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In the first article we present, *Traceability of raw materials processes in the steel industry*, by SILVA-AVILA, Alicia Elena, CASTORENA-PEÑA, Jesús Abraham, DOMINGUEZ-LUGO, Alma Jovita and RODRÍGUEZ-MONTELONGO, Diana Laura, with ascription in the Universidad Autónoma de Coahuila, as next article we present, *Analyzing sales to generate strategies with IBM Cognos Analytics*, by CASTORENA-PEÑA, Jesús Abraham, SILVA-AVILA, Alicia Elena, DOMÍNGUEZ-LUGO, Alma Jovita and MARTÍNEZ-CASTRO, Jehú Efraín, with ascription in the Universidad Autónoma de Coahuila, as next article we present, *Standardization of servuction processes as a competitiveness strategy in micro service companies in the city of Tehuacan*, by MASCARÚA-ALCÁZAR, Miguel Antonio, JUÁREZ-PÉREZ, Sagrario, AGUILAR-SORIANO Cinthya del Carmen and ROSAS-TRINIDAD, María Antonieta Guadalupe, with ascription in the Universidad Tecnológica de Tehuacán, as next article we present, *Strategies for the competitiveness of the trade in Tecamachalco, Puebla: Case of the grocery stores*, by REZA-SALGADO, Juventino, GUERRERO-PAPAQUI, Roxana and LÓPEZ-GONZÁLEZ, Patricia, with ascription in the Universidad Tecnológica de Tecamachalco.

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Traceability of raw materials processes in the steel industry

Trazabilidad de procesos de materias primas en la industria acerera

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Abstract

Companies today experience extreme competition, mainly due to the growing pressures of technology changes and global challenges. These "emerging" pressures result in globalization of manufacturing, characterized by faster material transfers, complex payment systems and compression of product life cycles, which drives the need for superior integration of technologies with the needs of customers increasingly sophisticated. Because of this technological change, the processes that were done manually in a company are no longer very helpful, due to the constant errors that occur in their time of execution and response. Given the previous context, the objective was to develop a system based on SCRUM software development methodologies (name that comes from a certain play that takes place during a rugby match), using C # 2017 software and Microsoft SQL Server 2012; In this way, the contribution that will be made will be to allow the area of raw materials and central laboratory within a steel company, to track the processes, thereby speeding up the release of materials.

Traceability, SCRUM methodology, Software, Raw materials

Resumen

Las empresas hoy en día experimentan una competencia extrema, principalmente debido a las crecientes presiones de los cambios de la tecnología y desafíos globales. Estas presiones "emergentes" resultan en la globalización de fabricación, caracterizada por transferencias de materiales más rápidas, sistemas de pago complejos y compresión de los ciclos de vida de los productos, lo que impulsa la necesidad de una integración superior de tecnologías con las necesidades de los clientes cada vez más sofisticadas. A causa de este cambio tecnológico los procesos que se hacían manualmente en una empresa ya no son de mucha ayuda, debido a los constantes errores que se producen en su tiempo tardado de ejecución y respuesta. Dado el contexto anterior, el objetivo fue, desarrollar un sistema basado en las metodologías de desarrollo de software SCRUM (nombre que proviene de cierta jugada que tiene lugar durante un partido de rugby), usando el software de C# 2017 y Microsoft SQL Server 2012; de esta manera la contribución que se aportará será el permitir a el área de materias primas y laboratorio central dentro de una empresa acerera, tener rastreo de los procesos agilizando con esto la liberación de materiales.

Trazabilidad, Metodología SCRUM, Software, Materias primas

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[†] Researcher contributing first author

Introduction

Computer software remains the most important technology on the world stage. It is also a magnificent example of the law of unexpected consequences. 50 years ago, nobody could have predicted that software would become an indispensable technology for business, science and engineering, nor that it would allow the creation of new technologies (for example, genetic engineering and nanotechnology), the expansion of existing technologies (telecommunications) and the radical change of old technologies (the printing industry).

Nor that software would be the force that would drive the personal computer revolution, that packaged software products would be bought in supermarkets, that software would gradually evolve from a product to a service when software companies "on demand" provided functionality just in time through a web browser (Acosta & Navarrete, 2013), that a software company would be larger and would have more influence than almost all companies of the industrial era, that a vast network called the internet would be operated with software and everything would evolve and change, from library research and buying consumer products.

In the last half century, the role of computer software has undergone a significant change. The remarkable improvements in hardware performance, the profound changes in computer architectures, the large increase in memory and storage capacity, and a wide variety of exotic input and output options have led to the existence of more computer-based systems. sophisticated and complex. When a system is successful, sophistication and complexity produce dazzling results, but they also pose huge problems for those who must build complex systems (Hernández, 2003).

Problem

In a company, which is mainly engaged in steel production, there are two areas that are related to each other, which are central laboratory and raw materials. The raw materials area is responsible for collecting samples of all material that will be used within the processes for the generation of steel.

A record of the acquired samples must be kept, as well as the name of the material, date on which it was sampled, name of the supplier, the frequency on which it will be sampled until it is used up, the name of the worker who collected the sample, as well as the tests to be performed on the sample acquired. The tests are divided into granulometric, wet, density and chemical analysis tests. The first three are carried out within the area of raw materials while those of chemical analysis are performed in the central laboratory.

The central laboratory cannot perform any tests until the results obtained by raw materials are obtained, this causes the laboratory to be late for not obtaining the results in a timely manner, once all the tests have been completed, a document with all the results must be returned to raw materials so that this can release the material and thus continue the production process.

A record of the values obtained sent by the supplier is also kept in order to compare the results obtained from the tests performed by the laboratory staff to see if there are alterations in the results or if everything is in order and the material can be used in the processes.

Therefore, the proposed system will track the areas of raw materials and central laboratory, speeding up and ensuring precision in the processes and generating quality in their materials.

Methodologies

The Scrum principles are congruent with the agile manifesto and are used to guide development activities within an analysis process that incorporates the following structural activities: requirements, analysis, design, evolution and delivery (Sutherland, Viktorov, Blount & Puntikov, 2007).

Within each structural activity, work tasks occur with a process pattern (which is studied in the following paragraph) called sprint. The work done within a sprint (the number of these required by each structural activity will vary depending on the complexity and size of the product) is adapted to the problem in question and is defined - and often modified - in real time by the Scrum team.

The general flow of the Scrum process is illustrated in Figure 1. Scrum emphasizes the use of a set of software process patterns that have proven effective for projects with tight deadlines, changing requirements and critical businesses. Each of these process patterns defines a group of development actions (Mariño & Alfonso, 2014):

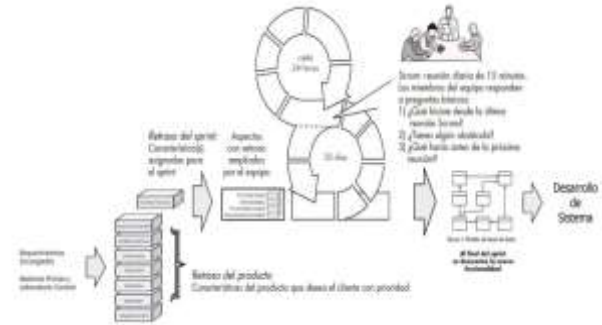


Figure 1 System development using SCRUM methodology

Delay: Priority list of the requirements or characteristics of the project that give the customer a business value. It is possible to add other aspects to the delay at any time (this is the way in which changes are made). The project manager evaluates the delay and updates priorities as required..

Sprints: It consists of work units that are needed to reach a defined requirement in the delay that must be adjusted in a predefined time box (30 days are common). No changes are introduced during the sprint (for example, aspects of delayed work). Thus, the sprint allows team members to work in a short-term but stable environment..

Scrum meetings: These are brief meetings (15 minutes, usually) that the Scrum team holds daily. There are three key questions that all team members are asked to answer:

- What have you done since the last team meeting?
- What obstacles are you encountering?
- What do you plan to do while the next team meeting arrives?

A team leader, called Scrum teacher, directs the board and evaluates each person's responses. The Scrum board helps the team discover potential problems as soon as possible. Likewise, these daily meetings lead to the "socialization of knowledge", which promotes a team structure with its own organization (Pressman, 2010).

Preliminary Demonstrations: deliver the software increment to the client so that the functionality that has been implemented can be demonstrated to the client and he can evaluate it. It is important to note that the preliminary demonstrations do not contain all the planned functionality, but that these will be delivered within the established time frame (Lozano, 2000), figure 1.

The database management system to build the data model was Microsoft SQL Server, which is a system for database management based on the relational model, whose main function is to store and query data requested by other applications, regardless of whether they are on the same computer, if they are connected in the local network or if they are connected through the internet (Garrido, 2014).

Methodologies

With the process followed in the Scrum methodology (figure 1) the design of the database (figure 2) was obtained, which was used to develop the proposed system (figures 3,4) corresponding to the specific needs of the users of the Raw materials department and central laboratory. SQL Server 2012 was used for the relational database and was programmed in C # 2017.

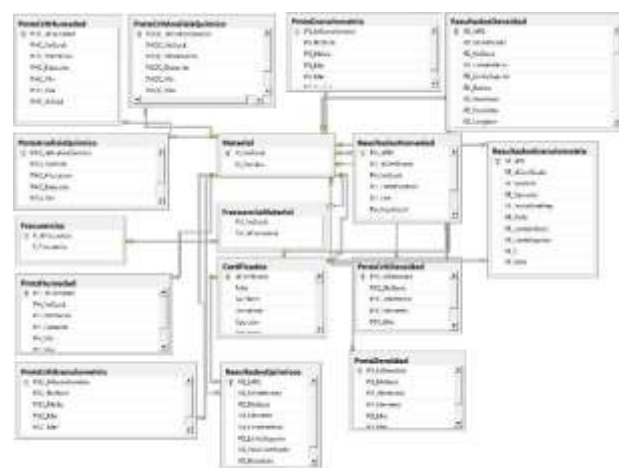


Figure 2 Relational database design

Next, in figure 3, all the materials are shown, as well as their identification numbers that are registered within the company for daily use.



Figure 3 Receipt of Raw Materials

In figure 4, all the applications that are registered under the selected material are shown. Together with the date it was registered, as well as the quantity of material, the order number, the supplier to which it belongs and the reference number.

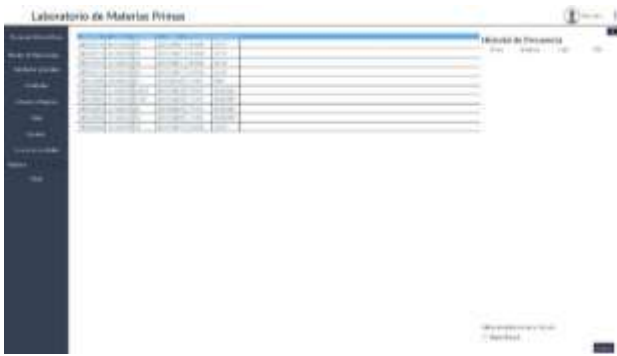


Figure 4 Receipt of Raw Materials

In figure 5, the material corresponding to the request that is chosen by the user appears in the previous screen (figure 3.1). It also tells us the sampling frequency and where the sample of this material is taken. As well as the range of values that they must have at the time of carrying out the tests that correspond to them to know if the material is in the appropriate conditions for its use.



