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RINOE Journal-Financial Economy

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Support the international scientific community in its written production Science, Technology and Innovation in the Field of Social Sciences, in Subdisciplines of General financial markets: Portfolio choice, Asset pricing, Contingent pricing, Futures pricing, Information and market efficiency, Event studies, International financial markets, Government policy and regulation; Financial institutions and services: Banks, Other depository institutions, Mortgages, Insurance, Insurance companies, Pension funds, Other private Financial Institutions, Investment banking, Venture capital, Brokerage, Government policy and regulation; Corporate finance and governance: Capital budgeting, Investment policy, Financing policy, Capital and ownership structure, Bankruptcy; Liquidation, Mergers, Acquisitions, Restructuring, Corporate governance, Payout policy, Government policy and regulation.

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Presentation of the Content

In the first article we present, *Financial education among University students* by ZAPATA-AGUILAR, José Apolinar, with adscription in the Universidad Tecnológica Metropolitana, as following article we present, *The digital marketing: The technological response to Nayarit's tourism challenges* by RAMÍREZ-JIMÉNEZ, Armando, CARRILLO-BELTRÁN, Julio César Cuauhtémoc, ENCISO-ARÁMBULA, Rosalva and MEJÍA-SALAZAR, Gilberto, with adscription in the Universidad Autónoma de Nayarit, as following article we present, *Financial evaluation for the solar heater prototype made with recycled tire rubber* by AGUILAR-PÉREZ, Silvia Madai & AGUILAR-PÉREZ, Esmeralda, with adscription in the Universidad del Valle de México, México and Tecnológico Nacional de México campus San Martín Texmelucan, as the last article we present, *Interpretation of Results for decision making of the Market Impact study economic in the MSMEs of the Municipality of Francisco I. Madero, Hidalgo, Mexico*, by ANGELES-GUILLERMO, Elizabeth, HERNÁNDEZ-GÓMEZ Diana, CRUZ SÁNCHEZ Eduardo and TREJO-ENCARNACIÓN, Patricia, with adscription in the Universidad Politécnica de Francisco I. Madero.

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Financial education among University students

Educación Financiera entre Universitarios: Ahorro y Crédito

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Abstract

Financial education is one the driving factors of the economy, so its attention must be a priority. The present research study investigates the knowledge that a sample of university students from a Higher Education Institution in the city of Merida, Yucatan, Mexico has regarding the variables savings and credit. The research was descriptive, with a non-experimental cross-sectional design, in which the survey was used as a means of collecting information, with a 25 item questionnaire. It was found that both men and women reported knowledge about what savings, is however, it was men who demonstrated greater knowledge about what credit is compared to women, as well as a general interest among university students, both men as women, to continue educating themselves in savings and credit, to make better financial decisions.

Economy, Finance, Education

Resumen

La educación financiera es uno de los factores de impulso de la economía, por lo que su atención debe ser prioritaria. El presente estudio de investigación indaga sobre el conocimiento que posee una muestra de universitarios de una Institución de Educación Superior de la ciudad de Mérida, Yucatán, México respecto a las variables ahorro y crédito. La investigación fue descriptiva, de diseño no experimental transversal, en la que se utilizó la encuesta como medio de recolección de información, con un cuestionario de 25 ítems. Se encontró que tanto los hombres como las mujeres reportaron conocimiento sobre lo que es ahorro, no obstante, fueron los hombres quienes demostraron un mayor conocimiento sobre lo que es el crédito en comparación con las mujeres, así como un interés generalizado entre los universitarios tanto hombres como mujeres, por continuar instruyéndose en ahorro y crédito, para tomar mejores decisiones financieras.

Economía, Finanzas, Educación

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Introduction

Financial education throughout history has demonstrated its effectiveness, because countries that have provided it to their citizens from an early age have reported better results in economic matters, compared to those that have not, because when a person has financial education, he or she is expected to make better decisions that allow him or her to protect his or her assets and achieve economic stability.

Camargo (2016) points out that education should prepare people for life, teach them to give importance to things, injecting motivation that leads people to use, transform and improve that knowledge.

Financial education enables people to strengthen their financial literacy to better manage their resources (OECD, 2013, p.11).

Financial education is not a set of concepts that are difficult to assimilate, but a lifelong learning process, where the best way to acquire it is little by little, starting at an early age (Domínguez, 2013).

The relevance of financial education is the fact that it allows people to make more informed decisions in order to achieve better benefits (Anderson, Peña and López, 2020, p. 2). Making the right financial decisions not only provides people with present well-being, but also gives them financial certainty to face the constantly changing environment.

Financial education is a set of steps that should be followed throughout life, where although they should be considered as part of formal education, they could also be complemented by additional training without conflict (Domínguez, 2013, p.73).

Empowering people with financial decision-making skills enables them to have access to better income, promotes savings and improves the quality of life in society (Calderón, 2018, p. 46).

The aim of this research study is to identify the knowledge of a sample of university students regarding savings and credit, through a survey, in order to find out their level of financial education on the aforementioned topics.

Financial education covers a range of concepts, but the study will focus on savings and credit. The research was conducted among a sample of university students from a private higher education institution located in the city of Mérida, Yucatán, Mexico, both men and women were randomly selected.

Theoretical framework

Financial inclusion has been one of the main objectives of the financial system, and all strategies are aimed at the inclusion of society; any life project of any kind only fulfils its objectives if it is accompanied by financial resources. The lack of financial resources has generated serious problems of a personal and social nature, causing economic problems and, in turn, the loss of its dynamism. Non-payment of obligations resulting from the misuse of financial resources and their deficient use in a correct economic context has contributed to a process of exclusion of the individual, disqualifying them from accessing formal credit and increasing its cost (Calderón, 2018).

For their part, Anderson, Peña and López (2020) state that "financial education has become relevant both internationally and nationally, due to the benefits it implies not only at the individual level but also for the economy in general".

Pérez and Fonseca (2017) addressed the relationship between financial inclusion and poverty at the municipal level in Mexico using data from 2010. The analysis was based on a spatial regression model that included as variables: population density, illiteracy rate, population employed in the primary sector, rurality, distance of the municipality from the regional economic centre, and the municipal financial inclusion index. They concluded that there is a negative and significant relationship between financial inclusion and municipal poverty.

While Bruhn and Love (2014) analysed the impact of access to finance on poverty; the role of finance in the labour market and very specifically the opening of a new bank targeting low-income people. They applied a difference-in-differences regression to compare municipal data before and after the opening of Banco Azteca. The data come from the National Employment Survey and the CNBV from 2000 to 2004.

They found that the share of informal businesses increased by 7.6 percent and overall employment increased by approximately 1.4 percent with the opening of Banco Azteca.

An increase in income of 7 per cent was observed in those municipalities where formal banking services were not available. They concluded that improving access to financial services for low-income households had a significant impact on both labour market and income levels.

Bozkurt, Karakus and Yildiz (2018) studied the factors influencing the level of financial inclusion in 120 countries for 2011 and 2014 using data from The World Bank Global Financial Inclusion Database. Using spatial regressions, they found that age, female population, unemployment, inequality in income distribution, tax burden and free trade were associated with a negative change in the financial inclusion index; while Muslim population, gross national income, education, internet usage, government integrity, government spending, monetary freedom, political stability and government effectiveness are statistically significant and associated with a positive change in the financial inclusion index. They also found that there is a process of convergence in financial inclusion among the countries analysed.

Savings

Savings is a portion of income that we decide not to spend during a given period. People generally do not spend all of their income for the following reasons: to meet unforeseen expenses or emergencies, to buy the goods and services of their choice, to invest and try to generate more wealth, or to help disadvantaged people (Ortega, Pino, Merino and Ledrado, n.d.).

It is important to mention that, according to the previous source, savings will be possible in those cases where income exceeds budgeted expenditure, hence the importance of having a budget that allows knowing the consumer's purchasing capacity, and based on the income obtained, having the possibility of allocating part of it to savings.

Saving is the habit of saving a part of our income to achieve a goal in the future or to create a fund that allows us to face an emergency.

Saving implies not consuming part of our income today in order to spend it in the future. As the purpose of saving is to achieve an upcoming goal or to face an emergency, we need to have those resources available and protected (CONDUSEF, n.d.).

Credit

"Credit is the amount for which there is a specific repayment obligation over a period of time, usually with interest. Credit is extended to finance consumption and investment expenditure and financial transactions" (OECD, 2013).

Credit is a loan of money that one party grants to another, with the commitment that, in the future, the borrower will repay the loan gradually (through instalments) or in a single payment and with an additional interest that compensates the lender for all the time he or she did not have the money (Educa, n.d.).

According to Rodríguez (2008), trade credit is a relatively little studied category in financial economics. It is a type of short-term, informal debt, the terms of which are generally not legally fixed. Thus, trade credit can be granted through formulas such as the deferral of payment of a transaction on goods or services that are the subject of typical company business, where the buyer acts as a borrower or seller as a lender.

Financial education is of great importance nowadays and offers an adequate accompaniment to the individual throughout his or her life cycle, not only in the process of financial accumulation but also in the process of de-accumulation, providing well-being and quality of life (Calderón, 2018).

Methodology

The research study is quantitative in approach. The research to be carried out will be descriptive. Descriptive studies seek to specify the properties, characteristics and profiles of people, groups, communities, processes, objects and any other phenomenon that is subjected to analysis (Hernández, Fernández and Baptista, 2014).

The research design will be non-experimental, i.e., time-based, and will be cross-sectional, as it is planned to approach a sample of university students on a single occasion.

For Hernández, Fernández and Baptista (2014), a research design is a plan or strategy conceived to obtain information that is desired in order to respond to the problem statement.

The survey is proposed as the information collection strategy for this research. According to García (n.d.), the survey is a technique that uses a set of standardised research procedures through which a series of data is collected and analysed from a sample of cases representative of the population to be explored.

As the data collection technique is the survey, the data collection instrument will be the questionnaire. For García, Alfaro, et al. (2006) the questionnaire should collect information on all the variables considered to be of interest in the research study.

Descriptive statistics will be used for data analysis. For Faraldo and Pateiro (2012) descriptive statistics is a set of numerical and graphical techniques to describe and analyse a group of data, without drawing conclusions about the population to which they belong.

Subjects of study: In the research study developed, the subjects of study will be men and women in an age range of 18 to 29 years who are studying a university education programme in the area of accounting, in a private university located in the city of Merida, Yucatan, Mexico. For Furmero, Guerrero and Quintana (2015) the subject is language and shapes a socio-cultural context that assumes the meaning of its existence as a contradiction that not everything is given, but is socially constructed through institutional environments and practices. It is assumed that the proposed age range is the average age of men and women studying for a bachelor's degree in Mexico.

The research population was the totality of students of a private Higher Education Institution, located in the city of Merida, Yucatan, Mexico, which has an enrolment of 510 students in two educational programmes at the undergraduate level. We worked only with the Bachelor's degree programme in accounting.

In this research study, a sample size was calculated considering a finite population with 95% confidence, a 6% estimation error, a 50% probability of success and a 50% probability of failure.

The formula used was as follows:

$$n = \frac{k^2 qpN}{e^2 (N-1)+k^2 pq} \tag{1}$$

Where:
n= Sample size.
K= Confidence level
p= Probability of success
q= Probability of failure
N= Size of the population or universe
e= Estimation error

$$n = \frac{(3.84)(0.50)(0.50)(510)}{((0.06 \times 0.06) (509) + (3.84) (0.50) (0.50))}$$

$$n = 489.60 / 2.7924 = 175 \text{ cuestionarios.}$$

The selection of the study subjects was through a simple random probability sample, which means that from the whole population any university student, male or female, in the established age range can be selected to participate as a study subject.

The research variables were:

Dependent variable	Independent variable	Indicators
Financial literacy	Men	Knowledge of Savings and Credit Education acquired on the subject Academic background Propensity for continuous education
Financial literacy	Women	Knowledge of Savings and Credit Education acquired on the subject Academic background Propensity for continuous education

Table 1 Research variables

- Independent variables: It will be men and women, since what is sought, is to measure the degree of financial education possessed by each sex.
- Dependent variables: It will be the financial education possessed by university men and women, in terms of their knowledge of savings and credit, instruction acquired on the subject, academic training in finance and their propensity to continue educating themselves on the subject.

The survey was chosen as the data collection technique, and consequently the data collection instrument was the questionnaire. The questionnaire was designed based on the information needs of the project.

The questionnaire was designed using Likert-type scaling, with 25 items divided into five sections: savings, credit, acquired instruction on the subject, academic training and propensity to educate oneself on the subject on an ongoing basis.

According to Hernández, Fernández and Batista (2014), validity is the degree to which an instrument measures the variable it is intended to measure. In this case, we resorted to expert validity, using two expert researchers in financial education, who reviewed and approved the instrument, after making adjustments to the one originally constructed.

