaction, (Gutiérrez and Rubio, 2009).

Reliability is the dimension with the greatest dispersion in the responses expressed by managers, which indicates that the opinions do not coincide in the level of commitment of the other collaborators to solve the possible problems that guests have, it is desirable to encourage the provision of services based in values, norms and practices tending to satisfy the expectations of the client, (Reyes et. al, 2015). On the other hand, there is a coincidence in the managerial opinion regarding the kindness with which employees treat customers, which can be reinforced through training schemes and measuring their performance based on competencies and thus have a better profile design (Guerra and Cardozo, 2010).

Conclusions

Considering the objectives of the study, it is possible to point out that the participating companies should strengthen open communication as an element of the organizational culture, so that employees can move more easily to senior managers and that operational and administrative decisions are transmitted in a timely manner, and The organizational structure is clearly identified by all the members of the company, the above is reinforced with the average value not exceeding 75% determined through the organizational culture index. There are no documented mechanisms among the population for the development and dissemination of the business culture, which may originate from the need to design clear structures from jobs and command lines, to the recognition of tasks according to the assigned position.

The second objective of the research establishes the identification of the quality dimensions which are present however, this is not adequate from the point of view of the managers of the participating companies, who assign an average value of 62.13% according to the Exprofeso designed index, unexpected situation, since the managers to be employed are also responsible for the operation of the hotels. It requires an analysis of the current processes and propose quality management strategies that meet customer expectations which would be reflected in an increase in the quality index.

Finally, it was established that there is a relationship between the variables studied and it can be inferred that the organizational culture affects the quality of the services offered from the perspective of the managers. This research has as a limitation the number of companies and the personnel surveyed, developing similar studies in other regions of the country can help establish internal and external factors that affect the level of quality of services offered by companies in the hotel sector and that It is reflected in the levels of occupation and competitiveness within the market.

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Designing a quality management system at ebpc engineering and business process consultants, S.C.

Diseño de un sistema de gestión de la calidad en ebpc consultores de ingeniería y procesos de negocio, S.C.

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Abstract

The following investigation focuses on the design of a Quality Management System, incorporating principles and key concepts in the design of a flexible and competitive system and the certification's normative. The success is complemented with the management direction with a focus in continuous upgrades with a basis on the efficiency and effectiveness of every established process in its model. The purpose is to implement a system to the organization Engineering and Business Process Consultants (EBPC), analyzing the context of the organization, as well as the good practices that are carried out. The impact is consolidated in gaining experiences in the process of applying international standard criteria and the development of the "Operations Management and Innovation" knowledge generation line of the Academic Corps of the EP industrial engineering "Innovation in Management Systems" UV-CA-470 consisting of the Analysis and improvement of management models and systems.

System, Model, Quality

Resumen

La presente investigación se enfoca en el diseño de un Sistema de gestión de la Calidad (SGC), incorporando principios y conceptos claves de desarrollo un sistema flexible competitivo y su normativa para su certificación. El éxito se complementa con la dirección de su gestión con un enfoque de mejora continua, a través de su eficiencia y eficacia de cada proceso establecido en su modelo. El propósito es implementar un sistema en Engineering and Business Process Consultants (EBPC), analizando el contexto de la organización, involucrando las buenas prácticas. La principal aportación es realizar un diseño de sistema de gestión, que permita la estandarización de los procesos con un ambiente de mejora continua y expectativas de acreditación, dando pauta a que la organización sea competitiva en su entorno industrial, estableciéndose cinco procesos para su funcionamiento eficaz. El impacto se consolida en la obtención de experiencias y buenas prácticas durante la investigación con apoyo de la línea de generación del conocimiento "Gestión e Innovación de las Operaciones" del Cuerpo Académico del PE de Ingeniería Industrial "Innovación en Sistemas de Gestión" UV-CA-470 que consiste en el Análisis y mejora de los modelos y sistemas de gestión.

Sistema, Modelo, Calidad

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Introduction

The research was carried out through the diagnostic stage in the processes of the Management System of the Engineering and Business Process Consultants (EBPC) organization, analyzing the context of the organization, good administrative practices, the elaboration of a proposed Model of Management to standardize activities and generate an environment of continuous improvement with support from the advisory service. It focuses on the design of a Quality Management System (QMS) which is aimed at being proactive, incorporating key principles and concepts, which allows to face the competitiveness of the industrial sector of project design generating a structure that allows incorporating requirements of different ISO standards for certification, a flexible system with different disciplines. Therefore, controlling an organization requires systematic management improving its efficiency and effectiveness of quality management.

Organization Context

Engineering and Business Process Consultants (EBPC) is a proudly Mexican company, which was created in 2009, formed with the mission of offering solutions implementation and integration services, focused mainly on the oil sector, EBPC offers engineering, automation, services optimization and control of industrial processes. The company has a project area made up of Technical Inspection and Verification (ITV) and Procurement and Construction Engineering (IPC), in ITV different tests of non-destructive tests are carried out which for its proper operation requires processes accredited by the Mexican Accreditation Entity (EMA). To be more competent in the preparation of non-destructive test tests and as a verifying unit EBPC has the vision of being accredited before EMA, under the standards NMX-EC-17025-IMNC-2017 General requirements for the competence of test laboratories and calibration, and NMX-EC-17020-IMNC-2014 Conformity assessment - Requirements for the operation of different types of units (body) that performs the verification (inspection), respectively, for which it is desired to design a QMS, having as Model ISO 9001: 2015, to implement, with requirements that give the customer confidence, quality of services, taking into account the ISO 9001 family with the structural model of the Deming cycle.

The model will strengthen an efficient document control system for accreditation in NMX-EC-17025-IMNC-2017 and NMX-EC-17020-IMNC-2014, being an innovative support in the ITV area, where tests are carried out Reliable and efficient non-destructive integrating the requirements with ISO 9001.

There is a quality policy in the company, which is appropriate for the organization's turn, works as a frame of reference to establish quality objectives, and contain a commitment to continuous improvement. All stakeholders in the company have knowledge of the organization, which includes employees, customers and even suppliers, it all depends on the context.

The competence, the awareness, and the communication that is had with the personnel, are part of the requirements that the company needs in the processes and its objectives considering the necessary resources to satisfy the needs of the client, with trained personnel, tools, equipment and material, suitable for service.

The Non-Conformities detected during the development of the service, its actions and impact are essential, verifying the effectiveness of the process interaction. Also, actions are evaluated through quality tools.

One of the most obvious reasons, for which the design of the management system is needed, is to apply clause 8 of the NMX-EC-17025-IMNC-2017 standard and of the NMX-EC-17020-IMNC-2014 standard, generating an integration platform with effective evidence and feedback from interested parties.

Management Model Design

The design of a QMS determines how the organization complies with the guidelines of ISO 9001: 2015, also, it considers a set of national and international standards and standards, contributing to a service executed with specifications. The design of the QMS considers the ISO 9001: 2015 principles, fostering improvement and confidence in the performance of operations. The principles of quality management are: customer focus, leadership, people commitment, process approach, improvement, evidence-based decision making and relationship management.

The requirements and principles requested in the International Standard are applicable to all organizations, regardless of the type, size, or products and services provided.

A QMS ensures customer satisfaction and the business permanence of the organization. Therefore, the importance of its design is to guarantee quality services in accordance with its context, quality policy, internal and external resources of the company, interaction and process performance. And, when the principle of continuous improvement is met, the organization generates standards, which it reviews, evaluates and controls periodically through inspections, management review, quality circles, executive meetings and internal or external audits. The document control procedure is implemented by reducing the risks in the interaction of the processes. A reliable implementation, staff is notified through memorandum, notices or training sessions contribute to an effective service, including the design of formats or procedures consistent with the job description and daily activities.

Depending on the turn and type of company, it is how the QMS is diagnosed, designed and implemented to be used as an effective management tool, with faithful control of the processes; as well as customer feedback considerations with international recognition.

The design of the QMS is elaborated for a company that wishes as a base a management system, with the vision of incorporating the requirements of the NMX-EC-17025-IMNC-2017 and NMX-EC-17020-IMNC-2014 standards synchronized in its Supply chain and effective, achieving accreditation considering the revision times of the regulations by its technical committee. A culture of continuous improvement is maintained, and a training structure with staff competencies; as well as documentary, preparing new documents or updating those that are already registered in the checklists.

Management model

Quality is an important tool for organizations today, good practices and areas of opportunity are generated, so organizations seek the accreditation of their Quality Management System (QMS).

The organization has a process map and the design of a QMS, proposed based on the analysis of the context of the organization. During the development of the process map, as well as the manual, a solid and effective structure was consolidated, useful for the management system according to the following graphic representation (see figure 1):



Figure 1 Process Map of the EBPC Organization

Where:

Technical Inspection and Verification (ITV)

Procurement and Construction Engineering (IPC)

Operational processes:

The operative processes have contact with the external clients according to the requirements requested by the client and determine the necessary resources and materials. They generate the output related to the project and having the completion of the product / service, customer satisfaction, in the same way as the feedback of this, which increases the value that is had in the value chain of the organization. The operational processes are part of the project department, which is divided into IPC and ITV, where the security department is located.

General processes:

Its function is to support the key processes, providing outputs which supply the key processes. These processes consider the external and internal clients of the organization. The general process is part of the management of the organization where the marketing and contract departments are located, which has direct contact with the company's management.

Support processes:

They generate exits which help the operational processes, but, in a more indirect way than the general processes, they are responsible for providing the operational processes with the support resources, whether material or human, that are required to carry out their functions. Without setbacks the support processes are made up of the accounting, maintenance, systems, purchasing and human resources departments. In this way, the organization aspires to be a leader in the organization's turn, carrying out quality projects, where the process map is a key tool, to strengthen the internal communication of the QMS. The EBPC organization only has 4 processes that interact with each other for the proper functioning of this, the project department is divided into two ITV and IPC processes, these have the same inputs, however, according to the type of project requested where it is determined which of the processes is the one that will be carried out. In the general processes only the management process is had, due to the structure that is counted in the company and the way in which the information is handled it is feasible to have only the general process in which two departments are found. There is a support process in which several departments are included, which are responsible for managing all the support resources that may be needed in the ITV and IPC processes.

In the Quality Manual of the organization, the design of the QMS is determined, which conforms to the requirements of ISO 9001: 2015, which mentions the interpretation of the requirements of the standard, however, the content is adjusted to the practices and culture of the organization. The management system is adequate and is only applicable in this, it facilitates the detection of an area of opportunity in the development of internal auditing and the effective decision making by those responsible for the process in conjunction with the management, in the same way allows to have information and feedback on customer satisfaction, quality objectives and policies are defined which allow the organization to take quality actions, and measure its performance. The system that was designed for the organization guarantees to the clients that the services or products are planned, reviewed, controlled and established in accordance with the standards that are had within the organization or which were requested by the same client.

The management system guarantees customers and the organization that the services or products offered are planned, reviewed, controlled and executed according to standards established in the organization or based on standards applicable to these.

The QMS is supported by documented information which facilitates communication about the intentions of the organization and the objectives of the management system in a clear manner. This documentation is a tool used to generate value to the EBPC system processes, and the documented information is made up of: quality policy, quality manual, procedures, programs and key documents, work instructions and records, all this offers controlled information with its traceability, and to the activities that are carried out through its interaction and control and evaluation mechanisms.

The EBPC quality manual is a document that remains active and changing, which is developed in accordance with the management system. The quality objectives that are established are reached in the time that is determined in accordance with the format to achieve objectives that the organization has being monitored for its adjustments in the indicators or determine if it happens to be a standard or part of the organization's policies, with the purpose of being a guide of the management system. The principles established in the manual are communicated to the organization, so that they are understood by its members and in this way determine what their responsibility is within the management system. Within the manual the scope of the QMS that is being designed is defined, as well as the requirements that are needed. On the other hand, the quality manual includes what is necessary for the management of resources, the realization of products and the measurement, analysis and improvement of the organization. Also, the quality manual is fully integrated into the work (for example, See Figure 2 flow chart, and Figure 3 control sheet as part of the organization's manual.