Figure 5 Receipt of Raw Materials

Figure 6 shows the materials that still have pending analysis to be done. Which correspond to the Raw Materials Laboratory. The tests are Granulometry, Humidity and Density.

We choose a material indicating to the user the analysis corresponding to the chosen material.



Figure 6 Pending Preparations

Next, in figure 7, the data that the user must register in case of requiring a normal Granulometry test is shown.



Figure 7 Pending Preparations

Next, in figure 8, the data that the user must register in case of requiring a special Granulometry test is shown.



Figure 8 Pending Analysis

Results

With the system developed, the records that are carried out in the areas of raw materials and central laboratory were automated. Likewise, the time in traceability processes was reduced because users of central laboratory and raw materials will be able to see the results instantly without having to wait for them to take them personally.

With this system developed the area of raw materials and central laboratory will have adequate communication with the results of the tests that correspond to each one, as well as being able to release the materials more quickly and timely for their use in production, reducing Registry errors and ensure that your raw material contains the necessary values so that your final product obtains the required quality. The response time improved to 1 day, since it took 5 to 7 days as a precedent for this process. It is recommended to keep the database, computer equipment and communication networks updated so that in this way the data that is handled in real time significantly improves the operational processes.

Future work

In this first stage the system was designed and implemented, once this stage is completed the next will be to establish the direct connection between the sensors and the system developed to automate processes without human intervention, implementing IOT technology.

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Analyzing sales to generate strategies with IBM Cognos Analytics

Analizando ventas para generar estrategias con IBM Cognos Analytics

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Abstract

In recent years, with the advent of the internet of things (IOT), computers and information technology (IT), small and medium-sized enterprises (SMEs) have been immersed in a cluster of information difficult to analyze in a conventional way which provides value that can ensure its permanence and survival in the market. Therefore, it is important to make use of data mining technology tools and statistical techniques that help analyze and better understand the information generated by sales processes, through a thorough analysis of the data. For this research, the IBM Cognos Analytic tool was used, which provides a predictive data visualization and analysis service that can be used to determine patterns, relationships, associations and meaning of a large set of data quickly and in a timely manner. Likewise, statistical techniques such as correlation and simple linear regression were used to establish the behavior of the company's product demand in the marketing, manufacturing and importation of the cleaning product sector.

Data mining, Cognos analytics, Sales process, PyMES

Resumen

En los últimos años con la llegada del internet de las cosas (IOT), las computadoras y las tecnologías de la información (TI), las pequeñas y medianas empresas (PyMES) se han visto inmersas en un cumulo de información que resulta difícil de analizar de manera convencional que proporcione algún tipo de valor que pueda asegurar su permanencia y supervivencia en el mercado. Por lo cual resulta importante hacer uso de herramientas tecnológicas de minería de datos y técnicas estadísticas que ayuden a analizar y a comprender mejor la información generada por sus procesos de venta, a través del análisis exhaustivo y minucioso de los datos. Para la presente investigación se utilizó la herramienta de IBM Cognos Analytic la cual proporciona un servicio de visualización y análisis predictivo de datos que puede ser utilizado para determinar patrones, relaciones, asociaciones y significado de un gran conjunto de datos de forma rápida y oportuna. Asimismo, se utilizaron técnicas estadísticas como correlación y regresión lineal simple para establecer el comportamiento de la demanda de productos de la compañía del sector de comercialización, fabricación e importación de productos de limpieza.

Minería de datos, Cognos analytics, Proceso de ventas, PyMES

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Introduction

The new challenges presented to organizations today have encouraged companies to rethink organizational strategies in order to ensure their positioning and permanence in the markets (Estrada and Dutrénit, 2007). The emergence of new markets, competitors and technologies causes organizations in any industrial sector to be in a continuous search for prediction tools and techniques for data analysis that allow them to generate or sustain their competitive advantage over their rivals, so that they can improve their business processes, increase productivity and improve the quality of their products.

Greater competitiveness will only be achieved through the implementation of strategies and the use of data mining technologies, aimed at the analysis and exploitation of information generated by the processes and people of the organization (Marulanda, López and Mejía, 2017). Thus, information becomes the key element for the development and evolution of any company, since, through the timely and efficient treatment of information, it enables organizations to improve decision-making, as well as their processes, services or products and give a timely response to market demands and changes (Dueñas, 2009).

The use of strategies such as business intelligence has allowed companies to support decision-making quickly and accurately to improve performance and generate a competitive advantage for the organization (Pollo et al., 2010). According to Bravo et al. (2011), today's organizations require technological platforms that can handle large volumes of information, including its interpretation and automatic analysis to support decision-making and generate adequate production planning for companies to be more productive and efficient in their processes.

Therefore, managing the knowledge generated by the data of the different processes of the organizations will enable to know the company's resources and the behavior of its processes in such a way that it can achieve its objectives in an adequate, effective and opportune way.

Due to this, the importance of the use of data mining technological tools arises in small and medium companies so that they can compete with large companies when it comes to obtaining patterns, trends or rules that allow them to regulate their way of operating in the market (Marulanda, López and Mejía, 2017). Tolosa and Gracia (2007) state that resources such as information systems, data mining, commercial creativity and adaptation are scarce and low-priority elements in the management of SMEs.

The data mining technological tools represent for the companies a way to manage in a more efficient way their knowledge, as well as to extract interrelations and patterns of interest of a great set of data to address the development situation which the SMEs face in the market. However, there is a lack of research on analyzing the sales process of SMEs in the sector of marketing, manufacturing and import of cleaning products through data mining technologies. Therefore, the objective of this research was focused on implementing data mining technology tools and statistical techniques to find patterns and behavior of the sales process of a company in the sector of marketing, manufacturing and import of cleaning products, to support decision-making and improve the quality of service provided.

Problem

An SME, which is mainly dedicated to the commercialization, manufacture and import of cleaning products, does not have technological tools for the analysis of data, nor a structured and reliable data model that allows an analysis and exploitation of information, to establish patterns, associations and sales projections, which provide consistent information that supports the analysis and decision-making in a reliable and timely manner. Likewise, a detailed analysis of the sales process identified that the company has several areas of opportunity, for example: lack of integrity of the data collected, lack of statistics and indicators, and inefficient management of the data.

Technological tools for data analysis in the market

There are several commercial technological products available on the net for data analysis, among which IBM Cognos Analytics stands out, which is a tool that incorporates artificial intelligence techniques that help to establish patterns, trends and associations on the data. It also presents automation functionalities such as automatic data preparation and automatic modeling; in this aspect, Cognos Analytic automatically selects the best regression model for data between linear, logistic, multivariate, etc. Other tools for data analysis are shown below:

- **SPSS Modeler:** Tool that offers accurate predictive models quickly and intuitively through its visual interface, as well as detection of patterns and trends in hidden data. In addition, it allows to model the results obtained and to understand the factors that influence the analyzed variables to take advantage of the commercial opportunities and to mitigate the risks (IBM,2016).
- **SAP Predictive Analytics:** Software that automates the processes of selection of the prediction algorithm, creation of the predictive model and validation of its effectiveness. It is simple, intuitive and quick to execute for the user who manipulates it, in addition, it allows to use it as initial model of reference up to a more detailed granularity (Guidi, Miniati, Mazzola y Ladanza, 2016).
- **Revolution Analytics:** Resource that provides software, services and support together to make the R statistical computing environment an attractive tool not only for academia, exploration and prototyping, but also for implementation within a company that needs it for data analysis (Revolution Analytics, 2014).

For the practical purposes of this research, we decided to use Cognos Analytics because of the range of functionality provided to the user. Once the technological tool was selected, we proceeded with the extraction, transformation and data loading process in order to carry out an exhaustive and detailed analysis of the company's sales process that would allow for the establishment of patterns, associations and trends in sales behaviour and the extraction of knowledge that had not been considered before.

Methodology

Data extraction, transformation and loading process (ETL)

In order to start the process of data exploitation and analysis using data mining technology tools and statistical techniques, the extraction, transformation and loading of data into the database was carried out in order to define and select the set of data and variables to be processed, in order to obtain statistics and patterns of the behavior of the sales process. The extraction consisted of compiling all the information regarding the company's sales area, which was related to customers, suppliers, orders and articles. Subsequently, the selection of data and attributes of interest that could provide valuable information to the company was implemented through a procedure stored in MySQL. Once the information was selected and processed, the data was uploaded to the database developed for analysis and exploitation using the Watson Analytics tool and statistical techniques (Figure 1).

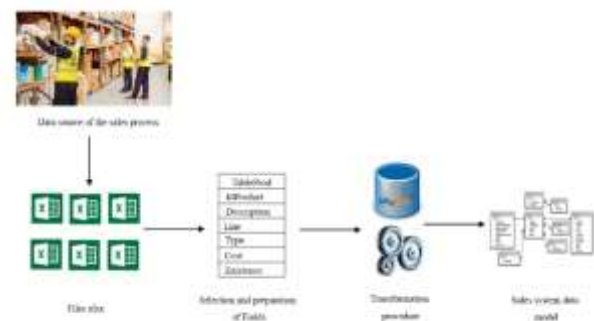


Figure 1 Data extraction, transformation and loading process (ETL)

Prepared by the authors

Implementation of Cognos Analytics in sales data analysis

Using the Cognos analytics tool, data could be analyzed and visualized quickly and clearly, discovering new patterns and trends, showing concrete results (Figure 2 and Figure 3), for example:

- The days that report the highest sales in the company are Monday, Thursday, Tuesday and Friday with a total of 89.1%, while Sunday is the day that generates the lowest sale with respect to other days of the week. The top-selling type of product is marketing with notable displacement in Puebla followed by Veracruz, Oaxaca and Morelos. Also, the products with higher sales are ideal Venetian broom, mega economic broom, galvanized wire, parrot fan broom, Jmc clamp and fan plus broom. As for customers, it was identified that 4 customers generate the bulk of sales with 19.5% (Customer 1), 11.6% (Customer 2), 7.9% (Customer 3) and 7.2% (Customer 4).



Figure 2 Dashboard 1 Analysis of data using cognos analytics
Prepared by the authors

- It was also possible to visualize the states where there is greater presence and impact of sales, being the state of Puebla the most important with 51.6% of total sales, followed by Veracruz, Morelos and Chiapas with 13.6%, 7.2% and 6.2% respectively, as well as the analysis of the behavior of product lines in relation to the amount of sales and customer preferences. According to the data analyzed, it could be established that total sales is strongly influenced by the price of the product, city, quantity of units and the product line with a 62%, these being the variables of interest to make a purchase in the company, while the quantity of units and the price of the product as a whole have an influence of 59%.

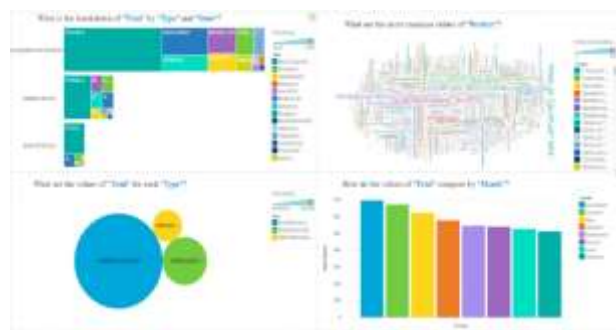


Figure 3 Dashboard 2 Analysis of data by cognos analytics
Prepared by the authors

Statistical analysis of variables of interest for sales

In order to measure the impact of the number of views the company has on monthly income, we used the correlation of variables, which showed that the monthly income from sales are not driven by the number of customers served, as can be seen in the value $r=0.2131$, representing almost no relationship between the variables (Table 1 and 2).