Instrument reliability refers to the degree to which an instrument produces consistent and coherent results (Hernández, Fernández and Baptista, 2014). In this case, the database of the respondents' answers was taken and Cronbach's Alpha was applied as a statistical tool to test the reliability of the instrument using the following formula:

$$\infty = \frac{K}{K-1} \left(1 - \frac{(\sum vi)}{vt} \right)$$

Where:

∞ = Cronbach's Alpha

K = Number of items

Vi = Variance of each item

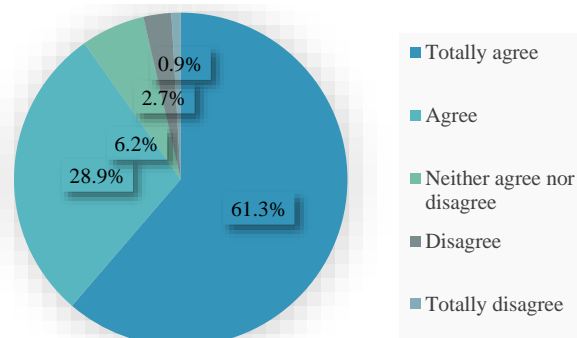
Vt = Total variance

A reliability of 0.86460332 was obtained, which allowed us to observe a high level of confidence in the instrument assessed, based on the responses obtained from the survey applied to university students. According to Mateo (2012) Cronbach's Alpha correlations between 0.8 and 1.0 are considered very high and consequently denote high levels of reliability in the instruments developed.

The questionnaire was applied to 175 university students, whose participation requirement was that they were currently enrolled in a higher education programme, i.e. that they were regular students in a higher education programme.

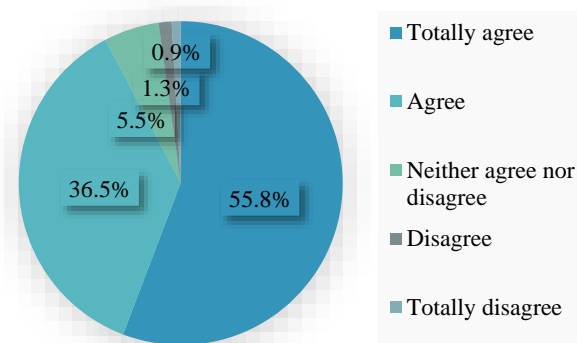
Results

Below are the graphs of the results, in which descriptive statistics were used to analyse the findings.



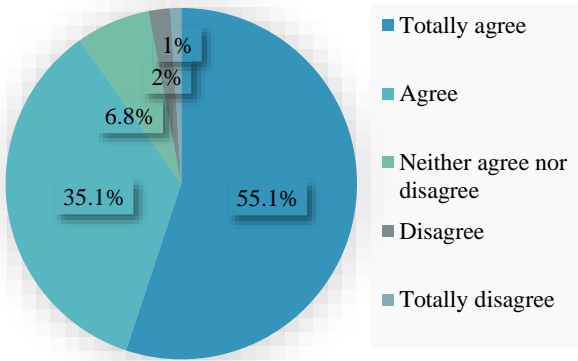
Graph 1 Saving is part of my income that I choose not to spend in order to keep it in reserve
Source: Own Elaboration (2022)

Analysis in interpretation: This statement is key to the study, as it clearly defines what savings is and respondents were expected to strongly agree or agree, with 90.2% of responses ranging from agree to strongly agree. This confirms that respondents are clear about what savings is.



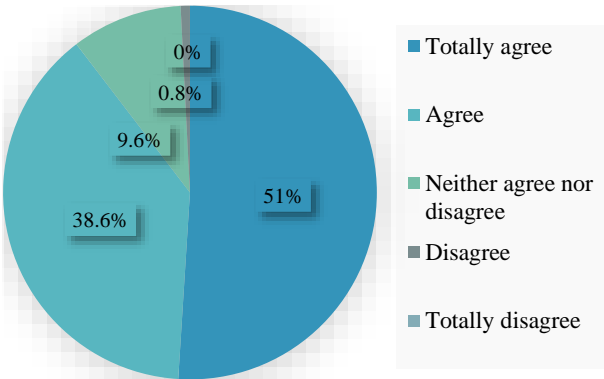
Graph 2 Saving is an amount of money that I keep for unforeseen events
Source: Own Elaboration (2022)

Analysis on interpretation: In this question, it was found that more than 90% of the respondents, use their savings to face unforeseen events, which demonstrates the value that respondents give to their savings, as a means to face moments of lack of liquidity.



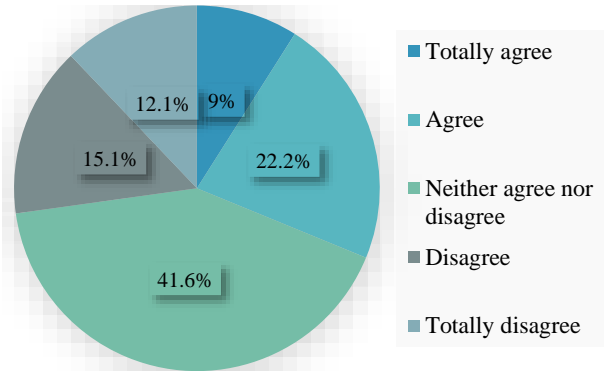
Graph 3 I save whenever I get the chance
Source: Own Elaboration (2022)

Analysis in interpretation: In this questioning, it was observed that more than 90% of the respondents give value to saving, and generate it whenever they can, as it will depend on their surplus income.



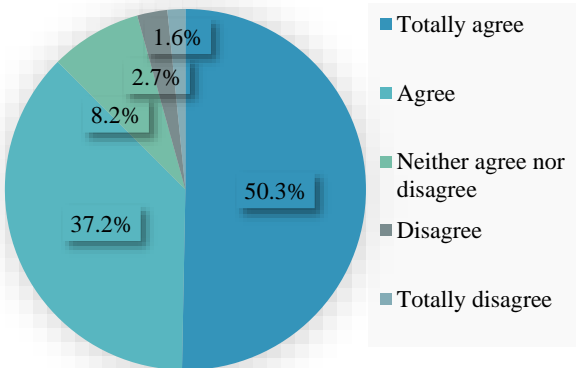
Graph 4 Saving enables me to achieve my personal goals
Source: Own Elaboration (2022)

Analysis in interpretation: In this item, it was sought to know the use that respondents usually give to their savings, the highest percentage of responses was expected, between agree and totally agree, confirming the use that respondents give to their savings, since 89.6% of respondents, responded to agree and totally agree with this argument.



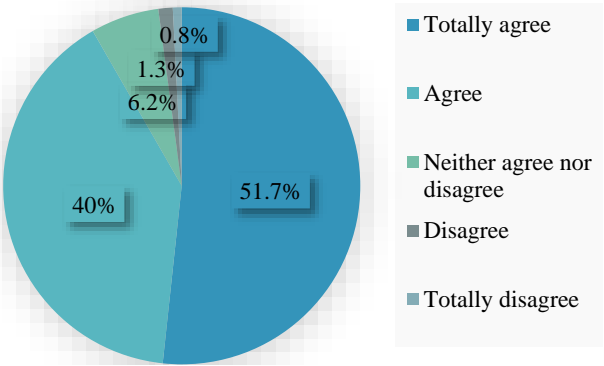
Graph 5 Tandas or mutual funds are the easiest way for me to save
Source: Own Elaboration (2022)

Analysis in interpretation: In this item, it was observed that batches or mutual funds are not the main strategy used by university students to save, as most of them, neither declined in favour, nor against.



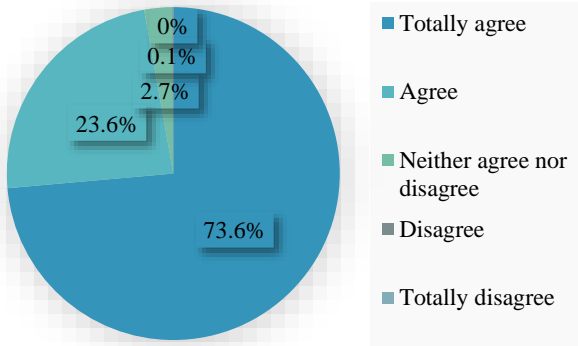
Graph 6 Credit is borrowed money that I have to pay back
Source: Own Elaboration (2022)

Analysis and interpretation: In this item clearly defines what a credit is, responses of agreement and total agreement were expected to confirm the knowledge that university students have about the variable credit. The results were conclusive, as 87.5% of respondents answered between agree and strongly agree, confirming their knowledge of the term studied.



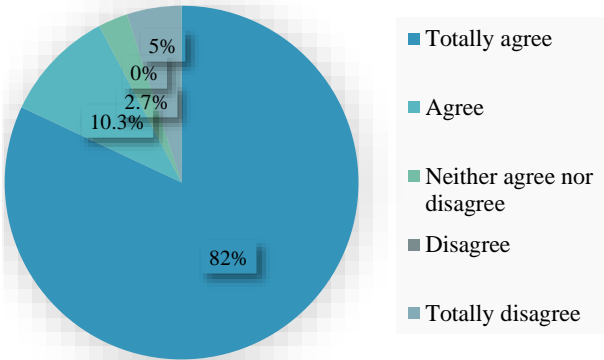
Graph 7 Credit has a cost that I have to pay called interest
Source: Own Elaboration (2022)

Analysis and interpretation: This item assesses a fundamental fact in credit which is the cost paid for it, called interest. It was essential for respondents to be clear about this term and they were questioned about it. It was found that 91.7% of the respondents were clear that credit has a cost, which is interest, and that it has to be paid in order to be able to use it.



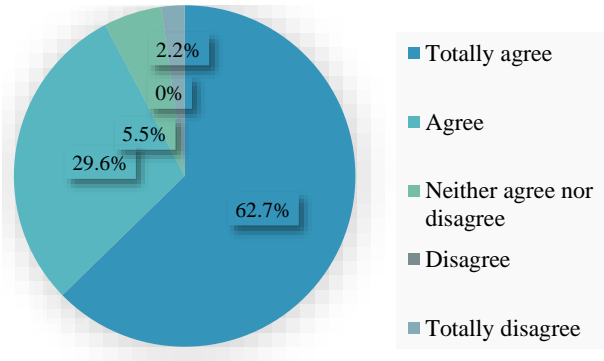
Graph 8 Before applying for a loan, I check that I can pay for it
Source: Own Elaboration (2022)

Analysis and interpretation: This item shows the level of responsibility of the respondents, as they are aware that in order to apply for a loan they must have sufficient liquidity to repay it.



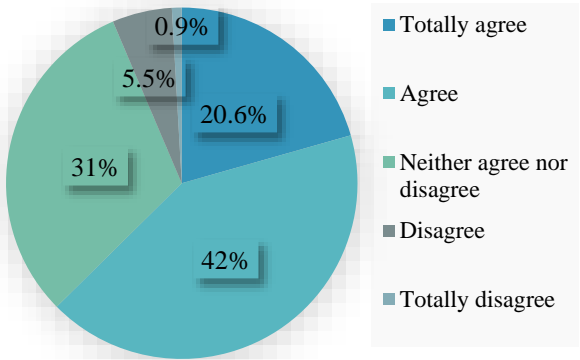
Graph 9 I currently have no debts in the credit bureau
Source: Own Elaboration (2022)

Analysis and interpretation: In this item we found financial health among the respondents, who affirm in more than 90%, not to be in the credit bureau, nor to be listed as clients with debts.



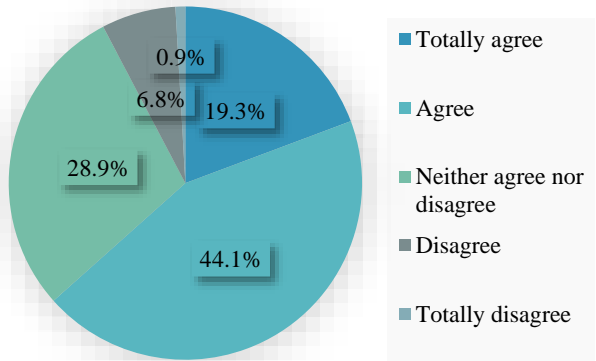
Graph 10 I am a good payer when I apply for a loan
Source: Own Elaboration (2022)

Analysis and interpretation: In this item more than 90% of the respondents, have a positive perception of themselves as good payers of credit, which speaks of a financial education oriented towards the responsible use of money, mainly when it is obtained by financing which implies a cost that has to be paid.



