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Presentation of Content

In the first issue we present, *Evaluation of intellectual capital in a SME in the city of Puebla, Mexico; applying the Skandia model*, by ORTIZ-CARRANCO, Araceli, RAMIREZ-ROSAS, José, ARROYO-DIAZ, Salvador and LOZADA LECHUGA, Jorge, with ascription in the Universidad Politécnica de Puebla, as next article we present, *Assessment of the impact of intellectual capital on the generation of value in companies of the Sinergia Academia-EmpresaMypymes network in Mexico*, based on the Skandia Navigator Model, by PEÑA-MONTES DE OCA, Adriana Isela, MACÍAS-BRAMBILA, Hasem Rubén, LÓPEZ-LAGUNA, Ana Bertha and GONZÁLEZ-DEL CASTILLO, Edgardo Emanuel, with ascription in the Universidad Tecnológica de Jalisco, as next article we present, *Comparative study of the tourist destinations of La Barrita and Barra de Potosí, Gro., Mexico*, by URUEÑA-BARRAGÁN, Carlos Minisak, BRAVO-GONZÁLEZ, José Guillermo, LÓPEZ-NÚÑEZ, Miriam Araceli and GALEANA-ROSALES, Montserrat, with ascription in the Universidad Tecnológica de la Costa Grande de Guerrero, as next article we present, *Higher Education Institutions in Mexico and their participation in the Social and Solidarity Economy*, by SOSA-LARRAINZAR, Evelyn, BIVIANO-PÉREZ, Emma, GARCÍA-SÁNCHEZ, Avelina and AVELINO-TEPANECATL, María de Lourdes.

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Evaluation of intellectual capital in a SME in the city of Puebla, Mexico; applying the Skandia model

Evaluación del capital intelectual en una PyME en la ciudad de Puebla, México; aplicando el modelo Skandia

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Abstract

The present article proposes to evaluate the Intellectual Capital (CI) in a Small and Medium Company (SME) located in the city of Puebla applying the methodology indicated by the Skandia model. The focus of the present study is quantitative and qualitative descriptive type; through this approach, the performance on the investment made in an administrative system by the company in the 2017 study year can be observed, with the purpose of improving its processes, controlling them and offering better service to its clients. The methodology followed in this work is the one proposed by the Skandia model, going through its different approaches and calculating the respective indicators according to the information available in the company. In the final part of this paper, the conclusions are presented from two perspectives, the first from the perspective of the managers of the company object of this study and the second from a generalized position for SMEs.

Intellectual Capital, Small and Medium Company, Skandia model

Resumen

El presente artículo propone evaluar el Capital Intelectual (CI) en una Pequeña y Mediana Empresa (PyME) ubicada en la ciudad de Puebla aplicando la metodología señalada por el modelo Skandia. El enfoque del presente estudio es, cuantitativo y cualitativo de tipo descriptivo; mediante dicho enfoque se puede observar el rendimiento sobre la inversión hecha en un sistema administrativo por parte de la empresa en el año de estudio 2017, con el propósito de mejorar sus procesos, el control de éstos y ofrecer mejor atención a sus clientes. La metodología que se sigue en este trabajo es la propuesta por el modelo Skandia, pasando por sus diferentes enfoques y calculando los indicadores respectivos de acuerdo a la información disponible en la empresa en cuestión. En la parte final de este trabajo se presentan las conclusiones desde dos perspectivas, la primera desde la perspectiva de los directivos de la empresa objeto de este estudio y la segunda desde una postura generalizada para las PyME´s.

Capital intelectual, Pequeña y mediana empresa, Modelo Skandia

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Introduction

Intellectual Capital (C.I.) is an intangible asset that constitutes one of the pending issues in the evaluation within the financial accounting of companies because their contributions of human resources are essential to meet the established goals.

According to the Financial Information Standard (NIF C-8), an intangible asset is that identifiable without physical substance, used for the production or supply of goods or provision of services or for administrative purposes in order to have improvements in the future , so the IC meets this characteristic since the knowledge of the workers of the organizations generates an added value to the organization.

However, although this intangible asset generates added value to organizations, in most cases the value of this asset is unknown, having a restriction for decision-making (Demuner, Saavedra, & Camarena, 2017).

However, it must be considered that research and ideas related to Intellectual Capital are not new (Dias, Teixeira, Mafra, & Baroni, 2017, 52 2017), so interest in the subject has been growing as The new economy based on information technologies is extended and from there the knowledge acquired by employees increases so that companies become more competitive (Muñoz, 2019)

In addition to the above, companies have traditionally evaluated their assets, and that is why financial and non-financial models have been used to achieve this purpose; However, the financial value of C.I. For this reason, the knowledge economy has highlighted the importance of collecting the special value of this intangible asset, so multiple methodologies have appeared to measure them (Vidal, 2017).

However, the need to evaluate the C.I. it is born that in the current organizations it is no longer enough to translate the financial reports of their assets, liabilities and results; but also give value to the C.I. that is generated within the organizations for decision-making (Demuner, Saavedra, & Camarena, 2017).

For Dumay, (2004) states that much remains to be investigated in the field of evaluation of the C.I. Therefore, this brings up classical researchers on the subject such as (Sveiby, 1997), recognizing that traditional performance measures for a company are based on conventional accounting principles, which may be incorrect in a knowledge economy and therefore may lead investors to make bad decisions.

On the other hand, there have been investigations that have reported how C.I. influences. in the case of mergers of companies, especially in the financial sector, which makes the context relevant since, as a result of this merger, the added value of the company increases (Dias, Teixeira, Mafra, & Baroni, 2017, 52 2017).

Likewise, at the corporate level it has been shown that the companies that supply more C.I. They have a larger size on the board of directors which means that in the decision-making process the error can be reduced and thus increase the probability of reaching the established goals (Tejedo, Ferraz, & Emmendoerfer, 2017).

On the other hand, the need to evaluate the C.I. In a Small and Medium Business (SME) in Mexico, it arises from the circumstance that these economic units represent 72% of employment and contribute 52% of the Gross Domestic Product (GDP) (Carriedo, 2017); In this sense, there is a possibility that these economic units may be more competitive attracting investors. The evaluation of the C.I. It tries to motivate financial investments by looking at the knowledge that people in organizations cause in order to meet their goals, contributing to continuous improvement (Pérez, Pelayo, & Añez, 2016).

In this way, trying to eliminate the obstacles that these economic entities have for their development; This research focuses on the proposal to create a model that allows the evaluation of the C.I. of an SME based in the City of Puebla, allowing to reflect the financial valuation for decision-making in the organization, based on an analysis of the different valuation models of the C.I. landing on the situation of the company under study, through indicators to establish a financial value applying the Skandia model.

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In relation to this study, it consists of six parts, in the first one the theoretical framework of the subject is presented where various concepts of intellectual capital will be exposed as well as the context of SMEs in Mexico; In the second part, emphasis will be placed on the problem statement; part three will detail the objectives of the investigation; part four will analyze the methodology and model used to carry out the research; in part number five the case study will be analyzed so that later, in the last part the results of the present investigation are discussed.

Theoretical framework

Intellectual Capital

The CI. It is an intangible asset of organizations whose main characteristic is to generate value to them (Barney, 1991), in this way the C.I. it constitutes the basis of the competitive advantage of the company, especially that capital related to the internal capacities developed by the companies and that due to their particular characteristics are difficult to copy and imitate making them unique. Pacheco (2009), defines C.I. as individual or collective knowledge that produces value, it is the main source of wealth for professions and organizations in the knowledge society.

Hence the C.I. It can be defined as the administrative process applied to the growth and conservation of effort, experiences, knowledge, and skills, occupying the growth and development of people so that they can reach higher levels of fitness, creativity and achievement given that individuals are the main resource of any organization (Jacobo, Leyva, Daniel, & Mendoza, 2019).

For Scarabino, Biancardi, & Blando (2007) define C.I. as the set of intangible resources of the organization that have the capacity to generate value either in the present or in the future, allowing to recognize it through the accounting norm the skills, or abilities of the workers; by its nature the C.I. It is also divided into Human Capital, Structural and Relational, which generate the knowledge and learning of people as a result of their training. Likewise, human capital is the intangible resources that people have to generate value, it is identified by the skills, knowledge and abilities that workers have when doing their work (Bueno, Salmador, & Merino, 2008).

On the other hand, structural capital is the infrastructure that helps to incorporate, train and maintain human capital (Scarabino, Biancardi, & Blando, 2007), that is, this capital must be aligned with the corporate philosophy of development organizations adequate of their tasks, in summary this knowledge is acquired over time since the more the individual permeating in the organization, the more he will have how to do things within the organization.

In turn, relational capital is the sum of human and structural capital whose purpose is to incorporate knowledge in an integral way to the organization, that is, to the company's suppliers, customers and workers in order to expedite the tasks of the organization.

However, in each capital the particular objectives must be taken into account so that together they can contribute to the intellectual capital and thus achieve the objectives set by the organizations (Marin, 2001), as shown in figure number 1.

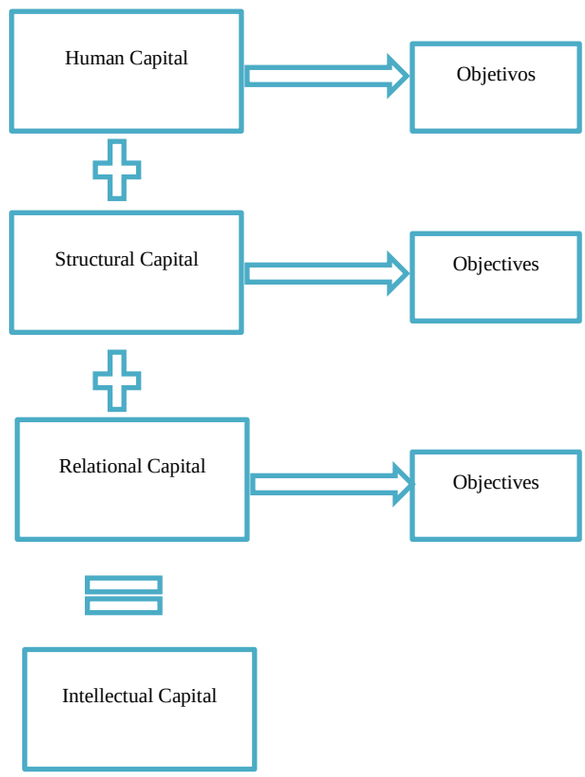

Figure 1 Components of Intellectual Capital
Source: Elaboration: based on (Marin, 2001)

As can be seen in Figure number 1, the conjugation of human, structural and relational capital results in intellectual capital which brings added value to an organization.