Correlation coefficient

$$r = \frac{s_{xy}}{s_x s_y} \tag{1}$$

Número de visitas (x)	Importe \$ (y)
444	58036.17
320	51548.35
307	47202.16
270	30393.89
336	62552.58
303	52866.63
311	49072.34
335	54296.25
292	54894.19
246	67604.06
194	47880.83
305	69750.02

Tabla 1 Ingresos por número de visitas
Prepared by the authors

Covarianza	Desviación estándar	Coefficiente de correlación
$S_{xy} = 120752.40$	$S_x = 56.74$ $S_y = 9981.80$	$r = 0.2131$

Tabla 2 Cálculo del coeficiente de correlación
Prepared by the authors

On the other hand, it is important for the company to have a constant monitoring of the products that generate greater interest for them, which is why the linear regression technique was applied to measure and analyze the trend behavior of product IDV1, in order to plan purchases next year (2018). The construction of the prediction of units per month for the product IDV1 is presented below.

Construction of predictions

Mes	Unidades (y)	t	ty	t ²
Enero	651	1	651	1
Febrero	1797	2	3594	4
Marzo	1786	3	5358	9
Abril	579	4	2316	16
Mayo	1345	5	6725	25
Junio	759	6	4554	36
Julio	1013	7	7091	49
Agosto	1044	8	8352	64
Septiembre	912	9	8208	81
Octubre	1668	10	16680	100
Noviembre	746	11	8206	121
Diciembre	1367	12	16404	144
TOTAL	13667	78	88139	650

Tabla 3 Determinación de coeficientes de unidades
Prepared by the authors

$$b = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2} \tag{2}$$

$$b = \frac{(12)(88139) - (13667)(78)}{(12)(650) - (78)^2}$$

$$b = -4.87$$

$$a = \frac{\sum y}{n} - b \frac{\sum x}{n} \tag{3}$$

$$a = \frac{13667}{12} - (-4.87) \left(\frac{78}{12}\right)$$

$$a = 1170.58$$

$$y = a + bt \tag{4}$$

$$y = 1170.58 - 4.87t$$

Tiempo	Año	Mes	Número de piezas
0	2017	Enero	1120
1	2017	Febrero	1123
2	2017	Marzo	1126
3	2017	Abril	1129
4	2017	Mayo	1132
5	2017	Junio	1134
6	2017	Julio	1137
7	2017	Agosto	1140
8	2017	Septiembre	1143
9	2017	Octubre	1146
10	2017	Noviembre	1149
11	2017	Diciembre	1152
12	2018	Enero	1155
13	2018	Febrero	1158
14	2018	Marzo	1161
15	2018	Abril	1164
16	2018	Mayo	1167
17	2018	Junio	1170
18	2018	Julio	1173
19	2018	Agosto	1176
20	2018	Septiembre	1179
21	2018	Octubre	1182
22	2018	Noviembre	1185
23	2018	Diciembre	1188

Tabla 4 Predicción de demanda
Prepared by the authors

Results

With the exploitation of data using Cognos Analytics data mining software, we were able to identify valuable information, since important findings unknown to the company until now appeared; some of the most relevant are:

- The type of product with the greatest impact on the company is commercialization, representing 73% of sales, followed by manufacturing representing 19% of sales and finally importing \$52,394.69 representing 8% of sales.
- Four prospective customers were identified as potential customers since they bought between \$8,500 and \$11,500.
- 12% of revenues were from "retail" in 2,577 transactions and 88% of revenues were from "wholesale" in 1,086 transactions.
- Puebla is the state with the highest sales during fiscal year 2017 and there are seven representative states for the company, with a 94.47% of total sales.

- There is no equilibrium in the portfolio of clients of the vendors as Employee X makes 40% of sales, Employee Y 22.5%, Employee Z 22.5% and Employee G 15%.

On the other hand, with the implementation of the statistical techniques of correlation of variables and simple linear regression, it was identified, first, that the number of views does not impact the company's income and, second, that the projection of the demand for the IDV1 product will allow the company to carry out strategies for the purchase of the product.

Recommendations

It is recommended to use this type of technological tools for the analysis of large volumes of data, due to the fact that it is an intuitive and easy tool; besides, it includes an engine for the cognitive analysis of text, where the user can ask a question in natural language to extract important data for the company; finally, it offers a series of statistical indicators on other aspects of the data analyzed.

Acknowledgments

We are grateful to the Autonomous University of Coahuila for the assistance provided for this article.

Conclusions

With the emergence of new intelligent data analysis technologies, organizations in any industry sector can reinvent themselves and rethink how they operate, in order to improve their competitiveness and productivity in the sales process. Furthermore, through the implementation of the Cognos Analytics tool, the company in question was able to determine patterns, relationships, associations and meaning of a large set of data in a fast and timely manner that would allow it to respond to the changes presented by the market and improve its decision-making in the sales process.

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Standardization of servuction processes as a competitiveness strategy in micro service companies in the city of Tehuacan

Estandarización de los procesos de servucción como estrategia de competitividad en empresas de micros servicios en la ciudad de Tehuacán

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Abstract

This chapter details, within the framework of competitiveness in the state of Puebla, a methodological proposal for the standardization of the processes of servuction of the MSE of the tourism sector, in an area of influence located in the region of Tehuacán - San Diego Chalma. The objective was to provide tools to MSEs so that they can generate strategies aimed at standardizing their processes, through a general methodology that consisted of: a) Defining the objective of the MSME in terms of profitability, b) Characterizing the service, c) Characterizing the client, d) Characterizing its process, e) Making the diagnostic summary and f) Making the decision making process. Once the execution of the proposed methodology has been completed, the SME will be able to identify the integral services it wishes to standardize based on observation, repetition and measurement in order to propose adjustments in the times that will speed up its procedures and thus standardize the production of its services. Finally, it is concluded with the premise that, if a more significant number of SMEs are formed in the understanding of servuction processes, this could lead to the growth of competitiveness in the tourism sector of the city of Tehuacán since competition becomes more orderly and focused on the specific values of each MSE.

Servuction, Competitiveness, Standardization and MSE

Resumen

Este capítulo detalla, en el marco de la competitividad en el estado de Puebla, una propuesta metodológica para la estandarización de los procesos de servucción de la MSE del sector turístico, en un área de influencia ubicada en la región de Tehuacán - San Diego Chalma. El objetivo era proporcionar herramientas a las MIPYMES para que puedan generar estrategias destinadas a estandarizar sus procesos, a través de una metodología general que consistía en: a) Definir el objetivo de la MIPYME en términos de rentabilidad, b) Caracterizar el servicio, c) Caracterizar el cliente, d) Caracterizar su proceso, e) Hacer el resumen de diagnóstico y f) Hacer el proceso de toma de decisiones. Una vez que se haya completado la ejecución de la metodología propuesta, la PYME podrá identificar los servicios integrales que desea estandarizar en función de la observación, la repetición y la medición para proponer ajustes en los tiempos que acelerarán sus procedimientos y, por lo tanto, estandarizará producción de sus servicios. Finalmente, se concluye con la premisa de que, si se forma un número más significativo de PYME en la comprensión de los procesos de servucción, esto podría conducir al crecimiento de la competitividad en el sector turístico de la ciudad de Tehuacán, ya que la competencia se vuelve más ordenada y enfocada en los valores específicos de cada MSE.

Servucción, Competitividad, Estandarización y MSE

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Introduction

Although large companies have had significant growth, both in terms of turnover and in terms of expanding structures and diversifying markets and products, small and micro enterprises have survived with limited markets and significant shortages to stimulate their growth. Micro and small enterprises (MSEs) in Mexico are essential because of the volume of consumption of finished products and employment that is marginal but important for society. However, they have significant disadvantages because they are immersed in markets of exaggerated competition, and this fact has led them to experience low income and, in some cases, indifferent behavior with the different audiences that consume their goods or services. In a city where industrial activity has not been the point of sustained and stable economic growth in the long term, this paper seeks to delve into the tourism sector.

Competitiveness is also a situation that MSEs are at a disadvantage since they do not have systems that allow for a flow of knowledge to grow in the establishment of business goals and objectives. This lack of knowledge about demand and the resulting lack of sales can be solved when the entrepreneur acts with a different organizational attitude, through customer service processes in a sequential and organized manner, so that the process of servuction leads to the MSE to experience growth by having better way to compete in the market, regularly rotate an inventory, and meet customer needs.

Literature revision

Competitiveness

For Jones & Teece, competitiveness is the relationship between domestic production and market opening and competitiveness with opening. In the words of Kotler and Armstrong (2012), the way to make companies competitive is when superior performance is achieved not only in product management activities (see Figure 1), but also in management activities with customers. The generation of value to achieve competitive performance against competitors

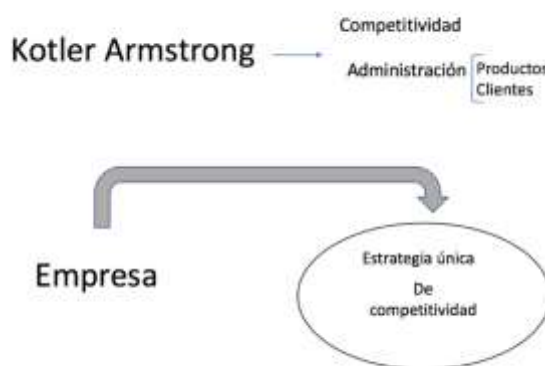


Figure 1

Source: Prepared by the authors, 2017

The intention is to analyze the competition and recognize those who, as competitors, are not a danger to the company, as those who are. However, a common strategy for all companies does not exist, so each company must make its competitiveness strategy.

Other approaches to competitiveness situate it as a macroeconomic tool with application in the sectoral and regional spheres (See Figure 2), as pointed out by Blanco's studies. This idea is taken up again by Fagerberg, who mentions that competitiveness is an economic policy objective, and it is here that Krugman's criticisms become a reality where the main countries have allocated government funds in order to potentialize the different economic sectors.



Figure 2

Source: Gracia, 2008

The theoretical model of comparative advantage remained as a support for productivity until Porter (2015) demonstrated that competitiveness is a superior state to productivity since production is achieved with a higher level of profitability through the creation of value chains arising from creative innovation.

Production

When capitalism was established as the predominant mode of production, the object of study was supply and with it the way to make production grow. Productivity took its place after D. Ricardo criticized A. Smith's statements about increasing production through the division of labor and capital investment (Smith, 2014).

Critical approaches have stated that countries' productivity is associated with elements such as education, support for MSEs, and other types of support. However, some argue that productivity is the result of the same economic conditions in the relationship between countries. Fajnzylber argues that the relationship exhibited by modern nations is one of economic and technological dependence.

This dependence is materialized by the relationship of the nations that have more income and that identify themselves as center nations, while the nations with less income are the peripheral nations. Productivity is supported by technical progress, and for this purpose, the external sector has to be developed in order to raise domestic income. This defines the relationship of dependence of some nations on others and how competitiveness schemes are built (Gracia, 2008).

Servuction

The way people live has changed worldwide. More services have been created to meet new demands, and it is a fact that 70% of the world's Gross National Product (GNP) is service-related, and more than 60% of the world's workforce is employed in this sector. In the case of Mexico, approximately 55% of the population is employed in this sector. Therefore, the management of services is now important (Lara, 2002). The services have distinctive characteristics such as intangibility, heterogeneity, simultaneity between production and consumption, and not durability. The combination of people and material elements is what gives rise to servuction.