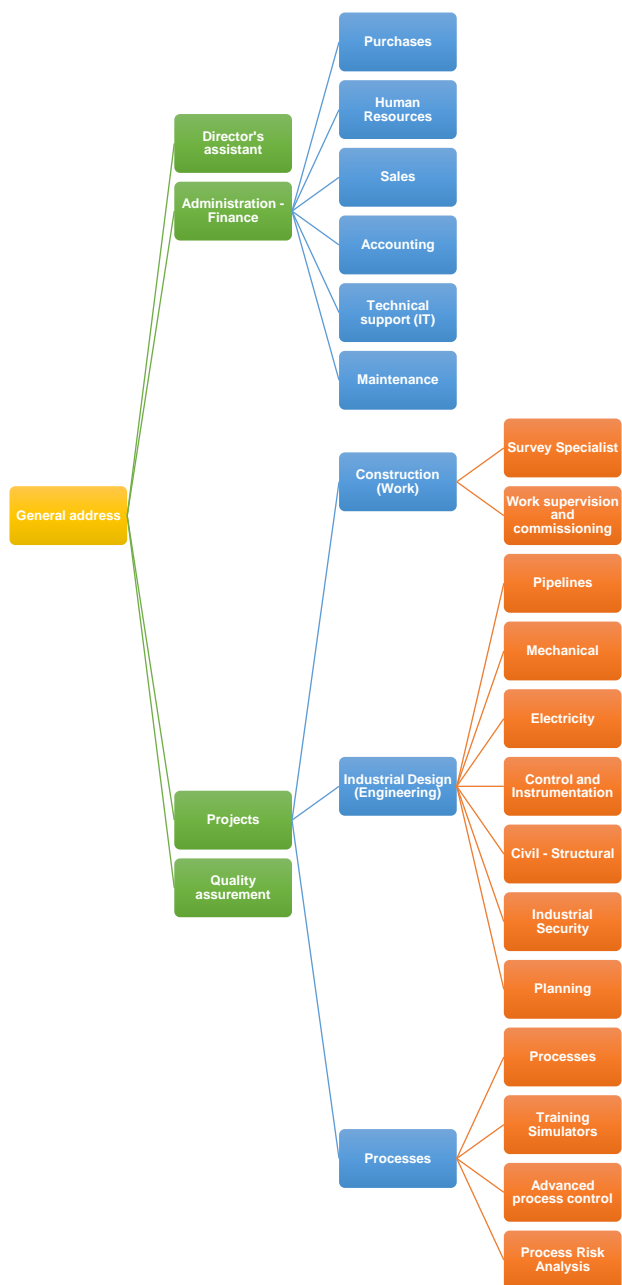


Figure 2 Organization chart of the organization


		NOMBRE DEL DOCUMENTO			
		"MANUAL DE CALIDAD"			
PRODUCTO O SERVICIO:	CÓDIGO:	TIPO DE DOCUMENTO:	REV:	FECHA:	
TODOS	EBNIN-IBAN-CAL-001	MANUAL	A	07/02/2018	
HOJA DE CONTROL					
RESPONSABLES					
NOMBRE	PUESTO O FUNCIÓN	FECHA	FIRMA		
Elaboró:					
Ariana Vázquez Vázquez	Auxiliar Técnico Administrativo	04/03/2018			
Revisó:					
Miryela Vázquez Capetillo	Coordinadora de Calidad	18/03/2018			
Aprobó:					
Jesús García Sánchez	Director General	07/02/2017			
CONTROL DE CAMBIOS					
REV	FECHA	DESCRIPCIÓN DEL CAMBIO	ELABORÓ	REVISÓ	APROBÓ
A	07/02/2018	Emisión para revisión.	AVV	MVC	JGS
CONTROL DE COPIAS					
SELLO DE CONTROL DE COPIAS:					
Documento controlado, queda prohibida su reproducción total o parcial, por cualquier medio, así como su distribución a terceros, sin el expreso consentimiento por escrito del arrendatario.					

Figure 3 Quality Manual Control Sheet

Technical information

In the first stage a Gantt chart was developed, which is a tool that describes the activities and the time for its execution, so in this the activities that were carried out during the development of the QMS design are detailed. which was approved by the director of the company.

The purpose of the development of the work program is that it acts as a guide during the development of the project, which details the steps necessary to carry out the design of the QMS.

The review was carried out, the context of the organization through a SWOT analysis and the PESTEL methodology that consists in determining the Political, Economic, Social, Technological, Ecological, and Legal factors, which, strengths, opportunities, weaknesses were terminated. and threats that it may have in the organization and guide the analysis of the context of the company.

Once the analysis of the context of the organization was carried out, it began with the review of the mission, vision and values, in order to verify whether the quality policy that is available in the organization is adequate and aligned with Strategic planning. Subsequently the assessment of the documented information held in the organization was carried out in accordance with the requirements of ISO 9001: 2015, considering a detailed study of the standard (taking into account all the “must”, “should” and “may” that are in this), the findings were reported to the general director of the organization.

In the second stage, a meeting was held with the Director General and the managers of the departments of administration, projects and quality assurance, in which the director gave the order for each manager of the different departments to be involved in the documentary development from the SGC. The administrative documentary part is in charge of the Administration Manager, the Project Manager is in charge of the technical part and the Quality Assurance Manager is in charge of the quality management part, the documented information is controlled by agreement with a series of lists which are: master list of documents, in which key is described, revision, date, name, person in charge, list for format control, where the key, name, person in charge, location and time are described of reception of each document, also, these two lists are separated according to the processes that are had in the organization, these lists allow a control of the own documents of the organization and avoid the duplication of some code or some document, and In this way there is a list of records, which are documents of the organization, as well as procedures and formats that are provided. For another entity, these lists allow to speed up the search for documents.

A meeting was held with the staff, applying the brainstorming tool with the purpose of starting with the process map, understanding the operation of the organization and helping to improve it, establishing the scope of the process map. To start with the structure, a process diagram was made, describing the activities of the organization to execute a project, then the processes with which the organization has are defined, and the inputs and outputs are determined.

Once the process map was determined, it was given the task of generating each of the processes, of drafting the quality objectives of the organization according to its process, which serve as a guide to achieve goals established in the strategic planning, and during the meeting the elements to improve the organization were identified, once identified, the goal was continued to establish the objective, following the guidelines of the organization. During the meeting the quality indicators were established, such as control parameters in the processes, as well as the elaboration of a risk matrix in each of the active projects.

The documents are divided by department, where the key requirements were established to channel them to the Quality Assurance department where they are reviewed, and subsequently for approval with the Director General. The procedures developed for the QMS have a format, with their instructions and identified with an internal code.

With the information available from EBPC, the organization's quality manual was integrated, which allows us to understand the operation of the organization, either for staff or for external persons and new staff.

Methodology

For the development of the project, it required a methodology of observation and application of technical terms of the ISO 9000 family through the development of the Quality and Productivity Tools diploma of the Faculty Continuing Education program with authorization key DEC-032 -17; where the research and development work of the proposal was carried out applying the four modules of the diploma that consisted of the tools of innovation, in the control - evaluation, process control and continuous improvement. The research for the development of the proposal was carried out during a period of six months, period from January 2018 to June 2018 in the company Engineering and Business Process Consultants, S.C. also known as EBPC, located on Calle 20 de Abril number 317, in the Francisco Villa neighborhood in the city of Veracruz. This organization started activities in 2009, on the initiative of the current owner who serves as General Director. With nine years in the market, the organization has strengthened its structure.

The company's business refers to scientific and technical consulting services, where the main services it offers are: basic engineering, extended basic engineering, cost estimation, specialized process simulation, specialized process equipment design, simulator development for operator training, implementation of real-time monitoring systems, implementation of operational reliability systems, among others. In the following two figures, some of the organization's projects are identified:

INGENIERÍA, SUPERVISIÓN Y CONSTRUCCIÓN		AÑO
Cliente:	GRUPO ABENGOA Y FILIALES	
Proyectos:	<ul style="list-style-type: none"> Desarrollo de especificaciones para la contratación de los servicios de ingeniería básica para el cálculo, suministro, instalación, pruebas y puesta en servicio de la Central de Cogeneración A3T en Nuevo Pemex Tabasco. Asesoría Administrativa y Supervisión Técnica de Obras y Servicios derivados del Contrato de Prestación de Servicios sujeto a ajuste de precios PGRB-SAF-GRAM-SA-COGENERACION-001/09. Servicio de Identificación y Resolución de Escenarios de Riesgo para el Robustecimiento de la Confiabilidad de la Central de Cogeneración ACT. Actualización del OTS y Formación de Administradores del Sistema de Entrenamiento de Operadores de la Central de Cogeneración Nuevo Pemex. Servicios de Inspección y Análisis de Causa Raíz de la Filtración de Agua en los Generadores de Vapor (GVRC) de la Central de Cogeneración Nuevo Pemex de ACT. Supervisión de la Construcción del Tren 3 de la Central de Cogeneración A3T. Desarrollo de especificaciones para la contratación de los servicios de ingeniería básica para el cálculo, suministro, instalación, pruebas y puesta en servicio de la Central de Cogeneración A4T en Nuevo Pemex Tabasco. Desarrollo de ingeniería de detalle para procesos específicos de la Central de Cogeneración ACCAT. Supervisión de la Construcción de la Central de Cogeneración ACCAT. 	2013 2010-2012 2013 2013-2014 2013 2014-2016 2014 2015-2016 2015-2017
Cliente:	CIATEQ	
Proyectos:	Desarrollo de la ingeniería para la instalación del sistema de HVAC para la Terminal de Almacenamiento y Reparto Veracruz de PEMEX	2013
Cliente:	CIATEC-TECNA-PEMEX	
Proyectos:	Desarrollo de bases de usuario, administración del cambio, análisis de riesgo, ingeniería básica y términos de referencia para la IFC de infraestructura de descarga, almacenamiento, mezclado y carga de etanol anhidro, en las TAR's Veracruz, Jalapa, Perote y Pajaritos de la GARG y las TAR's Madero, San Luis Potosí, Valles y Monte de la GRAN.	2015
Proyectos:	Desarrollo análisis de riesgo, ingeniería de detalle y soporte técnico de infraestructura de descarga, almacenamiento, mezclado y carga de etanol anhidro, en las TAR's Veracruz y Perote de la GRAN.	2015-2016
Cliente:	CHEMISA	
Proyectos:	Análisis de riesgo por el método de HazOp de una planta fraccionadora de nafta pesada y su área de almacenamiento en el C.P.G. Burgos a ser desarrollado en las instalaciones de Pemex transformación industrial, en Reynosa, Tamaulipas	2016
Cliente:	GENERADORA FÉNIX	
Proyectos:	Supervisión de la Ingeniería De Diseño Open Book- De La Central De Ciclo Combinado Jorge Luque; Supervisando a SENER, ICAFLUOR y ELECNOR	2017

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Figure 4 Example of organizational projects (Page 3 of the Organizational CV)

INGENIERÍA, SUPERVISIÓN Y CONSTRUCCIÓN		AÑO
Cliente:	VECTOR ENGINEERING INTERNATIONAL	2017
Proyectos:	<ul style="list-style-type: none"> Finalización Del Libro De Proyecto y apoyo en la gestión integral del proceso de contratación y selección del contratista EPC para el proyecto CCC Jorge Luque Supervisión de Servicios de la Supervisión de la gestión de permisos y desempeño de contratista para la CCC Jorge Luque Inspección de Tanques De Almacenamiento Adscritos A La Subdirección De Almacenamiento Y Despacho <ul style="list-style-type: none"> Coatzacoalcos, Ver. <ul style="list-style-type: none"> TV-104 (150 MBls) TV-106 (100 MBls) TV-107 (100 MBls) TV-241 (200 MBls) TV-5801 (500 MBls) Tuxpan, Ver. <ul style="list-style-type: none"> TV-101 (55 MBls) TV-102 (55 MBls) TV-218 (200 MBls) Cadereyta, Tamps. <ul style="list-style-type: none"> TV-2 (10 MBls) TV-4 (10 MBls) 	2017 2017

AUTOMATIZACIÓN Y CONTROL		AÑO
Cliente:	POLYCOMP	2009 - 2013
Proyectos:	Instalación de sistemas instrumentados y de control, e implementación de sistemas de monitoreo de estaciones de medición, equipos paquete, bombas, turbinas, compresores y turbinas de gas en las siguientes estaciones: <ul style="list-style-type: none"> E.C. Tecomanatlan E.C. Paredón E.C. Jujo E.C. Cactus I E.B. Nuevo Tespa E.B. Jalilpan E.B. Donaji E.B. Zapopita E.B. Maltrata E.B. Arroyo Moreno E.B. Loma Bonita E.B. San Martin Texmelucan E.B. El Tejar 	

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Figure 5 Example of organizational projects (Page 4 of the Organizational CV)

These projects have been part of the documentation and implementation of the Quality Management System. The functional areas of the organization are identified as administration - finance, projects and quality assurance. The research is consolidated based on the company's concern about the demands of the sector in which it is located, a competitive environment, the organization designs a QMS which, provides guidelines for the implementation and accreditation of other specific regulations in its sector, which are necessary for the organization. In order to achieve the objectives, set in the investigation, the requirements of ISO 9001: 2015 were implemented. Therefore, it was necessary to ask questions of the personnel in the different areas, in order to obtain reliable information for the design of the system structure and this is adequate for the company. Also, responding to a qualitative approach, allowed the collection of information from the organization and analyze the organizational structure. On the other hand, it is also a descriptive - explanatory study, according to the important properties of the factors. To design the QMS in any organization, a work plan must be generated, which allows the object to be reached.