However, in order to achieve this result, the aforementioned will have to meet certain objectives measured in indicators. Finally, once the indicators have been implemented to evaluate the C.I. it would be verified if the objectives of the organization were achieved.

Evaluation Model for Intellectual Capital "Skandia"

In terms of evaluation models for intellectual capital, the best known are the following: Intellectual Asset Monitor, Strategic Management by Competencies, Nova and Skandia Navigator. Due to the above, this research project will be based on the model called Skandia Navigator.

In 1991 Skandia Assurance and Financial Services (AFS) hired Leif Edvinson, who raises how it is possible for a company to invest in human capital and technology since in the short term it suffers damage to the profit and loss accounts by reducing the value of balance and book value, so it is necessary to build a new valuation system; a short time later the market value of an organization is established, which is determined by its financial capital and intellectual capital. (Leif Edvinsson, 1998).

In 1996, Skandia standardized an intellectual capital model called "Value Creation Processes", focusing its attention on the growth of organizational capital. The Skandia Navigator is considered as one of the most important tools for measuring intellectual capital, as it represents a history of how knowledge economy was obtaining meticulous results on the capacity and power of an organization to transform intellectual capital into financial capital. (Edvinsson L. and., 1998).

Zuluaga (2019) says that the IC within an organization is considered as an intangible asset giving results that benefit it, so that it becomes financial capital through accounting transforming and adapting the IC as a new concept , also generating connection between the market in relation to customers, suppliers, experience, new knowledge, organizational technology, professional skills, and skills.

A company always seeks to have a competitive advantage through organizational change by showing itself in 3 different ways: technological, internal and external, reflecting on knowledge which is considered an essential resource to achieve positive results in the economic activity of an organization through of organizational intelligence; In this way, people who perform their assigned tasks are called intelligently taking into account investors (those who contribute capital or funds), managers (distributors of resources) and employees (perform specific functions) thus giving importance to Intellectual Capital (Jama, 2019)

For its part, the Skandia model states that all this only works if knowledge is shared within the organization, is located in its goals, and the time between receiving the information and application is continuously reduced. (Edvinsson L. y., 1998)

Elements of intellectual capital in the Skandia model

In the case of Skandia in 1991, he proposes the Skandia Value Scheme, to demonstrate that intellectual capital is formed as follows:

– Human capital.
– Structural capital, which is divided into:
  a) Customer Capital
  b) Organizational capital.

The elements that make up the intellectual capital that generate a competitive advantage are the following, according to each of the authors:

First, Edvisson and Mallone will be addressed:

Human capital: It is made up of the abilities, knowledge, skills, abilities and experience of the employees and managers of an organization.

Structural capital: It is made up of the capital called "clientele" and "organizational" capital.

Client capital: Reflects the recognition that the company has towards its loyal customers, usually under the heading called "goodwill".

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Organizational capital: Refers to the infrastructure sustained by human capital making possible the proper functioning of the company. This is included in the corporate culture, computer or communication systems, databases and management methods.

Thus, intellectual capital encompasses a series of elements so extensive that they range from assets included in the financial statements to resources that are difficult to recognize and measure (level of customer loyalty, relationships with suppliers, etc.).

Human capital

However, intellectual capital is a resource or asset that generates value within an organization, since human capital is considered as the capacity that a person has to adapt to changes and learn constantly using his talent; That is why companies strengthen learning and creativity in their staff. Where this is how human capital is defined, which is the set of intangible resources that members of an organization possess (Roos J, Roos G, Dragonetti N and Edvinsson, 2001); According to Roos, resources can be classified as follows:

A. Skills: Conformed by knowledge, skills, abilities and know-how.
B. Attitude: Refers to motivation and leadership capacity.
C. Intellectual agility: All those skills of the members of the organization to be quick mentally taking into account innovation and entrepreneurship, as well as the ability to adapt and create synergies, among others.

Within a company, human assets are considered of utmost importance since they are those that support the organization and respond to the needs of the market; that is, when the company is going through a difficult time it is there that human capital is capable of generating new strategies, products, services and technologies to enhance the company. (Brooking A., 1997) mentions that, human assets are capable of promoting and responding to the needs of the market, generating a set of competences associated with work, defined as a mixture of techniques, creative features, personality attributes, professional qualifications; in addition to the following points:

– Ability to design a marketing strategy.
– Ability to evaluate an asset.
– Ability to operate machinery.
– Ability to direct a project.
– Ability to speak a foreign language.
– Capacity for teamwork.
– Ability to teach a discipline.
– Ability to sell a product.

Structural Capital.

Referring to structural capital, it can be conceived as all those equipment, patents, programs, or tools that help employees increase their productivity, as well as all the relationships that the company has with its customers (Vidal, 2017).

Customer Capital.

Most authors call this factor as clientele capital or relational capital, since this type of capital has to do with the actions or relationships that the company performs to strengthen its ties with external actors taking into account not only its customers but also, to its suppliers, investors, financial institutions, new potentials and shareholders. On the other hand, Leandro Cañibano (Mesquita & Cañibano, 2006) calls it relational capital, defining it as "the one that has to do with customers, customer loyalty and satisfaction, maintaining good relationships and distribution agreements, franchises, licenses, etc.".

For Kaplan and Norton, it is "the customer perspective that allows identifying the customer and market segments in which the business unit will compete to articulate the market-based strategy that will provide future financial returns of a higher category". (Kaplan & Norton, 1992)

Organizational Capital

It is also known as structural capital (EC), which includes all those elements of internal organizational type that the company puts into practice to perform its functions in the most optimal way possible using different tools such as: databases, tables organizational, process manuals, individual property (patents, trademarks or any intangible element that is protected by intellectual property rights) and all those whose value is greater than the material value of the company.

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In other words, organizational capital (CO) or structural capital is that which includes the work processes, techniques, methods and programs that are used by human resources allowing them to increase the efficiency of their activities within each area of work in the company (Alarcón, Freire, Pérez, Frías, & Nogueira, 2019)

Drucker, quoted by Stewart himself, points out that "only the organization can provide the fundamental continuity that the intellectual worker needs to be effective. Only the organization can convert the specialized knowledge of the intellectual worker into performance". (Drucker & Stewart, 2005)

The C.O. It includes elements such as inventions, data, publications and processes that can be patented, that is, they are subject to legal property rights, but it should be emphasized that, not only do these elements make it up, but it also includes "strategy and culture, structures and systems, routines and procedures that are usually more important and valuable than codified goods ". (Edvinsson L., 1997)

Structure of the Skandia model

The Skandia Business Navigator proposes five approaches such as: A) Financial approach, b) Customer or customer focus, c) Process approach, d) Development and innovation approach and Human focus.

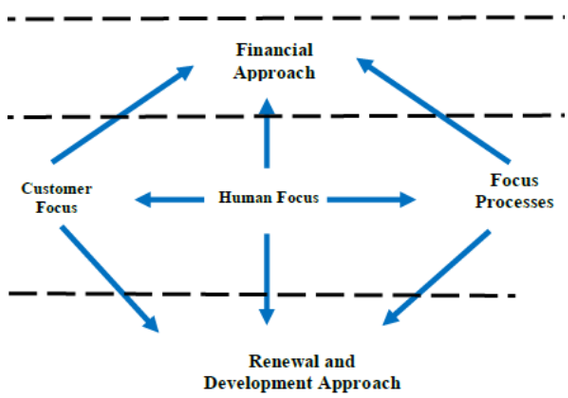

Figure 2 Approaches of the Skandia Business Navigator
Source: (Ascanio A., 1992.1996)

Financial Approach

This approach refers to the past whose integration is made up of the annual accounts and management reports.

Therefore, it is necessary to have an effective financial capitalization to analyse, measure and provide information on how the company operates. That is why Skandia proposes financial capital indicators that highlight the most valuable assets within a company, detecting 4 types of indices through a pattern that are:

1. **Cumulatives:** Effective to discover those points of change during the life cycle stages.
2. **Competitives:** It compares the performance that the company has with that of the entire industry, expressing it as a percentage or through indices.
3. **Comparatives:** Includes two or more variables within the company to analyze them.
4. **Combined:** They are used to obtain a short, medium- or long-term perspective on the performance in an organization.

1. Financial Assets ($): Also known as Fixed Assets, they are all those that can be measured within the organization.
2. Financial Assets / Employees ($): They reflect the efficiency in the use of these assets by each employee.
3. Income / Employees ($): Monetary average of what each employee provides to the company for its sales made.
4. Managed Income / Assets (%): For each managed asset how much will be obtained from income or sales.
5. Income from insurance premiums ($): These are all insurance premiums that are sold.
6. Income / Premiums from new businesses ($): Measurement of income and regeneration, makes it possible to have an idea of how the company is likely to behave in future years.
7. Billing / Employees (%): This indicator reflects the sales that each employee has.
8. Client time / Employee attention (%): It can be obtained with the indicator "client time" / person-income, it serves as immediate feedback to detect weaknesses and strengths, in addition to setting new goals in the organization.
9. Insurance Activity / Employee Result ($): Indicates how many insurances each employee is selling.

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10. Proportion of losses compared to market average (%): Creates a percentage or customer loyalty ratio.
11. Return on equity (%): Also known as direct return and refers to the gross margin which is obtained from gross profits between sales.
12. Benefits of ordinary activities ($): Also known as "Net operating income" and refers to the income that is received directly from the insurance and financial services business.
13. Market value ($): It is the book value multiplied by the number of shares.
14. Market / employee value ($): It indicates the added value of the human resource.
15. Return on the net value resulting from the expense in a new business (%): It is the return on investment better known as ROI.
16. Return on net asset value ($): These are the profits resulting from a new business.
17. Value added / Employee ($): Skandia points out that this is the most important indicator of this group since it is the least distorted by accounting.
18. Computer expenditure / Administrative expenditure (%): Refers to how much of the administrative expenses corresponds to the computer expenses.
19. Value added / employed in computer science or administrative ($): Relationship between employees and computer technology to add value to the firm.
20. Investments in information technology ($): How much is being invested for technological development in information technology.