The servuction process offers the service you want to give and specifically to whom will be given the infrastructure and human capital that allows the proper functioning of the system and the subsystems of the management of organizations to achieve the quality to design a creative process in order to make the company different and achieve its survival in the competition within the market (Lopez & Ruiz, 2011).

For some authors, the servuction process is a quality process that tends towards excellence (See Figure 3). The quality must obey the uniformity in the specifications, must be perceived by the customer because he perceives the value of the service, which implies that the organization must have its system and a value system determined by the objectives of management.



Figure 3

Source: Briseño and García, 2008

The servuction process makes an essential difference between the production of a good and a service since both require defined processes. However, in the service production process, an important element is the client (Briseño & García, 2008).

Román (2012) emphasizes that the concept of servuction provides a particular vision of business management (See Figure 4). This emphasizes the manufacture of the service because it commits to quality in a system that consists of a). The client; b). The physical support; c). The contact personnel and d). The service.

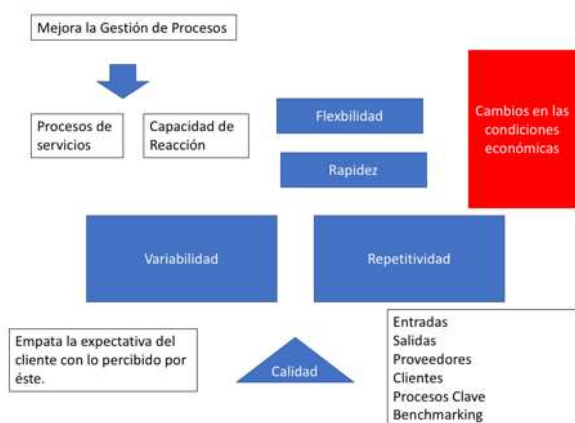


Figure 4

Source: Prepared by the authors with information from Hernández, Nogueira, et al., 2013

Recently, servuction has been the object of analysis since a quality service process involves activities such as the basic transport of people, specialized services such as medicine. In any of them it is required to create quality process management (See Figure 5).



Figure 5

Source: Prepared by the authors with information from Román, 2012

The company's value system is achieved when the company as a whole manages to master quality. Therefore, the company must resolve the antagonism between the expected service and the perceived service. This is achieved when the organization minimizes its weaknesses, such as improvisation and intrapersonal and interpersonal relationships. Thus, servuction can be measured by 1. effectiveness with expectations, 2. experience with the products of competitors, and 3. feedback from third parties (Briceño & Garcia, 2008).

In the case of micro and small enterprises, the production of services is the most critical activity due to its low investment cost and its versatility in facing rapid changes in demand and its essential contribution to job creation.

Marketing

Recognition of the use of marketing

It is about knowing that the recognition of entrepreneurs for using marketing applied to their businesses is not a priority issue. To make a comparison, we present the results of surveys applied in the health sector, 55% of a sample of 908 professionals answered yes, compared to 45% who said they were against the effectiveness of the use of marketing in their work units and business.

Besides, in the modality of acquisition of marketing knowledge, 20% said they learned in a conference; 18% self-taught, another 18% learned by attending courses and 15% learned through a subject in their master's studies (Suarez, Hernandez, Cajan, Remoaldo, Torres, & Priego, 2016).

Another important point is the reason for using marketing, where the answers that correspond to the utility in the area of specialty, for the case of Mexico, was the most chosen answer; however, the answers about increasing the efficiency and effectiveness of the work, obtaining easy results, taking into account the user and development of skills were the least chosen answers.

Behavior in response to competitive marketing

According to Ramaswamy's writings, competitive marketing behavior expresses a situation of business rivalry that is manifested by the use of market strategies, and the focus is on the type of actions that a company takes to face the competition. Three types of behavior can be identified: vindictive, cooperative, and grassroots (Vera & Itriago, 2008). Retaliatory behavior, which is the behavior that a company exhibits, is vindictive because the actions of an organization go in the same direction as the competitor, that is, if the competitor lowers prices, the competing company will do the same, as well as increasing efforts in sales expenses, the competitor will execute the same actions.

Cooperative behavior is a behavior in which companies do not consider the actions of the competition to be aggressive, and the company's reaction is to maintain the competitive position. This behavior occurs in oligopolistic markets. Baseline behavior is what is used to have a different basis when a company increases its marketing efforts, and the competitor reduces them.

Competitive behavior is based on the study of the relationship of variables such as market growth, market concentration, standardization, the difference in costs of the leading competitor compared to the costs of the competitors, the positioning differential (relative perception of the business unit manager about the company's image, as well as the related services) and the type of product.

As far as small enterprises are concerned, the use of marketing reduces its use to the decisions of business owners (Gutiérrez-Leefmans & Nava-Rogel, 2016) as far as the micro-environment of the company is concerned, while in the macro-environment it determines how the entrepreneur defines the strategy and structure of the business.

Based on the writings of Kotler and Armstrong, marketing is a social and managerial process where companies and individuals get what they need, and this allows them to exchange value with others. Marketing also evolves as a result of technological advances, so context is fundamental to making marketing practice more focused and supported by scientific analysis of data.

Means-End Chain

The Means-end Chains model was developed by the University of New Hampshire academic Jonathan Gutman in 1982. The tool is based on the knowledge that the consumer has about a product or service, creating a chain based on the link between the attributes of the product (A), the consequences of its use (C) and the personal values that are considered satisfied by the consumer (V). According to Lazzati (2015), the advantages of the means-end chain are

- It helps to link a goal at a certain level with a goal at a higher level. In this way, the vision is broadened, and the solution of problems tends to contribute to the achievement of the organization's fundamental objectives.
- It stimulates the development of alternatives.
- It helps to transform general objectives into specific achievable actions.
- It highlights the interrelations that need to be considered.
- It helps to delimit the information that should be gathered and helps to provide a system for the organization.
- The limitations of the means-end chain are:
 - The chain itself does not involve the evaluation of objectives or alternatives, although it can help to this end
 - The link with higher-level objectives tends to be complicated by the existence of contradictory objectives.

Figure 6 shows an example of the model applied in decision making.

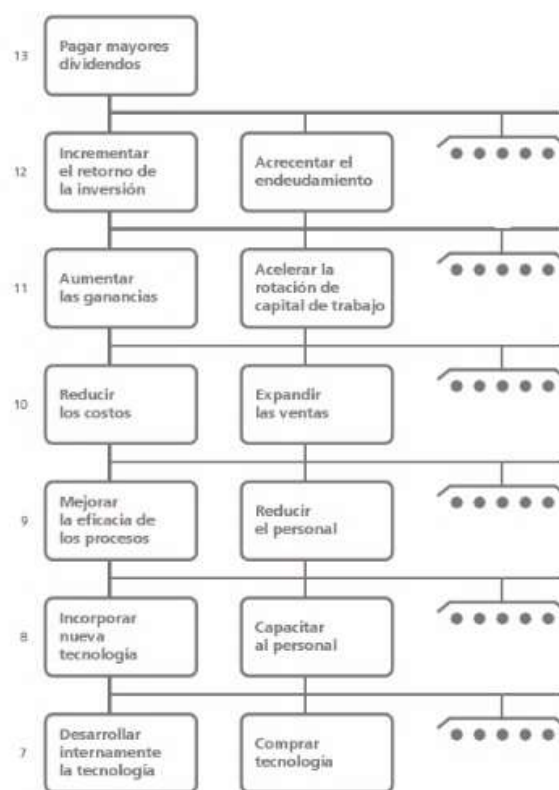


Figure 6

Source: Lazzati, 2013

Strategic planning

Strategic planning is aimed at reducing the organization's inefficiencies because it allows for better customer service, under the resources, particularities of the markets where the company operates, and establishes a correspondence between the company or organization and the economic objectives of the authorities (Betancourt & Barreiro, 2005). Of the factors identified for success such as (a) knowledge of the market; (b) planning of purchase and merchandise; (c) capacity to react; (d) efficiency and motivation of human resources; (e) image; (f) location and (g) the skills required, for this work particular attention is paid to point (c), which consists of the diagnosis of customer needs; knowledge of customer satisfaction; systems for planning and commercial control; certainty and speed in administrative management and financial capacity. These variables allow for framing the actions that denote a response to industrial competition in the market where the organizations operate.

More structured models suggest a relationship between the impact of market strategy and profits (Mosqueda & Montaudon, 2011). Econometric models reinforce the empirical validity of the Impact of Market Strategy on Profits (PIMS) model, for this, the model is reinforced with the PBC model of Phillips, Chang, and Buzzelli that relates the structure of the strategic management with the costs of the company, the market share, the relative prices of the products, the return of the investment, the variables under control, the quality and a margin of error.¹

¹ The model $PBC = f(C_{it}, MS_{it}, P_{it}, ROI_{it}, QUA_{it}, CV_{it}, \epsilon_{it})$. Where C is the company's costs, MS is the market share, P is the relative prices of the products, ROI is the return on investment, QUA is the quality, CV is the variables under control and ϵ is the model error. In the PIMS model, the analysis of the variables of market share and return on investment were taken with special importance, since these allowed to establish the model of Competitive Strategy of the PIMS that is composed of the marketing strategy and competitive management, which affect the results of permanence, cash flow, growth, value added and share price.

Working methods and systems**Measurement of work**

Work measurement is a method based on research into various techniques to determine the content of a defined task by determining the time a skilled worker spends on carrying it out according to a pre-determined performance standard. The objectives that are satisfied with time measurement are

- To increase the efficiency of the worker.
- To provide time standards that will inform other systems in the company, such as the cost of production scheduling, supervision, etc.

Development of the study of times and relationship with the simplification of work

If we examine the analytical process he followed, we find:

1. The analysis of all operations in order to eliminate those that were unnecessary.
2. The determination of the best method of execution.
3. The standardization of methods, materials, tools, equipment and working conditions.
4. The exact determination of the time a qualified operator needs to execute a job.

In order to simplify the work, an analysis of the work can be made, which leads to the following conclusions:

- Eliminate all unnecessary work.
- Combine the operations or their elements.
- Change the sequence of operations
- Simplify the operations.

As an aid to carry out this analysis, as well as to simplify the method, several diagrams are available, such as those of the operation process, flow process, the operator and his machine, course diagram, and the bimanual. When the detailed study of each one of these diagrams is appropriate, during the study of the method, a brief note will be taken with the service providers, the method used will be studied. After analyzing it, an improved method will be proposed, using comparative tables that indicate the advantages obtained, the codifications that have been made to the method, and the increase of the efficiency (García, 1969).

Application of work measurement

In order to more easily understand the purpose and applications of job measurement in industry, the following definitions are given below:

Work measurement: It is the quantitative part of the study of work that indicates the result of the physical effort developed as a function of the time allowed to an operator to finish a specific task, following a predetermined method at an average pace.

Standard time: It is the pattern that measures the time required to finish a unit of work, through the use of a method, by a worker who has the required skill, who develops an average speed that he can maintain day after day, without showing symptoms of fatigue.

Applications of standard time: Currently, there are multiple applications of standard time, among which are the following:

1. To determine the salary of the person responsible for that specific task.
2. To support production planning.
3. To know more accurately the amount of services that can be produced.
4. To help establish workloads.
5. To help formulate a standard costing system.
6. To provide cost estimates based on standard labor times
7. To provide a solid foundation for establishing incentive systems and their control.
8. To help train new workers.

