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RINOE Journal-Microeconomics

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RINOE Journal-Microeconomics is a Journal edited by RINOE® in its Holding with repository in Spain, is a scientific publication arbitrated and indexed with semester periods. It supports a wide range of contents that are evaluated by academic peers by the Double-Blind method, around subjects related to the theory and practice of Household behavior: Consumer economics, Consumer economics, Household production and intrahouse allocation, Personal finance, Consumer protection; Production and organizations: Firm behavior, Organizational behavior, Transaction costs, Property rights, Production, Capital and total factor productivity, Capacity; Distribution: General, Personal income and wealth distribution, Factor income distribution; Market structure and pricing, Perfect competition, Monopoly, Oligopoly and other forms of market imperfection, Auctions, Rationing; Licensing, Value theory; General equilibrium and disequilibrium: Exchange and production economies, Incomplete markets, Input-Output analysis, Computable and other applied general equilibrium models; Welfare economics: Allocative efficiency, Cost-Benefit analysis, Externalities, Equity, Justice, Inequality, and other normative criteria and measurement, Altruism; Analysis of collective Decision-Making: Social choice, Clubs, Committees, Economic models of political processes, Bureaucracy, Administrative processes in public organizations, Conflict, Conflict resolution, Alliances, Positive analysis of Policy-Making and implementation.

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Social choice, Clubs, Committees, Economic models of political processes, Bureaucracy, Administrative processes in public organizations, Conflict, Conflict resolution, Alliances, Positive analysis of Policy-Making and implementation; Information and uncertainty, Criteria for Decision-Making under risk and uncertainty, Asymmetric and private information, Search, Learning, and Information, Expectations, Speculations; Intertemporal choice and growth: Intertemporal consumer choice, Life cycle models and saving, Intertemporal firm choice and growth, Investment, or Financing and other topics related to Social Sciences.

Presentation of Content

In the first article we present, *Impact and analysis of electronic invoicing in the primary sector*, by SILVA-CONTRERAS, Juan, PAREDES-BARRÓN, Adriana, MORENO-GONZÁLEZ, Claudia, GARCIA-PICHARDO, Sandra Ivette and HERNANDEZ-ZAVALA, Maria Yanet, with adscription in the, Universidad Tecnológica del Suroeste de Guanajuato, as the next article we present, *Exploring Mexican consumers' purchase intention toward green products: The role of green self-identity*, by ARROYO-LÓPEZ, María del Pilar Ester, CARRETE-LUCERO, Lorena de la Paz, CÁRCAMO-SOLÍS, María de Lourdes and NAVARRETE-REYNOSO, Ramón, with adscription in the, EGADE Business School Tecnológico de Monterrey and the Universidad de Guanajuato, as the next article we present, *Analysis of automation in manufacturing processes, inventory control and sales in micro, small and medium-sized companies of Acámbaro, Gto*., by BARRERA-FIGUEROA, Mayra Verónica, RODRÍGUEZ-RODRÍGUEZ, Graciela and UGALDE-ZAMUDIO, Giovanni, with adscription in the Universidad Tecnológica de León, as last article we present, *Inventory management in micro and small enterprises in Izúcar de Matamoros to determine general aspects of inventory management*, by FLORES, Fernando, RAMÍREZ-CORTÉS, Elva Patricia and BELTRÁN-ROMERO, María de Lourdes.

Content

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Impact and analysis of electronic invoicing in the primary sector

Impacto y análisis de la facturación electrónica en el sector primario

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Abstract

Electronic invoicing in Mexico is considered under a tax verification scheme, derived by all sales and purchases made, either in a regular period or irregular period, by an economic authority, considering the egresses and also the income. In turn they can be used by buyers and also by sellers, offering the market a good or a service, expressing as a receipt to the authorities, whether federal, state or municipal, also used in internal and external audits. The electronic invoice is a document that verifies the making of a business transaction of a natural person or moral person to a natural or moral person depending on the assumption, and can be digitally or in printed form. This project is carried out in order to have a document that validates the inputs and outputs of goods, for this it is necessary to develop an Accounting-Administrative process, which processes the information and serves for the business management of the entity Granjero Feliz S de R.L de C.V., this process has an alternative that adapts to the rotation of said company which is the Marketing and transformation of pork cuts. The project is developed with the company information, which it has provided, for an accounting period. In this way, the referrals will be properly controlled. It is also important to mention that it can be easy for the authorities to give indications, under the grounds of laws where it obliges users, to use, develop or apply. Those provisions must also be analysed the situation raised which is addressed to the first sector, in this case it is applied to the primary sector, specifically to the primary sector, farmers. The purpose of this research is both to guide and structure the information of a farmer who, for different reasons, is unaware of federal and government provisions to be able to invoice. For the farmer it is very difficult, to understand and understand the tax provisions that challenge him, from the process of developing for obtaining the electronic signature, to the elaboration, issuance and cancellation of the invoice. This research aims to guide and support primary sector individuals, seeing it as an area of opportunity for their better understanding. Also to support you so that you know the administrative facilities from which you have benefit. Considering some of the objectives of this investigation, it is to manage the reality of the farmer's accounting, in accordance with tax procedures and provisions, giving a general diagnosis to the farmer, to contribute to decision-making in the electronic invoicing process. Considering the degree of knowledge of a farmer, he departed from there to provide support and to be able to apply a billing process, and knew the degree involved in this process, considering the obligations to which he is exposed, as part of this regime, of course that many farmers, do not know that they are obliged to invoice for sales made by the sale is a seed considering also in the mistake for the sale of livestock. In particular, the farmer's theme will be touched, through the billing process, thus giving a specific interpretation and analysis to each of the subject. The farmer's location is in a municipality belonging to Valle de Santiago, Gto. Mexico.

Billing, Accounting, Tax, Administration, Accounting Information, Economic Authority

Resumen

La facturación electrónica en México, está considerado bajo un esquema de comprobación fiscal, derivado por todas las ventas y las compras realizadas, ya sea, en un periodo regular o periodo irregular, por un ente económico, considerando los egresos y también los ingresos. A su vez pueden ser utilizadas por los compradores y también por los vendedores, ofreciendo al mercado un bien o un servicio, expresando como un comprobante ante las autoridades, sean federales, estatales o municipales, también utilizados en las auditorías internas como externas. La factura electrónica es un documento que comprueba la realización de una transacción comercial de una persona física o persona moral a una persona física o moral dependiendo sea el supuesto, y puede ser de forma digital o en forma impresa. El presente proyecto se realiza con la finalidad de tener un documento que de valides a las entradas y salidas de mercancía, para esto es necesario desarrollar un proceso Contable-Administrativo, que procese la información y sirva para la gestión empresarial de la entidad Granjero Feliz S de R.L de C.V., este proceso cuenta con una alternativa que se adapta al giro de dicha empresa el cual es la Comercialización y transformación de cortes de cerdo. El proyecto está desarrollado con la información de la empresa, que ha proporcionado, para un periodo contable. De esta manera se llevará un control de las remisiones adecuadamente. También es importante mencionar, que para las autoridades puede ser fácil dar indicaciones, bajo fundamentos en las leyes donde obliga a usuarios, para usar, desarrollar o aplicar. Dichas disposiciones, también hay que analizar la situación planteada que va dirigida al primer sector, en este supuesto, esta aplicado al sector primario, en específico al sector primario, agricultores. Como finalidad la presente investigación es, tanto orientar como estructurar la información de un agricultor que, por cuestiones diferentes, desconoce las disposiciones federales y gubernamentales para poder facturar. Para el agricultor es muy difícil, entender y comprender las disposiciones fiscales que le impugnan, desde el proceso de desarrollar para la obtención de la firma electrónica, hasta la elaboración, emisión y cancelación de la factura. Esta investigación tiene esta finalidad, en orientar y apoyar a las personar del sector primario, viéndolo como área de oportunidad para su mejor comprensión. También en apoyarlo para que conozca las facilidades administrativas de las que tienes beneficio. Considerando algunos de los objetivos de la presente investigación, consiste en administrar la realidad de la contabilidad del agricultor, de acuerdo a los procedimientos y disposiciones fiscales, dando un diagnostico general al agricultor, para contribuir a la toma de decisiones en el proceso de la facturación electrónica. Considerando el grado de conocimiento de un agricultor, se partió de ahí para dar apoyo y poder aplicar un proceso de facturación, y conociera el grado que implica este proceso, considerando las obligaciones a las que está expuesto, por formar parte de este régimen, supuesto que muchos agricultores, no tienes del conocimiento que están obligados a facturar por las ventas realizadas por la venta se una semilla considerando también en la equivocación por la venta de ganado. En particular se tocará el tema del agricultor, a través del proceso de facturación, dando así una interpretación y un análisis específico a cada uno del tema. La ubicación del agricultor está en un municipio que pertenece a Valle de Santiago, Gto. México.

Facturación, Contabilidad, Fiscal, Administración, Información Contable, Ente Económicos

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† Researcher contributing first author.

Methodology

This research developed is experimental, quantitative, qualitative and descriptive. It describes the process that leads to a contributor to the primary sector for a farmer. Analytical, exploratory descriptive research was conducted to get a broader picture of the situation in which the taxpayer is billed.

Contribution

Contribution to society, of the development of the article, took the case of a taxpayer who has activities of the primary sector. A billing process consisting of several stages was developed, in order to evaluate the taxpayer's process, consisting of: accounting, integration, development and application. Evaluating the same phases of the process. The purpose of the process is to measure the efficiency of being able to invoice without any problem and minimize the margin of error and identify the areas of opportunity for the farmer, considering, for them it is very difficult to use the technology for the achievement and application of new technological tools, and better to make administrative, accounting and fiscal decisions.

1. Introduction

This project was developed with the purpose of analyzing the correct process for invoicing, considering the important issues that a farmer implies to be able to invoice, considering that he does not have the means or knowledge to be able to develop an invoice, taking from the beginning the generation of an email until the issuance of an invoice. Most of the farmers that are located in the region, have this problem to be able to bill, it is an important derivative issue, where many farmers are implicated, they will go to government offices to carry out the corresponding procedures, it is of such importance to do mention that it is necessary for farmers to rely on a person who is guiding them to carry out these procedures before government agencies.

Invoice remittances are documents that are used as evidence in any act of purchase and / or sale of merchandise, said documents consist of what will be delivered as well if it is in a time and form established by both parties (buyer and seller), carrying the Signature of the person who received the merchandise so that the document is valid.

The invoice will be very helpful so that the referral can be carried out because if there is no invoice, the referral cannot be made. Through this project, we will seek to comply with our qualification process for the Financial and Tax Engineering career. Libra is a tool that helps in the processes of the company and facilitates various areas to acquire the data that the company carries out. How to prepare an invoice remission will be explained in detail.

The objective of the project is to formulate a correct process to carry out an invoice remission through an administrative accountant, this program helps the farmer to manage his process that has different tools that adapt to the needs that he has and thus check the data found on an invoice.

In particular, the farmer will be discussed throughout the process, thus giving an interpretation and a specific analysis to each of these. At present, the farmer has a not very clear accounting in the billing process, in which he will be supported, in all areas in relation to the subject, currently the address is located in a community, municipality of Valle de Santiago, Guanajuato . Mexico.

2 Theoretical framework

The development of this research, the concepts used in it were analyzed:

2.1 Consultancy

In his first study and analysis he finds:

Billing

Invoice remittances are intended to have documentary evidence in every act of commercial purchase, whose function is to record that the merchandise was delivered in a timely manner and with the agreed conditions, requiring as an essential condition the signature of the person receiving the receipt. merchandise to have legal validity. (MX, 2013)

2.2. delivery notes

The Remission Note is a document that is used almost exclusively at the behest of a commercial context to prove or record the delivery of an order.

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In order for it to be effective and valid, it must be yes or yes signed by the recipient of the merchandise, which will certify that the merchandise has been received correctly and in accordance with the agreed conditions. (Ucha, ABC Definition, 2009)

2.3 Electronic billing

The electronic invoice is an instrument through which the SAT seeks to reduce fraud and tax evasion. The constant changes of the treasury generate doubts for taxpayers, especially for those who have just started a business. We leave you a guide with some of the most frequent doubts. The electronic invoice is a digital fiscal receipt in a file that is managed from the computer, and it has the same validity as the invoice from an authorized printer. The invoice serves to verify the completion of commercial transactions between the parties involved, buyer and seller, according to the specifications established in the invoice. For the invoice to be officially valid for tax purposes, it must contain requirements established by the SAT. (Tax S. d., 2018).