Customer Focus

This approach is made up of all those measures that capture the reality of the relations between the company / client, these indicators must cumulatively capture the flow of relations between the company and its clients (current and potential) such as: type of client, duration of the relationship of the client, role or role of the client in the company, customer support, among much more; but the Skandia model presents the following fundamental indicators for this approach and they are: (Nevado D, López V, 2002):

1. Market share (%): Represents how well the entity is positioned and reflects customer satisfaction.
2. Number of current customer accounts (#): Reflects the variation in the demand for goods and services.
3. Lost customers (#): Measure that reflects a loss for the company represented in time and money invested in a customer and future lost revenue.
4. Telephone accessibility (%): System capable of maintaining an efficient relationship between client and organization or in some cases unoccupied telephone lines for customer service.
5. Annual Sales / Customers ($): Reflects the importance of certain clients within the organization.
6. Measured duration of relationship with the client (#): How loyal the client has been within the entity and if it has new clients, helping to monitor its behavior in the future.
7. Customer score (#): How customers view the organization for its services from 0 to 10.
8. Customer visit to the company (#): How important is the organization to the visits of its customers and if they provide recommendations in the development of the product.
9. Days dedicated to visiting customers (#): Importance of dedicating time to the client and in the future being a factor of change in the consumption of products or services.
10. Customers / Employees (#): How many people are in charge of customer service.
11. Average time between contact with customer and sale (#): Time to make the sale after meeting a potential customer.
12. Customer satisfaction (%): Constant communication through surveys conducted by the organization to know customer satisfaction.
13. Point of sale (#): Number of branches.
14. Frequency of repetition on customer purchases (#): How many customers have re-hired the services or products of the organization.
15. Investment in information technology ($): How much the company invests in issues of technological development in information technology.

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16. Support Expense / Client ($): How much the entity has invested in support of its customers.
17. Spending on service / client / year ($): How much the company has spent to provide a service per year.
18. Employees dedicated to customer service (#): Basic indicator for personalized customer service.
19. Profitability per client ($): Identifies the ability of each client to provide greater profits to the organization.

These measures are the most important for investors, since they allow to know their client portfolio and the relationship between company-client, in this way they will help to make strategic decisions.

This approach focuses on the technological role that is used as a tool to sustain the company and create value, helping to increase its efficiency and productivity. It is considered important as it is an element that helps the electronic exchange of data, web pages, inventory networks and new relationships between the organization, suppliers, partners and customers that are fundamental parts to survive in such a competitive market. (Nevado D, López V, 2002).

On the other hand, we must take into account the possible technological problems that arise in this approach when generating value:

1. Wrong technology: Choosing a wrong technology can be a very serious problem for the organization, since adopting a new invention can bring infinite risks when creating a new product.

2. Wrong supplier: Choosing a wrong supplier causes greater problems and in the long run it can be very expensive, since when you buy some machinery it can disappear or distribute incorrectly by giving discontinued parts or systems that cannot be to update.

3. Wrong applications: In this part we find the technology that is purchased, whose objective is to solve problems quickly and easily. Buying technology in large quantities for the simple fact that the brand has been good does not mean that this will solve the problems in the organization. All this machinery is considered as assets; however, in real life they are passive because of the damage they can cause in productivity and capital.

4. Wrong philosophy: Most companies only care about having cutting-edge technology leaving aside the goals or objectives of the organization, in addition to the strategies to attack their competition; That is why it is necessary to create a suitable model that allows to assess the technology correctly within the balance sheet.

The solution to avoid falling into these errors is to create indexes that allow detecting errors within the technological infrastructure; some of these indexes are:

- Value useful technologies that contribute to the value of the firm.
- Monitor the vendor's support and age for the company's process technology
- Measure the performance of the process and the real contribution it has in business productivity.
- Incorporate performance indices in relation to the fulfillment of established goals within the processes.

Next, the process indicators that Skandia proposed are listed:

1. Administration expenses / assets managed ($): How much the assets generated are generated from expenses.
2. Administration expense / Total income (%): Of the total income the organization receives, how much is spent on administrative expenses.
3. Cost of administrative errors / administrative income (%): How much does a mistake made within the organization cost?.

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4. Productivity rate in relation to that of the industry (%): This index is obtained according to information granted by organizations in each sector.
5. Total performance compared to the previous year (%): Earnings compared to the previous year,
6. Contracts registered without errors (#): Those contracts that are executed correctly.
7. Personal Computers / Employees (#): How efficient are personal computers for the number of employees there are.
8. 8.- Administrative expense / Employees ($): Expense incurred by human resources within the organization.
9. Expenditure on computer technology (IT) / Employees ($): How many of the employees are assigned software and hardware to perform their daily activities.
10. Expenses in IT / Administrative Expense (%): Participation of IT in administrative expenses.
11. IT Staff / Total Personnel (%): How many employees are dedicated to the IT department.
12. Employees working at home / Total employees (%): Future of telecommunications, as well as checking the efficiency of technology and research.
13. Corporate quality goal (#): This index is defined by the company according to the characteristics of the market.
14. Corporate performance / Quality goal (%): Defines how close or far the organization is from its objectives or goals.
15. Sales / Employees ($): It is detected through this index which employee makes the highest sales.

Renewal and Development Approach.

It captures the units that define the company, these are part of the clients (habits, changes, etc.), in the market (investment, market research, target markets, etc.), in the strategic partners (investments, communication, etc.), in infrastructure (acquisitions) and in employees (level of training or learning, goals, motivation, etc.). This approach represents failures, needs to be covered, weaknesses, barriers, among others that the company must take into account so that it does not happen in the future (Nevado D, López V, 2002).

Skandia proposed the following indexes within this approach:

1. Index of satisfied employees (#): The satisfaction and possible needs that the employee has within the company is identified.
2. Marketing expenditure / Managed assets ($): How much the company invests to publicize its products in the market.
3. Participation in training hours (%): Of 100% of the employee's time, how much of this one goes to training.
4. Participation in hours of development of new products (%): Of 100% of the organization's time, how much it dedicates to the relation of new products.
5. R&D expenses / Administrative expenditure (%): How much of the administrative expenses are invested in research and development expenses.
6. Expenditure on training / Employees ($): For each employee how much is allocated for their development within the organization.
7. Expenditure on training / Administrative expenditure (%): How much of the administrative expenses is invested for employee training.
8. New business development expense / Administrative expense (%): How much of the administrative expenses is invested to develop new businesses.
9. Proportion of employees under 40 years (%): Of the total human resources, how many of them are under 40 years of age?.
10. Development expenditure on technology and research / Total expenditure on IT (%): How much of the total technology expenses is invested for the development of technology and research.
11. R&D Resources / Total Resources (%): Amount of resources used for innovation and development
12. Average customer age (#).
13. Average education in employees (#).
14. Average income ($).
15. Average duration of the client in the organization, months (#).
16. Investment in education / Client ($): How much of the income is invested so that the client knows more about the product and knows how to use it.

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17. Direct communication with customers / Year (#): Refers to how many times in the year there has been direct dealings with customers.
18. Investment in development of new markets ($).
19. Investment in structural capital development ($): How much is invested in software, hardware, patents, brands, and fixed assets that help employees perform their tasks.
20. Value of the electronic data exchange system ($): Refers to the investment made on the internet and the necessary equipment for virtual meetings.
21. Proportion of new products (%).
22. Research and development invested in product design (%).
23. Company's average age of patents (#).
24. Patents pending (#).

Human approach

This approach is one of the most difficult to measure, since the competence of employees in relation to working methods is very different; nevertheless, Skandia did it by setting the basic and main measures for productivity in employees and managers, in relation to infrastructure, he applied it to help employees perform their day-to-day tasks better, in order to identify changes produced and establish common techniques to measure them. Next, Skandia proposes the following indicators (Nevado D, López V, 2002):

1. Leadership index (%): This includes employees who have leadership in their areas.
2. Motivation index (%): Employees who are satisfied, motivated and competent.
3. Index of qualified employees (#): Those who have Bachelor's degrees, Diplomas, Masters and Doctorates.
4. Number of permanent full-time employees (#): It includes the majority of office workers, tele-employees (remote workers), company employees, managers and mid-level executives.
5. Percentages of managers of nationalities other than the company's headquarters (%): Global competition, international administration creating competitive advantage.
6. Employee turnover (%): Critical factor for a company.
7. Average years of services in the company (#): Personnel turnover is very important and through this index the average duration of employees is displayed.
8. Number of managers or managers (#): People who have a manager position.
9. Number of women managers (#): Women who have management positions.
10. Training / Employee Expense ($): Measures the company's commitment to keep its employees happy and up to date by means of workshops or trainings.
11. Average age of employees (#): Youth in some cases cannot be an advantage. The transmission of the corporate philosophy is best done by older employees.
12. Proportion of employees under 40 years (%): Measure that reflects how the organization updates its staff.
13. Training time days-year (#).
14. Number of staff members (#): Workers, employees, among others.
15. Average duration of contracts (#): According to company policy.
16. Percentage of expert employees (%): Identify expert personnel in each specific area.
17. Education level indices (#): How prepared the employee is.
18. Value added by employee (%): Participation that the employee has within the company to generate added value.

On the other hand, the Skandia model developed by the insurance and financial services company of the same name is an instrument capable of measuring in a practical way and with financial and non-financial indicators the C.I. in a way that allows you to visualize the organization quickly, helping them to make appropriate decisions (Saavedra & Saavedra, 2012)

This model has a five-area approach based on the financial approach, passing through the clientele and process approach, then entering the renewal and development approach so that in the end it ends in the human approach.

The financial approach represents the historical monetary data of the organization, in this way you can identify the guidelines to be followed by the indicators established for the calculation of the value of the C.I.

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On the other hand, the clientele and process approach represents the present and the activities of the company that are oriented towards the intangible asset, in this context although it does not focus on monetary situations, it is focused on the acts that the collaborators perform with the clients and on the processes to identify the indicators to be measured.

In the renewal and development approach are the training given to workers, the development of new products, strategic actions as well as the markets in which the organization will operate.

Finally, the human approach symbolizes the capacity and intelligence that they grant and apply to the entity, in this sense an added value is given to the organization, it is the difference that can exist with other organizations due to the constant development of the staff.

The equation that Skandia proposes regarding the measurement of C.I. is the next:

$$C.I. = i*C \quad (1)$$

Where:
C = Value of intellectual capital in monetary units.
i = Efficiency coefficient with which the organization is using said capital.