Work measurement techniques

The main techniques used to measure work are as follows:

- By estimation of historical data
- Timing study with stopwatch
- By decomposition into micro movements of predetermined times Methods Time (MTM), Modular Organization of Predetermined Standard Times (MODAPTS), Maynard Operation Sequence Technique (MOST) technique
- Method of the instantaneous observations (work sampling).
- Standard data and time formulas.

Time study preparation

Selection of the operation. To begin with, it is necessary to determine which operation is to be measured. Its timing, in the first order, is a decision that depends on the overall objective pursued by the measurement study. However, the following criteria can be used to make the choice:

- The order of the operations as they are presented in the process
- The possibility of savings expected in the operation, related to the annual cost of the operation as calculated by the equation:
- Annual cost of the operation= (Annual activity) (Time of operation) (Hourly wage) (Galvan, 1980)

Time measurement

Once all the general information has been recorded, the next phase consists of measuring the time of the operation, a task called timing.

Analytical courses

An analytical course diagram is the graphic representation of the order of all operations, transports, inspections, delays and storages that take place during a process or procedure, and comprises the information considered suitable for analysis, such as: time required and distance travelled (See Table 1).






Symbols used in courses	Description of the symbols
	An operation represents the main stages of the process. Something is created, changed or added. Operations involve activities such as cutting and dismantling something.
	Inspection occurs when units in the production system are checked, verified, revised, or examined for quality and/or quantity.
	Transport is the movement of personal or study object material from one position or situation to another.
	Delay occurs when conditions do not allow or require immediate execution of the next planned action.
	Storage occurs when something remains at a site without being worked on or in the process of being worked on, waiting for an action at a later date.

Table 1 Course symbology
 Source: *Industrial engineering online, 2017*

With the graphic representation of the facts we get an overview of what is happening, and we understand more easily both the facts themselves and their relationship to each other.

Contextual framework

Business activity in the State of Puebla

In the State of Puebla, business activity faces significant challenges in achieving sales in a market scenario that mostly operates in exacerbated competition and conditions of legal and operational uncertainty; Such is the case of the City of Tehuacán, Puebla, where the lack of competitiveness of MSEs is observed among microentrepreneurs who have stated that the lack of sales, to achieve sustained economic growth, is one of the most critical problems, according to Mascarúa, Juárez et al. (2016). However, it is also evident their lack of interest in investing in actions that allow them to know their demand.

A common problem of the companies that operate businesses in Puebla has to do with the recognition of the use of marketing as an axis generating competitive advantages to stand out against the competition in the industrial sector. To this, it is interesting that in spite of the recognition of the advantages that the use of marketing offers, there are businessmen that do not hire specialized consultancy services. Therefore, there is not a generation of marketing strategies that translates into an entirely measurable result.

This explains that the use of marketing is not always executed with an objective to promote the sustainability of businesses in the long term, in many cases, the use of marketing is due to simple reasoning without specific objectives to apply the strategies to establish a price according to the needs of demand, the choice of the place is not always located in areas of higher profitability. Therefore, marketing strategies are not always created on a scientific basis.

Elements of the tourist activity in Ciudad del Sol located in San Diego Chalma

Tourism activity has a place in the tertiary sector (Boullón, 2006). It is neither a science nor an industry, but rather the consequence of a social phenomenon that arises from the existence of free time and the development of transport systems (See Figure 7).



Figure 7
 Source: *R. Boullón, 2006*

For this work, the servuction processes of the equipment will be analyzed (See Figure 8), but not of the facilities, and only of those existing in Tehuacán that in turn are directly related to the influx of tourism to the recently inaugurated Ciudad del Sol.

The tourist plant includes all the services that allow tourist activity such as Accommodation, Food, Leisure and other services, according to Boullon's classification, some of which are not found in the Mexican market or allude to other types of services.

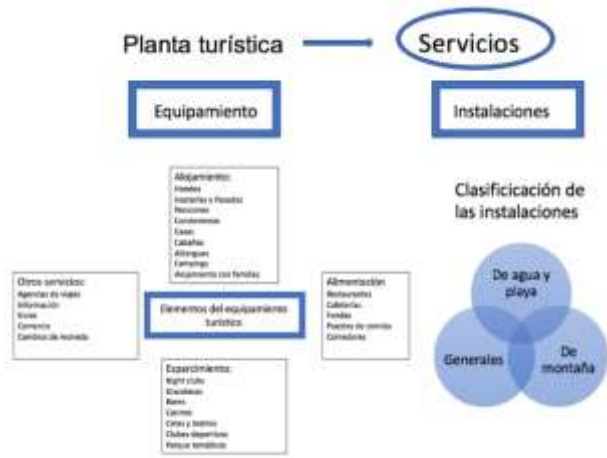


Figure 8
Source: Prepared by the authors with information from Boullón, 2006

Stratification of tourist MSMEs on the Tehuacán-San Diego Chalma route

In 2017, according to Boullón's classification of the equipment of the tourist activity (Figure 8), in the region of Tehuacán-San Diego Chalma there are 215 MSMEs registered with the Secretary of Tourism of Tehuacán (dependent on SEDECO), of the tourist sector which are shown in Figure 9.

Alojamiento	Cantidad	Ejercicios	Cantidad	Alimentación	Cantidad
Hoteles	23	Night Clubs	2	Restaurantes	52
Hoteles y posadas	7	Discotecas	5	Cafeterías	5
Posadas	38	Barros	31	Panaderías	14
Condominios	0	Casinos	2	Puestos de consulta	0
Casas	0	Cine y teatros	2	Conectores	11
Cabañas	0	Clubes deportivos	2		
Albergues	5	Parques temáticos	0		
Carpaes	0				
Alojamiento con familias	2				
Subtotal	59	Subtotal	50	Subtotal	100

Figure 9
Source: Prepared by the authors with information from Secretaria de Turismo de Tehuacán, 2017

The percentage participation of greater impact with 49% belongs to the food category, as shown in Figure 10, so this analysis proposes to focus on the standardization of servuction in the food tourism sector.

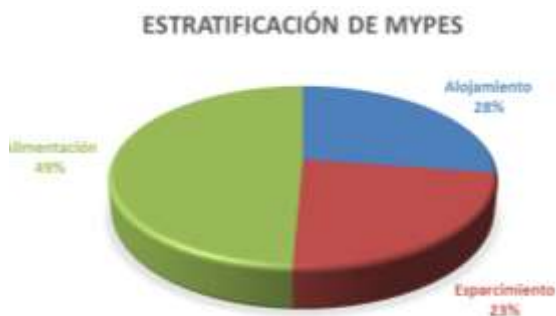


Figure 10
Source: Prepared by the authors with information from Secretaria de Turismo de Tehuacán, 2017

Methodological proposal for the standardization of servuction in MSEs of the tourism sector Foods of the Tehuacán-San Diego Chalma, Puebla route

In the event that established MSEs seek to maintain or increase their profitability in the short term in a competitive framework with their counterparts, they must:

1. Define the objective in terms of profitability
2. Characterize the Service
3. Characterize the Client
4. Characterize the Process
5. Performing the diagnostic summary
6. Carrying out the decision-making process

Defining the objective in terms of profitability

Profitability is the percentage relationship that exists between the benefits provided by the operation of the main service and the monetary investment that was exercised. The MSE must answer the following questions, in order to identify the areas of opportunity to improve in the short term.

1. What is your net profit per day?
2. Would you like to increase the profit margin and by what percentage?
3. In how much time do you want to reach the desired increase?
4. Would you be willing to improve your current situation?
5. Do you know your current resource capacity (economic, human, time)?

If the answer to question 4 is positive, proceed with the characterization of the service.

Characterization of the service

A service is an intangible asset that is produced and consumed at the same time, achieving a variable result that depends on who provides it, when and where. To perform the service characterization, first all the integrated services linked to the main service must be identified, for example:

- Service:

- Food Integrated services:
- Time of attention (order-delivery)
- Product presentation
- Hygiene of the establishment
- Playground or play area
- Health services
- Cafeteria Services
- Etc.

Subsequently, for each integrated service (detached from its main service), Table 3 should be filled in as shown in column three, where the integrated service was chosen for time of service, in order to analyze the factors that make up the main service and their direct impact on the profitability of the MSE.

Características del servicio	Ocupación	Ejemplo Restaurante	Se responde
En qué consiste su servicio	Identificar todos los servicios	Tiempo de atención corto	
Cuáles son sus atributos funcionales	Parte tangible necesaria para llevar a cabo el servicio	Insurcos disponibles, personal, instalaciones, menú pre-preparado	
Calidad exigida y esperada	Identificar la acción obligada para cubrir el servicio deseado	Agilidad en el proceso de toma de orden y suministro de alimentos	
Hitos a los que va a ser destinado	Posicionamiento ante el cliente	Mayor capacidad de atención a diversos clientes	
Beneficios directos que recibe el usuario al momento de consumirlo	Que todo el cliente al cumplir todos los puntos anteriores	Ahorro en tiempo del cliente	

Table 3 Service characterization
Source: Own elaboration, 2017

At the end of the characterization of all its services, the MSE will have identified those integrated services that bring greater benefits to its clients in order to improve them.

Characterization of the client

The Customer is an entity that uses (consumes and pays for) a service on a regular basis, so the MSE should characterize its main customers and potential customers under the following questions.

1. What days do I offer my service?
2. What are my business hours?
3. What kind of specific needs does my service satisfy?
4. What kind of customers can pay for my service?
5. What is the age range of my customers?
6. What is the added value my customers perceive?

The answers to the questions as a whole will give a general description of the type of customer who regularly buys the services. Therefore, the characterization of the service and the customer will allow to focus on the measurable processes that make up the main service.

Characterization of the process

Process: These are the operations (acts-actions) carried out to execute a service. Of the integrated services identified in section 5.2, the MSE should select those services that are quantifiable in terms of time to execute a methodology of methods and system of work in order to standardize the time of their processes. For example, the following times are included in the study of service time:

- Time of attention in the order-taking
- Food processing time
- Food delivery time
- Main service charging time
- The MSE must execute the subroutine proposed below to measure the integrated service of interest.

1. Record a video of the process to provide the integrated service of interest
2. Identify in the video the operations that make up the integrated service and list them in the DESCRIPTION column (See Figure 11)
3. Mark the type of activity to which each described operation corresponds (See figure 11)
4. Take the time in seconds involved in each operation described
5. Repeat steps 1 to 4 for 10 cycles.
6. Calculate the average time of each operation and write it down in the Time column
7. Draw the operation route of the marked activities (See Figure 11)
8. Fill in the Format Summary section with the calculation of the current times and establish the desired times in the Proposed section (See figure 11)

CURSOGRAMA ANALITICO				Operario			
Diagrama no. 1		Hoja 1 de 1		Actividad		Medidas	
Servicio: Alimentación				Operación	550		
Actividad: Tiempo de atención				Inspección	0		
Método: actual / supuesto				Espera	0		
Lugar: Restaurante X				Transporte	0		
Operario (s): 2				Almacenamiento	0		
Fecha: 2017/11/15				Deposito (mts.)	30		
Aprobado por: X				Tiempo (h. hombre)	235		
Compuerto por: X				Costo			
Fecha: 2017/11/15				Mano de obra			
Fecha: 2017/11/15				Materia			
				TOTAL			
DESCRIPCION	Cantidad	Elemento recurso	Tiempo en segundos	Actividad			OBSERVACIONES
1. Se recibe al cliente en el establecimiento	1	1	10				
2. Se le muestra el menú disponible	1	0	20				
3. El cliente pide su bebida	1	0	10				
4. Se sirve bebida del cliente	1	0	10				
5. Se toma la orden de alimentos	1	0	30				
6. Se preparan los alimentos	1	9	300				
7. Se colocan los alimentos en los platos	1	1	15				
8. Se sirven los alimentos al cliente	1	3	60				
9. El cliente consume los alimentos	1	4	900				
10. Se entrega cuenta solicitada al cliente	1	0	50				
11. Se realiza el cobro del servicio	1	0	45				
TOTAL	11	39	1460				

Figure 11
Source: Prepared by the authors, 2017

Distinguishing each of the operations with their respective times will allow the owner of the MSE to size the times incurred by individual operations and also generate a proposal of desired times.