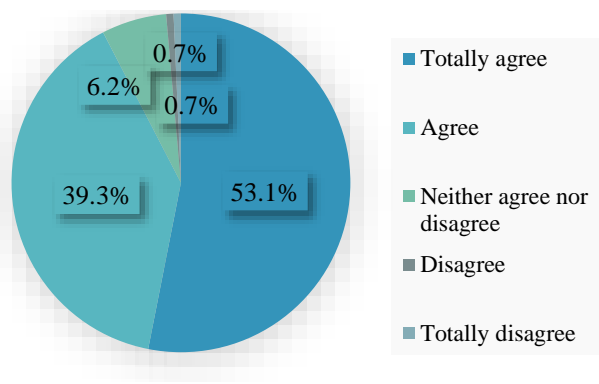
Graph 11 I make good financial decisions thanks to the knowledge I have about personal finance
Source: Own Elaboration (2022)

Analysis and interpretation: It was found that more than 60% of respondents consider that they make good financial decisions with their current financial education, which is expected to translate into good future personal finance decisions.



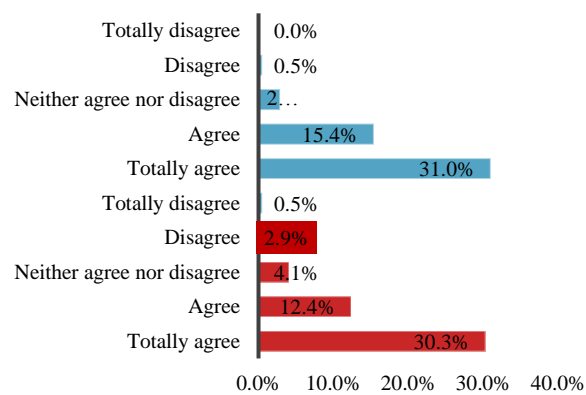
Graph 12 Possesses sound savings and credit knowledge
Source: Own Elaboration (2022)

Analysis and interpretation: It was found that more than 60% of the respondents consider that they have a solid knowledge of savings and credit, which allows answering the first research question posed in the study, confirming that most of the university students surveyed do have knowledge of savings and credit.



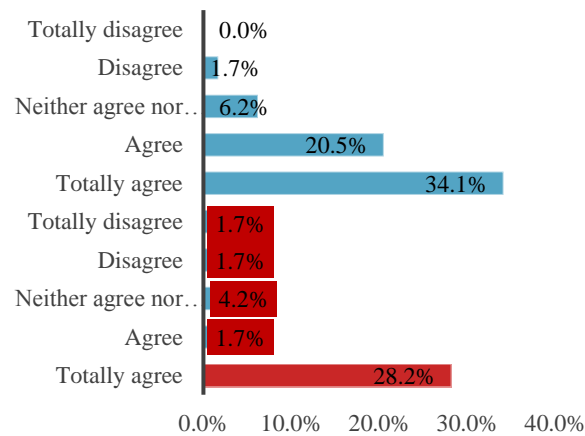
Graph 13 Desire to continue learning about personal finance
Source: Own Elaboration (2022)

Analysis and interpretation: It was very satisfying to find interest among the university students surveyed to continue preparing themselves in terms of financial education, since the economic success of future professionals will depend to a large extent on the right decisions they make regarding their personal finances.



Graph 14 Saving is part of my income that I choose not to spend in order to keep it in reserve (Comparison between male and female responses)
Source: Own Elaboration (2022)

Analysis and interpretation: We compared the responses of men and women on the first item, and found that it is men who report a greater knowledge of savings compared to women, whose responses were slightly below those of men. The red bars correspond to women and the blue bars to men.



Graph 15 Credit is borrowed money that I have to pay back (Comparison between men's and women's responses)
Source: Own Elaboration (2022)

Analysis and interpretation: We compared the responses of men and women on the sixth item, which assesses the respondents' knowledge of credit, and found that it is men who report greater knowledge of credit than women, whose responses were lower than those of men. The red bars correspond to women and the blue bars to men.

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Conclusions

It was significant to find, as a result of the research study, that the sample of university students surveyed showed a strong knowledge of the variables savings and credit, within the framework of financial education. The sample was made up of men and women in equal proportions, and it was found that it was the men, not the women, who demonstrated greater knowledge of the variables studied.

Another significant finding was the interest shown by the university students surveyed in continuing their education in personal finance, in order to learn how to use their economic resources as efficiently as possible, which will allow them not only to increase their wealth, but also to act responsibly in the financial decisions they make.

Although the Mexican Federal Government has mandated CONDUSEF to promote the annual Financial Education Week in Mexico, in which lectures and talks are offered to students at public universities, and today university students have access to a great deal of information on personal finance, this is not enough, so parents should become more involved in the topic to increase interest in the subject among their children.

Recommendations

It is recommended that the Federal Government

1. Increase the coverage of the Financial Education Week promoted by CONDUSEF at the basic level, so that students become familiar with the subject from an early age.
2. Increase the budget for Financial Education Week activities.
3. Incorporate compulsory workshops for university students, to increase their knowledge in the management of personal finances.

It is suggested that university students

1. Take financial education courses that are available.
2. Gradually enter the financial market with a savings account or credit card,
3. Plan their income and expenditure.
4. Be responsible in managing your personal finances.

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The digital marketing: The technological response to Nayarit's tourism challenges

El marketing digital: La respuesta tecnológica a los retos turísticos de Nayarit

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Abstract

This study highlights the importance of digital marketing in the revitalization of tourism in Nayarit. Digital marketing is essential to maintain competitiveness in a constantly evolving market and to adapt to the changing demands of modern tourism. The adoption of digital marketing strategies, widely used by major tourism companies, is crucial to remain relevant and appealing in the industry. The effectiveness of the Inbound methodology is emphasized, supported by a systematic review that attracts and fosters long-term relationships with tourists. It is imperative that tourism entities in Nayarit stay up to date with the latest trends and developments in digital marketing, in addition to providing continuous training to their staff. This will ensure that Nayarit continues to be a preferred destination for both domestic and international tourists. In summary, digital marketing is an essential strategic ally for the sustainable development of tourism in Nayarit. Its proper implementation, along with ongoing training for tourism personnel, will significantly contribute to maintaining the competitiveness and appeal of the region in the global market.

Sustainable development, Organizations, Perception

Resumen

Este estudio destaca la importancia del marketing digital en la revitalización del turismo en Nayarit. La mercadotecnia digital es esencial para mantener la competitividad en un mercado en constante evolución y adaptarse a las cambiantes demandas del turismo moderno. La adopción de estrategias de marketing digital, ampliamente utilizadas por grandes empresas turísticas, es crucial para mantenerse relevantes y atractivos en la industria. Se enfatiza la eficacia de la metodología Inbound, y apoyada en una revisión sistemática que atrae y fomenta relaciones a largo plazo con los turistas. Es imperativo que las entidades turísticas en Nayarit se mantengan actualizadas con las tendencias y desarrollos más recientes en el marketing digital, además de ofrecer capacitación continua a su personal. Esto garantizará que Nayarit siga siendo un destino preferido tanto para turistas nacionales como internacionales. En resumen, el marketing digital es un aliado estratégico esencial para el desarrollo sostenible del turismo en Nayarit. Su implementación adecuada, junto con la formación continua del personal turístico, contribuirá significativamente a mantener la competitividad y el atractivo de la región en el mercado global.

Desarrollo sustentable, Organizaciones, Percepción

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Introduction

Since 2019, the world has experienced significant changes due to the COVID-19 pandemic. This situation has generated repercussions in various sectors globally, generating unemployment, inflation and lack of job opportunities, with tourism in Nayarit being one of the most affected. The goal of this study is to highlight the fundamental role of digital marketing in the revitalisation of tourism in this state. Digital marketing, supported by social media and online platforms, offers effective and innovative strategies that seek to attract both national and international tourists.

This attraction translates into economic benefits, improved quality of life for the inhabitants, job creation and, as a consequence, a decrease in the levels of violence linked to unemployment. Nayarit is a jewel full of natural resources, whose potential has not been fully exploited. The term "marketing" has evolved and is now globally recognised as "digital marketing". This tool reaches various niches and market segments, allowing users, with just one click, to access services such as flights, accommodation, tour packages and promotions. Technological advancement and the adaptability of applications have proven to be crucial in the last five years. Given the importance of maintaining Nayarit as a leading national and international tourism destination, it is essential that tourism entities implement modern and up-to-date digital strategies. This descriptive, qualitative study suggests that it is imperative for tourism service providers in Nayarit to adopt digital marketing, a tool already consolidated among large tourism corporations. In conclusion, it is essential that tourism businesses in Nayarit constantly update themselves by offering continuous training to their staff in order to maintain Nayarit as a preferred destination for tourists.

Background

Economic development is an evaluation plan to assess how people live, their quality of life and possible solutions to problems. Countries with a sustainable economic development are usually among the world's leading economies and, as a result, they are those countries that, due to their good economic management, provide conditions that favour economic stability and have an indirect impact on the world as a whole.

Mexico's economy is made up of 32 states, which have the sovereignty and independence to choose the best strategies to achieve sustainable development and thus improve the economic quality of their state.

With respect to the state of Nayarit, the main problems or sectors affected by the economic development of the state and their impact will be mentioned during the development of this paper. The primary sectors in which the state of Nayarit generates economic sustenance for its inhabitants will also be discussed.

Nowadays, talking about the economy that the state of Nayarit represents for the Mexican Republic, it is in the last places of contribution to the gross domestic product of the nation, registering a drop of -11.45% in 2020 compared to 2019. This means that Nayarit has had no economic growth in these years. Nayarit is a state with a rich natural wealth and production opportunities in the areas of fishing, agriculture, livestock, agriculture and tourism, because it still cannot become a state with a first class economic development (Arreola, Madera Pacheco, & Pacheco Ladrón de Guevara, 2012). Development is a subject of study directly related to economic theory and history. It uses the tools of economic theory in the design of growth models, both descriptive and analytical, including econometric (Zermeño, 2004).

Economic development is the result of continuous and sustainable work to obtain more production and thus achieve greater welfare. In other words, it is aimed at reducing poverty levels and eradicating extreme poverty (Zuluaga, 2018). Felipe Zermeño mentions. "Recognising and examining the major obstacle facing the development of an economic system at a given moment constitutes the essential object of this subject and is the central theme of the different theories of development (Zermeño, 2004).

Studying tourism in the state of Nayarit inevitably leads us to the analysis of a series of regional disparities between the coastal zones of the state, but also of disparities within the same activity, a commitment to mass tourism to the detriment of local tourism, as well as the socio-environmental conflicts and impacts that continue to exist due to the bad practices that have existed for many years.

The state of Nayarit is undoubtedly a tourist destination that is now proudly recognised with great international importance as a result of the current national development plan, which has solidly and stably implemented the guidelines for the promotion and encouragement of tourist activity on the coasts.

In the last 15 years, the conditions that have promoted both national and international investments have been generated steadily, which has resulted in the generation of employment that has become the main engine of development involving the 20 municipalities of the entity.

Nayarit has been considered as part of the so-called golden triangle that includes Jalisco and Colima, and as a result of what began as the March to the Sea (César and Arnaiz, 2006). However, it is palpable that Nayarit's tourism activity has been effectively planned and promoted by the State Government both for its natural resources and for its tourism infrastructure and communication routes. During the term of office of former Governor Antonio Echevarría García (2017-2021), Compostela was incorporated into the Pueblos Mágicos programme in 2018; in September 2019, the State Tourism Strategy was announced, one of the objectives of which is the promotion of municipalities through gastronomy; in this sense, in October 2019, Nayarit Gastronomy was decreed as Intangible Cultural Heritage of the State of Nayarit.

It can be said that just 2 years ago, the rescue of the Island of Mexcaltitán began because the conditions were generated to promote more infrastructure, public lighting and the community has been very active in the promotion of tourism in Mexcaltitán, all of the above described in order to achieve the reincorporation to the program of Magical Towns, which fortunately was achieved on December 1, 2020. Now in the year 2022 the economic and touristic recovery has been noticed in the last months which has benefited the inhabitants of this region in a direct and indirect way in the quality of life due to the jobs that had been lost. Nayarit is an entity that represents less than 1 % of the national territory, and historically its population is less than 1 % of the national population and contributes less than 1 % of the GDP, but which, in tourism terms, received 2.5 % of the international tourists that arrived in the country in 2019.

Which maintained an average occupancy rate of 60.4 % in 2019, while the national average was 51.9 % and whose room offer represents 4.4 % of the national total (Data Tur, 2019b).

The lack of infrastructure in the entity has caused the problem of non-development in the state causing a problem with national or foreign investment, consequently, the local economy cannot concentrate and stay in the entity. Since the internet became very popular, traditional marketing had to adapt to the digital, thus creating digital marketing, which is a set of marketing strategies that are carried out in media and internet channels, which are constantly changing and improving thanks to technology. That is why digital marketing is very important for any business, whether small or large, because knowing the channels and the advantages they have, will help to make better strategies that give advantage in the market (Fontalba, 2017).

It uses new media to stand out on the internet and thus get more customers. Currently, social networks, blogs, email, among others, are widely used to create these strategies. Therefore, it could be said that it has evolved, as radio advertisements are now more common on the internet, to mention just one example (Fontalba, 2017). The tools available on the internet have been shaped, allowing to sell more and better. Thanks to this, it is possible to strengthen the relationship that the company has with customers, as well as saving money and being able to measure the results immediately (Flores, 2021).