The electronic invoice is a form of invoice in which paper is not used as a support to demonstrate its authenticity, it differs from the paper invoice by the form of computer management and the sending through a communication system that together allow guaranteeing authenticity and the integrity of the electronic document. (Invoice easily, s.f.)

An invoice is a document that guarantees the purchase and sale of a good or the loan of a service, and beyond protecting those involved attesting that the transaction was carried out and allowing the taxpayer to verify their income and expenses, It is a key document in the tax return since through it the SAT can reimburse the corresponding taxes to the taxpayers. (Gosocket, 2017). Tax laws establish the obligation to issue tax receipts for the acts or activities carried out, for the income received or for the withholdings of contributions made, taxpayers must issue them through digital documents through the Internet page of the Service of Tax administration. People who acquire goods, enjoy their use or temporary enjoyment, receive services or those from whom contributions have been withheld must request the respective digital tax receipt online. (Tax S. d., 2020)

2.3 Electronic billing

The electronic invoice is an instrument through which the SAT seeks to reduce fraud and tax evasion. The constant changes of the treasury generate doubts for taxpayers, especially for those who have just started a business. We leave you a guide with some of the most frequent doubts.

2.4 Law of the Fiscal Code of the Federation

Article 29 Issuance of tax receipts.

When tax laws establish the obligation to issue tax receipts for the acts or activities carried out, for the income received or for the withholdings of contributions they make, taxpayers must issue them through digital documents through the Service's Internet page of Tax Administration. People who acquire goods, enjoy their use or temporary enjoyment, receive services or those from whom contributions have been withheld must request the respective digital tax receipt online.

2.5 Requirements for Tax Receipts.

Article 29-A Requirements for tax receipts I. The key of the federal taxpayer registry of the person issuing them and the tax regime in which they are taxed according to the Income Tax Law. In the case of taxpayers who have more than one premises or establishment, the address of the premises or establishment in which the tax receipts are issued must be indicated. II. The folio number and the digital stamp of the Tax Administration Service, referred to in section IV, paragraphs b) and c) of article 29 of this Code, as well as the digital stamp of the taxpayer issuing it. III. The place and date of issue IV. The federal taxpayer registry key of the person to whom it is issued.

2.6 CFDI generation

For the purposes of article 29, first and second paragraphs of the CFF, the CFDI generated by the taxpayers and subsequently sent to a CFDI certification provider, for validation, assignment of the folio and incorporation of the digital seal of the SAT granted for that purpose. (certification), must comply with the technical specifications provided in items IA Taxpayers who make use of item III.D "Use of the envelope facility <Addenda>" of Annex 20.

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In case the taxpayer needs to incorporate an addenda to the CFDI, they must be integrated in accordance with the provisions of the aforementioned item once the SAT, or the CFDI certification provider, has validated the voucher and has issued the corresponding folio.

2.7 Complements to incorporate tax information in CFDI

For the purposes of article 29, second paragraph, section VI of the CFF, the SAT will publish on its portal the complements that allow taxpayers of specific sectors or activities to incorporate tax requirements in the CFDI they issue. The supplements that the SAT publishes on its portal will be mandatory for the taxpayers that apply to them, after thirty calendar days, counted from their publication on the aforementioned portal, except when there is any facility or provision that establishes a different period or release them from their use.

3 Argumentation

Farmers have problems in electronic invoicing, with most suppliers, this is why the generation of referrals will be implemented, in order to verify the invoice data so that it does not have errors of any kind and the supplier does not charge too many and the company does not have any problem with the tax authority.

Invoice remittances are intended to have documentary evidence in every act of commercial purchase, whose function is to record that the merchandise was delivered in a timely manner and with the agreed conditions, requiring as an essential condition the signature of the person receiving the receipt. merchandise to have legal validity. (MX, 2013)

Type of document that is used when there is a purchase relationship between two parties, and it is extended to the time when one of the parties delivers items or products to the other. (Porporatto, 2015)

4 Justification

In the billing process, several errors are detected in some invoices that are delivered to the company from different suppliers, which is why the invoice remissions are carried out, they are compared with the entry and exit records that are kept within the agricultural company, so the information contained in the invoice can be verified, and if its content is adequate, the corresponding administrative process is carried out, otherwise the company can contact the supplier to cancel the invoice and make the modifications with the correct data. This is done in order to have proof that the merchandise was delivered properly both in time and in form and thus validate the delivery with the signature of the buyer of the merchandise.

5 Literary review

The electronic invoice is a form of invoice in which paper is not used as a support to demonstrate its authenticity, it differs from the paper invoice by the form of computer management and the sending through a communication system that together allow guaranteeing authenticity and the integrity of the electronic document. (Invoice easily, s.f.)

When tax laws establish the obligation to issue tax receipts for the acts or activities carried out, for the income received or for the withholdings of contributions they make, taxpayers must issue them through digital documents through the Service's Internet page of Tax Administration. People who acquire goods, enjoy their use or temporary enjoyment, receive services or those from whom contributions have been withheld must request the respective digital tax receipt online. (Tax S. d., 2020)

6 Methodology

The present investigation developed is of a type of investigation, quantitative, qualitative, descriptive and experimental. In the present, the process carried out by the moral person with preponderant activity as a farmer is described.

An exploratory analytical investigation was carried out to have a broader vision of the situation in which the billing process is managed, and organization of the same.

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In the first exploratory study, the qualitative method was used with the support of the observation technique, mainly the taxpayer, who is active in the sale of grains and seeds with the general public in Valle de Santiago, Gto. Gathering useful information in accounting and tax aspects, it consists of ordering the information of the invoices issued, where all the daily sales of the establishment are recorded. And later, the model to be followed will be defined and the variability of the techniques in the analysis in obtaining the results in the corresponding period will be analyzed.

6.1 Objective

- Develop a fiscal accounting process, to carry out a data verification on the invoices issued by the suppliers.
- Structure an administrative process for each of the invoices that come in from different providers.

6.2 Object of study

The object of study is, the taxpayer has activities with the general public in a municipality, in the city of Valle de Santiago, Gto. The object of the study is to know the causes involved to develop a correct process for the invoicing of the primary sector that is affected by questions of accounting and tax knowledge, and thus be able to provide them with correct guidance.

6.3 Instruments

For the development of this project, the information, the study, the case was applied to a farmer who is active in the primary sector with the general public. The farmer's need consists of four stages, with the need to evaluate the taxpayer's accounting-administrative process, which consists of: organization, integration, development and application. Evaluating the same phases of the administrative and accounting process.

a. For the Organization stage: It is aimed at organizing all the farmer's accounting, considering the income that is derived from a period consisting of a few months of study, every day of the month.

b. In the Integration stage: All income received in an irregular accounting year, the income received by the farmer, are considered. In this case of regime, it is necessary to keep a control per week and carry out a concentrate per month, where all the information related to income is recorded, but if it is necessary to classify them, according to their type of origin derived from the activity, carried out as mentioned, and thus be recorded, considering that it is necessary to keep a journal book.

c. In the Development stage: Once the Organization and Integration stage has been passed, a table is developed in Excel where all the income is shown and then the calculation of the tax to be found; considering only income. For this, another table is also developed where the expenditures of the constituent were recorded. Considering the items to be had.

d. In the last stage called application, it is where you have the results obtained after having applied the corresponding procedure in compliance with the rules, when calculating, for example, you get the total income and expenses.

6. Results

The development of the present investigation carried out. An administrative and fiscal accounting process was structured, the farmer kept his informal accounting where there was an incorrect procedure, the billing process was incoherent, reaching the point of not knowing how to bill, there was no order in the billing process, the expenses and expenses applied and consequently poor administration, planning, organization and control of the resources generated. The purpose of the study and analysis of the article is also to provide support, social work in keeping accounting and fiscal, for a correct development to be able to bill.

Considering the success of the project proposed to the farmer, it was positive and very successful, since it was notably improved starting from the accounting-administrative process, having an impact, since the farmer could better understand the procedure, since unfortunately, he lacks knowledge To understand the accounting and the fiscal, the project also had an impact on the farmer to understand the fiscal laws, which was the intention of the development of the silver project.

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7. Exercise

The information presented is a fiscal accounting process, which has the need to cover all those areas of opportunity of a taxpayer with a predominant activity as a farmer in the first sector, among other things, it is nothing more than the capture of the information collected during a regular period and irregular due to its activity. The data of the information that you want to obtain must be recorded, being the correct one to develop the procedure to develop the report.

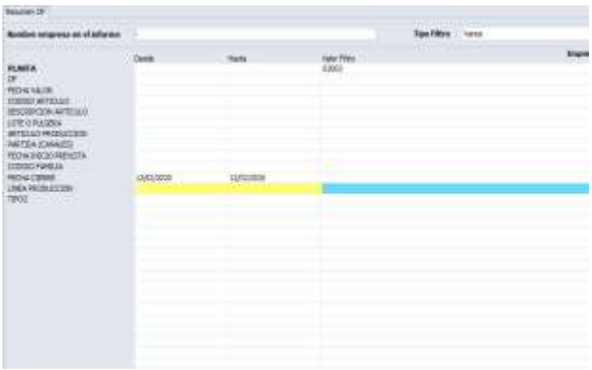

Figure 1 Query information that is required

The required information is presented in a format, showing information such as the concept of activity, quantity and cost in the process that was carried out, the type of consumption or input, if the packaging material, indirect expenses, finished products, labor.

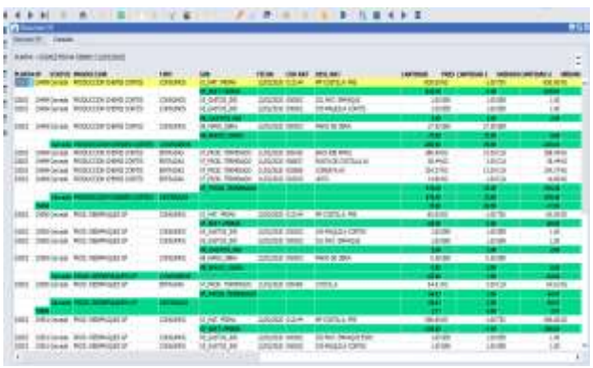

Figure 2 Detailed information report of the process

The information is saved in a file according to the location and name that is required to be put at the end of this, you must press the button.

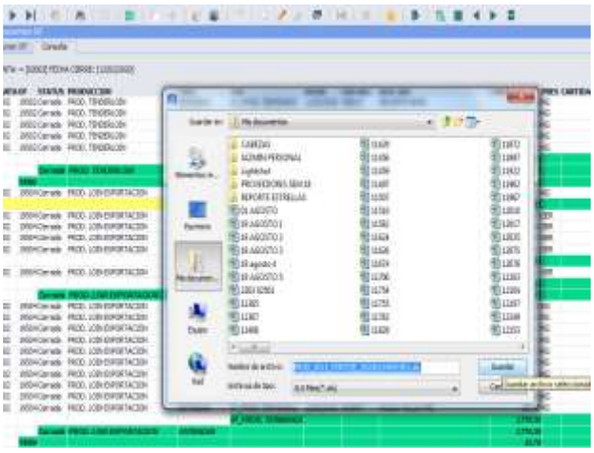

Figure 3 Information report

It is necessary to eliminate unnecessary information and generate the report with the correct information that is required.

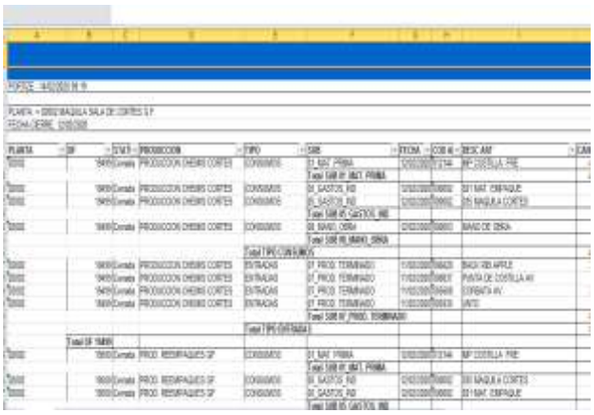

Figure 4 Report in Excel

It is necessary to eliminate some columns and only leave the columns that contain the number, the status, the production that is the process that was carried out, the date on which the activity was carried out, the article code, the description of the article as it is material of packaging, maquila cuts, among others, the amounts that were used for the process as well as their cost, three more columns were added to be filled with the preparation of the referral, such as the amount of the invoice, the difference between the amount of the invoice and the report, the invoice number, formatting and arranging the information is how the report is completed.