Each of the activities which make up the stages for the design of the QMS is described through an analysis of the organization, considering the cause-effect tool, identifying the current situation, in order to know its reality, the design of the system is indispensable the collection and classification of information, to provide an overview of their strengths and weaknesses.

The strategies that were created for the design of the SGC of the EBPC organization were the establishment of the contact and communication channel with the top management and the managers of the different departments, in the same way we established contact with Teachers of the Veracruzana University, with who had advice during the design of the QMS for the EBPC organization. It was also necessary to review the ISO 9001: 2015 standard to define the requirements to be met, and with the objective of acquiring knowledge about this standard, a workshop-workshop on “Interpretation of the ISO 9001: 2015 Standard” was attended in the facilities of the Faculty of Mechanical Engineering and Naval Sciences, of the Universidad Veracruzana.

And, the dissemination strategy is carried out through the following platforms of the Veracruzana University:

- Information System for university linkage (<https://dsia.uv.mx/sivu/>).
- Research registration and evaluation system (<https://dsia.uv.mx/sirei/>).
- Thesis Repository in the Library System of the Veracruzana University.

To determine the current situation of the organization, and carry out the design of the QMS, full access to the existing documentation of the organization, which was related to the QMS, was obtained during the collection of information, meetings and small interviews that they had with the staff, especially those with more years of work, it was reported that previously the organization started the design of the QMS based on ISO 9001: 2008, however it was a project that required the transition period for its consolidation.

The design stage of the EBPC QMS, has ten activities necessary for the ISO 9001: 2015 standard, in case the organization seeks certification, it will undergo an audit, in which evidence will be sought with which it is sustained and show proper implementation of the QMS. The evidence is the documented information that has been collected in that period, which is six months. During the audits, if you find non-consistent information, it is understood as a nonconformity, which will be addressed in the short term.

Results

When making a diagnosis in Engineering and Business Process Consultants, it can be determined that 5 main processes are required, which are necessary for proper operation in the company's Quality Management System. The company has managed to develop internally protecting the confidentiality of the documentary process in each of its processes according to its interaction identified in Figure 6.

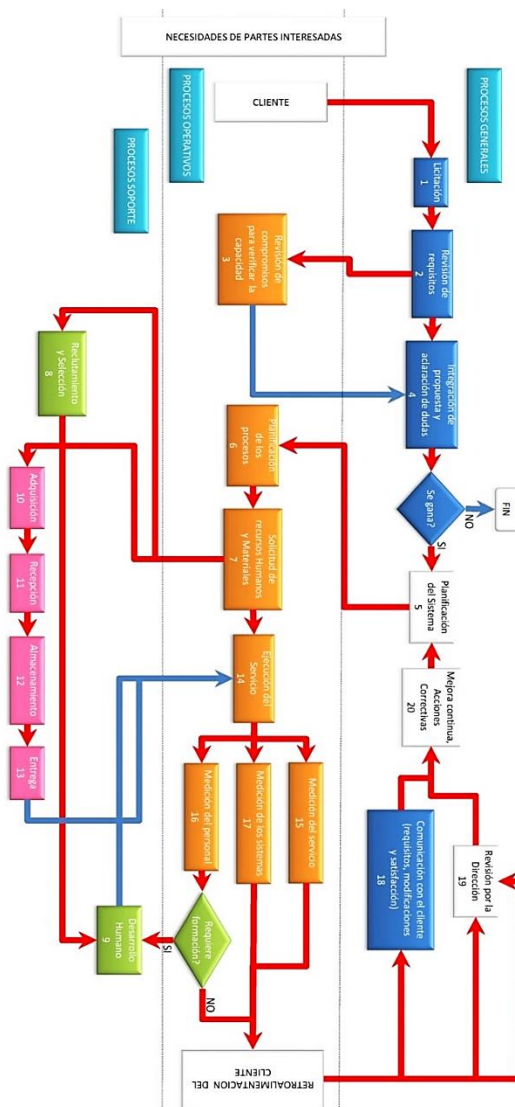


Figure 6 Organization process flow chart

The link between the two institutions is strengthened through the social service and professional practices program. The graduate profile is strengthened through the experience and good practices that feed back the curriculum and its respective curriculum of the Industrial Engineering study program. The impact is consolidated in the obtaining of experiences in the process of application of criteria of international standard, and the development of the line of generation of knowledge "Management and Innovation of the Operations" of the Academic Body of the PE of Industrial Engineering "Innovation in Systems of Management" UV-CA-470 which consists in the Analysis and improvement of management models and systems that allow innovation and application of quality tools, logistics manufacturing, work study and administration in the Goods and services organizations.

For the organization to make effective decisions and identify current and future customer needs, it is recommended:

- Implement the QMS in the organization by processes according to the needs of operation and presence of nonconformities.
- That the management review and approve the documented information created during the design of the QMS, for its operation, expediting the processes that are carried out in the organization.
- Sensitize staff about what SGC is and what is a model of quality indicators, so that they have a thought of continuous improvement and risk management.
- Improve staff performance, processes, and procedures, setting goals with reference to competencies, which are measurable for improvement.
- Have staff participate more actively in decision making.
- Determine standards in general, support and operational processes.
- Train staff in the use of documents operating in the organization.

Annexes

Engineering & Business Process Consultants

Quiénes Somos

Engineering & Business Process Consultants (EBPC), es una empresa especializada en el diseño e ingeniería de procesos, así como la mejora del desempeño del negocio, mediante la identificación de áreas de oportunidad y la implementación de soluciones y sistemas soportados en tecnología vanguardista.

Misión

Para EBPC es importante ofrecer servicios que generen valor agregado para nuestros clientes, analizando sus necesidades y proponiendo acciones de mejora que optimicen el desempeño de los procesos clave de su negocio, soportado por la experiencia y mano de obra especializada de nuestros expertos, los cuales le brindaran un servicio con calidad y a la medida de sus necesidades.

Visión

En EBPC nos esforzamos día a día para consolidarnos como una empresa líder en servicios asociados a la industria de la ingeniería, procesos y manufactura, que satisfaga las necesidades de nuestros clientes y nos posicionemos como industria confiable, vanguardista e innovadora.

Líneas y Unidades de Negocios

La Cartera de Servicios de EBPC incluye:

- Diseño e Ingeniería de Procesos e Instalaciones Industriales
- Implementación de Sistemas de Automatización y Control
- Implementación de Soluciones para el Monitoreo de Procesos
- Simulación y Optimización de Procesos
- Gestión de Proyectos de Inversión
- Supervisión de Obra
- Levantamiento de Campo y Modelado Tridimensionales
- Inspección Técnica y Ensayos No Destructivos
- Limpieza Industrial
- Construcción de Equipos Paquete y Tableros de Control
- Desarrollo de Simuladores para Entrenamiento de Operadores
- Evaluación y Mejora del Consumo Energético

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Figure 7 EBPC Curriculum Vitae, page 1

Engineering & Business Process Consultants

Alianzas Estratégicas y Socios de Negocios

EBPC ha fortalecido nuestra cadena de valor e incrementado la cartera de servicios a través de representaciones y acuerdos de colaboración con empresas líderes en diferentes especialidades, como son:

Algunos de Nuestros Proyectos

INGENIERÍA, SUPERVISIÓN Y CONSTRUCCIÓN		AÑO
Cliente:	GASODUCTOS DE CHIHUAHUA / GASODUCTOS DE TAMAULIPAS	
Proyectos:	<ul style="list-style-type: none"> • Desarrollo de ingeniería del sistema de desfogue y quemador elevado provisional para la Estación de Compresión No. 18. • Desarrollo de Ingeniería del sistema de desfogue y quemador elevado final para la Estación de Compresión No. 19. • Desarrollo de Ingeniería para el Venteo Atmosférico de la Estación de Compresión No. 19. • Desarrollo de ingeniería básica y de detalle para la instalación de muro contra fuego en quemador de fosa de la terminal de distribución de gas L.P. Guadaluajara. • Desarrollo de ingeniería de detalle para la instalación de un hidrante-monitor en el área de llenaderas de la terminal de almacenamiento y reparto Monterrey. • Desarrollo de ingeniería de detalle para la instalación de generadores de respaldo en la estación de compresión Frontera. • Servicios de inspección y análisis de causa raíz de la formación de depósitos de azufre y congelamiento de las válvulas del sistema de suministro de gas combustible principal de la estación de compresión Los Indios 	2013 2014 2014 2014 2016 2016 2016

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Figure 8 EBPC Curriculum Vitae, page 2

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Conclusions

According to the analysis of the requirements of the regulations, it was executed in the period from August to November 2018. During the diagnosis that was made in the organization, documented information was identified for the design of the QMS, the updating of formats, procedures, among other files. The documents that were in the organization's database were based on the ISO 9001: 2008 standard, so they were reviewed for evaluation and updating.

In the hypothesis raised in the investigation, five main processes in the organization were established, but it was determined that, for its proper functioning, four processes are necessary, however, the fifth process raised in the hypothesis is in the administration process. Due to the way in which it operates and the number of personnel in the organization. The two main processes are: ITV and IPC, which are in projects, both have the same inputs, but, according to the client's requirements, it is determined to which of the two processes the project to be carried out belongs. This was determined according to the analysis of the operation of the organization.

The organization seeks the design and implementation of the QMS to achieve an agile interpretation of the other standards for accreditation. A quality objective was established for the ITV and IPC processes with respect to the delivery time of the products or services that are available. The quality manual for the organization was prepared for the understanding of the operation.

Although the quality manual is not a requirement in the new version of the standard, its preparation for the design of the QMS and identifying areas of opportunity is essential for the general management of the organization. The documents that were developed and operated, have the EBINN code, because the SGC that was implemented, is based on 2 organizations which work together, these organizations are EBPC and INNTELLIA (<https://www.inntellia.com/>).

The proposal was developed based on the documentation available to the organization, and considering the records of the design of the QMS, which started the organization, based on the 2008 version of ISO 9001. The documented information seeks to be flexible for the organization protected on the NAS Network by its acronym in English (network connected storage (NAS) store and share data for several computers, which can be accessed remotely).

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Study on knowledge management and open innovation

Estudio sobre la gestión del conocimiento y la innovación abierta

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Abstract

The remainance and development in the market depend, among other factors, on the quality of sold products or provided services, which is a situation of concern in sectors such as tourism where globalization demands first level services, as is the case in the city of Campeche, where businessmen are investing in hotel infrastructure according to the colonial characteristics of the town. The research's objective is to identify the incidence of leadership in the quality of services under the perception of hotel managers as responsible for the operability results. This research is a descriptive type with non-experimental transversal design, with a enumerated population; the results obtained through the quality and leadership indexes indicate that, contrary to expectations, managers consider that the provided services don't have an adequate level of quality, and the design of new strategies is needed to improve the processes under the transformational leadership which must face problems with opportunity in order to innovate in the services of the market where they participate.