On the other hand, this is a tool that has a great influence on certain groups of consumers or customers, in order to create loyalty and thus buy the product or service that the company wants. Thanks to the internet and the information that can be found, it is possible to get to know the tastes and needs of the public, which makes companies adapt their digital content and communication channels to use to create strategies and get customers, which previously could not be done so easily (Rendón, 2018).

Taking all this into account, consumers no longer need to travel long distances in order to have better information about the product or service they want to buy, which makes it easier to access.

Because of this, many people prefer to purchase their products online, due to the convenience that this represents, and they can even comment on it if the website allows it (Rendón, 2018).

It is for all this that digital marketing, currently and for some time now, has had a lot of influence in tourism and of course for the benefit of Nayarit society, since a large percentage of the population has access to the internet, so companies related to the tourism sector take advantage of it to sell more and easier in this 2022 that we are living in.

In Nayarit, the key strategic sectors are agro-industry and tourism services; and the future strategic sectors will be metal-mechanics, logistics services and medical services. According to figures from the National Institute of Statistics and Geography (INEGI), during 2014 Nayarit ranked 31st in terms of the value of its exports, which reached 112.6 million dollars, representing 0.03% at the national level. Economía, S. D. (2015). Therefore, an excellent digital tool being used by large companies and businesses related to tourism is marketing. Marketing consists of seeking to promote and serve markets (Fuentes, 2022).

Today's world is marked by dizzying changes and constant transformations in society. There are new lifestyles due to the era of knowledge and globalisation, in which more and more people have access to an exaggerated excess of information that is generated daily, therefore technology plays a very important role and its influence on the world is immeasurable. There are also a multiplicity of factors, leisure time has grown and has begun to fragment due to the changes in this new Post Pandemic reality, however, social and economic problems continue to increase, as well as permanent damage to the environment. Finally, the generation of profound changes in the basic values of society can be observed. According to the vision and perspective of tourism, new social values have been shaped, which have led to new emerging forms of tourism (Mazón, 2001).

This global situation demands equally rapid changes and actions on the part of tourism destination managers and agents. Transformations and adaptations to this new scenario are necessary as a *sine qua non* condition to remain in the market.

Thus, there are countless disciplines that can and must contribute knowledge and collaborate with their institutions and theories for new ways to create, plan, develop and manage tourism products and destinations. From the perspective of these different disciplines interacting with tourism, some have borrowed from business studies, such as marketing and strategic planning. In fact, these theories are also bound to evolve and their new contributions must be applied to the activities they have already influenced, as is the case of tourism.

Like other global markets, it is increasingly competitive and customer-centric (Yasin et al, 2004:20). Thus the importance of marketing, not only as the study of that market, but also as a philosophy, also becomes more present. Marketing has played an important role in the evolution of sales and marketing techniques, mainly in the sales-oriented times when the surplus of products in the global market needed to be traded to foster the development of capitalism and industrial growth. Before this stage, marketing had its orientation towards production, when the focus was on saving the means of production.

After the focus on sales, where many of the tools and techniques of promotion were developed, there was a great evolution. According to Milio Balanzá and Cabo Nadal (2003), the next focus of marketing was marketing itself and, from there, the subject specialised according to global needs, with the emergence of service marketing, internal marketing, city marketing, political marketing, sports marketing, etc., and even tourism marketing. Nowadays, the authors point the focus of marketing towards society, with very special considerations in the premises of sustainability and trying to build relationships with that society.

Theoretical framework

In order to try to understand the current definition of marketing, it is necessary to take into account that there are many concepts that try to define it and the ways in which the market in general applies it are varied. These concepts and models have evolved over time, as Miquel *et al* (1994:11) point out, after stating that marketing has evolved in parallel to the development of the market economy, acquiring new functions both in the economy as a whole and within companies or organisations.

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In other words, as well as the orientations of the subject itself, presented in the previous paragraph, today marketing is evolving towards relationships. According to one of the most prominent authors of marketing, Peter Drucker (quoted by OMT, 1998:289), its main challenge must be the customer, so it can be admitted that a certain form of selling is always necessary, but the aim of marketing is to make selling superfluous. In other words, the aim of marketing is to know and understand the customer so well that the product or service is naturally adapted to his needs and sells itself. Ideally, marketing management should lead to a customer who is willing to buy. All that needs to be done is to make the product available.

In a way, marketing can be seen as having sought answers to the questions posed by the global market in the wake of its transformations. Perhaps the most significant response has been "customer-focused", in a view that considers customers as people with well-defined needs rather than simply looking at the customer as a buyer of products. In fact, Bigné (1996) recognises the evolution of marketing towards such a positioning by pointing out that the current conception of marketing focuses on identifying and satisfying the value of consumers by focusing on the solution of their problems, so that products or services become vehicles for their solutions.

Still at the level of concept, Miquel *et al* (1994:01) define marketing by presenting both its application and its philosophical axis by pointing out that it is both a philosophy and a technique. As a philosophy it gives a specific character to all the activities carried out by the company or organisation; as a technique it implies the development and use of a series of marketing techniques or instruments, specifically elaborated for that purpose or 'rescued' from other disciplines and used to effectively develop marketing management.

The challenge of marketing as a philosophy, as well as the difficulty of conceptualising it in a unique way, is also presented by the WTO (1998:284). It is important to mention in this regard that a difficult situation exists because marketing affects the entire organisation as an activity that should be part of the activities of all those involved in research, development, design, production, finance, distribution, after-sales service and even the workforce.

Thus, marketing as a management philosophy should be transversal, that is, encompassing all departments and functions of an organisation. As Gándara (2003:162) points out, a better understanding of the concept of marketing makes more visible its evolution towards relationships, the profound changes that marketing has undergone and the importance of relationships given that the fundamental objective of commercial action is not only to obtain profits, but also to achieve the economic, social and cultural stability of a nation or a geographical region.

Milio and Nadal (2000). Relationship marketing, stating that it is a continuous process in which the sale is not considered the end of the relationship with the customer, but a series of post-sale activities to restart, reactivate or stay. It lives the customer's needs. In other words, relationship marketing means the continuous process of adding value to the product in the eyes of actual and potential customers who can and should consume the product again because they have had a positive experience that makes them feel compelled to repeat. To build relationships with customers, marketing is used as a philosophy that considers all phases of the customer experience. Bignet *et al.* (2000:26) agreed with the idea of marketing as a philosophy and pointed out that building lasting relationships involves relationship marketing, which involves attracting, maintaining and strengthening relationships with customers.

More generally, even with the emphasis on inclusiveness in marketing, Kotler *et al.* (1997:350) that the purpose of relationship marketing is to provide long-term value to customers in a way that requires the involvement of the whole of marketing.

Marketing is not just about advertising or selling, but involves a specific look at the four areas of a company's or organisation's business (product, price, distribution and communication). Therefore, decisions related to communication, even the most obvious ones, must be coordinated with other decisions. Philip Kotler (1997) and Bowen (1997) suggest that selling and advertising are marketing functions, but not the most important, as they also include product, price and distribution, as well as research, information systems and planning. Some organisations overlook the strategic role of marketing.

Their practice includes forms of communication/advertising, but it is different from simply addressing their actions. However, this does not mean that the scope of the discipline and its strategic dimensions are not fully understood (Clarke, 2005).

According to Elizagarete (2003) referring to city marketing, he points out that the error also occurs in other "targeted marketing", and mentions that often the use of city marketing is mistakenly considered an advertising campaign. According to the new challenges related to tourism demand, tourists are more aware, mature and active, facing more accessible destinations, with more spread out holiday time, but with higher family income for leisure (Beni, 2004; Cerveró et al, 2002; Middleton et al. al., 2001 ; WTO, 1999; Valls, 1996) In addition to considering sustainability, quality should be considered in the global context of the product, taking into account all the actors involved in the production process that modify the needs of the company tourism and society in general.

Regarding the need for these changes, Bigné (1996:108) points out that increased competition, greater attention to service quality, increased market research, segmentation and increasingly specific tourist behaviour, and therefore differentiation, allow us to think of slow and gradual changes in companies and management for marketing orientation. That way, you can't make changes if you don't know where you are; what are the strengths and weaknesses of your product and what are the strategic actions needed to adapt to this new environment. Once the product policy is developed, structured and published, all promotional/communication tools are implemented to inform and engage the target audience. Therefore, communication cannot be an isolated activity, as is often the case (Ruschmann, 2002).

But now it has to be taken into account that not only sun and sand, comfortable hotels or modern golf courses are sold, but also a wide range of tourist-oriented tours, consisting of global travel products. In the future, companies seeking to lead the travel market must consider that the next key to competition will be the planning and organisation of the experience (Beni 2004:41).

This highlights the importance of marketing as a philosophy that intervenes laterally in the development of destination marketing throughout the strategic process. Analysis of publications of the World Tourism Organisation on observations or findings on this issue; regarding the relationship between marketing and promotion and its relation to tourism product development, two versions were found, one positive and one negative. Books introducing development models or tourism research correctly reflect the relationship between discovery products and promotions, even paying special attention to the survival of the destination, indicating that proper product planning and marketing strategies can make the difference between achieving a competitive product or a mediocre one products that tend to disappear over time (UNWTO, 1998).

However, recent publications refer to the Evaluation of the promotional activities of NTOs which shows this ambiguity, after the organisation has used the term "marketing" in some cases and other campaigns without offering either of the concepts, i.e. as if they were synonyms. In fact, they used the word "advertising" on the cover of the book, and later on inside they introduced the purpose of the study, which was the origin of the book, to determine the scope of the evaluation of the marketing activities of NTOs (UNWTO, 2004: 63), a promotional concept of the title marketing. In the aforementioned publications, what is even more surprising is that the marketing mix, which is widely known and manifests itself as the four P's of product, price, distribution and promotion, is presented only with a campaign tool: in the fulfilment of the target, each component of the marketing mix is part of the individual effect, i.e. a relationship-breaking effect with media, advertising, brochures, websites and trade fairs. (OMT, 2004: 12).

Unplanned and inconsistent use of territorial resources, especially tourist destinations associated with the presence of special natural resources, which used to be widespread (WTO, 1998), are now generally no longer allowed, at least for those destinations where they want to stay. in the market. From the point of view of tourism destination marketing, the behaviour of the agents who control the investment and direct economic benefit of the activity (especially the government and the company as the main investor and/or beneficial opinion) should be highlighted. monitor).

RAMÍREZ-JIMÉNEZ, Armando, CARRILLO-BELTRÁN, Julio César Cuauhtémoc, ENCISO-ARÁMBULA, Rosalva and MEJÍA-SALAZAR, Gilberto. The digital marketing: The technological response to Nayarit's tourism challenges. Journal-Financial Economy. 2023

They must understand that promotion alone does not guarantee the long-term development of tourism. Destination marketing should not only promote the destination, but also respond to the needs of tourists and local communities. In general, the public and private sectors apply only a part of their marketing mix to tourism (communication) and do not pay much attention to other marketing components (Bigné et al., 2000: 32).

The above-mentioned change of activities requires a coalition of tourism planning forces, starting from the challenges of sustainable tourism and destination marketing in the context of tourism behaviour change. The UNWTO highlights this combination of effort and action (Quoted by Bigné et al., 2000:385). As for the purpose of planning, it has evolved over the years. Consequently, increasing attention is being paid to building synergies between tourism and the social, economic and environmental setting, rather than just the physical planning and promotion of tourism resources, in order to comprehensively consider the needs of businesses, tourists and the host community.

Fishkin and Hogenhaven (2013) conceptualise inbound marketing as actions that can be taken online to attract the attention of individuals and the public without general investment. Inbound marketing is inextricably linked to digital marketing and is defined as: Digital marketing consists of a number of elements or tools to reach consumers, but unlike traditional or traditional marketing, it is done with the help of the Internet, using the current changes and tools offered by large companies. mobile application, etc. In the context of marketing, use statements such as traditional marketing or 1.0 or digital marketing known as 2.0. According to Sanchez (2011) in his article Tourism 2.0. talks about a new model of tourism promotion with the use of new technologies to develop tourism promotion.

Currently we believe that applications for mobile devices are attracting attention and can offer several marketing and sales promotion opportunities for the industry. Here it is important to highlight a quote from the study we mentioned in the previous section on the preparation of the MMA (Mobile Marketing Association).

In terms of mobile applications, the most active this year was the telecommunications, automotive and travel industry. This investment is important to highlight the travel industry's efforts to develop new technologies. With examples such as TripAdvisor, Booking, YouTube, Facebook Places, Bluguía and others, they are seeing real growth and change in travel-level campaigns.