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Figure 5 Information needed for the report

The information that was requested from the system will be developed on the data corresponding to this Freight report, here the freight number, date of this, freight concept, place where the article code was directed, name of the client, etc. this information is only from the warehouses specified above.

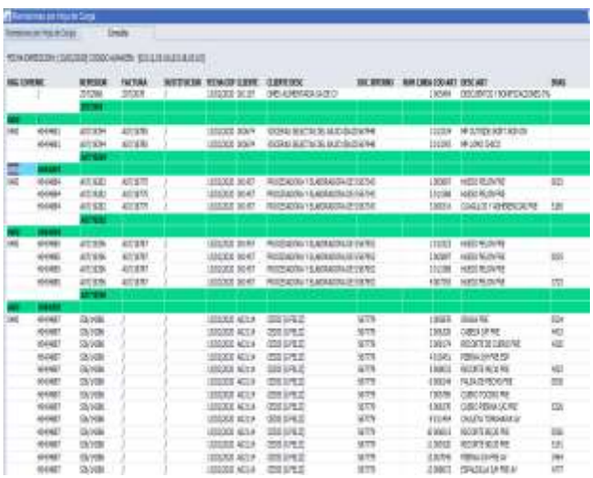

Figure 6 System data to download the Freight report

The file is downloaded in Excel, and only some extra columns are added with information from a report from the person in charge of transport that has the rectification of where the freight left and in what type of transport and then they are filled with more information of supplier invoices.

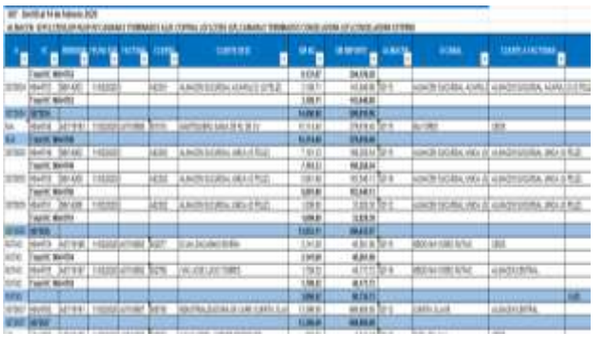

Figure 7 Final Freight Report with correct information

The report appears as follows with the corresponding information such as date, folio, supplier, line, number of pigs, sale and purchase prices, the quality of the pigs, the profit they will generate.

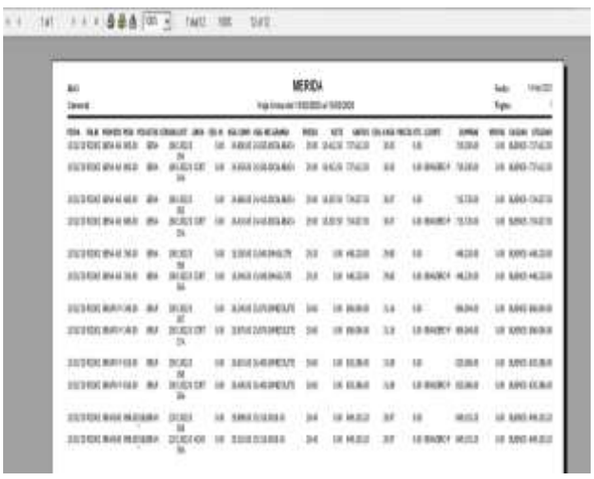

Figure 8 Pigs report information

The information is specified as is the format in which you want to download the report, it is a format in Excel.

Figure 9 Format type and Excel version for the report

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Next, the Excel shows how the report is downloaded and the information that is developed.

Figure 10 Pig Report in Excel

With the report that is obtained, a more detailed format is made and unnecessary data is eliminated and more columns are added in which the invoice information is added later to make a referral.

Figure 11 Pig report completed format

Figure 12 Pigs report format

When starting to make a referral, you must wait for the provider to send an invoice according to the information, different codes are used when registering the referral correctly. This is the invoice of a supplier complying with the fiscal provisions.

Figure 13 Factura del proveedor

8. Discussion

Derived from the research carried out, the results obtained from this project, to the taxpayer belonging to the scheme of the first agricultural and livestock sector. The development of a procedure for the billing process can be analyzed, where a process is shown, the taxpayer is identified with administrative facilities, but if he has to carry out a correct process for billing. to give a punctual and timely follow-up to compliance, in the presentation or process carried out, which is already one of the tax obligations. The billing process applied to this sector requires dedication, for the best development and avoid any errors, and it is necessary to consider the following:

1. An analysis of the obligations of the taxpayer who is as a farmer and rancher is made, the income is structured in a period, with active periodic tax obligations and localized address, and its registration in the RFC register, according to the type of surveillance to run.
2. It is verified if the taxpayer, if he complies with the stipulations in the NIF and the regime to be able to invoice, has omissions in the presentation of his obligations.
3. A discussion can be generated if it is necessary to apply an accounting-fiscal process, in this way to the taxpayer, who has few obligations, but derived from the approach, it is necessary to identify the origin of the resources and in turn make a correct decision, in an applied period:

– For the sale of a good.
– For the provision of a service
– For the purchase of a good
– For the acquisition of a service.

9 Proposals

Part of the research developed, a proposal is made to the federal and state authorities. The taxpayers who are part of the first sector, in this area, we identify the farmers and ranchers who are what predominate.

It was possible to identify these people where the need to hire the services of an accountant for compliance, development of his obligations. The situation raised in the present investigation is:

As a first section:

All those farmers and ranchers, develop activities under this scheme, in this economic sector, it is necessary to have a good administration of economic resources, and administrative facilities continue to exist.

As a second section:

The facility and / or scope granted by the authorities for the development of different activities and obligations. The presentation of reliable information.

As a third section:

Hiring a third person to develop an accounting, the acquisition of software for the invoicing process, the cost of paying an accountant's fees.

10 Results

When developing this procedure within the company it is of utmost importance, both for the farmer-rancher and for the project, it helps to rectify the information of the invoice with the processes that are carried out within the company in its different areas, by generating a remission of each invoice that arrives at the company from the different suppliers, it helps to verify the collection amounts, as well as that the tax calculation is correct. Comply with the specifications established by law, in addition each of these invoices have a period of one month for payment with this referral, the accounts payable area can schedule the settlement of this invoice through proposals that adapt to the Company expenses and income that it has from sales, so priority will be given to invoices that will already expire and must be settled immediately, that is why this process of referrals of invoices is of the utmost importance, it also helps in the detection of invoices erroneous by the supplier and thus can be canceled as soon as possible by it, and also help the debts of the company are taken into account in the shortest possible time so that it takes them into account so that they are settled on time and Likewise, so that no interest is generated by the supplier for not carrying out the settlement of each invoice in the agreed time and manner.

Carrying out projects of this type helps the company to have greater productivity and accuracy of the information that different suppliers issue in their invoices for the services offered by the company and that it keeps an adequate control of the expenses that the company makes every day with day within its facilities and thus to be able to verify in which its income is invested to have a weekly report of all the expenses that are made with the different suppliers and to be able to analyze in more detail the financial situation of the company according to its expenses and accounts for pay each provider.

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11 Conclusions

It can be concluded that the referrals of invoices were of much help for the farmer - rancher named like this: company Granjero Feliz S. de RL de CV, because these referrals serve to reach an agreement with the other party and thus verify the data and the amounts and give validity to the act that was carried out.

A program run by the company was used, which collects all the data and activities that are carried out within the entity, it is very easy to use and practical for the activities of the company. A great deal of learning was made in the preparation of the referrals since the project was not difficult, it does not take much time to apply and use it, the only thing that had to be seen was if the data was correct and to see well the codes that are carried out cape.

The company has many suppliers from different places and each one contained its code and verifying which one is for each referral was the most complicated thing to do within the referral.

The elaboration of this project served the company because many purchases are made and sometimes there was no proof of the purchases made, and the valid remissions, since it contains the signatures of the suppliers and the company.

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Exploring Mexican consumers' purchase intention toward green products: The role of green self-identity

Explorando las intenciones de compra de los consumidores Mexicanos hacia los productos verdes: El rol de la auto-identidad verde

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Abstract

The objective of this work was to explain the intention of purchasing environmentally friendly products from the perspective of the theories of consumer behaviors. This research proposes the concept of green self-identity and the environmental values as the antecedents of the purchase intention of green products. The study applied a quantitative approach. The data of a survey applied to the segment of young consumers was used to provide empirical support to the theoretical model proposed. The results of the study confirm that environmental values are a precedent of the green self-identity, a bi-dimensional concept that mediates the effect of environmental values on the purchase intention of green products. The green self-identity has also a direct effect on the intentions of young consumers to buy more green products. These findings are relevant to firms to promote the development of the green market by inspiriting the green self-identity of young consumers.

Green self-identity, Environmental values, Green products

Resumen

El objetivo de este trabajo fue explicar la intención de compra de productos amigables con el ambiente desde el enfoque de las teorías de conducta del consumidor. Esta investigación propone el concepto de auto-identidad verde y valores ambientales como antecedentes de las intenciones de compra de productos verdes. El estudio utilizó un enfoque de investigación cuantitativo. Los datos de una encuesta aplicada al segmento de consumidores jóvenes se utilizaron para dar apoyo empírico al modelo teórico propuesto. Los resultados obtenidos confirman que los valores ambientales son un precedente de la auto-identidad verde, un concepto bi-dimensional que media el efecto de los valores ambientales sobre las intenciones de comprar productos verdes. La auto-identidad verde además tiene un efecto directo sobre la intención de los consumidores jóvenes por adquirir más productos verdes. Estos hallazgos son de utilidad a las empresas para impulsar el desarrollo del mercado verde a través de alentar la auto-identidad verde de los consumidores jóvenes.

Auto-identidad verde, Valores ambientales, Productos verdes

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1 .Introduction

The concern of individuals about the deterioration of the environment has increased with the COVID-19 pandemic, since the appearance of the virus is associated with the emergence of humans into the habitat of wild animal species with which there was no interaction (OECD , 2020; Shalini et. Al., 2020). Recent studies (Kearney, 2020) indicate that approximately 6 in 10 consumers (55%) still intend to buy sustainable products that contribute to reducing human impact on the environment. In 2018, American consumers spent $ 128.5 trillion on fast-moving sustainable consumer goods (Nielsen, 2018). According to the analysis of the Sustainable Business Center (Ho, 2019), 50% of the sales of 71,000 SKUs of consumer packaged goods from 2013-2018 correspond to sustainable products. The growth in the consumption of environmentally friendly products is not exclusive to the United States of America (USA) as reported by Nielsen (2019), but is also extensive to developing countries. The extension of the market for sustainable products requires a more in-depth understanding of what factors influence the selection of "green" products by consumers (Baldi, Bertoni, Migliore; & Peri, 2019; Sesini, Castiglioni & Lozza, 2020).

The objective of this work is to explain the purchase intention of green products from the perspective of consumer behavior theories (Khare & Vaershneya, 2017; Thøgersen, 2017). Specifically, this research proposes a model based on the concept of consumer self-identity and environmental values that organizations can use to stimulate the interest of individuals in purchasing green products (Nath, Kumar, Agrawal, Gautam, & Sharma, 2013) . The available literature shows that the concept of self-identity is a good predictor of the purchase behavior of sustainable products and brands (Belk 1988; Carfora Caso, Sparks, & Conner, 2017; Tung, Koening, & Chen, 2017) since influences people's ideas and feelings, influencing their purchasing decisions. The green or pro-environmental self-identity of an individual is defined as the perception they have about themselves to support the environment and express it in some way. Previous studies confirm that green self-identity is a good predictor of pro-environment behaviors (Khare, 2015; Whitmarsh & O'Neill, 2010).

This work proposes that green self-identity is determined, among other factors, by the environmental values of the individual. From an academic perspective, the study is one of the first to explore the concept of green self-identity in Mexico. From a practical point of view, the results of the research carried out can be used to promote green products by appealing to people's green self-identity and environmental values. The following sections describe the basic concepts that are proposed as predictors of the purchase intentions of sustainable products, the research hypotheses are formulated and the conceptual model that is empirically validated with data from a survey applied to young people from a university is presented. private with presence throughout the Mexican Republic.