Now to determine the efficiency coefficient is determined as follows:

$$i = (n/x) \quad (2)$$

Where:
n = It is the sum of the decimal values of the nine efficiency indices.
x = Is the number of these indices.

SMEs in Mexico

Small and Medium Enterprises (SMEs) constitute in Mexico with 99% of the total economic units, representing 52% of the Gross Domestic Product (GDP) constituting 72% of formal jobs (Ministry of Economy, 2009), being thus one of the most important factors for Mexico since these economic units generate an impact on the economy.

For an organization to be SMEs, it will have to observe the stratification of SMEs which, in relation to the sector, range of number of workers and annual sales range, as described in figure number 2.

Size	Sector	Range of number of workers	Annual sales amount range (mdp)	Maximum limit changing *
Micro	All	Up to 10	Up to $ 4	4.6
Small	Commerce	From 11 to 30	From $ 4.01 to 100	93
	Industry and Service	From 11 to 50	From $ 4.01 to $ 100	95
Medium	Commerce	From 31 to 100	From $ 100.01 to $ 250	235
	Services	From 51 to 100		
	Industries	From 51 to 250	From $ 100.01 to $ 250	250

Table 1 Stratification of SMEs in Mexico
Source: (Ministry of Economy, 2009)

However, these economic units represent great challenges to be able to develop properly, according to (González, Solís, & Alcudia, 2010) SMEs face problems such as time for their production processes, human resources, supplies, machinery and financial resources.

On the other hand (Estrada & Heijs, 2005) say that the problems that SMEs face are innovative in nature that are linked to the staff of organizations, since new ideas arise from innovative ideas, however this burden is focused on the CI since derived from all the knowledge is reflected in the productive profitability of the entities.

Added to this is that the C.I. In SMEs it is valued from the strategic point of view, that is, in the decision-making process to increase their development, this is because SMEs do not invest in this concept leaving behind the capabilities of their collaborators to generate a added value and thus be more competitive in the market. On the other hand (Estrada & Heijs, 2005) say that the problems that SMEs face are innovative in nature that are linked to the staff of organizations, since new ideas arise from innovative ideas, however this burden is focused on the CI since derived from all the knowledge is reflected in the productive profitability of the entities.

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Problem Statement

The Intellectual Capital of the organizations has been approached with great presence in the organizations to such an extent to know what the performance on the continuous processes of the companies has been. A primary factor that companies have had is the same performance in relation to the new technologies that have been acquired in order to improve their work.

In this sense, the organization under study has considered the performance on the acquisition of a new administrative system that allows it to improve its inventory purchase and sale processes, this with the objective of making more accurate decisions about training of staff to achieve full compliance with their customers.

For this reason, the use of the Skandia model was proposed since it was found adequate to measure the performance of the personnel on the investment of the administrative system, allowing the valuation of the investment in training as in infrastructure relating it to the staff and clients of the same organization.

Research objectives.

The objectives of the present investigation are the following:

A. Know the staff efficiency index on the administrative system that the organization acquired.
B. Know what are those indicators that have to work to reach an efficiency rate of 100%
C. Know the value of intellectual capital on the new administrative system acquired by the organization.

Methodology

This research work has the characteristic of being a mixed study, since it is quantitative in order to obtain results that will offer a point of view on the phenomenon of C.I. about the company under study and qualitative since the data obtained will be characterized on the circumstances of the company (Hernández, Fernández, & Pilar, 2004)

A. It is descriptive to have the tendency that derived from the results it will offer a real panorama in comparison with the financial results of the organization whose fundamental objective is the decision making in the term of the C.I.
B. On the other hand, the case study the methodology to evaluate the C.I. The following steps were used to determine the qualitative indicators of the company: 1.- The investment made by the organization in terms of training workers to use the new administrative system was identified; 2.- The investments made by the company in the administrative system and new technologies acquired were identified; 3.- Those indicators that were related to the administrative system were identified and 4- The value of intellectual capital over the new administrative system was calculated.
C. Once the foregoing has been determined, the indicators will be classified to expose them in the structural, human and relational Capital so that the calculation of the C.I can be determined later.

Case study

The company under study is a Small and Medium Business (SME) incorporated as a Public Limited Company whose location is in the City of Puebla, Mexico has 42 workers whose activity is the pharmaceutical industry, due to its processes the economic entity, has been raised determine the value that your staff has helping to make decisions regarding financial results especially on the administrative system that was acquired.

For this, the investments made by the company in 2017 were identified, of which the training and training of personnel with a value of $ 150,000.00 (Human Focus) was identified, as well as the direct investment in assets with a total amount of $ 750,000.00 (Investment and Development Approach) as described in Table No. 2 and 3 respectively.

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Human approach	Year of study
1.- Investment in training	$150,000.00
Total	$150,000.00
Table No. 2 Investment in Human and Structural Capital by the company. Source: self made.	
Investment and development approach	Year of study
1.- Investment in administrative systems	$250,000.00
2.- Investment of machinery and technology	$500,000.00
Total	$750,000.00

Table 3 Investment and development approach
Source: Own Elaboration

From the investment in the training of the staff, it was verified that the trainings were in accordance with the profiles and tasks of the workers, also comparing them with the documents that supported said training that was based on an integral administrative system that (structural capital) to be more efficient internal processes of the organization. Once the human and structural capital was identified, the indicators were worked on to obtain the investment of the relational capital, which were classified into six indicators.:

A. Customer satisfaction: Surveys were conducted where the main objective was to verify whether the company's potential customers were satisfied with the attention of the organization under study, based on the implementation of the administrative system, the company's satisfaction rate for the 2017 was 0.85.
B. Purchases related to the new administrative system: This indicator is identified with the purchase of products based on the use of the new administrative system, that is, knowing how the new operations are developed, the index obtained by this indicator was 0.75.
C. People with university degree: This indicator is related to workers who already have a knowledge of university degree in relation to the universe of existing workers in the entity (42), this index was 0.60 for the company.
D. Compliance with objectives by the company: This indicator evaluates the objectives obtained from the workers which was 0.90
E. Personnel turnover: This indicator measured the output of company personnel in the sense that they will look for better job offers, so that in the year of study a rotation index of 0.10 was obtained.
F. Personnel satisfaction: This indicator is related to the previous one, that is to say, not having such a significant turnover, it is understood that employees can be satisfied with their work, so in this index a factor of 0.80 was obtained

In this way the indicators identified above are determined in the investment of relational capital as shown in table No. 4

Customer Focus	Year of study
1.- Customer Satisfaction Index	0.85
2.- Purchase index related to the administrative system	0.75
3.- Index of people with university degree	0.60
4.- Index of fulfillment of the objectives by the organization.	0.90
5.- Staff turnover rate	0.10
6.- Staff satisfaction index	0.80
Total	4.00
Number of indicators	6
Efficiency index	.66

Table 4 Customer focus
Source: Own Elaboration

Once the investment of human, structural and relational capital was determined, the value of the intellectual capital of the company was calculated, as described in table N. 5.

Concept	Amount
Total investment in human and structural capital.	$900,000.00
Efficiency Index	.66
Intellectual capital	**$594,000.00**

Table 5 Calculation of the intellectual capital of the company
Source: Self Made

Conclusions

With respect to the case study presented, it can be noted that the lowest indicators by the relational capital were the purchase index with a value of 0.75 related to the administrative system and the index of personnel with university degrees with a value of 0.60.

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Proposing on the part of the managers, they stated that the first indicator can be modified as a result of the first year of implementation of the administrative system and the second indicator proposed that it be evaluated by workers' skills and performance.

The discussion by the directors of the company was the decision making not by the human and structural capital but by the relational capital, since they believe that by modifying the aforementioned indicators through measurable objectives, greater performance can be achieved.

As you can see the value of intellectual capital represents a proportion of what represents the investment of human and structural capital by 66%, which represents the efficiency index, that is, through the qualitative indicators that were identified in capital Relational demonstrates the operability of workers on said investment made by the company to improve its processes.

On the other hand, for an SME to calculate the value of its intellectual capital through the Skandia model is relatively simple through the approaches proposed by the model; this incorporates financial capital into accounting capital; given that the sum of both (accounting capital and intellectual capital) reflects in financial terms the value of a company; which means that a company of this type may be correctly accounting for its tangible and intangible assets, so these companies may be better valued and more attractive to some investors.

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Assessment of the impact of intellectual capital on the generation of value in companies of the Sinergia Academia-EmpresaMypymes network in Mexico, based on the Skandia Navigator Model

Valoración del impacto del capital intelectual en la generación de valor en empresas de la red Sinergia Academia-Empresa Mypymes de México, con base en el Modelo del Navegador Skandia

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Abstract

This paper analyzes the impact ofintellectual capital considered as the new paradigm of competitiveness (Bueno, 2008, Villegas-González, Hernández-Calzada and Salazar-Hernández, 2017), through the implementation of a comprehensive web system for Academic Management and Linking of the Collaborative Thematic Network, on the companies in the SinergianetworkAcademia-EmpresaMyPymes de México, from the area of influence of the Technological Universities, integrated by the Academic Bodies: UTBB-CA-1 Information Technologies for the technological development of Bahía de Banderas and the UTJAL-CA-2 Social Responsibility, Sustainability and Integral Development for SMEs of the Technological University of Jalisco, same that served as coordinator of the Thematic Network of Academic Collaboration.Basis in the Skandia on companies of the SinergiaAcademiaEmpresa network of MyPymes in Mexico, based on the Skandia Navigator Model, which is tropicalized, assessing relationships between pairs ofvariables, through cross-checking or contingency tests,followed by discriminant analysis; to finally recognize therelationship between the variables "How many employees of your company are satisfied with work?" and "What is the rate of satisfaction of your customers?", as the one that has the best association to promote the generation of value.