In his article for the magazine *Creatividad y Sociedad*, Pablo Garrido Pintado mentions that visitors use the Internet to search for information (forums, blogs, virtual communities, etc.), select information, contract services and, after enjoying them, share their experiences with other Internet users. It is a process of continuous feedback in which tourists become consumers and prohibit the use of the Internet as a means of enjoying services (Pintado, 2011).

Furthermore, Braga (2003) states that marketing is another axis of demand research as an element of tourism planning, since, according to the authors, the study of potential tourism demand in the main tourism distribution markets is often beneficial to implement tourism planning for sustainable development. In addition, the prediction of future tourism flows is another factor to be studied, taking into account the knowledge of consumption habits, motivation and socio-economic characteristics of tourism products. Therefore, the joint application of marketing and tourism planning is more reasonable, because the application of marketing foresees a more direct and continuous flow of tourists, while the planning work formulates the necessary public policies for the development of tourism.

The difficulties associated with combining the expertise of professionals from different fields to achieve a real and successful alliance of planning and marketing are well known. This is even more true for the different actors with their own specific objectives interacting in a tourism destination. In this context, it should also be kept in mind that the partnership should be based on the concept of sustainability, which is necessary for the development of tourism activities, which can lead the start of the long road towards the tourism of the future. Inbound marketing method.

Definition of marketing

The concept of marketing has evolved over time, and one of the most prominent trends is inbound marketing, which was developed by Brian Halligan and Dharmesh Shah. These innovators sought to create a marketing approach that differed from the traditional approach and adapted to the new reality emerging in the world. Their fundamental observation was that people were changing the way they lived, worked, shopped and spent, but businesses were not adjusting to these changes. With this premise in mind, they founded HubSpot in 2006 and gave birth to a vision for inbound marketing, developing the HubSpot platform as their key tool (HubSpot, 2019). Inbound marketing is based on a series of activities aimed at creating a valuable experience for businesses and their customers.

In the words of HubSpot (2019, p. 1), inbound marketing involves "attracting prospects and customers to your website through useful and relevant content. Once they are on your site, you interact with them through conversational tools, such as email and chat, and promise them long-term value. Finally, you delight them by positioning yourself as a consultant and expert who understands their needs and cares about their success.

Inbound marketing is more than just a methodology; it is also considered a marketing strategy. Its essence lies in engaging valuable and relevant customers at all stages of the buyer's journey (Samsing, 2018, p. 3). As Figure 1 shows, inbound marketing focuses on attracting individuals who are value creators in all aspects, from initial attraction to conversion and loyalty. According to Halligan and Shah in their book "Inbound Marketing: Using Google, Social Media and Blogs" (2010), the online world can be divided into three main areas (Castro & Mejía, 2016, cited in Halligan & Shah, 2010): Information searches through search engines, which in the past were mainly conducted through traditional media such as television, radio and newspapers, but have now moved to the digital environment. Blogs, which attract audiences seeking in-depth and detailed information through content published on blogs. Social networks such as Facebook, Twitter, LinkedIn and YouTube, which have become key platforms for the effective implementation of inbound marketing.

In short, inbound marketing is a strategy and methodology that focuses on attracting, engaging and delighting customers throughout their journey, making the most of the opportunities offered by the digital world and social networks to create valuable and long-lasting customer relationships (HubSpot, 2019).

Methodology

The present research has been developed mainly with a qualitative approach, both narrative and descriptive type generating a new perspective from a subjective point of view, analysing through logical reasoning a series of comparatives that lead to a discernment of the most relevant about the use of digital marketing as an effective tool to reactivate tourism in Nayarit. At the same time, the research is also of an exploratory type, since during the development of the research, a systematic literature review of various scientific articles in English and Spanish on this topic was carried out using the following scientific databases: Direct Science, Emerald, Scopus, Scielo, Redalyc, Google Scholar. Likewise, for this article, search criteria were applied based on search engines or descriptors, achieving the best results with high impact articles.

Inbound marketing methodology

Inbound marketing methodology is based on carrying out certain actions to connect the segment with the company. These steps are summarised in the following four basic steps to create inbound marketing, which are designed as methods to attract, convert, sell and build loyalty as described and defined as follows:



Figure 1 Inbound Marketing Methodology as cited in Samsing (2018)

1. **Attract.** It is difficult for a small company just starting out to attract customers, the main factor is positioning, positioning in a tourism event means not only the domestic segment, but also the foreign segment, which makes it a bit difficult for sales and correct segmentation generate traffic, you need to use different resources like content marketing, SEO techniques, social media, PPC, etc. It is important that you follow a strategic plan to get results. Inbound marketing allows you to create direct linking tools for landing pages or web pages.
2. **Convert.** Once you acquire a lead, you must commit to a content marketing strategy that focuses on what that lead is looking for and try to take action to convert them into leads. "Once you have successfully attracted visitors to your website, the next step is to convert them into leads. It's important to know how to convert leads, because if you get it wrong, you can introduce unwanted customers who will waste critical time and resources, as well as annoy users in your network.
3. **Close.** Once those leads are selected and interested in your product, move to the end of the sale and not only send information, but once you have a database, manage records, connect them to CRM or automation and lead nurturing tools integration. This is how you create an automated content flow. You must be consistent with your leads and nurture them through marketing automation, which can be done through a myriad of digital tools to do.
4. **Delight.** Once the sale is made, it is imperative to continue to build loyalty and encourage customers to recommend the brand using digital tools to gain more marketing power and create real value for your business. Once you have customers, you must keep them. At this stage, you must satisfy them, provide them with useful and interesting information and nurture potential prescribers to convert sales into referrals.

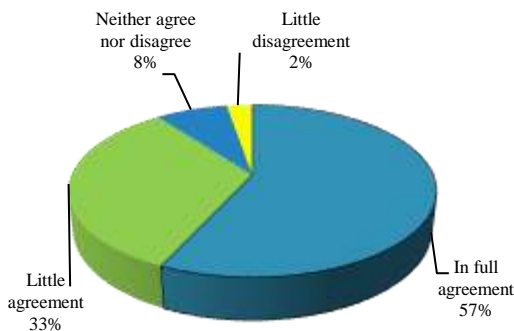
The application of inbound marketing is dynamic, because it started as a simple idea to attract and idealise using social media and the internet, but over time, large global companies providing services are applying it and doing it. Human purpose is a whole philosophy, they even consider it a science. From a business perspective, attitude reflects the growth of your business, and satisfied customers are the driving force behind growth (HubSpot, 2019). Any strategy that will benefit the company is obvious, new strategies adopted and strategies that create great value globally are very possible and applicable, for example, in this case, Bolivia is not yet so immersed in digital marketing and e-commerce. Among travel partners, they form different market segments, such as B2B, because travel itself is a multifaceted intermediation activity. This approach has created a strategy that can be used in any campaign. The traditional way of marketing, offering products through phone calls, countless emails and large advertising campaigns on radio, television and billboards, is considered an unpleasant way to reach customers.

However, as Moreno (2015) mentions, the Internet has brought some changes not only in terms of consumers but also in the way of marketing, be it blogging, viral creation or online content creation. This gave rise to the definition of digital inbound marketing (Opreana & Vinerean, 2015). Consumers are tired of receiving hundreds of emails every day with advertisements offering various products and, along with changes in technology, these emails have forced companies to change their marketing vision. To this end, they propose digital inbound marketing as a new conceptual term for online marketing and explain it as follows: Digital inbound marketing is the process of reaching and converting qualified customers by creating and practising an organic strategy in an online setting (p. 30).

Analysis of results

As a technique of data collection was done through a Google Forms form randomly directed to students of the Bachelor's Degree in Marketing of different semesters of the morning shift ranging between men and women with a total sample of 87 students of the Academic Unit of Accounting and Administration of the Autonomous University of Nayarit in order to know their perception on this research topic resulting as follows:

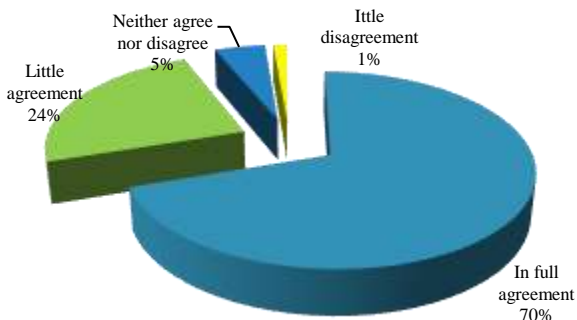
RAMÍREZ-JIMÉNEZ, Armando, CARRILLO-BELTRÁN, Julio César Cuauhtémoc, ENCISO-ARÁMBULA, Rosalva and MEJÍA-SALAZAR, Gilberto. The digital marketing: The technological response to Nayarit's tourism challenges. *Journal-Financial Economy*. 2023



Graph 1 ¿Do you think Inbound Marketing is a good strategy for companies to use?
Source: Own Elaboration

With respect to Graph 1, the highest percentage that students expressed the highest preference was that they totally agreed on the importance of the positive impact that Inbound Marketing has, which means that they are mostly aware that it is a good strategy that can be implemented in companies.

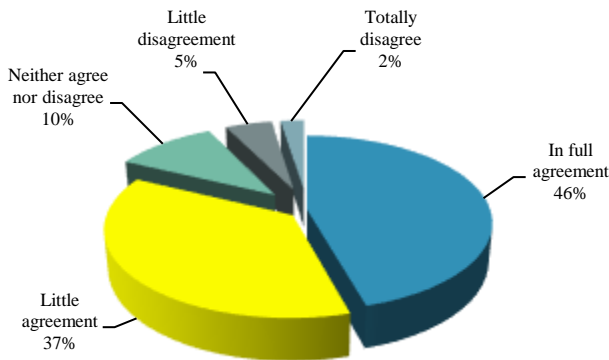
A percentage of 33% expressed a little agreement, due to a lack of interest, knowledge or motivation to learn about the problems that this generates. The 8% of those who showed a little apathy or disinterest in this item, which indicates a lack of awareness or lack of knowledge and finally there are 2% of respondents who reflected a little disagreement, which is fortunately a very minor indicator of the students interviewed who are not interested in this topic of Inbound Marketing.



Graph 2 Do you consider that digital marketing is a good technological resource for the tourism challenges facing Nayarit?
Source: Own Elaboration

In relation to the interpretation of Figure 2, the most outstanding percentage that students expressed the highest preference was that they totally agreed on the relevance and importance of the proper use of digital marketing as a good technological resource for the tourism challenges faced by Nayarit after the Covid 19 pandemic.

Fortunately students perceive the relevance and what it means for our federal entity. A percentage of 24% expressed little agreement, due to a lack of interest or vision in recognising the seriousness of the problem that this represents. It is worth noting the 5% of those who showed a little apathy or disinterest in this item, which indicates a lack of awareness or knowledge and finally there is 1% of respondents who reflected a little disagreement, which is an indicator with a very low value of the students interviewed who are not interested in the issue in question.



Graph 3 Can university students have an impact on the use of digital marketing in companies in Nayarit?
Source: Own Elaboration

With respect to the interpretation of Graph 3, the highest percentage was 46%, which corresponds to students who expressed total agreement, which can have an impact with favourable and effective actions in Inbound Marketing both as students and as professionals.

A percentage of 37 % expressed little agreement, due to the lack of interest or the vision that this represents. 10 % expressed apathy or disinterest in this topic, 5 % strongly disagreed indicating a lack of awareness or knowledge, and finally there are 2 % of the respondents who reflect in their opinion a lack of knowledge or commitment in the indicator which certainly reflects a lack of relevance or commitment that really, thanks to their youth and energy, could impact university students with well executed actions for the benefit of progress through Digital Marketing: The technological response to the tourism challenges of Nayarit.

In the post-pandemic era, tourism businesses face a new and challenging landscape. The need to adapt to new circumstances and changing consumer expectations has led many companies to seek more effective and efficient marketing strategies. In this context, Inbound Marketing has become an essential tool for tourism companies and the perception of the Marketing students that were surveyed as analysed in the figures above is clear to most of them.

Conclusions and recommendations

The global tourism scenario has undergone a fundamental transformation, driven by socio-cultural and technological changes, which has led to the need to break paradigms and adopt new approaches in the tourism industry. Tourism activity is recognised as an open system that is affected by these transformations, and this has generated a significant evolution in the marketing strategies applied in tourist destinations around the world.

Nayarit, a state in Mexico with abundant natural resources and a focus on sustainable development, is in a strategic position to make the most of its tourism potential. Despite its natural and cultural advantages, there are sectors that are still under-exploited in terms of productive capacity.

Recommendations:

1. **Updating and Continuous Training:** It is recommended that tourism enterprises in Nayarit keep up to date with tourism market trends and provide constant training to their staff. A motivated and well-trained team is fundamental to maintain competitiveness and offer high quality services.
2. **Modernisation and Digital Marketing:** In the current era, it is essential that tourism companies adapt to technology and take advantage of digital marketing. This involves creating innovative online strategies, such as social media presence, online advertising and other forms of digital marketing. However, it must also be balanced with traditional strategies such as print advertising, coupons and promotions.