2. Literature Review

Madani & Rasti-Barzoki, M. (2017) point out that the continuous deterioration of natural resources and the increase in global environmental pollution due to the greenhouse effect has generated a worldwide awareness of caring for the environment. The recognition of the environmental problem led to the development and commercialization of environmentally friendly products as one of the sustainability proposals. Since the 80s, the countries and governments of the world have held various summits and signed treaties and agreements with the purpose of supporting sustainable development, preserving biodiversity, and contributing to the well-being of humanity. These include the Rio de Janeiro Summit (1992), the Millennium Summit (1992), the United Nations Framework Convention on Climate Change (1992), the Kyoto Protocol (1997), the Stockholm Convention (2001).) and the Paris Climate Summit (2015) (Möbius, 2017).

Even from the approach of the Sociology of Religion, in the document On the Care of the Common Home (Francisco, Father, 2015), the destruction of the human environment is addressed, which should be protected and preserved by humanity as a whole to avoid its degradation.

Identity. The literature in Psychology recognizes that self-identity is a construct that predicts pro-environment intentions and behaviors (Whitmarsh, & O'Neill, 2010).

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Self-identity refers to how the individual perceives himself / herself and seeks to incorporate a set of elements such as values, personal goals, habits and particularities, in her personality. Reed, Forehand, Puntoni, & Warlop (2012, p. 310) define identity as any denomination with which the consumer self-associates and which is suitable to show a clear image of how the consumer looks, thinks, feels and does. person. According to the Identity Theory, people are entities that self-regulate in order to confirm their identity. Therefore, people continually evaluate their actions using their internal standard of identity as a reference. To avoid identity conflicts and negative emotions, individuals try to show themselves to others in congruence with their self-identity, developing multiple identities according to the social situation, that is, they act as parents, friends, employees, etc. (Reed et al., 2012).

In the consumer environment, researchers (Belk 1988; Escalas, & Bettman, 2005; Gao, Wheeler, & Shiv, 2009) argue that people use their possessions and the brands they buy to create and strengthen their self-identities. For this reason, people buy and consume products and services that are consistent with their goals, affiliation needs, and self-affirmation (Townsend, & Sanjay, 2012). Under this premise, the purchase of green products is a way in which people distinguish themselves from others, acquire status and project their commitment to the environment (Khare, 2015), that is, they demonstrate their environmental self-identity by showing themselves in favor of protecting the environment (Van der Werff, Steg & Keizer, 2013).

The construct of environmental or green self-identity has been proposed as an antecedent, moderator and mediator of the relationship between other constructs and pro-environment behaviors. For example, Khare (2015) analyzed the influence that pro-environmental attitudes, personal norms, social influence, and green self-identity of consumers have on buying green products in India. Consumer self-identification with the sustainable attributes of a product turned out to be an important predictor of green product purchasing behaviors. Whitmarsh & O'Neill (2010) also concluded that green self-identity is a better predictor of the reduction in the use of water and energy, and the ecological purchase, than the constructs proposed by the Theory of Planned Behavior (TCP) (attitudes, subjective norm and perceived control).

Based on the evidence from the reviewed literature, the first research hypothesis is proposed:

H1. Environmental self-identity has a positive influence on the purchase intentions of sustainable products among young consumers.

Values. Personal values have proven to be a determining variable in the formation of environmental beliefs and attitudes derived from knowledge and experiences. According to the Value-Norms-Beliefs Model (VNC) towards the environment (Stern, 2000), values influence the way the individual processes the available information. When the information presented is congruent with individual values, the person will develop more favorable beliefs and attitudes that make it easier to modify behaviors or perform new behaviors (Groot, 2008). The VNC proposes a set of universal values of diverse nature: biospheric, social / altruistic and selfish. The biospheric values are related to the concern for the protection of non-human species and the biosphere; While social or altruistic values represent concern for the welfare of other people and selfish ones are self-oriented principles.

Gilg, Barr, & Ford (2005) studied the role that values play in the pro-environment behaviors of Devon residents in the UK. Based on the information collected, the research concludes that green behavior is a broad concept that includes a wide variety of actions, including the consumption of sustainable products. The people who responded to the survey were categorized according to their ecological lifestyles, their values and their sociodemographic profile, finding that those people who buy more sustainable products have a different set of values than the individuals who hardly buy green products. People who buy green products tend to have biospheric and eco-centric values that lead them to act in favor of the environment.

Gatersleben, Murtagh, and Abrahmse (2014) analyzed the effect that values, TCP constructs and identity have on pro-environment behaviors. Values were proposed as an essential component of identity, which was proposed as a mediator of the relationship between values and behaviors.

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Based on information collected through a survey, the study confirms that biospheric and environmental values are significantly related to environmental identity and that the relationship between green values and behaviors is fully mediated by environmental identity. The research also concludes that environmental identity explains a higher proportion of the variability in the intention to practice ecological behaviors than the TCP constructs. These results agree with those reported by Dermody Hanmer-Lloyd, Koenig-Lewis, & Zhao (2015) who in their research shows that the pro-environment self-identity half, partially or totally, the relationship between the values of materialism, concern for the environment and social motivation for consumption and sustainable consumption behaviors. Even though these studies were carried out in countries with a history of caring for the environment, this study proposes that the relationships identified are also applicable to the case of Mexico. Therefore, the following two research hypotheses are formulated:

H2. Personal values, specifically environmental ones, influence the purchasing intentions of sustainable products among young consumers.

H3. Environmental self-identity mediates the effect that personal values have on purchasing intentions for sustainable products among young consumers (Figure 1).

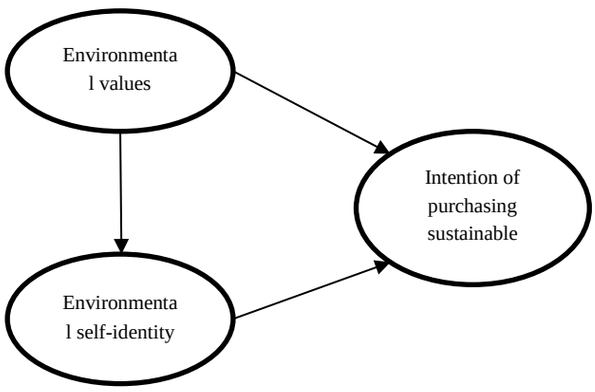

Figure 1 The influence of environmental self-identity in the purchase of sustainable products

3. Methodology

The study carried out is of a quantitative cross-sectional type. The stages of the methodology included the design of the multi-scale measurement and validation instrument that make it up, the application of a survey to young undergraduate university students enrolled in a private university with a presence throughout Mexico, and the analysis of the data using regression analysis supported by the statistical software MINITAB. Each of these stages is described below.

Design of the instrument for measurement and validation of metrics. A structured questionnaire was designed that integrates previously developed and validated scales to measure the three theoretical constructs of interest that are represented in the model in Figure 1. Environmental values were measured on the 7-item scale proposed by Gilg, Barr, & Ford (2005). Environmental self-identity was evaluated through 9 items adapted from the scale proposed by van der Werff et al. (2013) and Cook, Kerr, & Moore (2002). Finally, the intention to buy sustainable products was evaluated with 4 items derived from the scales summarized by Bemmaor (1995).

As the multi-scales used were transferred to the Mexican context, the EFA was performed to refine the scales and determine the convergent and discriminant validity of the measurement instrument. The principal components method was used to extract three factors, each associated with the three constructs of interest. However, the sedimentation graph and the magnitude of the eigenvalues (> 1) showed that the solution in four factors was more adequate. Therefore, we proceeded to extract four factors and apply Varimax rotation to identify them.

The communalities for three of the items (items 1, 6, and 7) of the multi-scale designed to measure the participant's environmental values had very low communalities (<0.3), which is why they were eliminated from this second analysis. The percentage of the original variance explained by the solution in four factors after this elimination was 58.9%. The matrix of rotated loads is reported in Table 1. The communalities of the reagents retained are shown in the last column of the table. All the communalities were above 0.48 and all the loads of the items grouped in the same factor were above 0.5.

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Additionally, the items had small loads (<0.3) in other alternate factors to which they were assigned. These results support the convergent and discriminant validity of the scale (Morales-Vallejo, 2011).

The 9 items designed to establish environmental self-identity were grouped into two different factors. In the first factor, all the items that refer to how the person perceives themselves regarding an ecological lifestyle were assigned and in a second factor, the items related to how the person would like to be classified by others were grouped. Consequently, the environmental self-identity is concluded to be constituted by two dimensions: the perception of the individual regarding his environmental self-identity (IA perceived = IA1) and how the individual exposes his environmental self-identity before his social groups (IA before others = IA2).

Item	IA1	IA2	VA	IC	C
3	0.028	0.079	-0.647	-0.312	0.523
4	0.417	-0.054	-0.548	0.050	0.479
5	-0.136	0.307	-0.699	0.023	0.602
7	0.242	-0.078	-0.701	0.022	0.556
8	0.146	-0.008	-0.008	-0.695	0.504
9	0.302	0.672	-0.069	0.008	0.505
10	0.115	-0.075	0.041	-0.840	0.725
11	0.180	0.704	-0.308	-0.097	0.633
12	0.246	0.804	0.050	0.056	0.712
13	0.334	0.748	0.222	0.168	0.749
14	0.188	0.772	-0.189	-0.094	0.677
15	0.686	0.267	0.051	-0.011	0.544
16	-0.154	0.120	-0.409	-0.633	0.606

VA: Environmental Values, IC: Purchasing Intention, C: Communalities

Table 1 Results of the exploratory factor analysis for the measurement instrument

Cronbach's alpha was also calculated for each of the factors associated with each construct. All the multi-scales had values that are within the recommended range ($0.701 < \alpha C < 0.84$) which gives evidence of the internal reliability of the scales.

Application of the survey. The students who responded to the survey are enrolled in the Business School of the private university, in the state of Mexico, particularly the one located in the City of Toluca.

The participants were informed about the project being carried out by the institution's professors and indicated that they had been chosen because they were part of the segment of young university students who received formal environmental education as part of their basic education (18-29 years). Participation in the survey was voluntary, but extra credits were offered to students who responded in the subject they were studying with the teachers who conducted the study. The survey was sent directly to the email of the students who confirmed their interest in participating.

The survey was conducted during the January-May 2020 semester and the summer of 2020. A total of 189 completed questionnaires were returned by the students. The data was coded and saved in an Excel file. In addition to the responses of the participants, aggregate variables were generated that correspond to the factorial scores of the three first-level constructs expressed in the model in Figure 1. For the self-identity construct, two aggregate variables, one associated with each component or dimension were calculated.

In the applied survey, students of both genders were represented in the same proportion, 45% women and 45% men, while the remaining 10% did not report their gender. 46.3% of the participants are between 18-20 years old, 51% between 21-24 years old and the remaining 2.7% reported ages between 25-28 years.

4. Analysis of the results

To give empirical support to the model proposed in Figure 1, the most common four-step procedure recommended to evaluate the mediating effect of a variable was followed (Frazier, Tix, & Barron, 2004). The procedure consists of estimating several regression models using as regressors / predictors the environmental values (X) and the participant's green self-identity and as a response to the mediating variable (green self-identity in its two dimensions) and the response that you want to predict, which in this case corresponds to the purchase intention of green products (Y).

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In a first step, a model was adjusted in which the environmental values (X) were the predictor of the intention to buy more green products in the short and medium term (Y). The model was highly significant, although the percentage of variability explained by environmental values was low (P = 0.000, R2 = 17%) and the model showed lack of fit (F = 1.96, P = 0.016). These results give empirical support to the research hypothesis H2 but suggest that environmental values by themselves are not a good predictor of the purchase intentions of green products, which leads to suggest other constructs that explain why a consumer decides purchase green products.

The second step consisted of fitting two simple linear regression models in which the moderating variable self-identity-green was proposed as the response and the environmental values as the regressor or predictor. The two models were highly significant (P = 0.000), even though the values only explain a limited percentage of the variability of perceived green self-identity (M1) and demonstrated to others (M2) according to the self-report of the respondents. The perceived green self-identity (AI1 = M1) was explained to a greater degree by environmental values (R2 = 11%) than the demonstrated green self-identity (IA2 = M2) before others (R2 = 11%). Although the differences in the percentages of explained variance are minimal, the results are consistent with the literature reviewed that indicates that green self-identity is an expression of the individual's personal values. In this sense, the AI2 that represents the way of showing oneself to others could be associated with other constructs such as the social norms that regulate the actions of individuals in their social context and the pro-environmental behavior to which the individual is exposed (Culiberg , & Elgaaied-Gambier, 2016).