Resumen

La presente investigación tiene como objetivo evaluar empíricamente las variables que impactan a la gestión del conocimiento y a su vez, como dicha gestión incide en los procesos de innovación abierta. Para ello, se conduce una investigación cuantitativa no experimental, transversal y correlacional que permita la obtención de resultados exploratorios a partir del análisis estadístico inferencial. Se ha aplicado una prueba piloto con un instrumento de 60 ítems configurado en escala de Likert en 5 tipos de organizaciones del sector agroindustrial del estado de Jalisco, aplicado a directores involucrados en los procesos de innovación. Lo anterior con base en los trabajos de (Martínez – Conesa, 2017), (Popa et al. 2016), (Chang et al, 2011), (Collins & Smith, 2006), entre otros. Con los resultados obtenidos se ha podido confirmar la validez de criterio y de constructo del instrumento y a su vez, la comprobación de las correlaciones entre las variables. Asimismo, la existencia de un modelo teórico consistente a través del análisis factorial y de las matrices de correlaciones de Pearson. Con los resultados obtenidos se busca coadyuvar en el diseño de estrategias que promuevan la Innovación Abierta en las organizaciones como una ventaja competitiva que promueve el desarrollo multisectorial.

Knowledge management, Open innovation, Leadership

Gestión del conocimiento, Innovación abierta, Liderazgo

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Introduction

At the end of the s. XX organizations began to rethink their strategies for the generation and transfer of knowledge. The above through the impulse of open and collaborative processes that involve the participation of the actors involved in the recently named Quintuple Helix of Innovation which integrates private companies, government, universities, civil society and socio-environmental systems. (Baccarne & Logghe, 2016). In this sense, knowledge management has become a fundamental practice for the generation of added value in an environment in constant transformation and change (Nonaka, 2000, Hana, 2013, Wu, 2014). Knowledge management is a fundamental piece for innovation processes, by using existing knowledge, either tacitly or explicitly, and combining it in different ways to create new products or services (Wu & Hu, 2018). In this sense, innovation can be consolidated through closed or open processes, the latter being the one that promotes the active exchange of knowledge from the organization abroad and vice versa.

The main thinkers of the open innovation model (Chesbrough, 2006), (Von Hippel, 2005), (Echeverria, 2003), (Silverstone, 1993) (Winter, 2001), were based on the Theories of Knowledge Management of such authors like Nonaka and Takeuchi (1995), Druker (1994), Polanyi (1997), Alavi and Leideer (1999), among others, who promote collective learning generated from inter-institutional participation. This process assumes that strategic collaboration between government, private initiative, civil society and Higher Education Institutions offers competitive advantages to those involved in sharing resources, risks and disruptive ideas.

The present research seeks to assess in a theoretical and empirical way what are the variables that impact the management of knowledge of organizations, particularly through the variables leadership and organizational culture and in turn, how such management affects the processes of open innovation in its two dimensions: inbound knowledge flows (outbound) and outbound knowledge flows. These phenomena are fundamental elements to increase the productivity of organizations and, consequently, are natural promoters of the well-being of society. The initial questions asked are: How does knowledge management impact on open innovation processes?

Is this a linear or exponential process based on obtaining, storing, interpreting and applying knowledge? What are the variables that impact these phenomena?, particularly leadership and organizational culture. The formulation of these questions is not only pertinent but pressing in the Mexican context. In the last two decades, the economy has not grown significantly due, among other causes, to low productivity, insufficient technological innovation, lack of clear public policies and the limited investment that exists for knowledge generation. (González Santoyo & Flores Romero, 2018). In developed countries, innovation can explain at least two thirds of its growth rate being, in addition, the result of coordinated work between the various sectors that make up society (Ahuja Sánchez & Pedroza, 2011). During the past 35 years, Mexico has invested less than 0.5% of GDP in research-oriented activities and knowledge generation when on average, all the countries of the Organization for Economic Cooperation and Development (OECD) on average allocate 2.08% of its GDP (González Santoyo & Flores Romero, 2018). Another fundamental indicator is the recent publication of the international innovation ranking that the WIPO (World Intellectual Property Organization) elaborates year after year, together with Cornell SC Johnson College of Business and INSEAD. Through an index of 100 points, 126 most important economies in the world are qualified to know the general state that keeps its capacity for innovation. Mexico ranks 56th with 35.34 points, below countries like Costa Rica, Serbia or Mongolia, to name a few examples. The present investigation seeks to contribute to shorten the aforementioned gap from a relational-causal perspective and with a multisectoral approach. Open innovation has proven effective as a formula for generating value that positively impacts local, regional and global development.

Theoretical framework

Knowledge Management in Organizations of S. XXI

Peter Drucker introduced the concept of "knowledge companies" in 1994, who considered that, in this society, knowledge is the primary resource for the individual and for the economy as a whole (Drucker, 2006).

This author points to scientists as knowledge workers who are becoming the center of gravity of the working population. The challenge is to manage the work of these teams in an efficient way. According to Nonaka and Takeuchi (2013), knowledge is created through human interactions, through dynamic processes that help create the future. By its very nature, knowledge becomes obsolete one minute after it has been created. Knowledge, for the authors, is the guide to generate strategies that lead organizations to their own well-being and that of society (Takeuchi, 2013).

Knowledge is the rationalization of the information obtained from the surrounding world derived from experience, search and reflection (Lovera Aguilar, 2009). This part of obtaining information, which is classified and interpreted so that it can then become knowledge. For Muñoz and Riverola (2003) it is the ability to solve a certain set of problems (Valencia Rodríguez, 2009). According to Alavi and Leider (1999), information is converted into knowledge once it is processed in the minds of individuals and knowledge becomes information once it is articulated and presented in the form of text, graphics and words or other forms. symbolic In this way, a virtuous circle is generated that gives organizations the possibility of reinventing themselves and anticipating market needs.

Theories of knowledge have been approached in at least three dimensions: epistemological, ontological and time, whose fusion during the process of knowledge creation originates innovation in order to make a more competitive organization in its natural environment (Lovera Aguilar, 2009). The time dimension refers to the stages through which knowledge produces the conversion of knowledge for strategic purposes. From an epistemological perspective, knowledge is classified by authors such as Polanyi (1966), Nonaka and Takeuchi (1995) as tacit and explicit, being the first one that is poorly codified and cannot be formally communicated. It originates from human experiences and their perception of the facts. Instead, explicit knowledge can be transferred through formal communication because it is articulable and codifiable.

On the other hand, the ontological vision of knowledge focuses on identifying the entities that create knowledge, whether individual, group, organizational or inter-organizational. The ontological perspective is translated into an organization when it defines its mission, vision and values. Essers and Schreinemakers (1997) have stated that the Nonaka model does not take into consideration that the capacities of an organization not only depend on the ideas and beliefs of its members, nor does it recognize the discrepancies between the ideas and proposals of the different subgroups of the same. Likewise, Bereiter (2002) also states that Nonaka does not explain the way in which ideas originate or the way in which they deepen them. Cited by (Gil & Carrillo, 2013). What can be affirmed for the purposes of this research is that an organization manages its knowledge based on the learning of its members, who are responsible for generating added value by transforming information into applied innovation. Knowledge becomes the most powerful weapon to flexibly face the demands of the market. Managing knowledge is also managing its effectiveness in achieving strategic goals and projects. This process results from the integration of knowledge of the members of an organization in order to innovate.

New knowledge becomes part of dynamic competencies as an added value of the organization. (Lovera Aguilar, 2009). For authors such as (Wu & Hu, 2018), this set of processes can be synthesized in four dimensions: the acquisition, transfer, integration and application of knowledge, having both internal and external sources to the organization.

Knowledge management should not be seen as an end in itself, but as a tool that, when properly utilized, helps the organization achieve the strategic objectives that have been imposed. It is an essential part of every intelligent organization, being defined as one that is capable of effectively integrating perception, knowledge creation and decision making (Chun Wei Choo, 1998). Once the knowledge is generated, the organization must transfer it, this process is called knowledge transfer. It is said that the process of knowledge transfer is linked to the learning capacity of the organization and its openness to strategically link with other social actors. Intersectoral linking and relational capital are fundamental to the open innovation process that is the object of study of this research, so it will deepen its theoretical conceptualization.

In particular, reference is made to the work of (Martínez Conesa, Soto Acosta, & Carayannis, 2017), who carried out a quantitative investigation in Spain in 2016, focused on small and medium-sized companies in the manufacturing sector. In their theoretical model, they stated that information technologies, interdepartmental interconnection and human resources practices are fundamental factors that influence knowledge management. They also proposed conducting a confirmatory investigation in a different geographical context and in a particular sector. The above to be able to make generalizations. As a result of their findings, they suggested incorporating two additional factors in future research: organizational culture and leadership, both taken into account in the proposed theoretical model.

The relationship between leadership and knowledge management was raised by authors such as (Koohang, 2016), (Parmar, 2015), (Ren - Zong, Kuo et al. 2011), (Yew Wong et al, 2005), among others, where it is proven that the degree of openness of leaders to provide employees with opportunities for strategic decision making, has a positive impact on the exchange and generation of knowledge. On the other hand, the influence of organizational culture on knowledge management has been studied by authors such as Alvi and Leider (2006), De Long (2000), Gold (2001), among others and verified by empirical authors such as (Stock, McFadden, & Gowen, 2010). The latter managed to statistically verify this relationship through a study of 371 hospitals in the United States. For this they used four dimensions for organizational culture (group culture, development culture, rational culture and hierarchical culture). In turn, knowledge management was measured in three dimensions: acquisition, dissemination and responsiveness. Additionally (Akhavan & et al., 2014) also verified this relationship through a quantitative study in Iran in which 276 companies from various industries participated. They used four dimensions of organizational culture (cooperation, innovation, consistency and effectiveness) and four of knowledge management (generation, organization, dissemination and application). Their findings establish that an organization with a flexible and innovative culture directly and significantly impacts knowledge management.

That said, it is established as initial hypotheses that:

- H1. There is a significant and positive relationship between leadership and knowledge management of organizations.
- H2. There is a significant and positive relationship between organizational culture and knowledge management of organizations.

The process of Innovation in organizations.

Since the 20th century, innovation was conceived exclusively by technological advances that added value to the production process. The author Schumpeter (1950) pioneered expanding the scope of this concept by mentioning that innovation consists not only of new products and processes, but also of new forms of organization, new markets and new sources of raw materials (Ortíz Cantú & Pedroza Zapata, 2006).

During the last century, innovation evolved significantly. In the 50s, organizations concentrated their efforts towards the search for operational and administrative efficiencies. In the 60's, this process focused on improving a product or service through the company's internal resources. This resulted in better quality or a reduction in operating costs. During the 80's, innovation was the result of technological changes and the organization's interactions with other strategic actors. It was in the decade of the 90's when innovation is complexed and questioned by raising an obvious dichotomy between the need of organizations to promote a disruptive force of innovation and, on the other hand, maintain a certain degree of stability in the processes and structures to guarantee its growth and permanence (Hung, 2004).

In 1992 the Oslo Manual was created, which proposed a system of innovation indicators that, together with the Frascati Manual on Research and Development (R&D) activities, became an international canon for measuring innovation (Echeverría, 2008). After its publication and in 1997, the second edition that incorporates into the services sector is printed so that finally in 2005, marketing innovation and organizational innovation are added.

The Oslo Manual states that innovation is the introduction of a new or significantly improved product or service, a process or a new marketing method or a new organizational method, in the internal practices of the company, the organization of the place of work or external relations. (Organization for Economic Cooperation and Development (OECD) and Eurostat, 2018). This Manual affirms that innovation is not an end in itself, but a means for growth in production and productivity; It also contributes to increasing the competitiveness of a company and being present in new markets (Echeverría, 2008). López, N., Montes, and Vázquez (2003), define innovation as a set of activities within companies, which contribute to generate new technological knowledge or improve the use of existing ones. This knowledge is applied to obtaining new goods and services, as well as new forms of production. (Mathison & Gándara, 2007).