3. **Preserving Traditions:** Despite the importance of modernisation, tourism businesses in Nayarit should not forget their local roots and traditions. They can take advantage of the cultural richness of the region to attract tourists interested in authentic and indigenous experiences.
4. **Collaboration with Educational Institutions:** To strengthen human capital in the tourism industry, it is recommended that businesses in Nayarit consider collaborating with local educational institutions, such as the Autonomous University of Nayarit. This includes hiring graduates from marketing programmes and participating in training and consultancy programmes.
5. **Focus on Marketing:** Marketing is a key tool for tourism enterprises. It is suggested that tourism providers in Nayarit adopt sound and effective marketing strategies to attract tourists and promote their services effectively.

In summary, the implementation of marketing strategies, both digital and traditional, is essential for Nayarit to maintain its status as a tourism destination both nationally and internationally. By focusing on modernisation, preservation of traditions, training and collaboration with educational institutions, Nayarit can strengthen its position in the tourism industry and remain an attractive place for locals and international visitors.

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Financial evaluation for the solar heater prototype made with recycled tire rubber

Evaluación económica del prototipo de calentador solar fabricado con caucho de neumático reciclado

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Abstract

The objective of this research is to carry out the economic feasibility study of the prototype of a solar heater made of recycled tire rubber in the metropolitan areas of Puebla. Regarding the methodology, the type of research was applied qualitatively. The project was initially developed with a significant acceptance survey of the solar tire heater product in the study area, developing a questionnaire for the collection and analysis of information, the market and the technical factors to which the prototype is subjected were analyzed. Afterwards, an economic analysis is prepared with production forecasts for a pilot test of the development of the solar tire heater. Obtaining as results an approval of the Project for its development and a feasible innovation Project for its implementation in the metropolitan area of Puebla.

Economic, solar heater, Methodology, Analysis

Resumen

El objetivo de la presente investigación es realizar el estudio economico de factibilidad del prototipo de calentador solar de caucho reciclado de neumatico en las zonas conurbadas de Puebla. Con respecto a la metodologia, el tipo de investigacion fue aplicada de tipo cualitativa. El proyecto se desarrolló inicialmente con una encuesta significativa de aceptación del producto calentador solar de neumático en la zona de estudio, elaborando un cuestionario para recopilación y análisis de información, se análisis el mercado y los factores técnicos en los cuales se somete el prototipo. Después se elaboro un análisis economico con pronosticos de producción para una prueba piloto de la elaboración del calentador solar de neumático. Obteniendo como resultados una aprobación del Proyecto para su elaboración y un proyecto de innovación factible para su puesta en marcha en la zona conurbada de Puebla.

Económico, Calentador solar, Metodología, Análisis

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Introduction

The evaluation of projects for feasibility is an assessment process in which all the elements involved in the project are analysed in order to determine its viability, thus calculating the possible risks and determining the responses to them (Baca, 2020).

To carry out an economic feasibility analysis, a set of study methods are carried out considering: the characteristics and size of the project through a technical analysis, detailed description of the inputs or raw materials required, market analysis, to investigate the behaviour of the product or service where it will be established and the financial study exercise of the project (Baca, 2020).

Within a technical study, the techniques and indicators for operation and monitoring must be established; within the technical study, the operational aspects necessary for the efficient use of available resources in the production of a good or service being evaluated are contemplated (Baca, 2020).

For the market, two aspects are considered: supply and demand. On the supply side, the specific sector must be identified, which must be based on information on current and projected production volumes, installed and used capacities, expansion plans, and current and future costs (Sapag and Sapag, 2015). On the other hand, demand is a function of the real need for a good or service and how it is distributed by its price, the income level of a population and econometric indicators. In order to determine the demand, market research tools are used, which are referred to and distinguish the type of demand (Baca, 2020).

On the other hand, for the elaboration of the financial exercise of the Project, the amount of the necessary economic resources that the realisation of the project implies prior to its start-up, the determination of the total cost required in its period of operation, estimating an annual production probability, with the purpose of measuring the return on initial investment, must be estimated (Baca, 2020).

The economic evaluation study is the final part of the whole sequence of feasibility analysis of a project, up to this point it will be known that there is an attractive potential market, the optimal location, the size of the project, the acceptance of the product, etc. (Baca, 2020).

This project details a financial evaluation of the prototype solar pneumatic heater in the urban area of Puebla, measuring the economic profitability of the project.

Methodology

The investigation was carried out through an analysis of data applied research of qualitative type through an analysis of data and statistics, for the obtaining of the information, a questionnaire of 10 reagents with Likert scale was carried out. For this research according to the General Secretariat of the National Population Council (2018) 16 municipalities were considered that are within the metropolitan area Puebla-Tlaxcala with high index of marginalization, which by their way of heating water for bathing, are the main municipalities interested for the implementation of this project, within the list of municipalities that have at least one zone of marginalization in the state of Puebla is shown in Table 1:

#	Name	#	Name
1	Acajete	9	Ocoyucan
2	Amozoc	10	Puebla
3	Coronango	11	San Andrés Cholula
4	Cuautlancingo	12	San Felipe Teotlancingo
5	Chiautzingo	13	San Gregorio Atzompa
6	Domingo Arenas	14	San Martín Texmelucan
7	Huejotzingo	15	San Miguel Xoxtla
8	Juan C. Bonilla	16	San Pedro Cholula

Table 1 Municipalities with marginalised areas in the state of Puebla
Source: Own elaboration with data from the General Secretariat of the National Population Council. (2018)

A selection of municipalities was made in the main areas surrounding the state capital, due to mobility issues, so the municipalities of: San Martín Texmelucan, San Felipe Teotlancingo, San Nicolás de los Ranchos and Chignahuapan (INEGI, 2016). Considering the following population numbers table 2:

Concept	Quantity	Unit
Total dwellings in Sn. Martín Texmelucan	32,961	households
Total housing in Sn. Felipe Teotlalcingo	2,630	households
Total housing in Sn. Nicolas de los Ranchos	1,421	households
Total housing in Chignahuapan	13,995	households
Total number of dwellings	51,007	households

Table 2 Population values in Puebla
Source: Own elaboration with data from INEGI (2020)

Calculation of the number of surveys to be carried out

A 10-question questionnaire with a self-administered Likert-type scale was used as a data collection instrument. A total of 396 surveys were carried out in the aforementioned conurbations due to mobility issues in the research.

The type of survey to be applied was descriptive, with the objective of defining the competitive advantages and disadvantages that the use of a solar heater made from recycled tyres would have; within the communities, 360 homes were surveyed, according to the Population and Housing Census carried out by the National Institute of Statistics and Geography (INEGI, 2020).

To determine the number of surveys to be conducted, the appropriate statistical model is used to determine the sample size for finite populations when estimating proportions. In this case, estimators with a standard error of 0.15 and a reliability of 95% will be taken as detailed in formula 1 below with the subscripts shown in table 4:

Formulas	Where
n	sample size
E	margin of error
N	population size

Table 4 Sample estimation model
Source Own elaboration with Baca (2020)

$$n = \frac{N}{E^2(N-1)+1} \tag{1}$$
$$n = \frac{51007}{0.05^2(51007-1)+1}$$
$$n = \frac{51007}{128.515}$$
$$n = 396$$

Technical analysis

According to the costing exercise, the market for solar heaters was sought, this will depend on the brand, capacity and material with which they are made, in Mexico according to the General Directorate of Consumer Studies (DGECON) of the Federal Consumer Protection Agency [PROFECO] (2016), in the market there are heaters mostly of vacuum tubes which have an average of the following costs, broken down in Table 3

Total capacity (litres)	Tubes	Users/People	Heater price 00/100 MN
110	8	2-4	\$5,354.00
130	10	4 a 6	\$5,900.00
150	12	6 a 9	\$8,310.00
210	15	9 a 12	\$9,126.00

Table 3 Table of average prices of solar heaters in Mexico by capacity
Source: Own elaboration based on PROFECO (2016)

Within the demand, in the state of Puebla, in 2020, 7.92% of households had solar water heaters and 92.8% did not have solar water heaters (OBTRENMX, 2022). Considering the following population numbers, the following quantities are considered table 5:

Concept	Quantity	Unit
Total population in the state of Puebla	6,583,278	persons
Total dwellings in Puebla	1,713,381	households
Percentage with solar water heater	7.92	%
Percentage without solar water heater	92.8	%

Table 5 Population values in Puebla
Source: Own elaboration with data from INEGI (2020)

For this research, a prototype of the solar heater made of recycled tyre material was made to verify its functionality and proceed to the continuous manufacture of this product, making production estimates in the future, in order to measure the feasibility of the project, for which the following steps are carried out:

Description of the product: according to compliance with NOM-027-ENER/SCFI-2018

Market

Distribution and marketing system: To define the way in which the solar tyre heater product will be marketed, the Ansoff matrix also known as product-market matrix, which shows four growth options for the companies formed by confronting the existing and new products/services with the existing and new markets (Baca, 2020), will be used as a starting point.

Resources: for the description of the necessary resources in monetary terms, the financial analysis is carried out involving the costs for the dimensional study of the company, in order to measure the feasibility of the opening of the company.

Costs

The cost analysis for the elaboration of a solar heater and the selling price is developed under the following:

The materials destined for the elaboration of a solar heater are defined under the following materials, starting from the unit to carry out the exercise of cost estimation, next, the materials required for the elaboration of the product are detailed, as shown in table 6:

Raw material x 1 Solar tyre heater				
Description	Cant.	U.Medida	C. Uni.	Total
Ground rubber	3	kg	\$8.75	\$26.25
Recycled rubber fibre	2	kg	\$5.50	\$11.00
Wooden box	1	m	\$120.00	\$120.00
Steel sheet	1	kg	\$180.00	\$180.00
1 inch black screws	20	pzs	\$1.00	\$20.00
Rubber resin and TP Catalyst	1	pz	\$150.00	\$150.00
Black matte finish paint	2	bote	\$90.00	\$180.00
Copper elbows	6	pzs	\$70.00	\$420.00
¾ inch copper pipe	5	m	\$190.00	\$950.00
		Total	\$815.25	\$2,057.25

Table 6 Raw material costs for the production of a solar tyre heater
Source: Own Elaboration

Both the acquisition of raw materials and the labour costs of the workers are direct expenses, which are directly linked to the production of the product offered:

Direct expenses					
Partners	Description	Year	Month	Weekd	Day
3	Workmanship	\$207,360.00	\$17,280.00	\$4,320.00	\$664.62
		Total	\$17,280.00		

Table 7 Average overheads of 3 employees in production
Source: Own Elaboration

To estimate the necessary equipment for the production of solar tyre heaters, it is estimated that the following inputs will be used, in such a way that according to the percentage of depreciation it is estimated between 10% to 20% per year, making a prorata to submit it in the indirect expenses table 8:

Equipment for production			
Description	% depreciation	Price	Total
Wood cutter	10%	\$795.00	\$79.50
Copper tube cutter	10%	\$160.00	\$16.00
Siler solder paste	25%	\$145.00	\$36.25
Linmex Gas G-3 1 134 torch	20%	\$519.00	\$103.80
Sheet cutter	10%	\$561.00	\$56.10
Shear and roller press brake	10%	\$25,500.00	\$2,550.00
	Total	\$27,680.00	\$2,841.65

Table 8 Production equipment for the production of solar heaters
Source: Own Elaboration

On the other hand, the indirect costs are those which must be considered to estimate the global net cost of production, which are defined as follows table 9:

Indirect costs				
Description	Year	Month	Weekd	Day
Rent	\$108,000.00	\$9,000.00	\$2,250.00	\$346.15
Equipment	\$3,396.65	\$283.05	\$70.76	\$10.89
General lighting	\$2,400.00	\$200.00	\$50.00	\$6.67
IMSS	\$12,156.00	\$1,013.00	\$253.25	\$38.96
Water	\$2,160.00	\$180.00	\$45.00	\$6.92
TOTAL	\$28,112.65	\$10,676.05	\$2,669.01	\$409.59

Table 9 Indirect costs
Source: Own Elaboration

The expected production according to the time and personnel allocated for the production of solar tyre heaters, as shown in table 10, is described below:

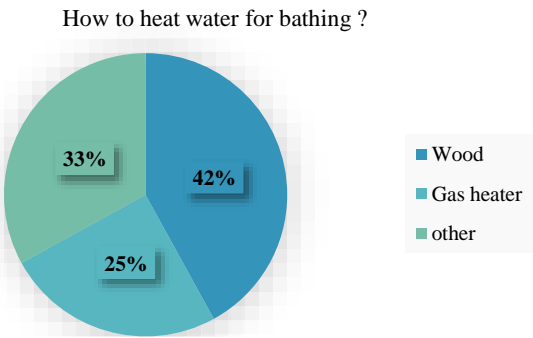
Production time x 1 heater		
Wooden box form	20	min
Rubber lining of the box walls	60	min
Soldering of pipes and elbows	30	min
Rubber coating of copper pipes	60	min
Cutting of steel sheet	30	min
Welding of storage tank	30	min
Heater assembly	35	min
Total time	265	min
Total production per year	494	Heaters

Table 10 Breakdown of the production time forecast
Source: Own Elaboration

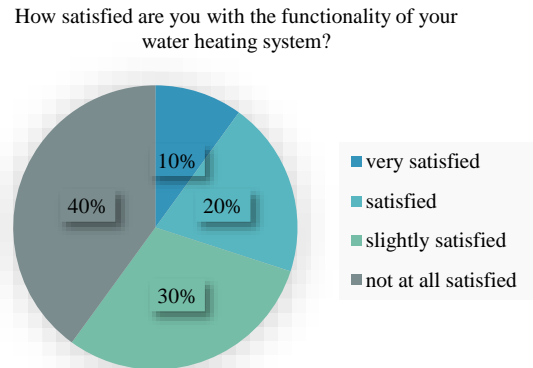
Once the technical, market and cost analysis has been carried out, a financial study can be established to measure the behaviour of this project over time, and to determine whether its implementation is feasible.