In a third step, a regression model was adjusted in which the predictors were the two components of the green identity (AI1 = M1 and AI2 = M2) and the response the intention to buy green products (Y). This third model was also highly significant (P = 0.000) and explained a higher percentage of the variability in green purchase intentions than (R2 = 27%). This implies that green self-identity is a better predictor by itself of the intentions to buy green products than the environmental values that the individual has. Consequently, the first research hypothesis (H1) has empirical support.

Both dimensions of green self-identity had a significant effect on the response (P = 0.000). When comparing the beta coefficients of the two predictors, it was found that the perceived green self-identity explains the intention to buy green products to a greater extent than the green self-identity demonstrated to others ($\beta 1 = 0.0785 > \beta 1 = 0.0543$), verifying that the The decision to act in favor of the environment is more personal than influenced by the environment.

The three regression models adjusted in the first three steps of the procedure to empirically evaluate the proposed theoretical model allow us to conclude that there are significant direct associations between the constructs of the model, which supports the proposal that there are mediating effects. The last step of the procedure consisted in fitting a regression model in which all the predictors were included, that is, the two dimensions of self-identity and the environmental values. The model was highly significant and explained a greater percentage of the variability in the response than the previous models (P = 0.000, R2 = 37%) in addition to not exhibiting lack of fit (F = 1.71, P = 0.136).

Additionally, the regression coefficient of the environmental values construct ($\beta VA = 0.218$), although significant, turned out to be less than the coefficient of the simple regression model in which it was proposed that environmental values have only a direct effect on the intention to purchase products. green ($\beta'VA = 0.378$). These results support the mediating effect that the dimensions of green self-identity have on the purchase intention of green products, which supports the latest proposed H3 research hypothesis.

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6. Conclusions

Current trends in sustainable practices show that consumers are more committed to the environment and play a more active role in protecting it through a series of sustainable practices including recycling, fair trade, sustainable consumption and the purchase of environmentally friendly products. Identifying the personal characteristics of the consumer that positively influence consumers' decision to buy organic products is essential to reinforce sustainable consumption. This research contributes to the literature on buying green products by verifying the fundamental role that green self-identity plays in the purchase intentions of sustainable products by young and highly educated consumers who are the segment that is driving the growth of the market. green.

Research results suggest that people tend to enhance their self-identity by purchasing identity products. Therefore, companies interested in expanding the market for green products and differentiating themselves from others through their offer of ecological products, would have to appeal to the sustainability of their products and focus on messages and images that induce consumers to evoke and demonstrate their identity. green.

Like all research, this study has limitations that open up areas of opportunity. The main limitation is that the survey participants were exclusively students from a private university. The selection of a random sample of university students would increase the external validity of the present study. Another limitation is the relatively low predictive power of the empirically validated theoretical model. Considering other variables, both demographic (gender and socioeconomic level) and psychographic (environmental awareness and value assigned to the ecological attributes of a product) would help to better complement and predict the intentions and purchase of green products of the young consumer segment.

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Analysis of automation in manufacturing processes, inventory control and sales in micro, small and medium-sized companies of Acámbaro, Gto.

Análisis de automatización en procesos de fabricación, control de inventarios y ventas en micro, pequeñas y medianas empresas de Acámbaro, Gto.

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Abstract

The objectives of this work are decisive to obtain an up-to-date and reliable status regarding the use of automation in micro, small and medium-sized enterprises (MPYMES), and thus to seek a direct relationship in terms of the use of automated elements either in the production process, inventories and / or sales; in addition to how this can influence your competitiveness. The method used was the statistician, from a finite universe sample. The approach to the analysis of research results was quantitative with a descriptive scope, by which it was possible to examine how much of Acámbaro's MYPIMES, Gto. make use of automation in the aforementioned processes. The sample is obtained from the city of Acámbaro, Gto., selected place as a case study. With the results obtained, it helps to determine various factors that impact the chosen control sector; a certain part makes use of automation in some of the areas of interest, others mention ignoring the terms, and others show great interest in optimizing your business. Based on the information, various improvement recommendations are made.

Company, Automation, Process

Resumen

Los objetivos del presente trabajo son determinantes para obtener un estatus actualizado y fiable referente al uso de automatización en micro, pequeñas y medianas empresas (MPYMES), y con ello, buscar una relación directa en cuanto al uso de elementos automatizados ya sea en el proceso productivo, inventarios y/o ventas; además de cómo esto puede influir en su competitividad. El método utilizado fue el estadístico, a partir de una muestra de universo finito. El enfoque del análisis de los resultados de la investigación fue cuantitativo con un alcance descriptivo, mediante el cual fue posible examinar qué tanto las MYPIMES de Acámbaro, Gto. hacen uso de la automatización en los procesos antes mencionados. La muestra se obtiene de la ciudad de Acámbaro, Gto., lugar seleccionado como caso de estudio. Con los resultados obtenidos, se contribuye a determinar diversos factores que impactan en el sector de control elegido; una cierta porción hace uso de automatización en algunas de las áreas de interés, otras mencionan desconocer los términos, y otras muestran gran interés en optimizar su empresa. En base a la información, se realizan diversas recomendaciones de mejora.

Empresa, Automatización, Proceso

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Introduction

It is a reality that the use of current technology can be a fundamental part of the performance of any activity, even more so, in an environment as competitive as the productive sector; technology should be considered as indispensable and not as optional. By implementing current technology, and focusing on the automation section, it is possible to optimize the activities carried out, which leads to an increase in the effectiveness and efficiency of the procedures.

To obtain reliable information on the use and impact of automation in micro, small and medium-sized enterprises (MPYMES), an analysis is carried out in the city of Acámbaro, Gto., Which is characterized by having a large commercial sector in this category. . Based on the fact that both the manufacturing processes, inventory control and product marketing should not implement obsolete methodologies, it is necessary to know how the three mentioned areas are currently, and if the commercial activity in the area has been adapted to the new technological circumstances in which it is immersed. It is considered that the use and knowledge of automation is a priority to ensure the good positioning of any company, so it seeks to determine the status of automation implemented by micro, small and medium-sized companies.

The information in this article is approached in such a way that it is part of the description of the methodology implemented for the research, subsequently the data analysis is carried out, and based on them, the results obtained are determined; as well as deductions and improvement considerations.

Method description

The development of this research was based on a statistical method, using a finite universe sample in the town of Acámbaro, Gto. applied in micro, small and medium enterprises; under a confidence level of 95%, with a margin of error of the sample of 5%. The focus of the analysis of the research results was quantitative with a descriptive scope, to identify characteristics of the Acambarense population with the relationship to the aforementioned, it was based on the contribution of Namakforoosh (2005).

Who said that the research is used descriptive "to calculate the portion in a specific population that have certain characteristics" (p. 91), because the city of Acámbaro was considered, under the aforementioned variables, in addition to describing the status of micro, small and medium enterprises of this city, in relation to automation in manufacturing processes, in inventory control and in the sales process.

For data collection, a survey was used as an instrument because it is carried out on all interviewees with the same questions, in the same order, and in a similar social situation (Vidal Díaz, 2001, p. 13), it was applied face to face with the interviewees, which consisted of 18 questioners, with specific items focused on answering the research questions posed. The research was based on the scientific method, which according to Castán (2014) is a systematic research process that consists of interdependent parts. The stages that make up the scientific method are: 1) definition of the problem, 2) formulation of hypotheses (deductive reasoning), 3) collection and analysis of data, 4) confirmation or rejection of hypotheses, 5) results, 6) conclusions (p.5).

Methodology to be developed

Theoretical framework

The city of Acámbaro, was founded on September 19, 1526, is located in the Southeast region of the state of Guanajuato, has a territorial extension of 877.43 square kilometers, which represents 2.85% of the total surface of the state (Encyclopedia of municipalities and delegations of Mexico, nd), speaking of economic entities in Acámbaro there are 5,694 of these, of which 5,669 are micro and small companies.

INEGI (2009) mentions that micro, small and medium-sized enterprises (MPYMES) have great importance in the economy and in employment at the national and regional level, both in industrialized countries and in those with a lesser degree of development. MPYMES companies represent the segment of the economy that contributes the largest number of economic units and employed personnel worldwide; hence the relevance of this type of companies and the need to strengthen their performance by having a fundamental impact on the global behavior of economies.

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Speaking specifically, the microenterprise is the smallest productive unit of the business structure, in terms of the scale of fixed assets, sales and number of employees, that carries out production, trade or service activities in rural or urban areas […] it is a productive self-employment unit with no more than 10 employees, whereas a small company employs between 11 and 50 people; and a medium-sized company employs between 51 and 100 people (Lizarazo Beltrán, 2009, p. 15), in the same way Ramírez (2006) mentions that the SME is defined as "any unit of economic exploitation, carried out by natural or legal persons, in business, agricultural, industrial, commercial or service activities, either in rural or urban areas; It also adds that the medium-sized company has a plant of workers between 51 and 200 people, while the small company has between 11 and 50 workers (p. 10-13).

Now, addressing the term automation that "is the action by which activities carried out by an operator, in a production process, are transferred or transferred to a machine, which is governed by equipment that can be wired or programmed electronic" (Solbes i Mozó, 2014, p. 13), likewise Iborra, Dasí, Dolz and Ferrer (2014) say that automation is the result of the incorporation of information technologies into manufacturing (p. 336); On the other hand, in the article entitled Manufacturing and organization, they cite the Strategic Plan of the National Program for Industrial Technological Development and Quality, 2000-2010, which addresses that automation is considered as the management of information in companies for decision-making in real time, incorporates computer science and automated control for the autonomous and optimal execution of processes designed according to engineering criteria and in line with the plans of the business management (Cordoba Nieto, 2006), instead Palomares and Mertens (1991) state that automation is "a phenomenon that involves the work process itself and the market. It is not only a process of transformation of human work, by substituting man for machine, but also the emergence of new needs in society, which are reflected in market demand.

There are different levels of automation according to García (2005), these can be analyzed depending on the level it produces: a) Level 1. Elementary, b) Level 2. Simple machines, d) Level 3. Process, c) Integrated management level (p. 23); Sánchez and Pizarro (2010) state that there are four levels: Level 1. Manual operation, Level 2. Semiautomatic, Level 3. Automatic, Level 4. Computerized.

On the other hand, automating also brings with it a series of advantages, on the website Grup MCR (2016), they mention some, among them are that optimal levels of quality are achieved, cost savings, production time, personnel safety, improvement of data flow, competitive advantage, however, they also mention disadvantages and this is that specialized personnel are required, on the other hand for Mungaray and Lagarda (1990), the new type of industrial technology although it replaces skilled and specialized workers, creates in turn, new types of training and jobs such as programmers, security guards, operators and regulators, this being an advantage (p. 85).

Parallel to the above, Katz and Calatayud (2019) mention that automation and robotization facilitate the implementation of decisions without the need for human intervention, this brings benefits which are huge gains in time, agility and risk management between the elements key to the supply chain […] The application of the technologies of the fourth industrial revolution, can be called "supply chain 4.0, this is characterized by a high level of interconnection between the physical and digital fields (page 13), combined to the above, Sánchez (2008), contributes that an integrated program relates the functions of product development, manufacturing supply and planning within the company, the resulting process must be a network of activities that must be managed simultaneously (p. 101).

Speaking of the commercial area, there are three large areas or contact channels susceptible to automation according to García (2001), these are: Customer service, marketing processes and automation of the sales force (p. 130). Sales force automation (connecting salespeople to headquarters from remote computing connections) is perhaps the main force behind changing sales organizations today, it has freed salespeople from daily visits , and that results in more time with clients (Sánchez Gómez, 2008, p. 118).

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Problem Statement

Companies increasingly seek to optimize resources and increase their productivity, in many aspects within themselves, such as in the production process, in the way they control supplies and in the way of marketing their products and / or services, everything in favor of increasing efficiency and improving delivery times; For the aforementioned, the question arises of knowing how the small and medium-sized companies of Acámbaro, Gto., are in the automation of manufacturing processes as well as identifying difficulties that are faced in it; in the same way, to know the state in which they are in the automation processes in the inventory control and automation in the sales area processes.

Research questions

In order to give an order to what we wanted to analyze, the following research questions were formulated:

- How do companies in Acámbaro, Gto., Consider what their automation is in general?
- What level of automation do the companies in Acámbaro, Gto have?
- What are the main problems identified by the Acámbaro, Gto companies regarding the manufacturing process of the product and / or service?
- Do the companies in Acámbaro, Gto., Have an automation process to control supplies?
- Do the companies in Acámbaro, Gto., Have an automation process in the sales area?
- Do the companies of Acámbaro, Gto., Make use of any tool to automate their sales process?
- What recommendations do the Acámbaro, Gto. Companies provide to achieve global automation in their businesses?