Intellectual capital, human capital, value creation

Resumen

En la presente investigación se analiza elimpacto del capital intelectual; considerado como el nuevo paradigma de la competitividad (Bueno, 2008; Villegas-González,Hernández-Calzada y Salazar-Hernández, 2017), mediante la implementación de un sistema web integral para la Gestión Académica y Vinculación de la Red Temática de Colaboración, sobre las empresas de la red SinergiaAcademia-Empresa MyPymes de México, de la zona de influencia de las Universidades Tecnológicas, integradas por los Cuerpos Académicos:UTBB-CA-1 Tecnologías de la Información para el desarrollo tecnológico de Bahía de Banderas y el UTJAL-CA-2 Responsabilidad Social, Sustentabilidad y Desarrollo Integral para PyMES de la Universidad Tecnológica de Jalisco, mismo que se desempeñó como coordinador de la Red Temática de Colaboración Académica. Base en el Modelo del Navegador de Skandia, tropicalizado, valorándose las relaciones entre pares de variables, mediante pruebas cruzadas o de contingencia,seguido de análisis discriminante; para finalmente reconocer a la relación entre las variables ?Cuántos empleados de su empresa están satisfechos laboralmente? y ?Cuál es el índice de satisfacción de sus clientes?, como aquella que posee la mejor asociación para promover la generación de valor.

Capital intelectual, capital humano, creación de valor

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Introduction

For Porter (1990), competitiveness depends on the quality of the interactions that the company establishes, among others the economic environment, the efficiency of the value chain, infrastructure and human capital. The intellectual capital is an innate characteristic of the company, generated in the course of time as a consequence of knowledge, experiences, attitudes, decision making and culture. Such actions translate into value creation and competitive advantage. (Hidalgo-Gallardo and García-Meca, 2009) In the present investigation the capabilities in companies of the network Mypymes Academy-Company Synergy of Mexico are analyzed, based on the Skandia Navigator Model, tropicalized. The main interest is to contribute to the academic discussion, however previous literature has obtained confused results regarding the identification of factors that allow the assessment of the impact of intellectual capital in the generation of value in companies and the findings of an exploratory investigation.

The article includes background of the concept of intellectual capital, followed by the analysis of the impact of intellectual capital through the implementation of a web system for the Academic Management and Linking of the Collaborative Thematic Network on the companies of Sinegia Academia-Empresa, MyPymes de México Network of the area of influence of the Technolkogical Universities and its close relationship with the advantage competitive, the use of databases as well as the main findings, assessing the relationships between pairs of variables, through cross-tests or contingency, followed by discriminat analysis.

Theoretical framework

The term intellectual capital is attributed to the Canadian economist John Kenneth Galbraith, in 1969; but it is not until the mid 90's when the definition is reached as such (Edvinsson and Malone, 1998), known as intangible resources and capacities or knowledge assets (Cañibano et al., 1999). European Commission (2006) states that it is the combination of intangible resources and activities that allows an organization to transform a set of material.

Financial and human resources into a system capable of creating value and innovation Intellectual capital has become the strategic factor of the new paradigm of competitiveness (Bueno, 2008, Monagas, 2012, Díaz, by Liz and Rivero, 2009, Villegas-González, Hernández-Calzada and Salazar-Hernández, 2017) In intellectual capital three interrelated components are recognized: Human Capital: Competences of each of the individuals of the organization; (Subramaniam and Youndt, 2005; Herrera et al, 2010) Structural Capital: Technological capital (production processes, process reengineering, research and development) and Capital relative to Infrastructure (organizational culture, information systems, etc.).

Al-Khalil (2014) states that organizational capital supports the activities of technological innovation. Relational Capital: Relationships with the environment (suppliers, customers, associations, etc.). Zerenler (2008) and Wincent (2010) discuss relationships with suppliers and their positive influence on the innovation process. In the literature reviewed, a variety of models were found, both qualitative and quantitative; they can be classified as direct and related depending on the depth with which they approach the subject (Lissarrague, Simaro and Tonelli, 2009, Sveiby, 2010, Yepes, 2010).

Among the most widespread direct models we find the Dolphin Navigator System (Skandia), the Intellect Model (Euroforum Escorial University Institute and the consulting firm KPMG), Nova Model (Valencian Knowledge and Innovation Management Club), among others (Benavides, 2012). Navigator, also known as the Skandia Model due to its implantation in the Swedish insurer, is in fact the first model that defines the intellectual capital in an organization, makes a proposal for its measurement and its management (Figure 1)

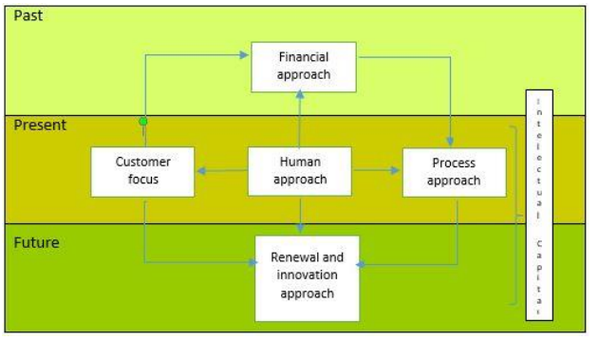

Figure 1 Skandia Navigator of Intellectual Capital
Source: Edvinsson and Malone (1997)

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The Navigator is structured according to "focus areas"; financial approach, customer focus, process approach, renewal and development approach and human focus.

According to Huerta-Bortolotti (2011), SMEs have had three stages of evolution: 1st. In the 50's and 60's during the validity of the import substitution model. 2nd. In a context of a closed economy and a reduced internal market, important achievements were achieved, but also with some limitations in terms of equipment, organization, training and information; 3rd. In the 90's, availability of external financing and internal economic stability, although obstacles must be overcome in terms of the legal regulatory framework.

Aguilera, Hernández and Colin (2014) highlight how intellectual capital and the control of production processes have a positive influence on the growth of competitiveness of SMEs. Soler and Celesino (2011) point out that the intellectual capital in companies such as Dell, Microsoft, Intel, Coca-Cola among others, represent more than 50% of total market value. For the present work we will use the definition proposed by Mention (2012): "Intellectual capital is a set of internal and external resources (human, process, technology) that organizations mobilize and articulate, through activities, with other resources (financial and tangible) in order to generate more resources, which may be of a tangible, intangible or financial nature, in their search to achieve a greater competitive advantage ".

Metodology

In this research, the impact factors of intellectual capital are valued in the generation of value in companies of the Sinergia Academia-Empresa network of Mypymes de México, based on the Skandia Navigation Model. The research is cross-sectional, it seeks to establish relationships in correlation and cause-effect terms; therefore, the design used is non-experimental, quantitative, transversal and correlational (Hernández, Fernández and Baptista, 2010). The scope of the research is exploratory, because it provides an approach to the phenomenon of study.

The questionnaire was used: "Skandia Navigator Model" tropicalized and through the implementation of a comprehensive Web system for Academic Management and Linkage for the Thematic Collaboration Network, evidence for Mypymes Academy-Company Synergy of Mexico, from the Influence of the Technological Universities, integrated by the Academic Bodies (CA's) UTBB-CA-1 Information Technologies for the Technological Development of the Banderas Bay, Nayarit of the Technological University of Bahía de Banderas and the UTJAL-CA-2 Social Responsibility , Sustainability and Integral Development for SMEs of the Technological University of Jalisco, which was the coordinator of the Thematic Network of Academic Collaboration (RTCA).

The questionnaireconsist of 141 questions, distributed in five sections: I) Financial focus. Constitutes the past and is integrated by the annual accounts, II) Customer focus. It captures the new reality of efficient and sensible company-client relationships, III) Process approach. Relating to the role of technology as a tool to sustain the company and create value, IV) Renewal and development approach. Capture the opportunities that define the future of the company, V) Human focus. Employee competence.

There are four scales: nominal and ordinal, intervals and scales of proportion, quotient or ratio (Coronado-Padilla, 2007). The variables selected to build the indicators are usually found in different measures and scales, which makes it necessary to standardize them so that they can be comparable (Hernández, Fernández and Baptista, 2009, Schuschny and Soto, 2009).

Verify the normality and homoscedasticity of the variables, analysis of correspondences of two or more categorical variables, whose boxes contain some measure of correspondence between their rows and their columns that correspond to the categories of variables. The correspondence measure can be an indication of similarity, affinity, confusion, association or interaction between rows and columns. The most common type is the double-entry contingency table or cross-tabulation of two categorical variables, where the boxes contain frequencies.

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Subsequently, the discriminant analysis method was used which variables contribute to discriminate between two or more groups that are observed in practice and the variable or group of variables is used to predict the belonging of a new observation.

Suppose that if there are n entities for which k explanatory variables are known, and it is observed that n1 of them belongs to a group (1) and n2 to another group (2), where: n1 + n2 = n; it is possible to construct a linear function of the k variables that can be used to predict whether a new observation belongs to a group or another with a certain probability.The general linear functionisdefined as follows:

$$Z = \lambda o + \sum_{i=1}^{K} \lambda i \, \chi i$$

The function of the discriminant analysis from the point of view of the analysis of variance is to answer the question of whether two or more groups are significantly different from each other with respect to the average of a particular variable. It should be kept in mind that if the mean of a variable is significantly different in several groups, it can be said that this variable discriminates between groups.

Results

Through the support of data analysis tools in Excel, through descriptive statistics analysis, the recognition of the variables wuth the grates inpact in terms of competitiveness for human value was made, among which stand out, the number of *satisfies employees, the satisfaction index of their clients*, among others.

From the base Skandia indicator surveys in the section Focus on renovation and development, in companies of the Mexican Chamber of the Construction Industry, the number of employees has an average of 21.84 and standard deviation of 7.0, a condition that allow the conclusion of a decentralized distribution with high variability.

In the comparison with the data obtained by the UTBB in companies of Management and development of services, it shows an average of 12.94 and a standard deviation of 16.5, a condition of grater instability in relation to that obtained in UTJ, it shows an average of 9.66 and a standard deviation of 2.08, a condition of grater stability.

Regarding Intellectual Capital, the distribution is normal for the two localities, centered and with little variability, as shown in Table No. 1 for the evaluation of the model, it was used as a recognition of the significant relationships, the technique of crossed or contingency tables, considering as covariables the approach of process, of renovation and development, efficiency of intellectual capital among others, how many employees are satisfied in relationship with the satisfaction index of its clients.

Parámetro	UTJ	UTBB
Mean	93.93	89.8
Median	95	98
Mode	100	100
Srandard deviation	7.2	18.8

Table 1 Descriptive Statistic

The relatinships between the variables were tested with the sofrware SPSS verion 22 placing the independent variable in columns and the dependent one in rows, with the purpose of identifying the factors thar favour the generation of value in the companies, finding a significant relationship between the variable between how many employees of your company are satisfied and the satisfaction rate of your customers.

93.6% of the data from the sample corresponding of the UTJ were considered in the analysis. The Chi-square test is 0.005, so it is possible to reject the null hypothesis and declare that there is a dependency relationship between the variable, as shown below.