Results

As mentioned above, household surveys were conducted where a family member was asked to answer the questions. The majority of the households interviewed were female (60%), while in terms of occupation, 37% were farmers/livestock farmers, 34% were engaged in commerce, 22% were labourers or workers, either in a local or foreign company, and 7% did housework. According to the results of the survey, the most relevant items are listed below:

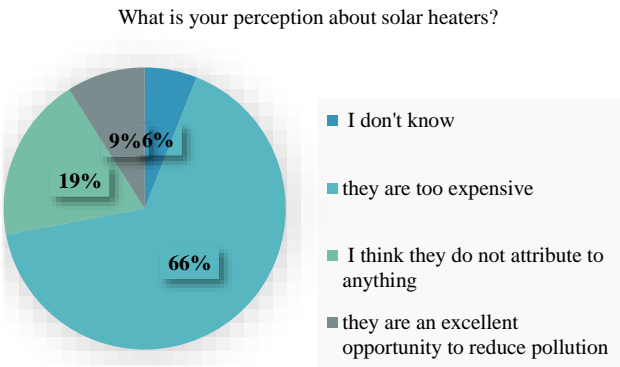


Graph 1 Item How do you heat water for bathing?
Source: Own Elaboration



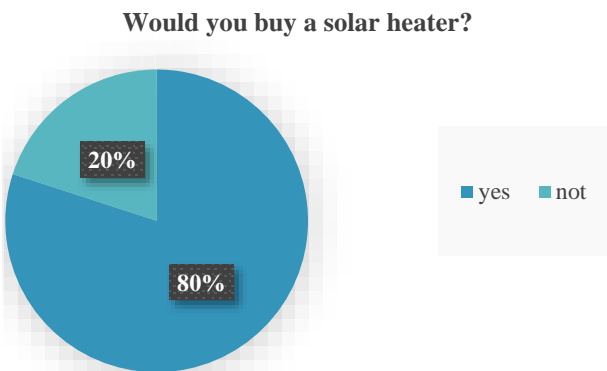
Graph 2 Item How satisfied are you with the functionality of your water heating system?
Source: Own Elaboration

The unsatisfied demand shown in graph 2 in the households shows the current efficiency of the type of water heating method, whereby 30% are not very satisfied and 40% are not at all satisfied. And only 30% are satisfied or have no serious effect on their efficiency.



Graph 3 Item What is your perception of solar heaters?
Source: Own Elaboration

From the interviewees, it could be observed how the concept of solar water heaters, or knowledge about them, is perceived. This allows us to interpret that the clients (households) consider the solar water heater expensive, with 66% of the households interviewed, followed by 19% who consider it a product without attributes, which opens an area of opportunity for environmental education with sustainable innovation.



Graph 4 Item What is your perception of solar heaters?
Source: Own Elaboration



Graph 5 Item If you were given the option to build your own solar heater, would you be interested in doing so or just buying it?
Source: Own Elaboration

Project evaluation

Being a new company that will offer a new product in materials and in the market of solar heaters, the type of strategy to follow will be "market penetration", under the following aspects:

Defined market: houses that are considered within the urban area of the state of Puebla that do not have a solar heater.

Product offered: solar heater made from end-of-life tyres, which is a unique and current product in the market.

The system to be used to distribute and market the product: through own points of sale, the point of sale must meet the specific technical requirements under the Mexican standard NOM-027-ENER/SCFI-2018 in order to provide a high level of service and customer satisfaction.

Within the objective of verifying the viability of the project, an exercise of economic-financial behaviour is carried out in order to measure the viability of investment, opening and permanence of the project, for which an estimate was made of the costs that would be generated both in production and in the permanence of the project, so a cash flow was made by calculating the net profit and net cash flow which will be the preamble for the financial estimate.

In this way, the following exercise is carried out, adding the components to estimate the net production cost, plus the profit percentage to calculate the cost of sale of the service.

Solar tyre heater							
Producti on January - June 2023	Monthly producti on	Raw material/sol ar heater	Labour/sol ar heater	Indirect costs/sol ar heater	Total unit cost	Unitar y gain 15%.	Unit selling price/sol ar heater
824	137	\$2,057.25	\$125.80	\$184.09	\$2,367.14	\$355.07	\$2,722.21

Table 11 Unit costing of a solar tyre heater
Source: Own Elaboration

As a result, the estimated selling price for each solar water heater is reflected (table 11), which has a production cost of \$2367.14 pesos MXN and a selling price of \$2722.21 pesos MXN with a profit of 15%, this heater has a capacity to supply hot water for 2 to 5 members, considering an average of 5 to 10 members per household, in the study sample mentioned above.

The selling cost of this solar water heater is below the average price of conventional solar water heaters with the same capacity that currently exist in the market, with a 49.1% saving in its acquisition.

Regarding the calculation of the necessary investment of the project, it was made by adding all the expenses that are considered (cost of production, cost of administration, cost of sale, financial costs, ISR, RUT) this in order to calculate the net that is needed for the opening and continuity of a project.

Annual		
Description	Expenditure	Revenue
Cost of production	\$575,479.46	4,412,009.16
Marginal profit	3,836,529.71	-
Administration costs	\$480,000.00	
Selling costs	\$6,000.00	
Financial costs	\$5,783.30	
Gross profit	\$3,344,746.41	
INCOME TAX (30%)	\$1,003,423.92	
RUT (10%)	\$334,474.64	
Net profit	\$2,006,847.84	
Net cash flow	\$2,006,847.84	

Table 12 Unit costing of a solar tyre heater
Source: Own Elaboration

Next, we will detail the method to estimate the period in which the initial investment will be paid, with the exercise of the cash flow within the first 5 years of existence (table 13), this considering inflation of 20%, doing the following: net income - net expenses = final balance; and final balance*1.2 (inflation) = accumulated balance, the latter verifying in what period of time the loan account would be paid off (initial investment).

	Yaers					
	0	1	2	3	4	5
Income	Initial investment	\$4,412,009.16	\$4,853,210.08	\$5,338,531.09	\$5,872,384.20	\$6,459,622.61
Expenditure		\$2,405,161.32	\$2,645,677.45	\$2,910,245.20	\$3,201,269.72	\$3,521,396.69
Closing balance		\$2,006,847.84	\$2,207,532.63	\$2,428,285.89	\$2,671,114.48	\$2,938,225.93
Cumulative balance		\$2,006,847.84	\$4,214,380.47	\$6,642,666.36	\$9,313,780.84	\$12,252,006.77

Table 13 Cash flow in the period of 5 years for the opening of a solar tyre heater company
Source: Own Elaboration

Once the initial investment payment calculation exercise was done, the feasibility of the project was calculated with the Internal Rate of Return (IRR), the Net Present Value (NPV), the Discount Rate (DIS), the Pay Back, and the Cost Benefit, as a result of the project feasibility analysis, with its economic and financial profitability and the points involved for its opening (table 14).

IRR	87.67%	It must be GREATER than the discount rate (TREMA).
NPV	\$12,252,006.77	If + the project is viable
Pay back years (Payback time)	1.2	If it is less than 10 years, the project is profitable.
Cost-Benefit		It must be >1 to be profitable (For every 1 peso you spend
	\$398,313.47	you get 2 pesos profit)

Table 14 Table of feasibility analysis of the investment project
Source: Own Elaboration

According to the Internal Rate of Return, it came out at 87.67% being a rate higher than 50% to be profitable the project, also the Net Present Value, with a value of \$12,252,006.77 MXN pesos, with a return on investment in one year, two months and a cost benefit of \$398,313.47 MXN pesos.

Conclusions

When carrying out a financial evaluation of the solar pneumatic heater project through a viability and feasibility analysis, where an investment project exercise was carried out, which, according to the results, highlighted the importance of costing the procedure to incorporate the financial economic analysis, involving raw materials, labour involved in the construction of the project, the direct and indirect elements considered for the financial economic analysis, (detailed above), and this based on the results obtained previously.

It is concluded that the profitability of the project is feasible for its elaboration and creation of a solar water heater manufacturing plant with a total return on investment in one year and two months in the significant forecasting exercise, considering the results obtained in our product acceptance survey exercise in the existing market, concluding that at present the conurbations of the state of Puebla, especially the areas defined as low-income areas are the main areas of incorporation for the benefit of households that currently have the method of water heating by wood, coal and do not have a solar heater, involving the excessive cost that is currently in the market for these products.

Acknowledgement

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Interpretation of Results for decision making of the Market Impact study economic in the MSMEs of the Municipality of Francisco I. Madero, Hidalgo, Mexico

Interpretación de Resultados para la toma de decisiones del estudio de Mercado Impacto económico en las MiPymes del Municipio de Francisco I. Madero, Hidalgo, México

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Abstract

The analysis of the interpretation of results was carried out through the database, for decision making of the market study Economic impact on micro, small and medium-sized enterprises (MSMEs) case of Francisco I. Madero, Hidalgo, Mexico, with a descriptive quantitative approach, with a sample of 269 owners whose main characteristic is having founded it before 2019, in the Municipality of Francisco I. Madero, Hidalgo, Mexico. A survey was applied to them to know the financial fluctuation in the sale of products and services between 2019 and 2022 derived from the growth of three Higher Education Institutions. The Simple random method was used to determine the sample size of the study population, with a sampling error of 0.05 and a confidence value of 95% and its coefficient of 1.96, the results indicate an increase of 1.8% without significant differences. per turn; which allows for an improvement plan that integrates strategies to maximize financial resources

Administration, Interpretation, Relational database

Resumen

Se llevo a cabo el análisis de la interpretación de resultados a través de la base de datos, para la toma de decisiones del estudio de mercado Impacto económico en las micro, pequeñas y medianas empresas (Mipymes) caso Francisco I. Madero, Hidalgo, México, con un enfoque cuantitativo de tipo descriptivo, con una muestra de 269 dueños cuya característica principal es haberla fundado antes del año 2019, en el Municipio de Francisco I. Madero, Hidalgo, México. Se les aplicó una encuesta para conocer la fluctuación financiera en la venta de productos y servicios entre el año 2019 y 2022 derivado del crecimiento de tres Instituciones de Educación Superior. Se utilizó el método aleatorio Simple, para determinar el tamaño de la muestra de la población en estudio, con un error muestral del 0.05 y un valor de confianza del 95% y su coeficiente del 1.96 los resultados indican un incremento del 1.8% sin diferencias significativas por giro; lo que permite realizar un plan de mejora que integre estrategias en la maximización de recursos financieros.

Administración, Interpretación, Base de datos relacional

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Introduction

The municipality of Francisco I. Madero is one of the eighty-four municipalities that make up the state of Hidalgo, Mexico. The municipal seat and most populated locality is Tepatepec; it is bordered to the north by the municipalities of Mixquiahuala de Juárez and San Salvador; to the east by the municipality of San Salvador; to the south by the municipalities of San Salvador and Ajacuba; to the west by the municipalities of Ajacuba and Mixquiahuala de Juárez.

According to (Data Mexico, 2022) In 2020, the population in Francisco I. Madero was 36,248 inhabitants (47.7% male and 52.3% female). Compared to 2010, the population in Francisco I. Madero grew by 6.92% as well as the economic sectors that concentrated more economic units in Francisco I. Madero were Retail Trade (885 units), Other Services Except Government Activities (241 units) and Manufacturing Industries (225 units).

During the month of October 2022, a market study was conducted to measure the economic impact of MSMEs in the Municipality of Francisco I. Madero, Hidalgo, Mexico. As a result, the relational database was obtained, which is the object of study of this research to classify results that allow decisions to be made on the weaknesses identified in the market study.