Objectives

- Analyze how the companies of Acámbaro, Gto, consider their automation to be in general.
- Identify the level of automation that companies in Acámbaro, Gto.
- Know what are the main problems identified by the Acámbaro, Gto companies in the manufacturing process of the product and / or service.
- Determine if the companies in Acámbaro, Gto., Have an automation process to control supplies
- Establish whether the companies in Acámbaro, Gto., Have an automation process in the sales area.
- Define if the companies of Acámbaro, Gto., Make use of any tool to automate their sales process
- Describe the recommendations provided by companies in Acámbaro, Gto., To achieve global automation in their businesses

Hypothesis

- Ho. The companies of Acámbaro, Gto., Are considered with an automation in general of Manual Manufacturing.
  H1. The companies of Acámbaro, Gto., Are not considered with a general automation of Manual Manufacturing.
- Ho. The companies of Acámbaro, Gto., Are in a level 1 of automation: Turn-on-off devices, sensors, alerts, alarms.
  H1: The companies in Acámbaro, Gto., Are not in a level 1 of automation: Turn-on-off devices, sensors, alerts, alarms.
- Ho. The lack of automation, technology and training; are the main problems identified by the companies of Acámbaro, Gto. in the manufacturing process of the products and / or services.
  H1. The lack of automation, technology and training; They are not the main problems identified by the companies of Acámbaro, Gto. in the manufacturing process of the products and / or services.
- Ho. The companies in Acámbaro, Gto., Do have an automation process to control supplies.
  H1. The companies in Acámbaro, Gto., Do not have an automation process to control supplies.
- Ho. The companies in Acámbaro, Gto., Do have an automation process in the sales process.
  H1. The companies in Acámbaro, Gto., Do not have an automation process in the sales process.

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– Ho. The companies of Acámbaro, Gto., Do use a tool to automate their sales process.
H1. The companies of Acámbaro, Gto., Do not use any tool to automate their sales process.
– Ho. Make purchases with certified suppliers, carry out a plant distribution analysis and invest in technology, is what the companies of Acámbaro, Gto recommend.
Zxghiy H1. Making purchases with certified suppliers, conducting a plant distribution analysis and investing in technology, is not what the companies of Acámbaro, Gto recommend.

Research justification

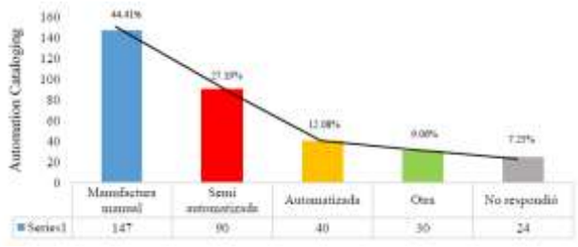
It is convenient to carry out the research because the data that this yields can be for the use of the same companies surveyed and thus, have a broader vision of how they can improve, in addition to being new information that is helpful to the general population ; Consequently, it will have a social relevance with the city of Acámbaro, Gto., so that future businesses implement automation processes, since this can have many benefits as mentioned by García (2005) who says that the advantages of automation are : produce a constant quantity, supply quantities needed at the right time, increase productivity and increase job security (p. 21). This research has theoretical value, because it will be possible to know the behavior of the automation processes in the production process, in the supply control process and in the commercial or sales process, of the companies in the area

Analysis of quantitative results with a descriptive scope

The analysis of the results was carried out through the Design of Survey Analysis program (DYANE, 2005), in which a database was integrated, which was able to produce graphs expressing basic descriptive statistics.

Analysis results

– How they categorize their companies in a general way, regarding automation:



Graphic 1 Automation in general
Own Source

In graph 1, it can be seen that 44.41% of the population of micro, small and medium companies classify their organization as manual manufacturing, on the other hand 27.19% consider it as semi automated, on the other hand 12.08% think that they are automated Likewise, 9.06% said another option, these were where they mentioned that it was artisanal, commercial, services and even that it does not apply; finally 7.25% abstained from issuing a response.

– How do companies in Acámbaro, Gto consider the level of automation?

Graphic 2 Automation level
Own Source

To carry out Graphic 2, options were provided to the micro, small and medium enterprises of Acámbaro, Gto; The options that were given to the respondents were considered, these were:

a. Level 1: Turn-on-off devices, sensors, alerts, alarms.
b. Level 2: Automation, Human-Machine Interface (interaction), SCADA (Supervision, Control and Data acquisition), Programmable Controllers, digital systems packages.
c. Level 3: Energy control systems, Active controllers, Immediate responses, IT operators.

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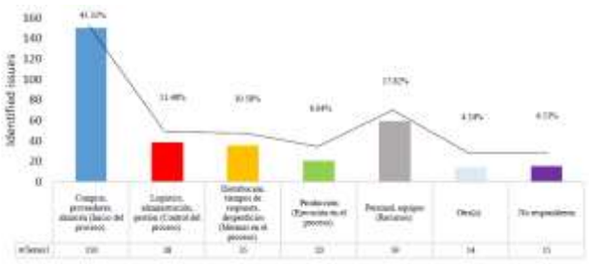
d. Level 4: Smart company (intelligent), self-adjustable, adaptable according to different conditions, use of cutting-edge technology (connectivity, information management, use of virtual and / or augmented reality), digitization, business processes and drivers in line.

Once the options are contextualized, it can be seen that 57.50% of the companies consider they are at level 1 (Turn-on-off devices, sensors, alerts, alarms), on the other hand it is observed that 11.48% did not choose any option However, 21.75% mention they are at level 2 (Automation, Human-Machine Interface (interaction), SCADA (Supervision, Control and Data acquisition), Programmable Controllers, digital systems packages); Likewise, 5.44% say they are at level 4 (Smart Company (intelligent), self-adjustable, adaptable according to different conditions, use of cutting-edge technology (connectivity, information management, use of virtual and / or augmented reality), digitization , business processes and online drivers); Finally 3.63% say they have a level 3 (Energy control systems, Active controllers, Immediate responses, IT operators).

– Problems identified by the companies Acámbaro, Gto regarding the manufacturing process of the product and / or service:

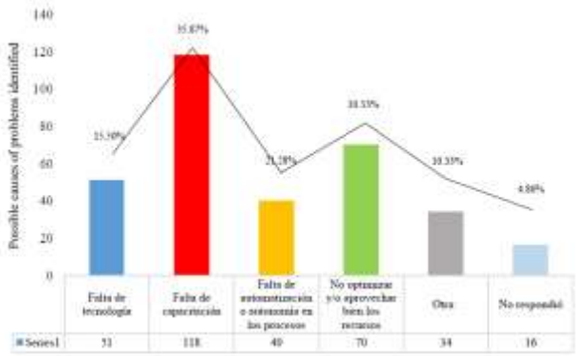


Graphic 3 Problems identified in the production process
Own Source

In Graphic 3 it can be observed that 45.32% of the micro, small and medium companies of Acámbaro, Gto; they present problems in the purchasing, supplier and warehouse area, that is to say at the beginning of the process; On the other hand, 17.82% have faults with their personnel and equipment, specifically with human and technical resources; In addition to the above, 11.48% mentioned that their problems are in the area of logistics, administration and management, that is, in the control of the process;

On the other hand, 10.58% expressed having difficulties in distribution, response times, waste, which means that there are losses in the process; However, 6.04% mentioned that the problem is in the production area, emphasizing the execution of the process; It is worth mentioning that 4.53% abstained from answering; Finally, 4.24% selected the other option, where they mentioned a delay with customers, a decline in the markets and simply stated that they had no problem.

– What are the problems identified above?:



Graphic 4 Possible causes of problems identified in the process productive
Own Source

In Graphic 4, the causes of the problems identified in graphic 3 are shown, where 35.87% of the micro, small and medium enterprises of Acámbaro, Gto; state that the possible causes of the problems identified are the lack of training for staff, on the other hand 21.28% said that the causes are due to the lack of automation or autonomy in the processes, however 15.50% of the companies mentioned that the Problems are due to the lack of technology, on the other hand 10.33% said that it was due to not optimizing resources well and / or making good use of them; finally with 4.86% the companies that did not respond are shown.

– Automation process in the control of supplies of the companies of Acámbaro, Gto:

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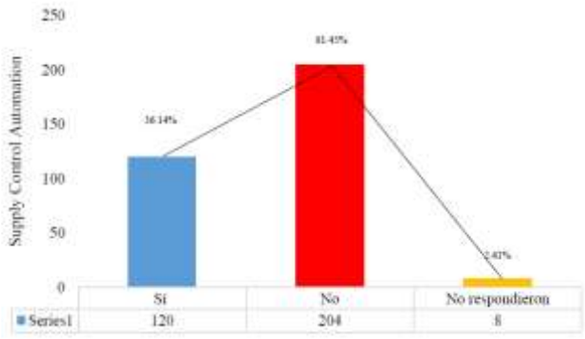
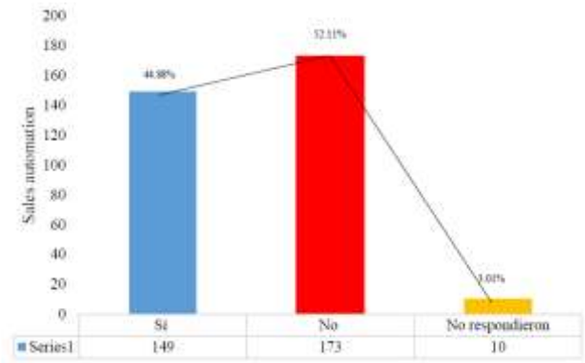


Graphic 5 Problems identified in the production process
Own source

To the businessmen of the Acámbaro, Gto sample; They were asked if they had an automated process for the control of supplies, therefore in graph 5 it is shown that 61.45% expressed not having an automated process for that area, likewise 36.14% said they did have an automated process for control of supplies; finally 2.41% did not provide an answer.

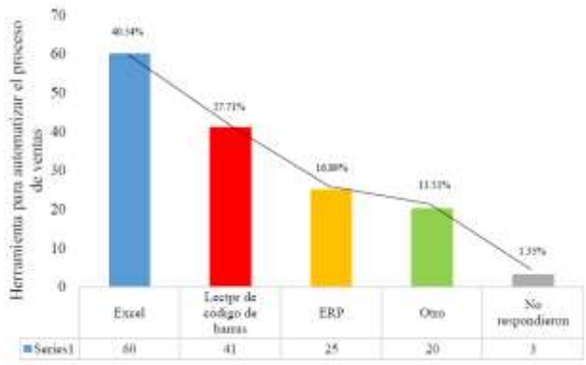
– Automation process in the sales area of the companies of Acámbaro, Gto:



Graphic 6 Automation in the sales process
Own Source

In Graphic 6 the results are shown focused on whether in the companies of Acámbaro, Gto; They have automation processes in the sales area, where 52.11% said they did not have, on the other hand 44.88% mentioned whether to have a process, finally 3.01 did not respond.

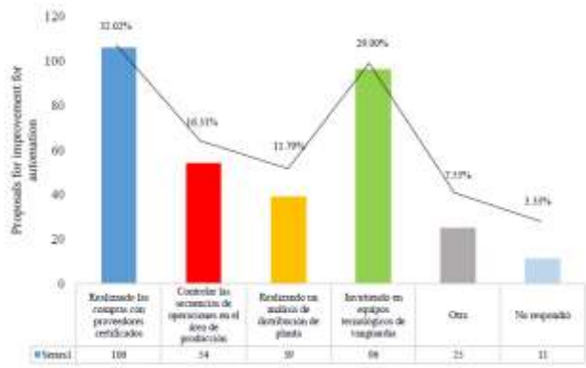
– Support tool to automate the sales process of companies in Acámbaro, Gto:



Graphic 7 Support tool to automate the sales process
Own Source

Graphic 7 shows the results of the opinion of 44.88% of the micro, small and medium enterprises of Acámbaro, Gto; who said yes to have an automation process, who were questioned which tool they used to automate their processes, where, with 40.54% mentioned that they use the Excel tool, instead 27.71% said they use a barcode reader On the other hand, 16.89% said they use the ERP system, likewise 13.51% said another, in which Sicar, Point of Sale System, Aspel, Private system, Smartphone classification of clients, Atenea, real estate CRM, Ciber Planet System stand out , SAP system, cash register. Finally, 1.25% is appreciated, which represents the companies that did not respond.