Open innovation is a strategic concept that revolutionizes the innovation process. The idea of opening the frontiers of organizations to develop competitive advantages has been a topic of interest for both their managers and the academic community (Schneckenberg, 2015). The innovation process can be carried out within the organization in a closed environment or it can be driven together with other market entities. The first refers to the integration of innovation processes vertically, through the development of research activities within the organization, promoting the development of products and services that are developed and marketed by the organization itself (San Martín Albizuri & Rodríguez Castellanos, 2012). Closed innovation systems were born as departments or working groups within companies. Instead, the second refers to open innovation that presupposes that the true value of innovation lies in the synergies that are established with the value chain and other strategic actors in society. This is mainly due to the need to shorten R&D cycles, reduce costs and give greater mobility to creative agents.

Open innovation proposes a new paradigm, a concept coined by Chesbrough (2003) who postulates the need to establish internal and external knowledge flows by organizations to extract the greatest possible value from their innovative potential (González Sánchez & García Muiña, 2011).

Chesbrough (2006) defines open innovation as the use of internal and external flows of knowledge in a certain way to accelerate internal innovation and expand markets for the external use of innovation respectively. (González Sánchez & García Muiña, 2011). Open innovation is seen as a strategy to accelerate the process of learning and knowledge generation of organizations based on the complementarity of acquired experiences. This is a dynamic process that assumes the existence of at least three phenomena (Gassmann et al. 2004): The first called "Outside in" which refers to the flow of knowledge that enters the innovation process of an organization from outside.

The second "Inside out", which involves the marketing of ideas and technology from the organization to the market; and finally the "coupled process" that promotes the establishment of an innovation routine within organizations while establishing strategic partners and alliances during the process. In this sense, innovation systems can be considered as sets of different institutions and social actors that, both by their individual action and by their interrelations, contribute to the creation, development and dissemination of new productive practices (Albornoz, 2009). As the author mentions, this practice can be articulated in virtuous circles, reinforcing each other in the promotion of learning and innovation processes.

The deserters of this theory mention that closed innovation is the best way to maintain the competitive advantages of the organization (García Muiña 2007), however, the 21st century demands openness and such opening must be accompanied by protection mechanisms. As he puts it (Hurmelinna-Laukkanen & Ritala, 2010), the signing of contracts could be a natural form of protection for the parties involved, but it is not the only one.

The proper administration of human resources also plays a fundamental role, conserving strategic collaborators and promoting a culture of respect for the handling of sensitive information.

The relationship between knowledge management and innovation has been studied by authors such as (Wang, 2018), (Martínez Conesa, Soto Acosta, & Carayannis, 2017), (Soto-Acosta et al, 2018), (Ing-Long, et al , 2018), (Bican et al, 2017), (Chung-Jen et al., 2010), (Darroch et al, 2002), among others, where the relationship between the management capacity of the knowledge of an organization and the innovation practices implemented. If so, it seeks to show that:

- H3. There is a significant and positive relationship between knowledge management capacity and open innovation in an organization in its two dimensions: incoming and outgoing knowledge flows.

Theoretical Research Model.

Based on a review of the state of the art, the following theoretical model is proposed (Figure 1), which is made up of four fundamental variables: leadership, organizational culture, knowledge management and open innovation in its two dimensions: Incoming knowledge flows (inbound) and outbound knowledge flows

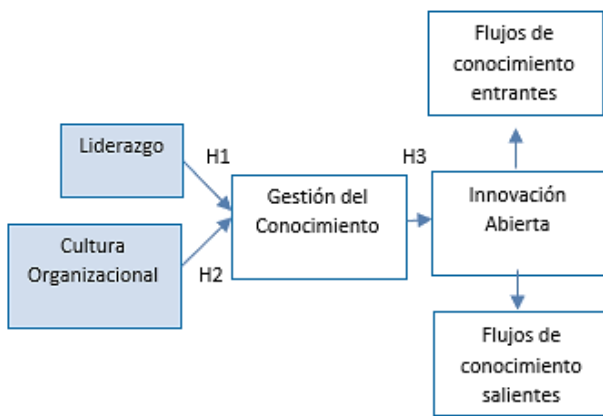


Figure 1 Proposed Theoretical Model
 Source: own elaboration, adapted from (Martínez Conesa, Soto Acosta, & Carayannis, 2017)

As a theoretical contribution, we seek to contribute to the state of the art by generating a theoretical discussion on Knowledge Management, Open Innovation from a different geographical context and applied to a particular sector. Likewise, a methodological contribution will be sought when proposing an instrument based on various authors, as shown in Table 1 Methodological Matrix, used for the pilot approach.

As an empirical contribution, we will seek to demonstrate statistically the relationship between the variables leadership, organizational culture, knowledge management and open innovation and, in turn, provide knowledge with the findings found. As a practical contribution, we will seek to contribute to the design of strategies that promote Knowledge Management and Open Innovation, in organizations with the purpose of contributing to local, regional and national development.

Construct	Based on:	Items	Instrument Used
DEPENDENT VARIABLE: Knowledge Management,	Martínez Conesa, Isabel, Soto Acosta, Pedro, George Carayannis, Elías, "On the path towards open innovation: assessing the role of knowledge management capability and environmental dynamism in SMEs", Journal of Knowledge Management, Vol. 21, No. 3, 2017, pp 553-570	GDC1, GDC2, GDC3, GDC4, GDC5, GDC6, GDC7, GDC8, GDC9	(Liao, 2011)
DEPENDENT VARIABLE: Open Innovation	assessing the role of knowledge management capability and environmental dynamism in SMEs", Journal of Knowledge Management, Vol. 21, No. 3, 2017, pp 553-570	INA1, INA2, INA3, INA4, INA5, INA6, INA7, INA8	(Chen and Shui, 2015)
INDEPENDENT VARIABLE: Leadership	Zong-Ren, Kuo, et al, "The impact of empowering leadership for KMS adoption, Management Decision, Vol. 49, No. 7, 2011 p.p. 1120-1140	LIE1, LIE2, LIE3, LIE4	(Ahearne et al, 2005; Arnold et al., 2000; Martin & Bush, 2006)
INDEPENDENT VARIABLE: Organizational Culture,	Stock, Gregory et al. "Organizational Culture, Knowledge management and Patient Safety in US Hospitals", The Quality Management Journal, Vol. 17, No. 2, 2010, p.p. 7-26	CUO1, CUO2, CUO3, CUO4, CUO5, CUO6, CUO7, CUO8, CUO9, CUO10, CUO11, CUO12	(Camerons & Quinn, 1999)

Table 1 Methodological Matrix
 Source: authorship (2018)

Investigation methodology

As mentioned, this research aims to empirically evaluate the variables that impact knowledge management and open innovation processes of organizations.

In particular, leadership and organizational culture will be analyzed as two factors of the organization that can be catalysts or obstacles for the generation, exchange and application of knowledge in innovation processes.

The purpose is to prepare a confirmatory analysis of these factors in a specific geographical context and in a particular sector in order to raise generalizations.

It will also seek to understand what the relationship between knowledge management and innovation is.

The latter demands the adequate interpretation and use of knowledge to propose new or significantly improved products or services, processes or organizational structures.

For this, a quantitative, non-experimental, cross-sectional, correlational-causal investigation has been proposed that allows obtaining confirmatory results from an inferential statistical analysis.

During the piloting, an instrument configured in a 5-point Likert scale was used (never, rarely, occasionally, frequently and always). The leadership variable was measured through 4 items designed based on (Ahearne et al, 2005; Arnold et al., 2000; Martin & Bush, 2006).

The organizational culture variable was measured in 12 items proposed by (Cameron & Quinn, 1999). Knowledge management was integrated by 9 items based on (Liao, 2011) and open innovation was measured with 8 items designed by (Chen and Shui, 2015).

Variable	Operational Definition	Cronbach's Alpha
Knowledge Management	It refers to the ability of the organization to create, store, exchange and apply relevant knowledge that facilitates the processes of product or service innovation.	.820
Open Innovation	It refers to the ability of an organization to obtain and explore knowledge generated by external interest groups such as suppliers, customers, competitors, among others, as well as the exploitation of ideas generated within the organization, such as licensing, the sale of knowledge, the creation of new signatures, etc.	.757
Leadership	It refers to the degree of openness of leaders to provide employees with opportunities for strategic decision making. Likewise, to promote a culture that facilitates the obtaining of information, its classification, interpretation and application in the processes of innovation of products and services.	.854
Organizational culture	It refers to the set of values, beliefs and assumptions that members of an organization have in common. It seeks to identify the type of culture that most drives the exchange of knowledge and innovation.	.799

Table 2 Summary of validity and reliability of the Instrument

* Format proposed by (Pérez Romero, 2018)

The instrument was sent to 80 subjects belonging to the 5 types of organizations (companies, government agencies, universities, research centers and chambers or associations) in November 2018.

A response of 72% was obtained. The preliminary results are presented below. It should be noted that the highest number of responses obtained was from private companies (36.5%), followed by Higher Education Institutions (17.5%). The initial investigation was carried out in the state of Jalisco, Mexico, in the context of the agri-food industry. This industry is the one that generates the greatest value of GDP, within the Jalisco manufacturing industry sector, since it contributes 28% of the total amount derived from manufacturing (SAGARPA, 2017). Currently, there are 10,794 Jalisco companies that participate in this industry that have a presence in 69 countries of the world and on all continents, through the commercialization of a great diversity of products (SAGARPA, 2017). As a research unit, it was proposed to the Directors or Managers, as well as people directly involved in the innovation processes of the organizations. Likewise, the central actors that are part of the agri-food value chain were included.

Results and Discussion

The results obtained during the piloting were captured in a database in SPSS version 24. First, an outlier analysis was carried out that resulted in the need to eliminate 17 respondents, leaving a database of 41 instruments. With this database, reliability, normality and linearity analyzes were carried out. The most widely used measure of reliability is Cronbach's Alpha (Hair & et al., 1999). According to that author, the general agreement on the lower limit of the Alpha is .70, although it may fall to .60 in exploratory investigations.

Variable	Alpha
LIE	.854
CUO	.799
GDC	.820
INA Inbound	.803
INA Outbound	.757

Table 3 Cronbach's Alpha Analysis

Source: own elaboration (2019)

As can be seen in the table, the variables showed a reasonable behavior with values above the .60 indicated by (Hair & et al., 1999). Subsequently, the normality tests were carried out, which are summarized in the following table.

The data obtained by the analysis of asymmetry and kurtosis are among the ranges of + - 2 points, with the exception of the item CUO3, which yielded a result outside any accepted range: 7.94. This item should be carefully reviewed before the application of the final instrument. In the case of the Shapiro Wilk test, no results greater than 0.05 were obtained, which means that its distribution is normal. In the KMO tests (Kaiser-Meyer-Olkin), the variables obtained scores higher than 0.5 being suitable for factor analysis (See table 4)

Dimension	KMO	SIG
LIE	.788	.000
CUO	.654	.000
GDC	.562	.000
INA	.796	.000

Table 4 KMO Analysis

Source: own elaboration (2019)

Being results obtained from a 5-point Likert scale, normality represents a challenge due to the short margin of variability that this type of measurement offers. Likewise, linearity tests were carried out, in which the relationships between the Open Innovation and Knowledge Management variables showed a result of less than 0.5.

One of the possible solutions to these results is to transform one or both variables to achieve linearity, that is, the creation of a new variable that represents the non-linear part of the relationship (Hair & et al., 1999).

Subsequently, the exploratory factor analysis was carried out, which is a multivariate statistical technique that is incorporated into the quantitative methodology that involves latent or unobservable variables that cannot be measured directly (Zamora, 2009). After running this test (See Table 5), it has been possible to confirm the existence of three clearly defined factors, these being leadership, organizational culture and knowledge management. The extraction method used is the analysis of main components, the rotation method is varimax with Kaiser normalization.