According to (Gómez, 2023) a database is a set of data belonging to the same context, stored systematically for later use, it is a collection of data structured according to a model that reflects the relationships and restrictions existing in the real world.

To define "databases" it is important to be clear about what is data and information because these elements are fundamental for the development of databases, according to (Juárez, 2023)

- Data: is a set of characters with some meaning, they can be numeric, alphabetic, or alphanumeric, this is the minimum unit of information. A data within a database responds to the function (object, attribute, value).

- Information: is an ordered set of data which is managed according to the user's need, so that a set of data can be processed efficiently and can result in information, it must first be stored logically in files.

The challenges that companies face today with big data are problems that Google first encountered almost 20 years ago. According to (Edward and Sabharwal, 2013) Carlo Strozzi coined the term NoSQL in 1998, using this term to identify his database because his database did not have a SQL interface so NoSQL is a general term for data warehouses that do not follow the principles of relational DBMS. Non-relational databases started to become very important for handling large amounts of information because of the problems faced by Google.

Nowadays, companies are increasingly interested in achieving and developing a solid operational performance against their competitors through the use of tools that are available to them, among them, process control and management. This is why some organisations have concentrated their efforts around management models that contribute to the achievement of total quality, in order to generate the highest possible productivity and profitability for the company, which must clearly understand how to satisfy both internal and external customers.

In turn, (Competitiva & De la Cruz, 2023) conducted a study whose objective was to corroborate the theoretical model of organisational capabilities and competitive advantage in the commercial sector of multifunctional equipment distribution in Mexico, through the application of the questionnaire "Managerial and functional capabilities and competitive advantage from the perspective of the resource-based vision" designed from the literature review. The preliminary version of the questionnaire was peer-reviewed and triangulated with an interview applied to the entrepreneurs in advance. Growth and efficiency have always been some of the constant goals in the strategy of organisations, but a new variable has been added to these, which is related to the speed through which the underlying objectives are required to be achieved and how changing they are (Gallego, 2023).

This global dynamic means that nowadays companies value every effort made to implement agile tools that allow them to respond in a timely manner to the continuous changes they are faced with.

The analysis of the economic situation of a place (demographic) requires a statistical tool that quantifies different aspects of economic activity, which are called economic indicators that serve as an instrument for decision-making by economic units, in order to understand the fluctuation of the economy and economic development. According to (Ernesto Spinak, 2023) they are measures that allow to capture the evolution and economic situation, based on a set of data obtained in a given time.

Inflation, according to (Samuelson & Nordhaus, 2010) the sustained and generalised increase in the prices of goods and services, is currently calculated by means of a weighted average price index of thousands of individual products. Inflation implies a loss in the purchasing power of money.

Development

The interpretation of the results was carried out through the relational database, in order to elaborate a segmentation of the potential clients who have the need to receive training in finance, knowledge of regulations, administration of their income or expenses, of the market study Economic impact on micro, small and medium-sized enterprises (MSMEs) in the case of Francisco I. Madero, Hidalgo, Mexico, with a descriptive quantitative approach, with a sample of 269 owners whose main characteristic is to have been founded before 2019, in the municipality of Francisco I. Madero, Hidalgo, Mexico. A survey was applied to find out the financial fluctuation in the sale of products and services between 2019 and 2022 derived from the growth of three Higher Education Institutions. The simple random method was used to determine the sample size of the population under study, with a sampling error of 0.05 and a confidence value of 95% and its coefficient of 1.96.

The general objective of the study is to interpret the results of the market study of the economic impact on MSMEs in the municipality of Fco. I. Madero, Hidalgo, Mexico, through quantitative analysis in order to create a route for improvement in MSMEs.

Specific objectives

1. To establish the target market through segmentation.
2. To identify the economic sectors of MSMEs.
3. To elaborate a relational database of MSME owners for personalised attention in training.

The results of the relational database containing 269 interviews were interpreted as 100% of the survey results.

In addition to the interpretation of the results of the market study, it is considered necessary to make an improvement route that contemplates specific strategies on issues of financial resource management, as well as sources of financing for business growth. This study analysed the response to the item that asks about the interest in training to be able to manage the financial resources of the owners of MSMEs.

In the item Would you be interested in receiving training on how to manage your finances? According to the survey data, 68.5% of the respondents said that they would be interested in receiving training and 31.5% said that they were not interested in receiving training on managing their finances. See graph 1.

By economic sector, 68.5% corresponds to the commerce sector and 26.6% to the service sector, with the highest representation. See graph 2.

In graph 3, the female gender has a representation of 62% and the male gender is 38%; the results are related to the statistical data at national level, which is 51.2% women and 48.8% men.

By age range of the owners of the MSMEs in the municipality of Francisco I. Madero, the range of 36 to 45 years represents 31%, followed by 26 to 35 years with 23% and 25% and 15% in the range of 18 to 25 years, with 46 to 55 years representing a lower percentage. See graph 4

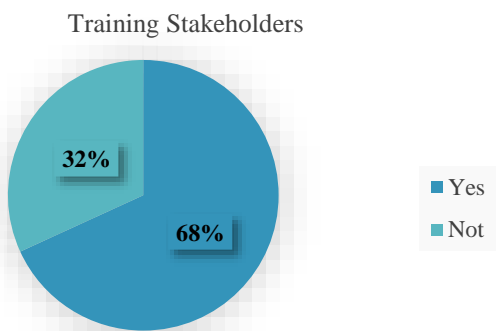
In the item "Did you prepare a document called a business plan? It can be seen that people who started their business without having carried out a study beforehand, such as a business plan, represent 80.3% of those surveyed and only 19.7% refer to having carried out a business plan themselves or by an expert to help with the creation of the business. Graph 5.

In the item In which places have you registered to formalise your business? Based on the results obtained in this questionnaire, it can be inferred that 39.1% of the population has gone to the presidency, 38.4% has not registered in any place and 15.6% of the surveyed population is registered in the SAT. Graph 6

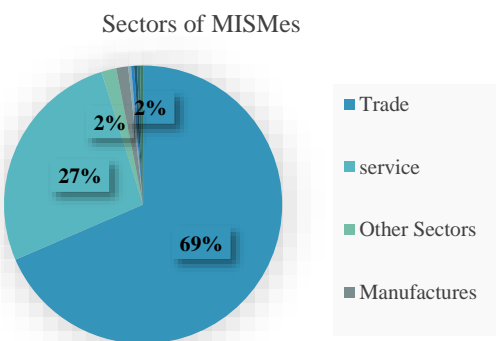
In the item "How do you manage your income?", according to the data obtained in the surveys, 52.2% of the respondents keep their records in their passbook, 28.7% do not manage their income, 16.6% have a register in a software to keep records of income and expenses. Graph 7.

Results

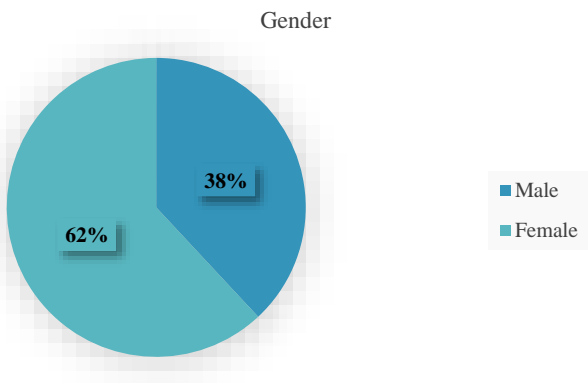
This section contains the graphs showing the results of the interpretation of the questions asked in the instrument used in the market research.



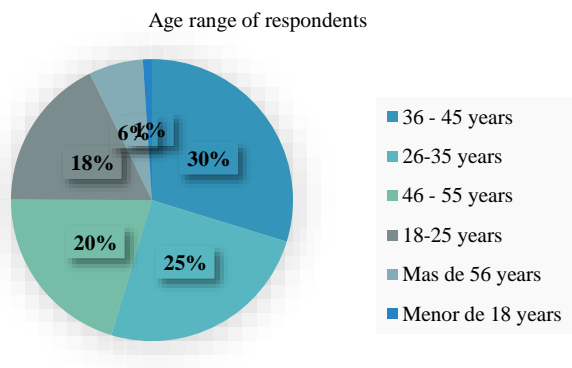
Graph 1 Training Stakeholders
Source: Own Elaboration with survey data



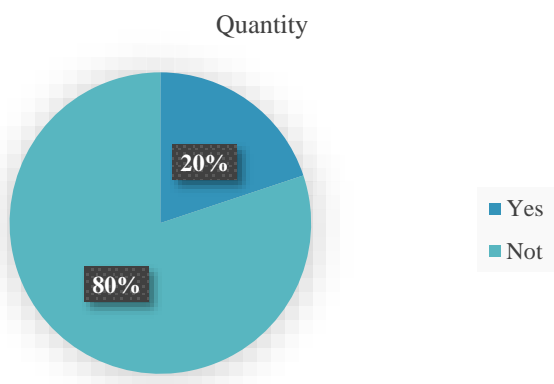
Graph 2 Sectors of MSMEs
Source: Own Elaboration with survey data



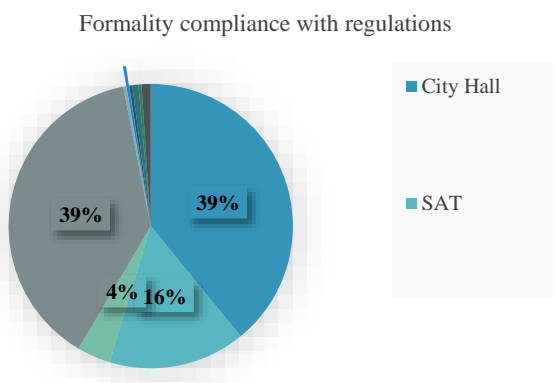
Graph 3 Sectors of MSMEs
Source: Own Elaboration with survey data



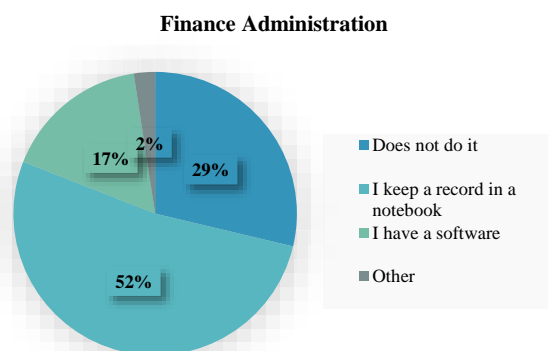
Graph 4 Age range of respondents
Source: Own Elaboration with survey data



Graph 5 Business plan
Source: Own Elaboration with survey data



Graph 6 Formality of compliance with regulations
Source: Own Elaboration with survey data



Graph 7 Financial management

Source: Own elaboration with survey data.

Conclusions

In conclusion, there is 68.5% interest in training in financial management on the part of the owners of MSMEs in the sectors most in demand, such as commerce in the category of food sales, and which require this added value to control their income and expenditure efficiently in order to comply with the obligations requested by the authorities and to be able to become a formal MSME with access to a bank account to obtain a financial history in order to be eligible for a financial loan; It is true that 30% of the MSMEs stated that there are government programmes with financial support, however, as they do not have the required documentation, they are not benefited.

52.2% of the MSMEs keep administrative records of income and expenditure, which is done manually, so there is a need for an improvement plan that integrates courses on finance, since only 16.6% use software to keep records of their accounting movements, another course that includes the development of a business plan, since 80.3% of respondents stated that they had not made a business plan, and 39.1% of the population surveyed stated that on regulations and permits established by law, they have only complied with them locally. Paying for permits at the presidency.

68.5% of the surveyed population is willing to receive training for the management of their businesses and to obtain more benefits.

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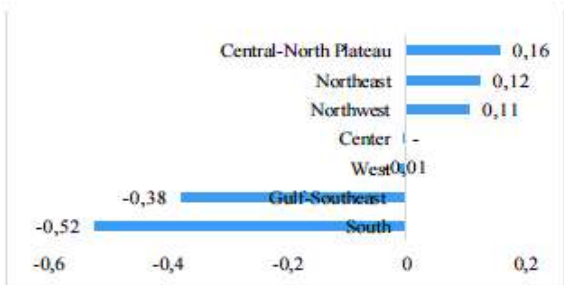
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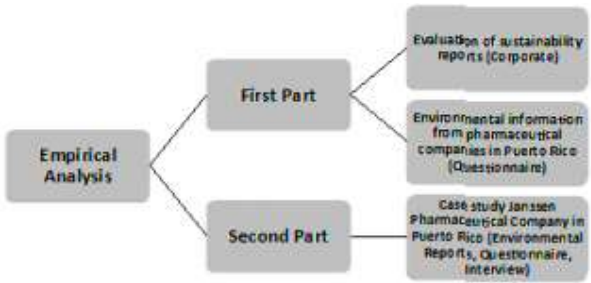


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