– Recommendations of the companies of Acámbaro, Gto., To achieve global automation in their businesses:



Graphic 8 Proposals for improvement for automation
Own Source

In Graphic 8 it can be seen that 32.02% of the micro, small an 16.31% lium-sized companies of Acámbaro, Gto; They state that they can improve for automation by making purchases with qualified suppliers, however 29.00% think that they can improve by investing in cutting-edge technological equipment.

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On the other hand, 16.31% propose that they can improve by controlling the sequences of operations in the production area; Likewise, 11.79% express that they can improve if they carry out a plant distribution analysis; Similarly, 7.55% mentioned other options, these were that they must renew and modernize the business, constant and improved training, work in the responsibility of their positions, control the sales sequence, have new products, optimize times, not have suppliers Unique, they are not interested in having an automated company, having someone to control supplies, acquire new machines, seek government support, systematizing processes. Finally, 3.33% of the companies that did not answer the question are shown.

Analysis of the Hypotheses

An analysis of the hypotheses formulated at the beginning of the investigation is carried out, where the verification of them is shown below, based on the results:

– Ho. The companies of Acámbaro, Gto., Are considered with an automation in general of Manual Manufacturing.
H1. The companies of Acámbaro, Gto., Are not considered with an automation in general of Manual Manufacturing.

Based on the above, the null hypothesis is accepted, with a trend greater than 44.41%, the population of micro, small and medium-sized companies, classify their organization as manual manufacturing.

– Ho. The companies in Acámbaro, Gto., Are in a level 1 of automation: turn-on-off devices, sensors, alerts, alarms.
H1: The companies of Acámbaro, Gto., Are not in a level 1 of automation: Turn-on-off devices, sensors, alerts, alarms.

Based on the above, the null hypothesis is accepted; since 57.50% of the surveyed companies consider they are in level 1 of automation (Turn-on-off devices, sensors, alerts, alarms).

– Ho. The lack of automation, technology and training; are the main problems identified by the companies of Acámbaro, Gto. in the manufacturing process of the products and / or services.
H1. The lack of automation, technology and training; They are not the main problems identified by the companies of Acámbaro, Gto. in the manufacturing process of products and / or services.

The null hypothesis is accepted because the companies mention having problems with technology and especially with training; since 35.87% of the micro, small and medium enterprises of Acámbaro, Gto .; state that the possible causes of the problems identified are the lack of staff training.

– Ho. The companies in Acámbaro, Gto., Do have an automation process to control supplies.
H1. The companies in Acámbaro, Gto., Do not have an automation process to control supplies.

According to the above, the alternative hypothesis is accepted, because 61.45% of the micro, small and medium-sized companies in the mentioned city expressed not having an automated process for the supply control process.

– Ho. The companies in Acámbaro, Gto., Do have an automation process in the sales process.
H1. The companies of Acámbaro, Gto., Do not have an automation process in the sales process.

Now, from the previous hypotheses, the alternative hypothesis is accepted because 61.45% of the micro, small and medium-sized companies of the mentioned city expressed not having an automated process for the sales process.

– Ho. The companies of Acámbaro, Gto., Do use a tool to automate their sales process.
H1. The companies of Acámbaro, Gto., Do not use any tool to automate their sales process.

Continuing with the hypothesis testing, from those shown above, the null hypothesis is accepted because of 44.88% of the companies in Acámbaro, Gto .; They said yes to have a tool for the sales process represented with 40.54% say they use the Excel tool to automate their sales process, this being the biggest trend.

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– Ho. Make purchases with certified suppliers, carry out a plant distribution analysis and invest in technology, is what the companies of Acámbaro, Gto recommend.
H1. Making purchases with certified suppliers, conducting a plant distribution analysis and investing in technology, is not what the companies of Acámbaro, Gto recommend.

Finally, the last hypotheses raised are analyzed, where the null hypothesis is accepted, this derived from the results where a trend greater than 32.02% is obtained, which expresses that companies think that they can improve their automation by making purchases with qualified suppliers, in addition to the 7.55% that the study showed, mention was made of certain recommendations, such as the need to renew and modernize the business, constant and improved training, work on the responsibility of their positions, control the sequence of sales, have new products, optimize times, not have unique suppliers, they are not interested in having an automated company, having someone to control supplies, acquire new machines, seek government support and systematize processes.

Acknowledgments

A special thanks to the Technological University of León, an institution that constantly supports the generation of research and technological developments, which meet defined needs, as well as always considering a favorable impact on educational programs.

We thank managers and all personnel involved in various committees related to investigation, since unconditional support and good will are essential to achieve the objectives that are set. We express great gratitude to the micro, small and medium-sized companies in the city of Acámbaro, Gto., Which kindly agreed to participate in the research; for responding to all the questions raised, for sharing information and for opening its doors to maintain a relationship and commitment with the education sector.

Last but not least, we thank the Research department of the UTL, for being aware of various related activities and for its constant attention to the adequate monitoring of each of them.

Conclusions

It was relevant to discover that most companies classify their businesses as manual manufacturing, therefore, their priority is not that their processes be automated; In addition, more than half of the surveyed population are at level 1, where they only have turn-on-off devices, sensors, alerts, alarms; which means that they still do not have the technology to consider their businesses Smart.

On the other hand, as companies with manual manufacturing are in a greater tendency, they consider they lack training, in order to avoid problems that affect monetarily. Likewise, the companies of Acámbaro, Gto., Do not consider it relevant to have an automated process for the control of supplies, upon detecting through the investigation that the highest percentage does not have an automated process for this function; followed by a lower percentage amount, but quite a weight of those that do consider it important to have a process of this type for the control of raw materials, merchandise and inventories in general.

Parallel to the above, it was relevant that the micro, small and medium enterprises of Acámbaro, Gto; They still do not consider it important to automate their businesses, some are due to a lack of knowledge of the term, in other cases, companies are traditionalists and show reluctance to change. On the other hand, in relation to automating the sales process, it was found that they do not have something to support it, however, of the percentage that said yes to do it, they showed that they do it through various softwares, to facilitate the process;

An important finding was that a minimum percentage, located in the "other" answers, mentioned that they rely on a CRM, which according to its acronym in English Costumer Relatioship Management, is a business strategy that implies a change in the business model focused on the automated management of all points of contact with the client, whose objective is to attract, retain and make the client profitable by offering the same face through the centralized analysis of their data (García, 2001, p. 26).

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Finally, it is concluded that the surveyed companies are not totally open to automation, as it highlights what was detected through the recommendations they make to achieve better automation, that they have no interest in having an automated company, having someone to take care of it. to keep control of supplies, acquire new machines, seek government support, systematizing processes; which serves to investigate in the future if it is because they do not know the benefits of automation in a process of this nature or it is because it does not adhere to their needs.

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Inventory management in micro and small enterprises in Izúcar de Matamoros to determine general aspects of inventory management

Manejo de los inventarios en las Micro y Pequeñas Empresas de Izúcar de Matamoros para determinar aspectos generals

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Abstract

Inventories are the main reason to exist of commercial enterprises, because they are the items that will give income to entities. This paper shows a comparison of inventory management in the Micro and Small Enterprises among Izúcar de Matamoros City. This will allow to observe the different records and dealings that are made of these assets and their impact on certain financial ratios such as liquidity or acid test.

Inventories, Companies, Financial and control

Resumen

Los inventarios son las razón de ser de las empresas comerciales, debido a que son los artículos que darán los ingresos a las entidades, el presente trabajo muestra un comparativo del manejo de los inventarios en las Micro y Pequeñas Empresas entre Izúcar de Matamoros, lo anterior para observar los diferentes registros y manejos que se hagan de dichos activos así como su impacto en algunas razones financieras como la de liquidez o prueba del ácido.

Inventarios, Empresas, Financiero, control

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Introduction

Micro and small enterprises are very important in the economic growth of a country, but nevertheless they face internal and external problems, which often prevent them from carrying out processes that strengthen them and in turn increase their income, and although they often fail to impress due to their low production capacity, their success is uncertain and their impact is unexpected, they are a great opportunity for employment and the creation of new services and products that help the economy of the countries.

Sanchez, Osorio and Baena (2007) state that: "It cannot be ignored that small and medium-sized enterprises are a fundamental factor in the generation of employment and growth. It is undeniable that SMEs are the business segment that faces the most obstacles to their development and one of these obstacles is financing, especially long-term financing, since it is with this that investment and business growth can be supported".

The world's economies are focusing their attention on the development and protection of micro and small enterprises, as they have been identified as a sector that in recent years has been increasingly contributing more and more points to the GDP of countries, regardless of their level of development. (Velásquez, 2004)

Within micro and small companies, inventory management represents one of the solutions to the many problems that the administration of any company has; these are a way of avoiding shortages and in an SME it must provide materials or services at any time.

Chiavenato (1993) states: "Stock is the composition of materials that are not used momentarily in the company, but which need to exist in terms of future needs".

Classification of MSMEs in Mexico

Tamaño	Sector	Rango de número de trabajadores	Rango de monto de ventas anuales (mdp)	Tope máximo combinado*
Micro	Todas	Hasta 10	Hasta $4	4.6
Pequeña	Comercio	Desde 11 hasta 30	Desde $4.01 hasta $100	93
	Industria y Servicios	Desde 11 hasta 50	Desde $4.01 hasta $100	95
Mediana	Comercio	Desde 31 hasta 100	Desde $100.01 hasta $250	235
	Servicios	Desde 51 hasta 100		
	Industria	Desde 51 hasta 250	Desde $100.01 hasta $250	250

Table 1 Classification of MSMEs in Mexico

Inventory

Policies for managing inventories must be formulated jointly by the sales, production and sales areas. These policies consist mainly of setting parameters for the control of this investment, by establishing maximum inventory levels that produce acceptable and constant turnover rates. The maximum levels are set in days of production or sales that are deemed appropriate according to the very drastic seasonal circumstances.

The determination of the level of inventories by calculating through the days of production or sale deemed necessary to keep in stock under normal circumstances must be very well studied, since excess inventories translate into non-productive investment and lack of them. The latter is undoubtedly more serious, but both undermine the profitability of the company. Any significant variation in inventory levels must be for justifiable reasons and of a temporary nature.

The above policy is effective in countries where, although there is a significant rate of inflation, it does not reach an alarming level. When the inflation rate considerably exceeds the cost of money in the local market, a shortage of raw materials usually appears as a natural consequence, and both facts cause the inflation rate to soar. When the critical situation described above exists, the market in general becomes unsettled and the main problem for the manager is the supply of raw materials in order to meet production, sales and profits.

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What in normal situations can be obtained without difficulty and at stable prices, under these circumstances one has to search for available stocks in the market and pay prices at the suppliers' discretion. For natural reason, under the circumstances described above, overinvestment in inventories is a protection from an economic point of view, and it is the objective of all companies to increase their inventories as much as possible in order to minimise the harmful effect of accelerating inflation. Taking the above into consideration, the management of the company should keep a close eye on which of the above alternatives to follow, and as a rule of thumb, if the cost of capital exceeds the cost of capital, the choice should be to increase the investment in inventories.

Another alternative to reduce inventory investment is to reduce the number of raw materials, packaging and labels used in production. This alternative should be studied jointly with the technical or laboratory, marketing or sales and manufacturing departments. The results obtained in most cases are surprising, because there was a general lack of standardisation and congruent procurement policies to maximise investment.

This same alternative should be applied to the product lines that are sold, eliminating all those that do not have an appropriate volume and do not have a specific reason to exist, such as image, service, etc. To do this, it is necessary to carry out a study to find out the composition of sales. In many cases, an 80-20 composition is found, which means that 80% of sales are made with 20% of the products and 20% of the remaining sales are made with 80% of the products. Such a combination has to be examined in order to try to reduce the number of products to be manufactured or sold, which would lead to a significant decrease in investment and also to a non-proportional initial drop in sales, which would lead to an improvement in the productivity of the investment. Inventories represent investments earmarked for sale or production for subsequent sale. Thus, for example, raw materials, packaging, work-in-process, finished goods, spare parts and indirect production materials that are consumed within the normal operating cycle.

The valuation rule for inventories is the acquisition or production cost when this is lower than the market cost, the latter being understood as the replacement cost.

Cost may be determined in accordance with the system and method selected by the particular enterprise taking into account its characteristics, and since these may significantly influence the investment of inventories and the results of operations, professional judgement should be exercised. Systems and methods should be applied consistently unless there are changes in the original conditions, in which case they should be disclosed in the financial statements.