Performing the diagnostic summary

The purpose of this step is to integrate the information collected into the development of the proposed methodology (5.1. to 5.4.) to generate a diagnostic summary that describes the following phases:

- Phase 1. Determine the financial information: how much utility I currently generate, how much utility I want to generate, in what time I want to generate it, and the availability to make an investment for the standardization of the service.
- Phase 2. Determine and prioritize the integrated services that make up the main service. With this, the MSME will focus its efforts on the factor that could generate a competitive advantage.
- Phase 3. Describe the client type of MSE to encourage their permanence.
- Phase 4. Identify the integrated service or services to be standardized from having observed, repeated and measured in order to propose adjustments to time to streamline their procedures and standardize the production of their services.

Carrying out the decision-making process

From the diagnostic summary, the MSE identifies the particular objective it wants to attack, which is oriented to cover the general objective of establishing strategies to achieve the standardization of their servuction processes, for this purpose it is proposed the use of a technique for decision making called means-end chain (See Figure 12).

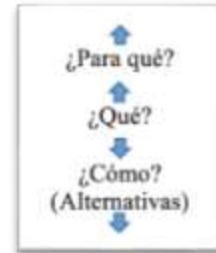


Figure 12
Source: Lazatti, 2013

Gutman's means-chain is useful to focus on the problem, clarify objectives, and generate alternatives.

Taking the example of Lazzati (2015) that exposes the problem: the costs are too high, which is expressable in terms of a goal: to reduce costs. Two questions are then posed, a) Why do we want to reduce costs? and b) How can costs be reduced? the answers could be:

- (WHY) To increase profits
- (HOW) Improve the efficiency of the servuction process

The respective answers to WHAT and HOW are reformulated, leading to the identification of higher and lower level objectives, respectively. Continuing with the examples:

a) Why increase profits) and b) How can the efficiency of the productive/servicing processes be improved; the new answers could be

- (WHY) To increase the return on investment
- (HOW TO) Perform the servuction processes in less time

The process can be repeated, and the MSE decides where the analysis cuts off, i.e., how many times to ask why and how until it finds the route of action to be followed and what actions to take. The means-end chain of the example developed is shown in Figure 13.

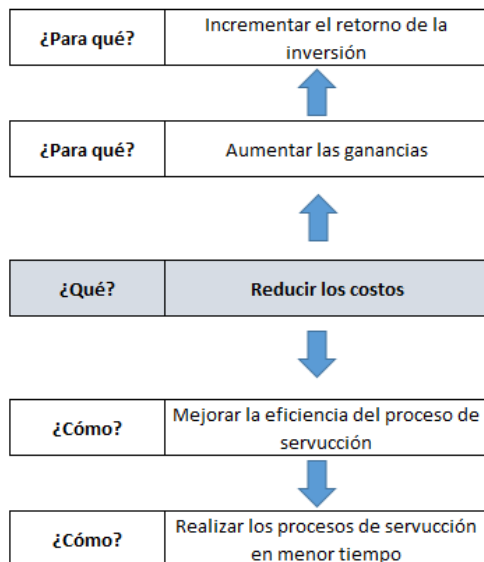


Figure 13

Source: Prepared by the authors with information from Lazatti, 2017

In conclusion, the higher level objectives (what for) will be those that represent the deep motivations of MSEs, while the lower level objectives (how) will represent the means to be satisfied to achieve the desired goal or state.

Conclusions

Throughout the work, we exposed the need to support the growth of MSEs as a trigger strategy for economic development. Many authors have already pointed out the importance of the sector. The new economic policies have led to see the tourism sector as an essential reason to consolidate regional growth, hence the way to achieve self-criticism schemes by MSEs is essential for their long-term sustainability.

Servuction processes make sense when MSEs achieve their standardization to react adequately to competition while fostering competitive and competitive markets. Training could help small entrepreneurs to know their market better, to know the needs of the customers who visit them, to generate productivity strategies in inventory management, product innovation, better business infrastructure, and better management of relationships with suppliers, competitors,

authorities, and customers.

Vázquez & Labarca (2012) state that those companies that create standardization processes, achieve more effectively the certification of their processes, which allow better monitoring and control of operations to consolidate the quality of products and services based on customer satisfaction. An improvement in the processes allows better competitiveness of the company and its suppliers.

We have presented a proposal for measuring activity times that arise from the entrepreneur's self-knowledge, the knowledge of their resources, and the knowledge of their consumers' needs. The tools shown here will allow the MSEs of the Tehuacán-San Diego Chalma service corridor to explore their resource management and an approach with certainty to their service market.

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Strategies for the competitiveness of the trade in Tecamachalco, Puebla: Case of the grocery stores

Strategies for the competitiveness of the trade in Tecamachalco, Puebla: Case of the grocery stores

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Abstract

The objective was to design strategies and generate an action plan that would contribute to the competitiveness of the commercial establishments of the Tecamachalco municipality, Puebla. The procedures performed were: the review of descriptive and explanatory documentation for the identification of variables that were integrated to the survey, data processing and construction of indexes, tables and graphs to analyze and interpret the relationships between variables and generation of strategies. The results indicate that, concerning the management of the businesses, 63% never define their organizational philosophy, more than half of them never apply total quality and continuous improvement programs, 56% never associate to supply and distribute their products and do not resort to external financing, 66% consider that the price of their product is adequate to their competitors and 64% set prices based on their level of costs and profits, and 64% do not use accounting and management techniques but are willing to receive advice. Concerning employees, 56% of them have elementary notions of the functions and activities they perform, 67% have occasionally received incentives for the fulfillment of objectives. The strategies designed were: training in business culture with procedures, practices and standards that contribute to quality in the marketing and service processes; integrating organizations that facilitate obtaining financing for the consolidation of existing businesses; creating strategic alliances with suppliers, distributors and loyal competitors to promote fair trade; and designing schemes for modernization, innovation and technological development such as e-commerce. In conclusion, the performance of Tecamachalco's commercial businesses tends to be unsatisfactory and uncompetitive; the strategies designed could contribute to the competitiveness of the grocery stores.

Competition, Management, Strategies

Resumen

El objetivo fue diseñar estrategias y generar un plan de acción que contribuya a la competitividad de los establecimientos comerciales del municipio de Tecamachalco, Puebla. Los procedimientos realizados fueron: la revisión de documentación descriptiva y explicativa para la identificación de variables que se integraron a la encuesta, procesamiento de datos y construcción de índices, tablas y gráficos para analizar e interpretar las relaciones entre variables y generación de estrategias. Los resultados indican que, con respecto a la gestión de las empresas, el 63% nunca define su filosofía organizacional, más de la mitad de ellos nunca aplica programas de calidad total y mejora continua, el 56% nunca se asocia para suministrar y distribuir sus productos y no recurre a productos externos. financiamiento, el 66% considera que el precio de su producto es adecuado para sus competidores y el 64% establece precios basados en su nivel de costos y ganancias, y el 64% no utiliza técnicas de contabilidad y gestión, pero está dispuesto a recibir asesoramiento. Con respecto a los empleados, el 56% de ellos tienen nociones elementales de las funciones y actividades que realizan, el 67% ocasionalmente ha recibido incentivos para el cumplimiento de los objetivos. Las estrategias diseñadas fueron: capacitación en cultura empresarial con procedimientos, prácticas y estándares que contribuyen a la calidad en los procesos de comercialización y servicio; integrando organizaciones que faciliten la obtención de financiamiento para la consolidación de negocios existentes; creando alianzas estratégicas con proveedores, distribuidores y competidores leales para promover el comercio justo; y el diseño de esquemas de modernización, innovación y desarrollo tecnológico como el comercio electrónico. En conclusión, el desempeño de los negocios comerciales de Tecamachalco tiende a ser insatisfactorio y poco competitivo; Las estrategias diseñadas podrían contribuir a la competitividad de los supermercados.

Competencia, Gestión, Estrategias

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Introduction

Trade is an economic activity in which different goods and/or services are bought and sold. Moreover, it is fundamental to any economy, as it contributes to the efficient distribution of scarce resources among individuals or countries, allowing them to access goods that have been produced or processed at the lowest possible cost. Historically, the exchange of products of different kinds and between different communities and countries has been constant. However, currently, this process of buying and selling is carried out by legally established or informally operating organizations such as family businesses or establishments. In this sense, the literature records different conceptualizations about companies, businesses, or establishments as follows:

The company; defined by Nuño de León (2012) as the "economic-social unit whose purpose is to obtain a benefit or utility, both for the businessman and his organization and for the society in which he is immersed, where the capital, natural resources, work, and management are coordinated to satisfy market needs (Nuño de León, 2012: 11), with the action of coordinating being that which allows resources to be directed towards a common objective in all companies; to cover the expectations of their demand.

In Mexico, regarding the size of the company the same author says "as of June 30, 2009, the size is determined by the total number of staff of the organization and the level of annual sales" (Nuño de León, 2012: 11), on the other hand also in Mexico "three criteria are used to classify the company consisting of the number of employees, sales and a criterion in which the product of both values is valued" (Posada, 2016: 2) And it is based on this classification that micro and small enterprises are defined as: "micro-enterprises of any productive sector (industrial, commercial or service) are integrated by up to 10 workers and with an annual sales amount of up to four million pesos." (Nuño de León, 2012: 11), and on the second one, "small trade companies have 11 to 30 workers, with annual sales of four to one hundred million pesos." (Nuño de León, 2012: 12)

According to Maldonado (2017), "Micro businesses commonly specialize in the generation of a particular product or service and generally concentrate their efforts on the development of this product or service in too limited a commercial area, so that the benefits they obtain are seriously limited by their production capacity. (Maldonado, 2017) He adds... "the day-to-day business activities carried out by micro-enterprises in Mexico, as in any other Latin American country, are very limited in terms of human, technical and financial resources, and are usually a function of the knowledge, capacities, skills and experience that the managers and/or owners have. (Maldonado, 2017)

These companies carry out commercial acts from different types of activities.