	1	2	3
LIE1	0.862		
LIE2	0.872		
LIE3	0.761		
LIE4	0.640		
CUO3		0.637	
CUO9		0.667	
CUO8		0.856	
CUO10		0.837	
GDC3			0.585
GDC4			0.747
GDC8			0.716
GDC9			0.822

Table 5 Rotated component matrix: Leadership, Organizational Culture and Knowledge Management
Source: own elaboration (2019)

Finally, the same exercise was run for the open innovation variable, being able to confirm the two dimensions indicated in the state of the art (incoming information flows and outgoing information flows) - See Table 6.

The component analysis extraction method was used main and as a Varimax rotation method with Kaiser normalization.

	1	2
INA1		0.920
INA2		0.817
INA3		0.582
INA5	0.855	
INA6	0.785	
INA7	0.686	

Table 6 Rotating component matrix: Open Innovation
Source: own elaboration (2019)

To address the relationships raised in the theoretical model, bivariate correlation matrices were developed, a useful technique to identify relationships between multiple variables and to identify whether these relationships are weak or strong (Hair & et al., 1999).

For the Leadership and Organizational Culture variables and their impact on Knowledge Management, the results shown in Tables 7 and 8 confirmed the relationship between them and support hypotheses 1 and 2.

		LIE1	LIE2	LIE3	LIE4
GDC3	Pearson correlation	0.198	.322*	0.124	0.154
	Sig. (Bilateral)	0.214	0.040	0.438	0.336
GDC4	Pearson correlation	0.261	.387*	0.046	0.252
	Sig. (Bilateral)	0.100	0.013	0.775	0.111
GDC5	Pearson correlation	.366*	0.301	.348*	0.192
	Sig. (Bilateral)	0.018	0.055	0.026	0.228
GDC6	Pearson correlation	.380*	0.262	.420**	.365*
	Sig. (Bilateral)	0.014	0.098	0.006	0.019

** . The correlation is significant at the 0.01 level (bilateral).
* . The correlation is significant at the 0.05 level (bilateral).

Table 7 Correlations between Knowledge Management and Leadership
Source: own elaboration (2019)

		CUO 2	CUO 3	CUO 4	CUO 5	CUO 6	CUO 7	CUO 8	CUO 9	CUO1 0	CUO1 1	CUO1 2
GDC1	Pearson correlation	.328*	.311*	.038	0.270	.397*	0.263	.440**	0.207	.522**	.368*	0.032
	Sig. (Bilateral)	0.036	0.048	0.812	0.088	0.010	0.096	0.004	0.195	0.000	0.018	0.841
GDC2	Pearson correlation	.341*	.402**	0.060	0.241	0.146	0.157	.369*	0.152	.331*	.415**	.334*
	Sig. (Bilateral)	0.029	0.009	0.709	0.129	0.362	0.327	0.017	0.343	0.035	0.007	0.033
GDC3	Pearson correlation	0.157	0.100	.011	.354*	0.308	.347*	.0213	0.012	0.141	.370*	.320*
	Sig. (Bilateral)	0.326	0.532	0.946	0.023	0.050	0.026	0.182	0.942	0.380	0.017	0.041
GDC4	Pearson correlation	.324*	0.174	.0245	0.157	0.210	0.147	.0125	0.127	0.051	0.152	.340*
	Sig. (Bilateral)	0.039	0.277	0.122	0.326	0.187	0.359	0.437	0.428	0.751	0.343	0.030
GDC5	Pearson correlation	.344*	0.073	.438**	0.252	0.260	0.215	.0108	0.270	.319*	0.150	0.079
	Sig. (Bilateral)	0.027	0.652	0.004	0.112	0.101	0.177	0.503	0.088	0.042	0.349	0.623
GDC6	Pearson correlation	-	0.087	0.144	.376*	.366*	0.284	0.170	0.117	0.168	.366*	.469**
	Sig. (Bilateral)	0.591	0.590	0.370	0.015	0.019	0.072	0.289	0.465	0.294	0.019	0.002
GDC7	Pearson correlation	0.120	0.263	.0206	0.265	.308*	0.235	.309*	-	0.177	0.197	.361*
	Sig. (Bilateral)	0.455	0.097	.0873	0.094	0.050	0.139	0.050	0.268	0.216	0.021	0.076
GDC8	Pearson correlation	0.068	0.036	-	0.280	.375*	0.164	0.200	-	0.038	0.172	0.190
	Sig. (Bilateral)	0.671	0.822	0.684	0.076	0.016	0.306	0.210	0.815	0.283	0.234	0.284

** . The correlation is significant at the 0.01 level (bilateral).
* . The correlation is significant at the 0.05 level (bilateral).

Table 8 Correlations between Knowledge Management and Organizational Culture
Source: own elaboration (2019)

In the case of the variables Knowledge Management and Open Innovation, the results shown in Table 9 confirmed a significant relationship (p <.01), thus strengthening hypothesis 3.

		GDC6	GDC7	GDC8	GDC9
INA1	Pearson correlation	.482**	.602**	.527**	.381*
	Sig. (Bilateral)	0.001	0.000	0.000	0.014
INA2	Pearson correlation	.521**	.566**	.493**	0.177
	Sig. (Bilateral)	0.000	0.000	0.001	0.269
INA3	Pearson correlation	.466**	.353*	.578**	.456**
	Sig. (Bilateral)	0.002	0.024	0.000	0.003
INA6	Pearson correlation	0.225	.374*	0.271	0.259
	Sig. (Bilateral)	0.158	0.016	0.087	0.102
INA7	Pearson correlation	.320*	.331*	.310*	0.038
	Sig. (Bilateral)	0.042	0.034	0.049	0.811
**. The correlation is significant at the 0.01 level (bilateral).					
*. The correlation is significant at the 0.05 level (bilateral).					

Table 9 Correlations between Knowledge Management and Open Innovation
 Source: own elaboration (2019)

Annexes

Next, the items used during piloting (Table 10)

INA1	In our innovation projects we involve external partners such as clients, competitors, research centers, government, consultants or universities.
INA2	Our innovation projects are highly dependent on the contributions of external partners such as customers, competitors, research centers, government, consultants or universities.
INA3	Our organization buys Research and Development services from external partners.
INA4	Our organization frequently buys intellectual property such as patents, copyrights, registered trademarks and others from external partners to boost our innovation projects.
INA5	Our organization sells to third parties licenses, such as patents, copyrights, trademark registrations or others to benefit from our innovation efforts.
INA6	Our organization frequently signs royalty contracts with other organizations to benefit its innovation projects.
INA7	Our organization promotes every possible use of its intellectual property for its own benefit.
INA8	Our organization invests in companies of recent creation, with high content of innovation for its own benefit.
GDC1	The organization creates new knowledge that is permeated to the different areas or departments of the company.
GDC2	The organization creates new operating systems that permeate the different areas or departments of the company.
GDC3	The organization creates management policies and processes that permeate the different areas of the company.

GDC4	The organization is committed to sharing knowledge with all its areas or departments.
GDC5	The organization designs activities to share information with all its areas or departments.
GDC6	The organization integrates different sources of information and knowledge through its areas or departments.
GDC7	The organization engages in technology transfer processes to its employees regardless of their area or department.
GDC8	The organization is involved in processes to apply knowledge experimentally in all its areas or departments.
GDC9	The organization is involved in processes to apply knowledge oriented to solve problems in all its areas or departments.
LIE1	The leaders respect the opinion of the collaborators.
LIE2	Leaders are willing to offer opportunities for employees to use their own criteria to do their job.
LIE3	Leaders are willing to empower their employees so they can do their job.
LIE4	Leaders trust workers within the workplace.
CUO1	The management style in the organization is characterized by teamwork, consensus and participation.
CUO2	The organization is a very personal place, as an extension of the family. People share a lot of themselves with their peers.
CUO3	The organization emphasizes human development. There is trust, openness and participation.
CUO4	The management style is characterized by promoting innovation, freedom, uniqueness and individual risk.
CUO5	The organization is a dynamic and business space. Employees are willing to take risks.
CUO6	The organization creates new projects, new challenges, experiments with new things and values the identification of new opportunities
CUO7	The management style is characterized by firmness, high demand and a sense of achievement.
CUO8	The organization is a work space very oriented to obtain results. The biggest concern is reaching the goals. The staff is very competitive.
CUO9	The organization emphasizes competitive actions and achievements: achieving difficult goals in the market is very important.
CUO10	The management style is characterized by offering job security, is cautious and conformist, as well as being stable in their relationships.
CUO11	The organization is very stable and structured. There are procedures that generally govern staff activities.
CUO12	The organization emphasizes stability and performance. Efficiency and control of the operation are very important.

Table 10 Instrument used during piloting
 Source: (Liao, 2011), (Chen and Shui, 2015), (Ahearne et al, 2005; Arnold et al., 2000; Martin & Bush, 2006), (Camereros & Quinn, 1999)

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Conclusions and recommendations

During the pilot, it has been possible to confirm the existence of a consistent and feasible theoretical model to be measured through the proposed instrument. The above for the verification of the validity of criteria and construct through the reliability and normality tests mentioned above.

Subsequently, it was possible to verify through the confirmatory factor analysis the existence of three clearly defined factors: leadership, organizational culture and knowledge management. The above confirming the results obtained by authors such as (Naranjo - Valencia, 2012), (Stock, et al. 2010), (Suppiah, 2010), (Valmohammadi, 2010), (Yew Wong, 2005), among others. Likewise, two factors were obtained after the factorial analysis of the open innovation construct confirming what was mentioned by the authors (Chen and Shui, 2015), (Martínez-Conesa, 2017), (Popa, Soto - Acosta, 2017). Finally, it was possible to verify through the analysis of bivariate correlations, the existence of significant relationships between leadership and organizational culture with knowledge management and in turn, knowledge management and innovation among themselves..

Based on the results obtained, it is based on the assumption that knowledge becomes the most important asset of an organization and that managing knowledge is essential to convert tacit knowledge to explicit, retain individual knowledge, manage intellectual property and Promote a culture of innovation. This requires information storage mechanisms, the development of dynamic skills, technological resources, but, above all, human talent.

Knowledge management generates a virtuous spiral that is born from disordered data and is transformed into relevant and timely information. Information when analyzed and apprehended becomes knowledge.

In turn, this knowledge is the basis of innovation. This occurs through the organization's absorption capacity, the promotion of Research and Development and the potentialization of its know-how, which in turn translates into competitive advantages. In this way, the intellectual capital of the organization is strengthened, helping to achieve its strategic objectives, to strengthen its capacity for adaptation and resilience and to take the lead in establishing future market trends.

For future research it is recommended to incorporate new variables for the understanding of the Knowledge Management variable. These can be technological advances, human resources practices, effective communication, among others. Also, apply the instrument used in other socioeconomic contexts to know its results.

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Proposal of customer service strategies for a micro tax and financial consulting firm

Propuesta de estrategias de servicio al cliente para una micro empresa de consultoría fiscal y financiera

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Abstract

Proposal about Strategies of Customer Service to a Micro Company in Tax and Financial Consulting. Purpose: To increase company's competitiveness, developing customer service digital strategies in a micro company in Chihuahua City, which is dedicated to perform activities that are focused in areas such as: business consulting in IT, Corporative Finance, Marketing, Corporative Image. Method: This research is exploratory, since this, realize an analysis of the company's current situation, this is performed through an interview for the owner of the company. Also it uses a qualitative method, since a group session realized with current customers, and also quantitative and descriptive method uses through an applied questionnaire to specific market segment. Results: To obtain the automatization of training process for each employee who are involved on the sales process/ telephone attention. Since the employees have available information, the person in charge to provide the customer service or any other person in the company, will be able to know accurate operation related to the problem that the user has, as well as, new employees will be able to know easily the sales process, after sale service, in order to provide better attention, more easy and effectiveness through the digital communication tools.