Table No. 2 Evaluation between “How many employees of your company are working satisfied and “What is the satisfaction index of your clients? _UTJ

	Valor	gl	Asymptotic sig. (2 caras)
Pearson's chi-square	120.654 a	84	0.005
Likelihood reason	66.906	84	0.914
Linear by linear association	0.053	1	0.817
# valid cases	44		

a. 105 casillas (100.=%) han esperado un recuento menor que 5. El recuento mínimo esperado es 0.02

Table 2 Prueba Chi-cuadrado

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The results strengthen the idea that the human resource has the capacity to generate value by possessing complex multidimensional competences (knowledge, skills, experiences, creativity, etc.) that can be translated into competitive advantages, economic gains and social benefits (Benavides, 2012), breaking with the paradigm that the human resource is only a resource.

The Wilks Lambda test confirms what was found in the Chi-square test, with a value of significance less than 0.005

Function test	Lambda de Wilks	Chi-cuadrado	gl	Sig
1	0.000	370.458	20	0.000

Working in parallel, the analysis was made to UTBB obtaining the following results:

97% of the data in the sample were considered in the analysis. The Chi-square test is 0.005, so it is possible to reject the null hypothesis and declare that there is a dependency relationship between the variables, as shown below:

Table No. 3 Evaluation between "How many employees of your company are satisfied with your job and" What is the rate of satisfaction of your clients "_UTBB

	Valor	gl	Asymptotic sig. (2 caras)
Pearson's chi-square	150.024 a	105	0.003
Likelihood reason	71.846	105	0.994
Linear by linear association	4.969	1	0.026
# valid cases	32		

a. 128 casillas (100.0%) han esperado un recuento menor que 5. El recuento mínimo esperado es 0.03

Tabla 3 Pruebas de Chi-cuadrado

In the Chi-square test, the value of 0.003 confirms the relationship between the variables in the Renewal and development focus section, specifically: "How many employees of your company are satisfied with the job" in relation to the variable in the section Coefficient of efficiency intellectual capital, with the indicator, "What is the satisfaction index of its customers". In addition, discriminant analysis was carried out, observing in the test of equality of means of the groups, that the value of significance is greater than 0.05; therefore it was not possible to identify a predictive model for our case, in any of the areas of influence.

Conclusions

The importance of the study lies in the recognition of the impact of intellectual capital, the variables that by their association favor the generation of value in SMEs.

The variables in the Focus on renewal and development section, specifically: "How many employees of your company are satisfied with the job" in relation to the variable in the Approach to the Coefficient of Intellectual Capital Efficiency section, with the indicator, "What is the satisfaction index of its clients "are the variables with the greatest association to promote the generation of value; result that corresponds to what is referred to in the Holistic Model of Ramboll (Bligaard, 1997).

The association variables are debatable, due to the small sample size, other variables of the Process Approach, such as: "What is the proportion of the personnel that makes use of computer technology", which in the discriminant analysis has a classification value equal to 0.028 demonstrating its differential capacity between the groups, however it is not visualized in the Chi-square test.

In addition, it is important to note that the article has treated the qualitative variables as nominal, without considering that there may be a relationship of order between the different responses, the ordinal classification could be taken into account in such a way as to improve the adjustment of the observed values , so that it is possible to make predictions and face new challenges.

Finally, in the industrial sector, there are few companies that stated in their financial statements; amount of salary and wages earned; basic element in the application of the methodology, (Gómez, León and Leiton, 2012, Berzkalne and Zelgalve, 2014); consequently, the size of the original sample is reduced to a percentage; thus, it is essential to ask whether the association variables would be confirmed as significant in a larger sample.

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Comparative study of the tourist destinations of La Barrita and Barra de Potosí, Gro., Mexico

Estudio comparativo de los destinos turísticos de La Barrita y Barra de Potosí, Gro., México

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Abstract

Guerrero is a state with tourist infrastructure. But there are still certain coastal areas in Guerrero that require government attention and allow the development of its inhabitants. That is the case of Playa La Barrita, and on the other hand Barra de Potosí. The lack of development of the tourist destinations of these places, which despite the years, still do not reach progress, which allows to raise the quality of life of its inhabitants. The object of study of the present investigation is to know the causes that have not allowed to reach their maximum potential of the tourist destinations of La Barrita and Barra de Potosí. In this sense, the research is descriptive, and was carried out through the application of a 100% instrument from a universe of 55 establishments, with a maximum acceptable error of 5% and a 95% confidence level, which determined that between the reasons why both tourist destinations have not reached their potential, are the lack of services (drinking water, drainage, internet access, solid waste management), and lack of government investment, as well as the approach to The different banking institutions. It is important to approach government institutions, with the inhabitants, businessmen and other providers of tourism services that allow to seek alternatives to improve the supply of services, and in turn reduce ecological damage in the future.

Development, Services, Investment

Resumen

Guerrero es un estado con infraestructura turística. Pero aún quedan ciertas zonas costeras guerrerenses, que requieren atención del gobierno, y permitan el desarrollo de sus habitantes. Ese es el caso de Playa La Barrita, y por otro lado Barra de Potosí. La falta de desarrollo de los destinos turísticos de dichos lugares, los cuales a pesar de los años, siguen sin alcanzar un progreso, que permita elevar la calidad de vida de sus habitantes. El objeto de estudio de la presente investigación es conocer las causas que no han permitido alcanzar su máximo potencial de los destinos turísticos de La Barrita y Barra de Potosí. En este sentido la investigación es descriptiva, y se realizó a través de la aplicación de un instrumento al 100% de un universo de 55 establecimientos, con un error máximo aceptable de 5% y un nivel de confianza al 95%, que determinaron que entre las causas por las que ambos destinos turísticos no han alcanzado a detonar su potencial, se encuentran la falta de servicios (agua potable, drenaje, acceso a internet, manejo de los residuos sólidos), y falta de inversión gubernamental, así como el acercamiento a las diferentes instituciones de la banca. Es importante el acercamiento de las instituciones de gobierno, con los habitantes, empresarios y demás prestadores de servicios turísticos que permitan buscar alternativas para mejorar la oferta de servicios, y a su vez reducir el daño ecológico en un futuro.

Desarrollo, Servicios, Inversión

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Introduction

La Barrita Beach, is located in the municipality of Petatlán, Guerrero, being a passing destination where people who travel by road to Ixtapa or Zihuatanejo, enjoy an extremely exclusive beach for those who come to it, where they enjoy rich dishes prepared from the sea with seafood and fish, at very affordable prices.

On the other hand Barra de Potosí, is located in the municipality of Petatlán, Guerrero, being a small community by the sea that is located at the end of Playa Blanca, and 35 minutes by car from the town of Zihuatanejo, in the municipality of Zihuatanejo from Azueta, Guerrero and 34 minutes from Petatlán, in the Municipality of Petatlán, Guerrero, where vacationers can taste delicious food at very affordable prices.

The fact is that both destinations since the mid-twentieth century, begin to provide the food preparation service, as a complementary form of their main activity that was fishing, and even today many of the dishes that are offered are products of fishing

Since there was no development plan on the part of the municipal government, and since the lands were ejido, the settlers were organizing, and they were building their boughs, and today we can observe how most of them have not changed since the beginning , with some exceptions.

In this sense, the municipal government, not responding to the primary needs of the inhabitants of these population centers, proves that they do not have basic services, drinking water and sanitary sewer, only the garbage collection service is provided.

Problem Statement

The lack of growth of the tourist destinations of La Barrita and Barra de Potosí, which despite the years, still do not reach a development, which allows to raise the quality of life of its inhabitants.

Having all that potential to grow, why have the tourist destinations of La Barrita and Barra de Potosí not triggered their economic potential?

Objective

Analyze the reasons why both tourist destinations have not been able to achieve development, to look for alternatives and support from the three levels of government.

Theoretical framework

To begin with, Gómez (1996) refers to the objectives of a social organization, which are the aims or goals that it intends to achieve through collective effort.

As Piovani, JI, Nora Krawczyk, N. (2017) mentions in the case of social sciences, the impossibility of accepting the assumptions of traditional conceptions of science, or their rejection, has given rise to a series of perspectives in the that the comparison is used for ideographic or interpretive purposes. The emphasis then falls on the objects of comparison itself, and not so much on the properties.

On the other hand, for Sartori (1984), the comparative method aims at the search for similarities and dissimilarities. Since the comparison is based on the homogeneity criterion.

Also Porter (1997) mentions that the sources of cost advantages are varied and depend on the structure of the industrial sector, and should achieve proximity in the bases of differentiation in relation to its competitors.

In another order Góngora (2008), taking into account the findings of Hofstede (1999), considers interdependence or diversity, which highlights the importance of mutual influence between the culture of organizations and contextual culture. This perspective basically states that organizations are not islands and that, to understand their culture, the culture of the context in which they act must be taken into account.

By the way according to the census of INEGI (2013) 42004 economic units are dedicated to private non-financial services in Guerrero, which represents 31% of the total establishments of the private and parastatal sector in the entity.

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Methodology

The research is descriptive, to know the reasons why both tourist destinations have not reached to detonate their potential, and that allow us to propose alternatives for maximum development.

First, the instrument was designed to know the information according to the previously established criteria. With the main purpose of establishing the differences between the two destinations that are tried to compare, to know the causes that have not allowed the development of the tourist destinations, of La Barrita and Barra de Potosí, considering their natural advantages, and development potential.

Afterwards, they went to the regulations offices of the Municipality of Petatlán, in the State of Guerrero, to request a census of the registered businesses, but they could not grant us the required information, since they did not have the information, perhaps lost in the change of administration.

In this sense, in order to carry out the project, it was necessary to move to the destinations, to make a business count, once the required information was obtained. A 100% instrument from a universe of 55 establishments was applied, with a maximum acceptable error of 5% and a 95% confidence level,

Once the number of establishments to be surveyed was determined, the Bar was first visited, for the application of the instrument, taking an average of 20 minutes, in its application, to each of the respondents, with a total of 15 businesses.

Afterwards, we went to the Potosí Bar, for the application of the instrument, taking an average of 25 minutes, in its application, to each of the respondents, being a total of 40 businesses.