The commercial companies are intermediaries between the producer and the consumer, being their primary function, the purchase, sale and/or distribution of products. (Nuño de León, 2012: 18)

Talking about the company... "Size conditions in a certain way how the activities of the organization are structured and developed, but, in the case of the micro and small company, the highest level of conditioning comes from the family itself." (Nuño de León, 2012: 14)

Some data indicate that "for Mexico, as mentioned by Gerardo Ruiz Mateos, Secretary of Economy in Mexico (2010), MSMEs represent for the nation 99.8% of the 4,007,100 economic units, 52% of Gross Domestic Product (GDP) and 72% of formal jobs, and are a potential for sustainable development of the nation, due to the management of gender equity, the reorganization of production that has as a characteristic of success its flexibility and its horizontal approach to structure; this will allow Mexico to incorporate more easily to globalization." (Nuño de León, 2012: 12)

Competitiveness, the fundamental concept around which this work revolves, "is not recent, it goes back to the mercantilist era, but specifically, it arises and spreads from the English term, and it comes from the concept competition which in turn means dispute or contest between two or more people over something (Berumen and Palacios, 2009), according to Porter

"in the area of competitive advantage, the production of goods and services of higher quality and lower price than domestic and international competitors is considered to translate into increasing benefits for the inhabitants of a nation by maintaining and increasing real incomes (Porter, 1999).

In this process of exchange, small and medium-sized businesses face various problems that place them at a vital crossroads with two options: to modernize or to cease to exist, as an alternative would be to remain in the market. This situation described also occurs in the small commerce of Tecamachalco, Puebla, and according to data obtained from key informants, the following predominate:

The most outstanding problems it faces in the specific area are its individualism, anarchic isolation, and lack of knowledge about administrative aspects. Concerning consumers, the trader is unaware of the careful attention he must provide, the promotion of new consumers, and the change in purchasing habits. Likewise, he does not promote the consumer to choose his offer, the point of sale, and get their loyalty.

The economic and financial problems of small businesses are insufficient capital, low profitability, difficulties in obtaining the credit they need for expansion, modernization and equipment, and lack of coverage for all types of risks. Regarding the internal organization that must maintain the outlets lies in the lack of practical knowledge, from the advantageous use of local spaces (presentation and exhibition of the product) to the organizational forms, through the lack of management accounting system and management control.

The external aspects are the lack of mini-sector groups, the absence of exclusive federations for traders, the lack of professional protection and joint development policy, the lack of joint inter-professional actions with consumers, industrialists and the administration, and the lack of subsidies to promote the trader's professional training. Finally, lack of knowledge about how to deal with market competition, negotiation with suppliers and the legal system for microenterprises. Given the problems described above, we should ask ourselves, what are the internal and external conditions that do not allow the competitiveness of commercial microenterprises in Tecamachalco, Puebla?

Hypothesis 1: The lack of use of the tools of the administrative process does not allow the competitiveness of the commercial microenterprises in Tecamachalco, Puebla. Are there relevant actions that contribute to guaranteeing the competitive processes of small commercial outlets?

Hypothesis 2: Strategic planning allows for the design of strategies that contribute to the competitiveness of commercial microenterprises in Tecamachalco, Puebla. The objective was to design strategies and generate an action plan that contributes to the competitiveness of commercial establishments such as grocery stores in the municipality of Tecamachalco, Puebla.

Methodology

The work throughout its development was based on documentary and field information. The documentary research consisted of the following steps: identification of the problem in order to determine the objectives and hypotheses; research was done on the descriptive and explanatory documentation about the subject which allowed the identification of the variables to be investigated; finally, the questionnaire was designed to obtain the information and the sample size was calculated using the following formula:

$$n = \frac{N \times Z^2 \times p \times q}{d^2 \times x(N-1) + Z^2 \times p \times q}$$

Where:

N= Population size

Z= Confidence level

P= Probability of success

Q= Probability of failure

D= Accuracy

Sample calculation:

$$n = \frac{(1.96)^2(2151)(.5)(.5)}{(.05)^2(2151-1) + (1.96)^2(.5)(.5)} = 326.22$$

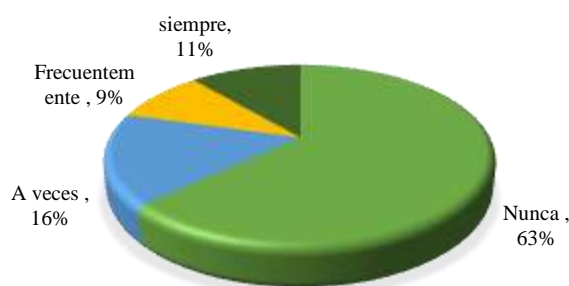
In the fieldwork, we collected data through the application of the questionnaire; subsequently, the data obtained were processed in matrices to calculate indices and to produce tables and graphs. Based on the ordered, categorized information, handling and summary of the data, the relationships between the variables were analyzed and interpreted to arrive at conclusions linked to the objectives and hypotheses.

Results

The commercial activity of the municipality of Tecamachalco, Puebla, has been developed in a population that, according to INEGI data, in 2015 had 77 061 inhabitants. Considering the population dynamics between 1990 and 2015, the population of the municipality increased annually by 2.26%, that is, two people for every 100 inhabitants. In only 25 years, the population of the municipality was too close to double. From these data, it could be inferred that the activities of production and commercialization of goods and services have also had considerable growth.

However, this sustained growth has been uneven if we consider the performance of the trade of large establishments and small ones. The latter, according to the information obtained from the 327 surveys applied indicate, in general terms, that 60% of the management and customer service activities of microenterprises are carried out by the owner, to a lesser extent by the employees and minimally by the manager. The educational level of those who are engaged in trade is 54% of basic education, 41% upper secondary education, and only 5% of higher education. Concerning the organizational structure that could strengthen the competitiveness of commercial establishments, we present the following situation: 63% do not establish their mission, vision, objectives and values; the rest is divided between always, frequently, and sometimes (see graph 1).

Does the company define its mission, Vision, Objectives and Values?



Graph 1 Definition of the philosophy

Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

The microenterprises lack total quality and continuous improvement programs, since 53% never apply them, the rest is distributed in the usual items, frequently and sometimes, around 15%. (see graph 2).



Graph 2 Quality and continuous improvement programs

Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

The right direction within the company, through the direct intervention of the person or persons who become managers, lies precisely in harmonizing the objectives that the company has set itself with those established by its employees if this is achieved it is one more element that would be contributing to raising productivity and therefore its competitiveness. However, the prevailing situation of commercial establishments is that about 47% of the management never motivate, nor do they manage to harmonize and make efficient the objectives of the company with those established by the employees, the rest of the percentage is distributed among always, sometimes and frequently. At the same time, 31% of employees are never informed of the functions to be performed, 25% sometimes, and 7% frequently, while 37% always. (see graph 3).

Are the functions and activities of the position disclosed to each employee?

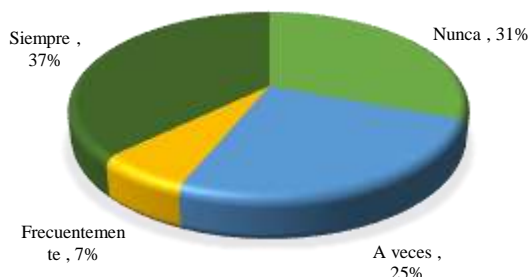


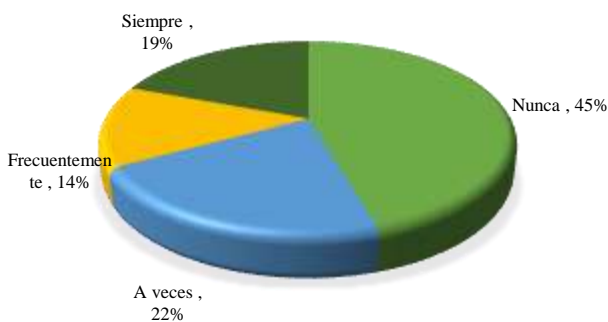
Figure 3 Job functions and activities

Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

The activity of integrating employee files is considered irrelevant and may not be necessary from the point of view of microenterprise management, since 55% never carry out this activity and only 19% do so always, the rest being distributed between sometimes and frequently.

45% of the employees never receive incentives, but only 19% can always count on incentives, the rest being distributed between sometimes and frequently. (see graph 4).

Are incentives given to personnel for meeting objectives?



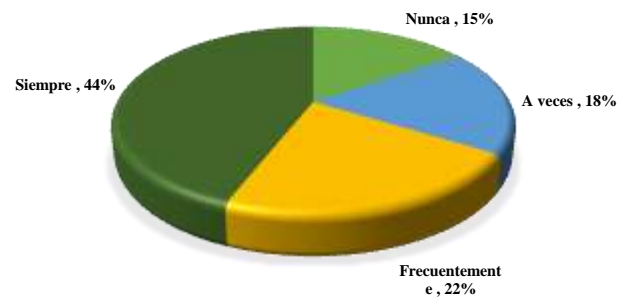
Graph 4 Staff incentives

Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

In the market, companies of all kinds compete with each other to win over customers. So a greater or lesser market share is to some extent the result of the ratio of the cost of production to the prices at which the various goods or services are placed, and this occurs in an environment of closed competition between the various suppliers, with the quality or technology used as the basis for their advantageous position.

Therefore, the price at which the goods or services will be sold is of great importance for the company dedicated to trading. Taking into account these considerations, the companies or businesses of Tecamachalco, according to data provided by the survey, practically 66% believe that the price of their product is adequate in relation to that of their competitors, and therefore does not represent conflicts that lead to an open price war, and therefore, maintains an appropriate price in line with other competitors (see graph 5).

Do you consider that the price of your product is adequate in relation to your competitors?

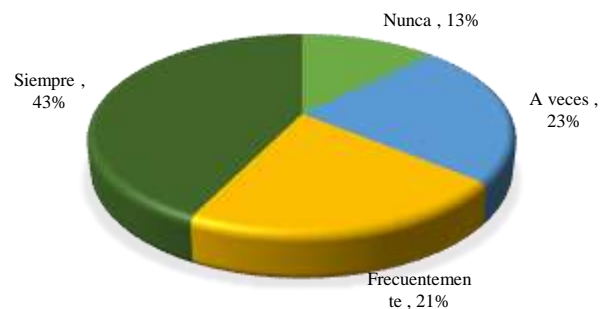


Graph 5 Product price

Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

With regard to setting the prices of the products offered, practically 64% establish them based on their level of costs and profits, a process carried out in an empirical manner (see Graph 6).

Is your pricing mechanism based on your level of cost and profit?



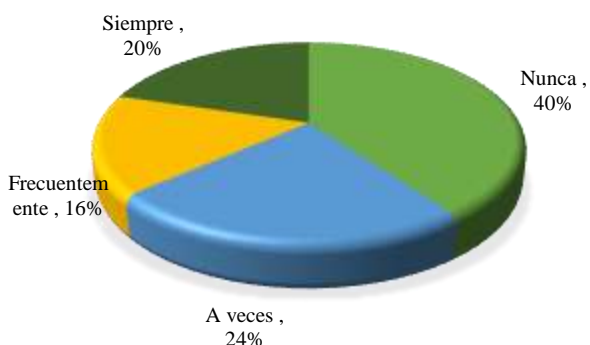
Graph 6 Pricing mechanisms

Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

The process of consolidating and expanding the commercial coverage of products in the market requires the establishment of strategies that allow for taking advantage of the techniques and learnings of other companies that maintain control over broad sectors and that if alliances are promoted or partnerships are sought, success is guaranteed. However, what happens in the commercial sector of Tecamachalco is that more than half of the companies (56%) never associate to carry out the supply and distribution of their products. Companies in general and commercial companies, in particular, need to improve their administrative processes and use the new tools that have recently been created to enable them to face their competitors successfully. This task is facilitated when those involved are willing to accept proposals for improvement.