Resumen

Propuesta de Estrategias de Servicio al Cliente para una Micro Empresa de Consultoría Fiscal y Financiera. Objetivos. Aumentar la competitividad a través del desarrollo de estrategias digitales de servicio al cliente, para una micro empresa dedicada a actividades que se enfocan a las áreas de consultoría de negocios en Tecnologías de la Información, Finanzas corporativas, Marketing e Imagen corporativa de la ciudad de Chihuahua. Metodología. La investigación es exploratoria, se realiza una entrevista a la propietaria de la empresa. Cualitativa, porque realiza una sesión grupal con clientes actuales, y cuantitativa descriptiva porque se aplica un cuestionario a un segmento del mercado específico. Contribución. Se espera obtener la automatización del proceso de capacitación para cada empleado involucrado en el proceso de venta y atención telefónica. Al contar con la información disponible permite al encargado de servicio al cliente o a cualquier persona de la empresa, conocer la operación correspondiente a la problemática que presente el usuario. También de esta forma los trabajadores de nuevo ingreso podrán conocer fácilmente el proceso de venta y postventa, y brindar atención de una manera más fácil y efectiva a través de herramientas de comunicación digitales.

Strategies, Sales Process, Customer Service

Estrategias, Proceso de Ventas, Servicio al Cliente

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Introduction

The fundamental objective of any organization is to obtain profits, and these are obtained through sales. One of the key pieces in the companies is the client, it is the one that generates the profits in the company. One of the basic points in all Mpyme that makes the difference between one and the other, is how the survey is carried out, the attention that is given to the client, how it is retained and the after-sales service, this allows the company to keep it captive. AlphaCenit S.A.P.I. It is a company formed by a multidisciplinary group, its activities cover the areas of business consulting in IT, Corporate Finance, Marketing and Corporate Image focused on the competitive needs of Mexican micro and small businesses.

The project aims to help the company in the development of a clear and agile customer service process for TiConta (an electronic invoicing software). The customer service system gives timely attention to users, prospects or anyone interested in using TiConta. This explains how to address technical support issues, clarifications on the use of the tools and help clarify any questions that may arise from users. The company is characterized by always keeping elements of Business Intelligence combined with the areas of Finance and Marketing Strategies, generating greater competitiveness for our customers and always seeking the democratization of Information Technology.

Located in the city of Chihuahua, Chihuahua since 2008, AlphaCenit is a company that has been offering business solutions for almost 10 years through training and consulting, covering various business sectors; primary, various industries such as metalworking, agribusiness, graphic arts among others in addition to the commerce and services sector always seeking value creation and competitiveness for MSMEs. Currently AlphaCenit has served more than 5000 companies throughout the country maintaining a constant collaboration with municipalities and business chambers.

Literature Review

Customer service. It is necessary for companies to clearly identify the importance of the client and be attentive to how they think and how they perceive the organization.

A customer is the one who accesses a product or service through a financial transaction (money) or other means of payment. (KOTLER, 2003). Based on the importance of the client, it is necessary to mention customer service as a strategy to maintain their loyalty to the company. Customer service is the set of activities related to each other offered by a company in order for the customer to obtain the product at the right time and place and ensure their total satisfaction with the use of it. (KOTLER, 2003). Customer service is "all activities that link the company with its customers" (Couso, 2005). Customer service is not an option, it is an essential activity for the life of a company, it is the center of its objectives and is the key to success or failure.

Micro, small and medium enterprises

SME Companies (small and medium) constitute a very important part in the economy of the countries. According to the Organization for Economic Cooperation and Development (OECD) (2006), they are a way of organizing business that currently dominates, and account for between 95 and 99% depending on each country. They create about 60 to 70% of net jobs in OECD countries. SMEs are entities that have productive flexibility, have high generation of jobs, adapt to market changes and are able to reconvert their strategies and business structure, so their promotion is justified if the strategic importance of they have in globalization (Francisco J. Fernández Regalado, 2013). The Economic Census aims to provide statistical information that contributes to decision-making, INEGI makes the breakdown of the stratification of companies according to the criteria of employed personnel. For the analysis of this study, micro, small and medium enterprises are defined. (INEGI, 2009).

Classification	No. of workers	Sector
Micro	0-10	Industry
	0-10	Commerce
	0-10	Services
Little	11 – 50	Industry
	1 1– 30	Commerce
	11 – 50	Services
Median	51-250	Industrial
	31-100	Commerce
	51-100	Service

Table 1 Mpymes classification criteria
Source: own elaboration with data from INEGI (2009)

Trends in the use of technology to provide Online Customer Service for SMEs

According to some recently published articles (konfio.mx/tips/negocios/las-tendencia-en-tecnología-para-las-pymes/) the importance of the use of technology for small and medium enterprises is recognized as a strategy for that they may be valid and take advantage of solutions to improve in different areas. Mentioned among these trends are Computer Security, Robotics, 3D Printing, Virtual Reality, Online Training, Online Payments, Big Data and Artificial Intelligence as some in which companies can access. The MyPes can, through the use of some of them, perform tasks and analyze information, as well as free up staff time and an important part of the work organization and service improvement. (Konfio, 2019)

WhatsApp Business is an application that entrepreneurs can use to have direct and fast contact with customers and prospects. The download is free is available for Android and iPhone operating systems, it has been specially developed for small and medium businesses. The purpose of WhatsApp Business is to facilitate interactions with customers as it allows you to quickly automate, organize and respond to messages. It has been designed to work similar to WhatsApp Messenger like sending messages and photos. (FAQ de Whatsapp , 2019)

What is a buyer person?

An ideal buyer person or customer is that prospect in which the company will focus all its effort, they are the ideal of customers. It is the profile that is created of the customer to attract and retain it through the development of products, sales strategies, are all those activities that are carried out to identify the ideal customer and develop the profile: buyer person. (Batalla, 2018)

Analysis of the current situation

In order to determine the situation of the company, a questionnaire is made to the Marketing Manager.

Questionnaire to know the microenterprise situation.

1. What does your company do very well, better than many others? Democratize business software, that is, develop software that gives small entrepreneurs tools.
2. Is your company strong in the market or in the segment it points to? Why? We are venturing, we are not leaders, but we are developing marketing strategies to reach the target market.
3. Is your team committed to the company and the future vision? Yes, we all know what the goals and objectives are, we work under tasks with specific times to achieve them.
4. What things are your business not doing well, even worse than others? We have fought in the commercial part; it is our biggest area of opportunity.
5. What are the reasons behind the existing problems? I think the fact of focusing on the sale through the internet, without seeing that the page needed to be improved to make the shopping experience easier, also needed to define the segment to make specific advertising campaigns for them.
6. Do the defects come from the hand of insufficient resources or a bad allocation of them? It may be, at the beginning we did not have a defined budget for this area and the people we had were very little compared to the development area, now we have the support of an external designer and advisor, in addition to two people within the business.
7. Is the market in which your company operates growing? Yes, software and technology are the areas with the greatest growth potential for the coming years.
8. Do the products or services satisfy consumer trends or could they adapt to do so? If they satisfy consumption trends, small entrepreneurs need to rely on technology to automate processes, information flows and to spend more time on tasks that generate value for their businesses. Our proposal is that the entrepreneur has important information (hard data) of his business for informed decision making.

9. Are there new technologies or changes in the regulatory framework that your company can take advantage of? Yes, adapting to new technologies, that people are accustomed to using the internet from their cell phone or computer helps us.
10. What things do competitors do better than your company? They have already made their way into the market and market their services constantly.
11. Are there new technologies or consumer fashions that threaten the future of your products or services? There will always be competition, so it is essential that our marketing plan has solid foundations, as well as all the well-developed support and service to achieve a good user experience and prefer our solutions.

Analysis of the responses through a SWOT

S1. The target market is well identified. S2 The entire work team is committed to meeting the goals and objectives of the company. S3 Democratize business software.	O1 The company's market is in the area with the greatest potential growth for the coming years. O2 Market demands new software services.
W1 Deficiency in marketing. W2 The purchase method can be confusing. W3 Little staff for the customer service area. W4 Lack of knowledge to serve the client.	T1 Competitors already market their services constantly. T2 Structuring of privacy notices and terms of use. T3 The constant development of competition.

Figure 1 SWOT analysis
Source: own elaboration

The AlphaCenit company is at a favorable point for its systems since both technology and the target market are growing. Chihuahua has 27,441 microenterprises and represents 4.39% of the total in Mexico. The small business is 1,933 and represents 4.19% of the total nationwide and the company plans to take advantage of this percentage with the democratization of its business software. (INEGI, Directorio Estadístico Nacional de Unidades Económicas , 2018)

Satisfaction survey of active clients and customers who did not renew TiConta contract

Encuesta satisfacción

CLIENTES ACTIVOS TiConta

Nombre del cliente

Tu respuesta

1. ¿Cómo le ha parecido nuestro servicio?

Tu respuesta

2. Cuando hizo la contratación o renovación de su cuenta, ¿Cómo le pareció el tiempo de respuesta?

Tu respuesta

3. ¿El servicio cumplió la calidad que esperaba?

Tu respuesta

4. ¿Cómo fue su experiencia para acostumbrarse al uso de la plataforma?

- Fácil
- Regular
- Difícil

¿Por Que?

Tu respuesta

5. ¿Recomendaría TiConta a un amigo o conocido? ¿Por qué?

Tu respuesta

6. ¿Tiene algún comentario o recomendación para que mejoremos nuestro servicio?

Tu respuesta

ENVIAR

Figure 2 Satisfaction survey for active clients
Source; own elaboration

The results presented below are obtained from the responses of 10 surveys, corresponding to 15% of customers (approximately 66 customers) who no longer renewed their electronic billing package.



Figure 3 Survey for TiConta active customers
Source: own elaboration

50% of TiConta customers believe that the service offered by the software is excellent and the other 50% say it is good.



Figure 4 Survey for TiConta active customers
Source: own elaboration

Among the active clients of TiConta who were surveyed, 67% found that the response time is fast, followed by 33% who consider it good.

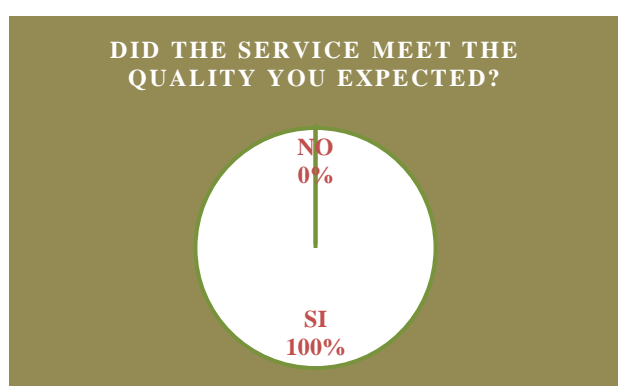


Figure 5 Survey for TiConta active customers
Source: own elaboration

100% of the total active TiConta customers consider that the quality of service is what they expected.

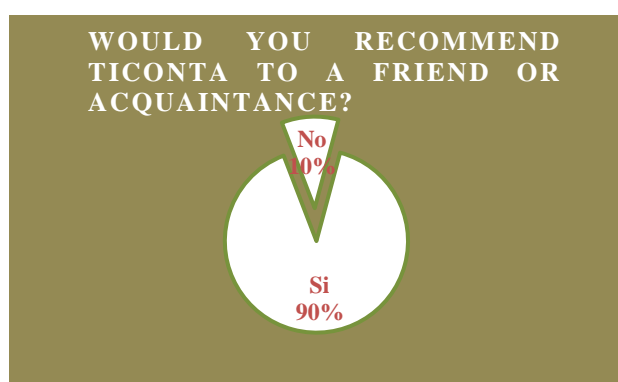


Figure 6 Survey for TiConta active customers
Source: own elaboration

Active TiConta customers were asked, if they would recommend the Software to a friend or acquaintance, 90% said yes. Question six, do you have any comments or recommendations to improve our service? most mentioned that in general the service is fine.

ENCUESTA DE SATISFACCIÓN

ENCUESTA CLIENTES QUE YA NO RENOVARON TICONTA

Nombre

Tu respuesta

¿Como le pareció nuestro servicio?

Tu respuesta

¿Cuál fue la razón por la que no renovó su cuenta?

Tu respuesta

¿El servicio cumplió la calidad que esperaba?

Tu respuesta

¿Cómo fue su experiencia para acostumbrarse al uso de la plataforma?

Fácil

Regular

Difícil

¿Por que?

Tu respuesta

¿Recomendaría TiConta a un amigo o conocido? ¿Por que?