In order to compare the differences in terms of transfer time, the population of Zihuatanejo de Azueta was considered, due to the proximity to the destination and its impact on the Potosí Bar, as well as the Petatlán Population, so the transfer to the destinations in the three chosen means of transport, to know the time to reach the destinations under study, it is important to mention that there are some applications that can do this process, but they cannot calculate the time in public transport because there is no schedule defined, in addition to having to transfer and the conditions are not ideal, so it was necessary to move in the three media.

Results

1. The differences in terms of the basic services provided to the client that goes to the destinations, outside of food and beverages, that customers today look for, such as internet access, electric power to recharge electrical devices (mobile phones, equipment of computing, cameras, etc.). and fixed telephony.

Differences regarding:	Services provided by the destination of Barra de Potosí	Services provided by the destination of La Barrita
Internet	Si	No
Fixed telephony	Si	No
Electric power	No	No

Table 1 Internet, electricity and landline services

As Table 1 shows, in the Potosí Bar, the internet access and landline service is provided to the attendees, at a cost for the service, making a clarification in this regard that not all facilities are provided , not so in the bar where there is only one booth that provides fixed telephone service, with respect to electricity in either of the two destinations provides it.

2. Another factor to compare the proximity with the destination and its impact of the clients that come from The population of Zihuatanejo de Azueta, the Potosí Bar, as well as the clients that come from the Population of Petatlán To compare the place of origin of the client that go to the destinations.

Differences regarding:	National and international tourism that goes from Zihuatanejo to the Barra de Potosí	National and international tourism that goes from Petatlán to Barra de Potosí
Nationals	70%	99%
International	30%	1%

Table 2 Potosí bar

According to table 2, the impact of the proximity of Zihuatanejo with the destination of Barra de Potosí, being a tourist port, allows the mixture of national and international tourism to go to it, and to a lesser extent towards the destination of the Barrita, where it is more than national and local tourism.

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3. Also to compare the proximity with the destination and its impact of the clients that come from The population of Zihuatanejo de Azueta, the Barrita, as well as the clients that come from the Population of Petatlán To compare the place of origin of the client that comes to the destinies.

Differences regarding:	National and international tourism that goes from Petatlán to Barra de Potosí	National and international tourism that goes from Petatlán to La Barrita
Nationals	99%	99%
International	1%	1%

Table 3 The Bar

According to table 3, the impact of the proximity of Petatlán, with the destination of La Barrita, being an agricultural, livestock and religious tourism population, so that national and local tourism is going to both destinations, and to a lesser extent international tourism.

4. With respect to the transport selected to carry out the transfer, the differences in travel time, according to the transport used to the destinations, the following means of transport.

Differences regarding:	Easy access from Zihuatanejo to the Barra de Potosí	Easy access from Zihuatanejo to La Barrita	Easy access from Petatlán to the Barra de Potosí	Easy access from Petatlán to La Barrita
Transfer in own vehicle	35 minutes	56 minutes	34 minutes	19 minutes
Public transport transfer	1:12 Hrs	1:40 Hrs.	1:15 Hrs.	40 minutes
Bike transfer	1:24 Hrs.	2:54 Hrs.	1:28 Hrs.	1:17 Hrs.

Table 4 Transfer time

According to the data shown in Table 4, the travel time of both Zihuatanejo de Azueta, and Petatlán to Barra de Potosí, is not significant, but from Zihuatanejo to La Barrita, it is really significant, hence the transfer of the inhabitants of Petatlán is more frequent.

5. On the other hand it is important to compare the differences in public services that are provided by the government that impact on the quality provided to the client, and that in the future will cause an impact on both destinations.

Differences regarding:	Services provided by the destination of Barra de Potosí	Services provided by the destination of La Barrita
Drinking water	No	No
Ferris wheel water	Si	Si
Sewer system	No	No
Septic tank	Si	Si
Garbage collection	Si	Si

Table 5 Public services

According to the data shown in table 5, there is no supply of drinking water, sanitary sewer and there is only the garbage collection service by the municipal government, in the Barra de Potosí, and in La Barrita, this has caused That the population and the service providers, look for alternatives to this problem, which has consisted of making ferris wheels and artisanal wells for water supply, with respect to drainage they have made septic tanks.

Septic tanks have the problem of how we live in a seismic zone, can cause fractures to the construction causing rupture of the walls and that there are leaks of the debris and contaminate the chiatic mantles. On the other hand, when washing utensils and kitchen waxes, the water that is the product of cleaning, one part is poured into the sea and another is used to irrigate the access, which produces unpleasant odors, since doing so in septic tanks would damage the bacteria that they make the process of waste disposal, so with this long-term daily action it will cause irreparable ecological damage.

Figure 1 Potosí barrita

Figure 2 La barrita

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Figure 3 Discharge of soapy water

6. On the other hand, it is important to compare the differences in the link between service providers and the different levels of government.

	Municipal	State	Federal	State Legislators	Federal Legislators
Barra de Potosí	None	None	None	None	None
La Barrita	None	None	None	None	None

Table 6 Relationship with the different levels of government

There is no relationship between the service providers and the different levels of government, since they do not receive any support from any of the three levels, so due to their lack of capital, which does not allow them to hire advertising, or do improvements to their premises, as well as hiring technological services, to meet the needs of customers.

7. In that sense, another element to compare is the link with commercial and development banks, as well as with the Ministry of Economy, which service providers maintain.

	Commercial Bank	Development Bank	Ministry of Economy
Barra de Potosí	None	None	None
La Barrita	None	None	None

Table 7 Relationship with commercial, development and Ministry of Economy banking

There is no relationship between service providers and commercial, development and economic secretariat banking, due to the lack of financial planning, as well as poor administrative management, which in some cases only has a personal account, but not a business, which makes it difficult to access credit.

Conclusions

According to the data compared to both destinations, the Barra de Potosí have differences on the one hand, due to the proximity to the Municipality of Zihuatanejo de Azueta, and can access the technological services, in addition the tourism that arrives at this destination is both national and international , and within the tourist offer, La Barra de Potosí is offered, unlike La Barrita.

But both destinations have the same problem do not have the basic infrastructure of health services, which is increasingly noticeable, due to the smells that it emits when passing through the accesses.

Therefore it is vital that the government not only allows the growth of establishment and housing, but that it seeks problems to mitigate this problem, already in the XXI century, permits are still granted to build homes or establishments, without counting on the Sanitary drainage services, much less with a treatment plant, which will eventually affect the source of livelihood of the inhabitants of these destinations, as well as a recreation area for both locals and visitors.

It is also important to establish a better communication with the population, managing workshops, that allow them to access the different sources of financing, as well as in the management of waste, creating a culture of environmental protection, to preserve the source of livelihood, and recreation for visitors and locals.

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Higher Education Institutions in Mexico and their participation in the Social and Solidarity Economy

Las Instituciones de Educación Superior en México y su participación en la Economía Social y Solidaria

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Abstract

Interesting is the participation of education in the Social and Solidarity Economy (ESyS), fundamentally of the higher level, as a key piece of action with society. Mexico has a little more than 5,334 university schools, 6 states concentrate 42.8% of HEIs, Puebla is located as the third entity with the largest number of universities with just over 480 university campuses, after Mexico City and the Mexico state. The objective of this research work is to analyze that Higher Education Institutions (IES) of the public or private sphere, in Mexico, contemplate in their academic offer Study Programs (PE) to the ESyS, which emerges at local, regional, national level and global as the Third Sector, considering the cooperatives, whose presence in Mexico was in the year of 1873, when the first production cooperative emerged. The research is documentary theorist. Results: in Mexico, .14% of studies in ESyS or some variant are offered: four undergraduate degrees, one in open and distance mode; in postgraduates: three Masters and an Inter-institutional Doctorate (in which two HEIs participate). Therefore, the academic offer in Mexican territory in ESyS does not get 1%, insufficient to support cooperatives, some with state and national recognition. The proposal is that this type of educational offer be carried out in each federal entity of Mexico, to reinforce cooperatives, organizations with contributions in the economy of this country from the educational field.

Social and Solidarity Economy, Higher Education Institutions, Cooperatives

Resumen

Resulta interesante la participación de la educación en la Economía Social y Solidaria (ESyS), fundamentalmente del nivel superior, como pieza clave de acción con la sociedad. México cuenta con poco más de 5 mil 343 escuelas universitarias, 6 Estados concentran el 42.8 % de las IES, Puebla se ubica como la tercera entidad con mayor número de universidades con poco más de 480 planteles universitarios, después de la Ciudad de México y el Estado de México. El objetivo del presente trabajo de investigación es analizar que Instituciones de Educación Superior (IES) del ámbito público o privado, en México, contemplan en su oferta académica Programas de Estudio (PE) a la ESyS, que emerge a nivel local, regional, nacional y global como el Tercer Sector, considerando a las cooperativas, cuya presencia en México fue en el año de 1873, cuando surgió la primera cooperativa de producción. La investigación es teórico documental. Resultados: en México se oferta el .14 % de estudios en ESyS o alguna variante: cuatro carreras de licenciatura, una en modalidad abierta y a distancia; en posgrados: tres de Maestría y un Doctorado Interistitucional (en el cual participan dos IES). Por lo anterior, la oferta académica en territorio mexicano en ESyS, no consigue el 1 %, insuficiente para respaldar a las cooperativas, algunas con reconocimiento estatal y nacional. La propuesta es que este tipo de oferta educativa se lleve a cabo en cada entidad federativa de México, para reforzar desde al ámbito educativo a las cooperativas, organizaciones con aportación en la economía de este país.

Economía Social y Solidaria, Instituciones de Educación Superior, Cooperativas

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Introduction

One of the substantive functions of an institution of higher education (HEI) is to respond with training proposals and research to the needs and problems that society faces in the face of local, regional and global changes, whose basis is the vision of HEI in which Consider: innovation, social commitment, educational internationalization, research and bonding.

The design of Educational Programs (PE) in topics related to the Social and Solidarity Economy (ESyS) is an academic response to local, regional, national and global socio-economic changes; Thus the ESyS represents an alternative model as organization and development.

Although in Mexico research on ESyS, it is limited in comparison to other regions of the world such as Canada, Norway, Spain and particularly in Latin America the pioneer country in this subject, Argentina; It is a space of opportunity for theoretical and methodological contribution in the educational value chain.

"(…), The family and the school have acquired new elements for their evaluation as social institutions on which it depends, to a large extent, from the survival of communities to the future of the entire society." Education represents a need, not only as a skilled workforce, but for its contribution to the creation of a stable, orderly and integrated social base (Educational profiles, 2002).