Absorptive cost or direct or marginal cost valuation systems may be used and may be operated on a historical and predetermined cost basis, provided that the latter is similar to historical cost under normal manufacturing conditions.

Inventories may be valued using the identified cost, average cost, first-in-first-out (FIFO), last-in-first-out (LIFO) and retail methods. Inventories that are obsolete, damaged or slow-moving should be valued at realisable value.

In times of high inflation, which may be considered to be in the single digits, the effects of inflation must be recognised in the financial information and the valuation method changes to market value, which is the replacement cost that would be incurred to acquire or produce the same item. This cost may not be higher than the realisable value.

There are two possibilities for updating inventories: the method of adjustments for changes in the general price level and the method of updating specific costs. The choice is made between the two methods, whichever provides the most realistic information.

The general price-level adjustment method updates the historical cost of inventories to pesos of current purchasing power of money by applying a factor derived from the National Consumer Price Index. This means that inventories are still valued at historical cost, updated by the loss of purchasing power of the currency as measured by the general price level.

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The specific cost restatement method (repealed in 1997)1' determines the replacement value by applying one of the following methods when these are representative of the market:

a. PEPS method, first-in-first-out method, whereby the inventory would be valued at the last purchases. This method updates the inventory but not the cost of sales;
b. Valuation at the price of the last purchase made during the period;
c. At standard cost when this is representative of replacement cost;
d. At replacement cost when this is basically different from the last purchase of the period;
e. Through specific indexes for inventories issued by an institution of recognised prestige, or indexes developed by the company itself based on technical studies.

The difference from the inventory restatement should not be considered as a gain (or loss), but is recorded in a suspense account that will be used to restate shareholders' equity (see Part II, Section 5, Method used in Mexico to recognise the effects of inflation on financial information).

The restatement method of adjusting for changes in the general price level allows the option of using replacement costs to recognise the effects of inflation on inventories and cost of sales. It is advisable that the investment in inventories be presented in the statement of financial position analysed by the various classifications in relation to their stage of processing, i.e. goods in transit, raw materials, work in process and finished goods.

In the case of inventories that are intended for construction or in any way are intended as a non-current asset, they should be excluded from this group and shown as non-current. Because of the alternative procedures that may be used for the valuation of inventories, it is necessary to indicate the valuation system used. For example: direct cost, absorbed cost, lower of cost or market; the method of valuation, average cost, first-in-first-out, last-in-first-out, etc., should also be indicated.

When the valuation system is direct cost, the statement of income and expenses should highlight the amount of fixed production expenses generated in the period, and the cost of sales should include the direct cost of sales plus variable distribution and selling costs in order to show the result of the marginal profit or (loss).

In the case of inventories restated to market values, the method and procedure followed as well as the historical cost of the inventory should be disclosed. Only inventories owned by the enterprise should be included in this item, excluding goods received on consignment or others to which the enterprise has no ownership rights. The amount may be shown either as a net figure, or by stating the original value and deducting it from an amount that results in the lower of cost or market valuation, as appropriate.

Where inventories are pledged as security for an obligation, as in the case of a loan, this should generally be disclosed by means of a note and at the same time referenced in the corresponding liability.

Financial Reporting

Analysis and Interpretation Techniques

General

Financial statements provide information that must be analysed and interpreted in order to understand the enterprise better and to manage it more efficiently.

The manager should always keep these questions in mind:

"Do I manage my company well?" "How does my company compare with others in terms of performance and growth?" These questions can be answered if the technique of analysis involving the study of trends and cause and effect relationships between the elements that make up the financial structure of the company is applied. This technique should by no means be considered as a substitute for judgement and sound judgement; however, it is a very useful tool that serves the manager as a basis for decision making and to assist him in many of the decisions that he makes intuitively because he lacks this information.

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The aim of analytical methods is to simplify and reduce the data being examined into more understandable terms so that it can be interpreted and made meaningful.

The focus of the analytical technique may vary depending on whether it is applied by an analyst external to the company, who will most likely be looking for the desirability of investing or extending credit to the business, or by an internal analyst, who will be looking for management efficiency and to explain significant changes in the financial structure and the progress of the results achieved compared to what was planned.

The methods of analysis used in financial statements comprise simple ratio methods, standard ratios, reduction method to integral percentages and index numbers, increase/decrease method, trend method and graphical methods. The statement of changes in financial position is an important tool in financial analysis and, as noted in Part 1, Section 5 of this book, is intended to analyse, select, classify and summarise changes in the entity's financial structure during a period.

The statement of net resources generated and their financing allows to know the generation of internal funds in the company in a pure form per se, without mixing other factors that distort the information of what the business represents, as pointed out in section 6 of part 1. It also allows to know the changes in the structure of the company, the behaviour of the financial cycles in the short and long term, as well as to determine the quality of the profit, as pointed out in sections 5 and 6 of this same part.

It is also useful to use the break-even technique to understand mainly the various alternatives that the management of a company must consider, in order to select the most convenient one and decide why, how and when it should be implemented. In order to properly assess the financial situation and productivity of a business, it is not enough to analyse internal data. It is necessary to complement the analysis with knowledge of the environment in which the company operates, such as market conditions, location of the company with respect to sources of supply of raw materials, labour, communication routes, political and tax conditions, etc., which definitely have a great influence on the company.

It is highly recommended, for easier handling and interpretation of the information, that the figures in the financial statements are reduced to thousands or millions of pesos, depending on their importance, in order to leave meaningful information. This simplification does not interfere with the derivation of ratios, percentages and comparisons because the relationships remain unchanged.

Severe ratio or acid test

The difference between current assets and inventories is known as quick assets and also as immediately realisable assets. It is the company's sufficiency or insufficiency to cover its short-term liabilities, i.e. the ratio represents the company's immediate solvency index.

This ratio is used in practice to determine the adequacy or inadequacy of the company to cover its short-term obligations. The practical ratio accepted in most cases is 1 to 1, i.e., for every $1.00 of short-term obligations (quick liabilities), the company must have at least $1.00 of quick assets, in other words, a company's inventories must have a maximum cost equal to its current liabilities.

Inventory turnover ratio

This ratio indicates the speed of the company in making sales, as well as the speed of consumption of materials or raw materials and the speed of production.

It is applied to determine the efficiency of sales; also to budget the purchases of merchandise in commercial companies and of materials or raw materials in industrial companies; also to know how many days the materials remain in the warehouses before passing to the production department; how many days the materials remain in the machines before being transformed into finished products and how many days the finished products remain in the warehouses before being sold, all of the above applying the average periods of consumption, production and sales.

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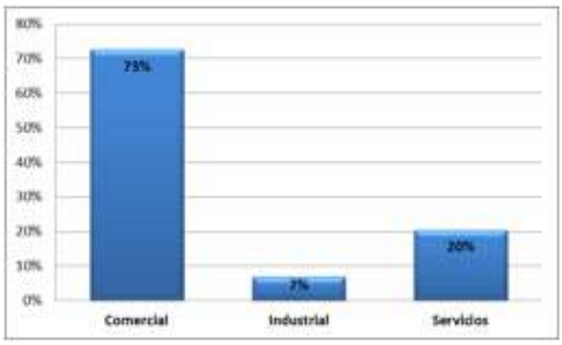
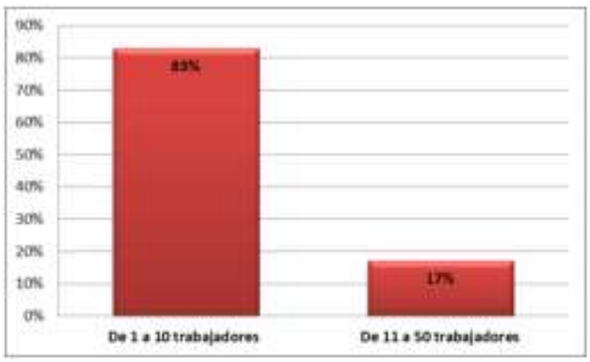
Results

Sector of the companies surveyed



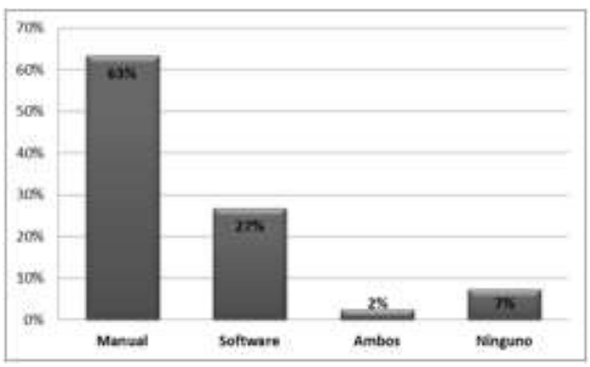
Graph 1 Sector

Number of workers



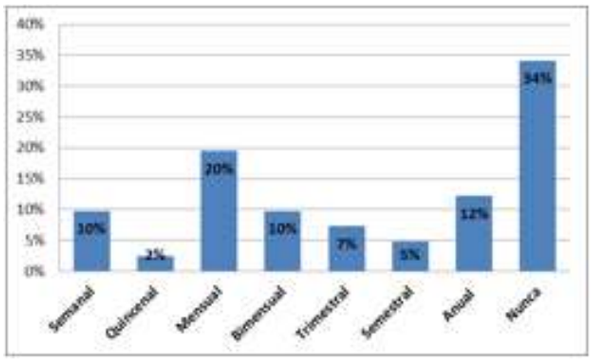
Graph 2 Proportion of workers

Means of inventory control



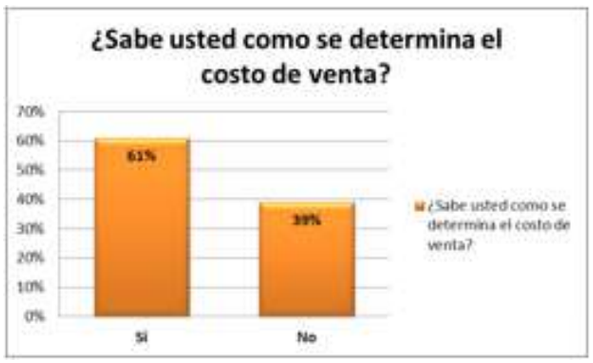
Graph 3 Proportion for inventory control

Inventory Taking Periodicity



Graph 4 Periodicity of physical inventories

Determination of cost of sales



Graph 5 Obtaining cost of sales

Inventory risk factors

The MSMEs in Izúcar de Matamoros consider that among the main risks that exist, deterioration is the first, with 67% of the total responses, followed by obsolescence with 58%. On the other hand, shrinkage and deficit, with 17% each, are the lowest risks according to the companies surveyed.

Graph 6 Risk factors

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Conclusions

150 surveys were applied in MSMEs in the Izúcar de Matamoros region, starting by asking about the organisation's line of business or activity, and from there different types of questions were used to detect the way in which inventories are recorded, the periodicity and risk factors.

With the above, it was possible to identify the needs of entrepreneurs in the region, since most of them do not have a solid basis for inventory control, nor a manual for its registration, since most of them do everything they apply within the organisation in an empirical way.

In order to obtain the needs, a series of workshops were held and an inventory manual was given to the participating entrepreneurs so that they could improve their records and control of their goods.

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What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

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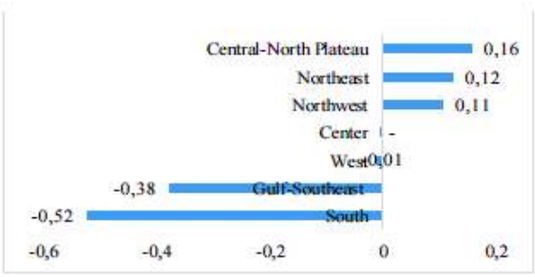

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2. Northeast.	Coahuila; Nuevo León; Tamaulipas.	15.1%	9.3%	15.6%
3.Center North Plateau.	Aguascalientes; Durango; Guanajuato; San Luis Potosí; Zacatecas.	15.1%	10.9%	9.2%
4. West.	Colima; Jalisco; Michoacán; Nayarit.	8.7%	11.9%	10.2%
5. Center.	Distrito Federal; Hidalgo; México; Morelos; Puebla; Querétaro; Tlaxcala.	5.1%	33.7%	34.8%
6. South.	Chiapas; Guerrero; Oaxaca.	11.8%	10.0%	4.7%
7. Southeast Gulf.	Campeche; Quintana Roo; Tabasco; Veracruz; Yucatán.	12.1%	12.4%	13.0%
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