As is the case with commercial establishments since 66% are open to carrying out processes to improve administration in order to provide a better service to their customers. As for accounting and administrative control, 64% never or sporadically use the techniques derived from them. Thus, commercial microenterprises suffer from the lack of effective control of their movements of goods and monetary resources (see Graph 7).

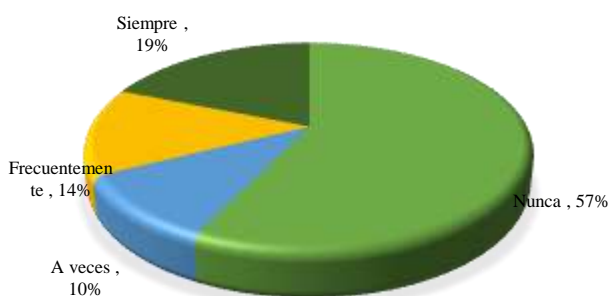
According to the objectives of the company, do you manage an accounting and administrative control?



Graph 7 Accounting and administrative control
Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

The use of financing by companies is indispensable since it helps to strengthen their production processes, whether they are in the industrial, agricultural, or commercial sector. The latter, in the case of commercial establishments in the municipality of Tecamachalco, 64% do not resort to external monetary resources (see graph). However, it is worth asking how microenterprises work in terms of financing. Possibly the most congruent answer is that the contributions come from the family or social capital that has been saved for a more or less long period by one or some of the family members or in a personal capacity. (see graph 8).

Is there a collection and payment system in place?



Graph 8 Collection and payment system
Source: (Prepared by the authors with data from the survey applied on April 14, 2017)

Development of SWOT Analysis

In order to analyze and generate strategies, we used the SWOT technique because it is mainly oriented towards the analysis and resolution of problems by identifying the Strengths and Weaknesses of the organization, as well as the Opportunities and Threats.

SWOT Analysis

Strengths	Weaknesses
S1. Owners run most micro-enterprises or businesses. S2. There is an openness to carry out processes of improvement of the management / continuous improvement S3. The market where the products are offered is Tecamachalco. S4. There are reasonable expectations regarding the future of the company. S5. The owners motivate the employees to achieve the objectives. S6. The staff is hired by the plant. S7. Incentives are given to staff for meeting objectives. S8. Prices are set similar to those of the competition. S9. A mechanism is in place to determine prices based on the level of costs S10. New or better products are acquired. S11. No recourse to financing. S12. Suppliers are local. S13. Entrepreneurs react to the activities of competitors. S14. Conditions are considered to be better than in 2015	W1. Entrepreneurs have basic education (primary and secondary) W2. The administrative and accounting knowledge of most of the owners of the organizations is scarce. W3. More than half of the organizations never define their mission, vision, objectives, and values (organizational philosophy) W4. Total quality and continuous improvement programs for microenterprises are not applied (53%). W5. Managers (50%) fail to harmonize the objectives of the enterprise with those of the employees. W6. Managers (47%) never motivate their subordinates for effective collaboration to enable high standards of productivity. W7. Employees are never or sometimes informed of the functions and activities they will have to perform during their employment. W8. There is no efficient organizational communication W9. 55% never produce the files of the staff recruited/documentation W10. Employees (45%) do not receive incentives. W11. Prices of goods are set, based on their level of costs and profits. (64%) W12. 48% never use accounting and management techniques. W13. The sources of internal financing are their own savings and family. W14. They do not have a collection and payment system W15. There is a lack of effective control of their movements of goods and monetary resources. W16. Entrepreneurs report difficulties concerning capital, purchasing, marketing, and technology. W17. 39% have never used advertising and promotion to stimulate sales, despite recognizing its benefits.
Opportunities	Threats
O1. The administrative and accounting services of third parties may be used. O2. The price of the product is estimated to be adequate in relation to that of the competitors (66%) O3. There is a need to acquire new and better products in order to cover the needs of its customers. O4. There is an openness to carry out management improvement processes to provide a better service to its customers. O5. The micro-enterprises in the municipality of Tecamachalco carry out their commercial activities, mainly in the city of Tecamachalco. (90%) O6. The location of their commercial organizations is appropriate, taking into account their suppliers and consumers. (92%) O7. The advantageous geographical location of Tecamachalco, being flanked by Puebla City and Tehuacán and by the highway, Mexico City and Veracruz. O8. The location of its commercial organizations is adequate if suppliers and consumers are taken into account.	T1. They never associate to carry out the supply of their products. T2. They never partner to carry out the distribution of their products. T3. They do not resort to external monetary resources (external financing). T4. Approximately 10% of the market is located in the interior of the state, and there are practically no markets in other states or abroad. T5. Less than 50% ensures customer satisfaction through after-sales services. T6. They have not received government advice for their regularization. T7. They do not have a civil protection report, a land-use report, a sanitary license or endorsements.

SWOT or ASFM Matrix

Once the SWOT Matrix was completed, the next stage consisted of carrying out the so-called Analytical Strategy Formation Matrix (ASFM), developing four types of strategies, as proposed by David (2008):

ASFM Matrix	<p>STRENGTHS</p> <p>S1. Owners run most micro-enterprises or businesses.</p> <p>S2. There is an openness to carry out processes of improvement of the management / continuous improvement</p> <p>S3. The market where the products are offered is Tecamachalco.</p> <p>S4. There are reasonable expectations regarding the future of the company.</p> <p>S5. The owners motivate the employees to achieve the objectives.</p> <p>S6. The staff is hired by the plant.</p> <p>S7. Incentives are given to staff for meeting objectives.</p> <p>S8. Prices are set similar to those of the competition.</p> <p>S9. A mechanism is in place to determine prices based on the level of costs</p> <p>S10. New or better products are acquired.</p> <p>S11. No recourse to financing.</p> <p>S12. Suppliers are local.</p> <p>S13. Entrepreneurs react to the activities of competitors.</p> <p>S14. Conditions are considered to be better than in 2015</p>	<p>WEAKNESSES</p> <p>W1. Entrepreneurs have basic education (primary and secondary)</p> <p>W2. The administrative and accounting knowledge of most of the owners of the organizations is scarce.</p> <p>W3. More than half of the organizations never define their mission, vision, objectives, and values (organizational philosophy)</p> <p>W4. Total quality and continuous improvement programs for microenterprises are not applied (53%).</p> <p>W5. Managers (50%) fail to harmonize the objectives of the enterprise with those of the employees.</p> <p>W6. Managers (47%) never motivate their subordinates for effective collaboration to enable high standards of productivity.</p> <p>W7. Employees are never or sometimes informed of the functions and activities they will have to perform during their employment.</p> <p>W8. There is no efficient organizational communication</p> <p>W9. 55% never produce the files of the staff recruited/documentation</p> <p>W10. Employees (45%) do not receive incentives.</p> <p>W11. Prices of goods are set, based on their level of costs and profits. (64%)</p> <p>W12. 48% never use accounting and management techniques.</p> <p>W13. The sources of internal financing are their own savings and family.</p> <p>W14. They do not have a collection and payment system</p> <p>W15. There is a lack of effective control of their movements of goods and monetary resources.</p> <p>W16. Entrepreneurs report difficulties concerning capital, purchasing, marketing, and technology.</p> <p>W17. 39% have never used advertising and promotion to stimulate sales, despite recognizing its benefits.</p>
	<p>OPPORTUNITIES</p> <p>O1. The administrative and accounting services of third parties may be used.</p> <p>O2. The price of the product is estimated to be adequate in relation to that of the competitors (66%)</p> <p>O3. There is a need to acquire new and better products in order to cover the needs of its customers.</p> <p>O4. There is an openness to carry out management improvement processes to provide a better service to its customers.</p> <p>O5. The micro-enterprises in the municipality of Tecamachalco carry out their commercial activities, mainly in the city of Tecamachalco. (90%)</p> <p>O6. The location of their commercial organizations is appropriate, taking into account their suppliers and consumers. (92%)</p>	<p>THREATS</p> <p>T1. They never associate to carry out the supply of their products.</p> <p>T2. They never partner to carry out the distribution of their products.</p> <p>T3. They do not resort to external monetary resources (external financing).</p> <p>T4. Approximately 10% of the market is located in the interior of the state, and there are practically no markets in other states or abroad.</p> <p>T5. Less than 50% ensures customer satisfaction through after-sales services.</p> <p>T6. They have not received government advice for their regularization.</p> <p>T7. They do not have a civil protection report, a land-use report, a sanitary license or endorsements.</p>

<p>O7. The advantageous geographical location of Tecamachalco, being flanked by Puebla City and Tehuacán and by the highway, Mexico City and Veracruz.</p> <p>O8. The location of its commercial organizations is adequate if suppliers and consumers are taken into account.</p>	<p>ST strategies (maxi-mini)</p> <p>S3. Create strategic alliances with suppliers, distributors and loyal competitors to promote fair trade. (S2, S4, T1, T2, T4)</p> <p>E4. Design schemes for modernization, innovation and technological development such as e-commerce. (S1, S2, S3, S4, T4, T5)</p>	<p>WT strategies (mini-mini)</p> <p>S5. Integrate organizations that facilitate obtaining financing for the consolidation of existing businesses. (W13, T3)</p>
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In conclusion, the administrative process and its tools are not applied by small commercial establishments, which results in their performance being unsatisfactory and uncompetitive. Likewise, the application of strategic planning has allowed the design of strategies that contribute to the competitiveness of commercial microenterprises in Tecamachalco, Puebla.

The strategies designed: to promote sustainable trade practices, considering the advantage of location of businesses and suppliers in the region and adjacent states; to provide training in the business culture with procedures, practices, and standards that contribute to quality in the marketing and service processes; to create strategic alliances with suppliers, distributors, and loyal competitors to promote fair trade; to design schemes for modernization, innovation and technological development such as e-commerce; and to integrate organizations that facilitate obtaining financing for the consolidation of existing businesses, could contribute to the competitiveness of the grocery stores. For the implementation of the previously designed strategies, it is required the elaboration of action plans.

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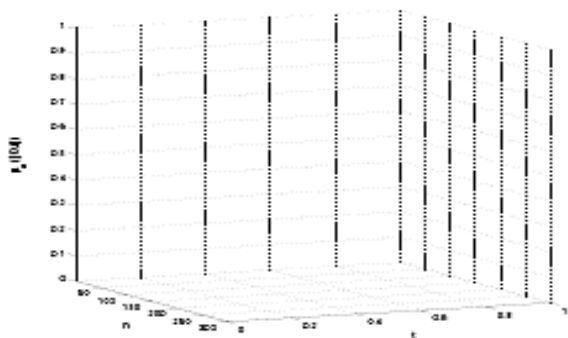
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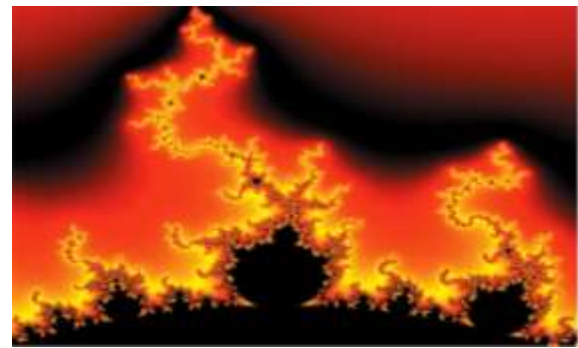


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