Tu respuesta

¿Tiene algún comentario o recomendación para que mejoremos nuestro servicio?

Tu respuesta

ENVIAR

Figure 7 Satisfaction survey for customers who have not renewed

Source: own elaboration

The results presented below are obtained from the responses of 10 surveys, corresponding to 15% of customers (approximately 66 customers) who no longer renewed their electronic billing package.

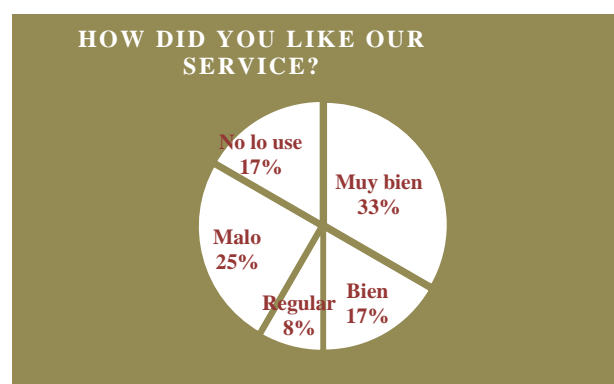


Figure 8 Survey for customers who have not renewed TiConta

Source: own elaboration.

Of the total of the respondents, 33% consider the service to be very good, 17% that it is a good service, 8% consider it regular, 17% did not have the opportunity to use it for various problems regarding data prosecutors and 25% that is bad.



Figure 9 Survey for customers who have not renewed TiConta

Source: own elaboration

37% of the respondents answered yes, as to whether the software offered them the quality they expected against the 36% who responded that it was not, along with 27% of them who did not have the opportunity to use it.



Figure 10 Survey for customers who have not renewed TiConta

Source: own elaboration

37% of the respondents answered yes, as to whether the software offered them the quality they expected against the 36% who responded that it was not, along with 27% of them not totally. In total 63% are not satisfied with the service provided to them.

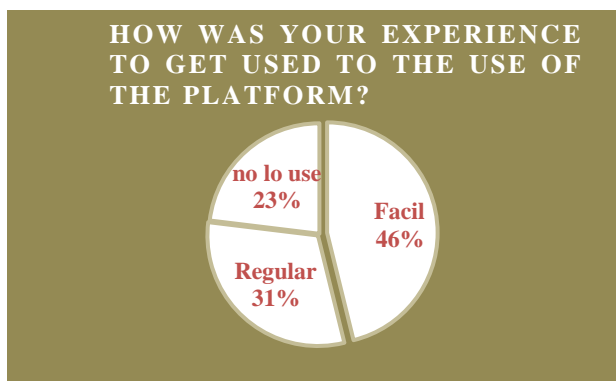


Figure 11 Survey for customers who have not renewed TiConta

Source: own elaboration

31% of the respondents consider that their experience to get used to the platform was regular since they already had knowledge of other systems similar to this and 46% that their experience was easy.

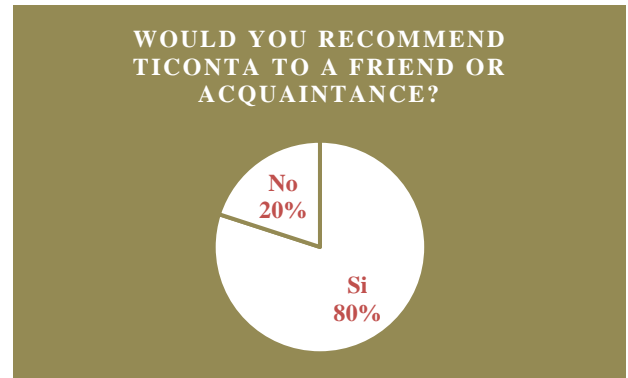


Figure 12 Survey for customers who have not renewed TiConta

Source: own elaboration

80% of respondents replied that if they would recommend the software to their friends or acquaintances and only 20% said no.

Question six, do you have any comments or recommendations to improve our service? -In a smaller percentage they ask for a cheaper package, and those who no longer renewed the reason is that they prefer not to pay the price of 290.00 per month or 2900.00 per year. Another opinion is that the system is easier to understand, There are other systems are free. Lack of time for training, lack of knowledge to hire the service again.

Group session with prospects

Six people were invited to participate in a group session, the characteristics of the participants is that they have their own business and perform billing, that they have never used TiConta (electronic billing software), who are unaware of its use. The objective of the group session is to know what your main concerns and problems are to solve. An observation of the panelists is performed interpreting their behavior and listening to their opinions, which will help to elaborate the proposals of customer service strategies. As an incentive to participate they will be given 15 days free to use TiConta.

The panelists attended the focus group with laptop, RFC of their business, password of the SAT (key cieci), data of some client to bill for example purposes (the invoice is not going to be stamped) and Certificate of digital stamp on your laptop (to be able to stamp invoices later, within 15 days)

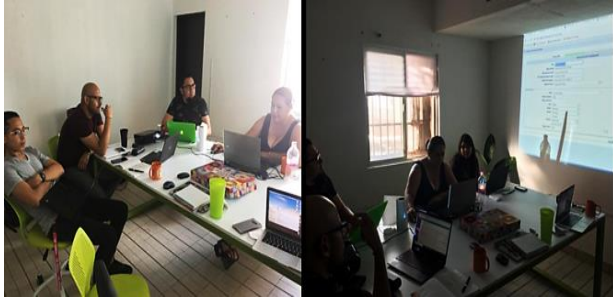


Figure 13 Group session
Source: own elaboration

Summary of the opinions generated in the group session

When entering the TiConta home page, they take a detailed tour and comment that you cannot see any option where they can configure the system or where all the information they initially entered is stored. They are asked to start by making an invoice. To what they say they do not see a button or a section that says billing and being a billing system seems more accounting.

They go to the catalog section and therefore to customers and suppliers, they register with customers and at the time of registration they omit the tax regime since they mention that a person without the corresponding knowledge would not know what the tax regime is. They mention that it is very annoying that Tico (the system mascot) appears every time they want to perform an action and that the names of each section are very technical for those who do not know the subject. They also comment that VAT should appear with the amounts and not by the name that corresponds to it since many do not know them.

The lack of commitment of employees to customer service, and advice to customers causes them not to seek again the service of the company AlphaCenit.

Research Methodology

The methodology is based on an exploratory investigation through an interview with the owner to identify the strong and weak areas of the company, as well as the opportunities and threats it faces. Qualitative research is also carried out with the application of a group session to active clients. And a descriptive investigation is also carried out with the application of a questionnaire to TiConta's active clients and to customers who have not renewed TiConta to measure the degree of satisfaction with the service. The google survey tool is used to prepare the questionnaire, the survey is of a telephone type.

Results

Data analysis provides important reasons for creating customer service strategies that allow AlphaCenit to keep its real customers captive and attract the potential market. The registration of the platform is online, as is the payment process, but it still does not have an efficient way to address the concerns of each of the users. For this reason, the development of strategies is proposed, where the process of a customer service system is established, which includes from the process of prospecting, sale and after sales service.

Customer Service Strategies

The following strategies are proposed as part of the sales process:

- Create a buyer person (ideal customer), with the information that is in the hands of the company, coming from currently active customers, which aims to send the right message to the right individuals and thus generate greater chances of success. (annexes figure 1)
- For the survey, the attendance list containing the data of the people attending the “financial Thursdays” talks in CANACINTRA, open to all public offered by the company, is used. These sessions are attended by small entrepreneurs, which belong to the segment to which TiConta is directed. Therefore, it is intended to identify them as potential customers.

- Go to the exhibitions that gather small entrepreneurs in order to collect their data for the prospectus base.
- Establish in detail the sales process, with the help of a CRM where all the contacts that are obtained in the prospecting are registered as a new lead and will be established within a new Sales Pipeline that is the process in which each One of them inside the sale. The database must have relevant information about the client or prospect: name, telephone number, personal data, up to a record of all the problems you have had throughout your history as a TiConta customer; with the purpose of carrying out an analysis of the most recurrent failures and complications, thus being able to locate in a short time the reason why they are caused and if it is a problem it is on the part of the customer service, the programming or an error of the client and give them a solution correct to the magnitude and type of the problem.
- Make a record of incidents where you must write when and how it was that the client reported the problem, what was the problem, how long it took to solve it and what was the attitude the client took before and after the care.
- Conduct a customer service program, which consists of two sections, telephone support and whatsapp support. The two sections detail the customer service process:
 - Process Block Diagram.
 - Description of the process steps.
 - Necessary resources.
 - System standards under what criteria and standards should the process be carried out?
 - Make a list of recurring problems with the possible solution to each one, specifying each step to follow for your solution.
 - WhatsApp Business: One of the activities carried out in the company was the change from WhatsApp Messenger to WhatsApp Business.

- The change of this application involved performing an analysis of all cell phone contacts. Since checking the truthfulness of the data, that the telephone numbers still belonged to the person who was in the registry, as well as locate the name of those who were not entered in the phone.
- Each contact was also backed up to ensure that no information was lost at the time of the change from WhatsApp Messenger to WhatsApp Business, since you cannot have both applications on the same cell phone.
- After making the change, all the benefits to which you have access with WhatsApp Business are used, some are:
 - create a company profile that allows you to give useful information to customers such as address, company description, email address Electronic and website. - Generate quick responses, allow you to save messages and reuse those that are sent frequently; In this way, common questions are answered in a very short time. - Organize contacts or chats with tags to find them easy and fast.

Annexes



Figure 14 Buyer company person. AlphaCenit elaboration

Acknowledgments

Appreciation for the information provided to the owner of the company the Marketing Manager, M.A.M. Cinthia Esmeralda García Valdez and student Diana Celeste León Morales for her participation in the development of the project.

Conclusions

As results, the increase in sales is expected during the first month of implementation and use of the different digital tools proposed, causing an increase in the profitability of the company.

The results can be observed in the comparison of the list of new clients in the month of July of this year, in perspective with the corresponding month of execution of customer service strategies. It is expected that with the use of the buyer person (ideal customer) a more successful profile of the company's customers can be developed, in order to send the correct message to them.

It is expected to increase the client portfolio with visits of businessmen in the "financial Thursdays" CANACINTRA and expo fairs. Through the prospecting and use of tools such as the CRM, it is expected to have an updated and functional database for classification. With the use of the incident log, it is sought to have the proper classification of the problem to deal with it in a more effective way and to provide a solution.

With the change from WhatsApp Messenger to WhatsApp Business, the telephone records of contacts with customers and prospects are updated, the authenticity of the information is validated. With the use of this tool, another personalized attention channel is created. It allows to elaborate a profile of the company and to answer frequent and / or common questions in a faster way.

An increase in customer acceptance is expected, in terms of operation and speed of response time of customer service. It is also suggested to the company, a periodic review of the strategies and measure the level of satisfaction in customer service.

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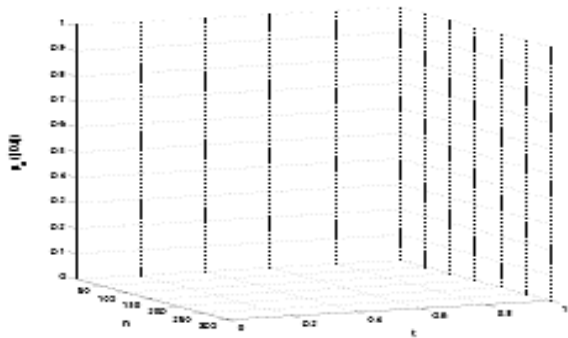
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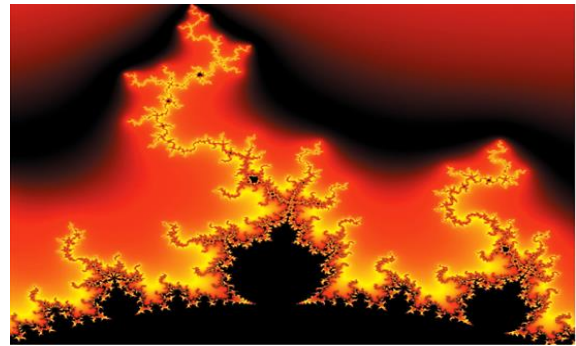


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