Methodology

The present work is developed through a theoretical documentary investigation, determined by the study programs in some thematic variant of the Social and Solidarity Economy offered by Higher Education Institutions in Mexico, both public and private. The methodology is descriptive. The internet was the main tool, such as: source of theoretical data (access to specialized literature), access to secondary (statistical) data and access to documents, which were some curricula for the functionality of this work.

Results

The opening of research begins with the concept of Economics. According to the etymology, the word economy derives from the Greek Oikos, house and Nomos, Law: order and rule in which the income and expenses of a home are monitored, used in the times of classical Greek (Ávila, 2006: 8), or "manage at home in which one lives" (ACPP, 2018: 28)

Highlighting two approaches: the objective or Marxist, classic definition that comes from Federico Engels, which states "Political economy is the science that studies the laws that govern the production, distribution, circulation and consumption of material goods that satisfy human foolishness "(Ávila, 2006: 8); the subjectivist or marginalist of Lionel Robbins, says "Economics is the science that is responsible for the study of the satisfaction of human needs through goods that are scarce have alternative uses among which we must choose" (Ávila, 2006: 8)

According to Ávila (2006: 9), the difference between objective and subjective is in the shortage of social satisfiers and optimize these, to meet the needs of individuals.

"*The social solidarity economy (ESS) is an alternative to capitalism and authoritarian economic systems controlled by the State. In the SSE, ordinary people have an active role in determining the course of all dimensions of human life: economic, social, cultural, political and environmental. ESS exists in all sectors of the economy production, finance, distribution, exchange, consumption and governance. The SSE yearns to transform the social and economic system including the public and private sectors, as well as the third sector. The SSE is not only about reducing poverty, but also about overcoming inequalities, which cover all social classes. The ESS has the capacity to use the best practices of the present system (such as efficiency, use of technology and knowledge) and to channel them towards the benefit of the community, based on the values and objectives of the ESS movement. (...) The SSE pushes towards a social transformation that goes beyond a superficial change in which the oppressive structural roots remain intact"* (RIPPES, 2015)

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According to Fernández (2017), Rector of the Universidad Iberoamericana campus México "social economy can be an alternative to the neoliberal economy and a tool to combat poverty and create better living and working conditions for the popular sectors".

Higher Education Institutions in Mexico offer different training options according to their interests and professional objectives (gob.mx, 2014), table 1:

Subsystem	Description	Institutions
Federal Public Universities	The institutions that make up this subsystem carry out, in addition to teaching functions, a wide range of research programs and projects, as well as extension and dissemination of culture.	UNAM: National Autonomous University of Mexico IPN: National Polytechnic Institute UAM: Metropolitan Autonomous University UAAAN: Antonio Narro Autonomous Agrarian University UACh: Autonomous University of Chapingo UnADM: National Open and Distance University of Mexico UPN: National Pedagogical University COLMEX: The College of Mexico CIDE: Center for Economic Research and Teaching, A.C.
State Public Universities State Public Universities with Solidarity Support	These state institutions develop the functions of teaching, generation and innovative application of knowledge, as well as extension and dissemination of culture. Some universities are close to those who cannot travel long stretches to continue their studies. Check the schools closest to your home, as well as their educational offer	Autonomous Universities State Public Universities
Technological Institutes	The Tecnológico Nacional de México (TecNM) is made up of 266 institutions, distributed in the 31 states of the Mexican Republic and in Mexico City. The TecNM institutes have a fruitful and solid tradition, built for more than 65 years providing superior technological education in the country	CENIDET: National Center for Research and Technological Development CIIDET: Interdisciplinary Center for Research and Teaching in Technical Education Technological Institutes
Technological Universities	The UTs have 104 campuses, a model that offers intensive training that allows them to join productive work in a short time (after two years) or continue their studies at the bachelor's or specialty level through Technical Engineering. Who studies in these institutions has the possibility of obtaining the title of Higher University Technician, Technical Engineer or degree.	UT´s
Polytechnic Universities	These universities, have 60 campuses in 26 states, offer engineering, bachelor's and postgraduate studies (Specialty, Master's and Doctorate). Its programs are designed based on the Competency-Based Educational Model and are oriented in research applied to technological development; at the same time, they collaborate with organizations of the productive, public and social sectors, with the aim of training world-class professionals	UP´s
Intercultural Universities	Intercultural Universities seek to promote the training of professionals committed to the economic, social and cultural development, particularly, of the indigenous peoples of the country; revalue the knowledge of indigenous peoples, as well as promote the dissemination of the communities' own values, and open spaces to promote the revitalization, development and consolidation of native languages and cultures.	Indigenous Autonomous Universities Intercultural Universities
Public Research Centers	The Research Centers have as main objectives: to disseminate science and technology in society; innovate in the generation, development, assimilation and application of knowledge of science and technology; link science and technology in society and the productive sector to address problems, and create and develop mechanisms and incentives that foster the contribution of the private sector in scientific and technological development, among others	National Council of Science and Technology (CONACYT) IPN Research Centers Center of Genomic Sciences of the UNAM, Campus Morelos Tamaulipas College Center for Pedagogical and Social Research, Jalisco Research and Teaching Center, Chihuahua
National Pedagogical University	The UPN aims to train undergraduate and postgraduate education professionals to meet the needs of the National Education System and of Mexican society in general. In addition, it offers higher education services such as specializations and diplomas, conducts research in educational matters and disseminates the pedagogical culture, science and the diverse artistic and cultural expressions of the country.	UPN
Normal Public Schools	It is responsible for the training of pre-school, primary and secondary education teachers. The Normal Higher Education Schools offer undergraduate programs in preschool, primary, intercultural bilingual, secondary, special, initial, physical and artistic education.	
Other public institutions	The public higher education system in Mexico is diverse. Therefore, there are institutions that according to their particular characteristics are not located within any of the previous subsystems.	Education in Library and Archivonomy Military Education Institutions Naval Military Education Institutions Heroic Naval Military School Education in Judicial Matters, Security and Imparting of Justice Fine Arts Education Health Education Adult Education in Latin America and the Caribbean Regional Cooperation Center for Adult Education in Latin America and the Caribbean Anthropology and History Education Sports Education Merchant Marine Education

Table 1 Educational offer in Higher Education Mexico
Source: Own elaboration with information obtained from https://www.gob.mx/sep/acciones-y-programas/oferta-educativa-en-educacion-superior, 2019.

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According to data from the National System of Educational Statistical Information – SNIE– (snie.sep.gob.mx, 2015), during the 2016-2017 school year, in the Mexican Republic there were 14,485 university-level schools, benefiting 3,762,679 students, from which 408 (2.8%) are located in the State of Puebla, table 2:

Total Educational System	Total Schools
	14,485
Public, National	11,740
Private, National	2,545
Higher Education, Puebla1	408
Bachelor's Degree	373
Normal	30
University and Technological	343
Postgraduate	147
Public	99
Private	309

Table 1 Total schools in Mexico and breakdown of the upper level in the State of Puebla
Source: own elaboration with data obtained from: http://snie.sep.gob.mx/x_entidad_federativa.html, 2019

The sum of schools per service may differ from the total, because there are some that provide more than one service.

Mexico City is ranked first with a total of 461 institutions of higher education (3.18%); the State of Mexico occupies the second place with 450 professional level study houses (3.10%) and the State of Puebla is the third entity with schools of the higher level.

On the other hand, although no less important is private higher education in Mexico, whose main intrinsic tribute is quality; The offer in this service can be approached from different approaches: social strata, type of training and the proliferation of establishments that offer education in diversity of time and price (Educational profiles, 2002).

Even when the relevance or demand, in accordance with the creation of Study Programs that are considered in disciplines such as: Medicine, Accounting, Law, Information and Communication Technologies, History, Philosophy, Mechatronics, Nanotechnology, etc., in Mexico is initiating the focus on rural and indigenous populations whose problems are: migration, economic and social marginalization, territorial dispossession, product hoarding, purchase of low-priced products and producers are not the beneficiaries of the profits of these products but intermediaries, etc. .

According to the International Labor Organization (ILO) cooperatives are important not only to improve living conditions, but also work, create more than one hundred million jobs, contributing to the ILO Global Employment Program (L @ Red of the People / Bansefi, 2012: 12).

"Cooperative companies help build a better world, "slogan that was called upon in 2012 to be declared as the International Year of Cooperatives, an expression that for the United Nations General Assembly reflects the contribution of cooperatives to economic and social development , primarily the impact of poverty reduction, job creation and social integration (United Nations, s / f), in several countries, to mention some countries: Costa Rica (INFOCOOP, 2012), Spain (Sanchis, 2001), Paraguay (Birth, 2004) Brazil, (Teixeira & Soler, 2002), Mexico (Velázquez, 2013).

Cooperatives as productive companies, both in Mexico and around the world, are an alternative for the population in poverty, by allowing their organization and increasing their income, which results in improving their situation. Creating productive jobs, favoring social inclusion, protecting its members and, in addition, offering services to the rest of society (L @ People's Network / Bansefi, 2012: 26). So this topic is addressed as a viable development alternative.

Therefore, it is considerable to support and propose as an alternative of economic growth of a country like Mexico to this type of organization, that «With their distinctive emphasis on values, cooperatives have proven to be a versatile and viable business model that can thrive even in difficult times. Its success has helped prevent many families and communities from falling into poverty "((Ki-moon, s / f).

There is a representative number of successful cooperative societies that have managed to survive various political and economic situations in Mexican territory, and that are testimony that with this type of societies an alternative, fair and inclusive economy can be achieved (Izquierdo, 2012).

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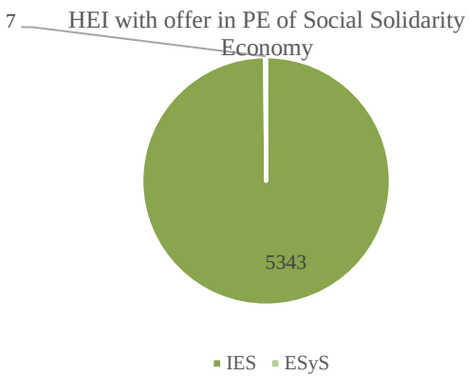
"Because they are organizations based on principles and values, cooperatives are intrinsically a form of sustainable and participatory enterprise. They emphasize employment security and improve working conditions, pay competitive salaries, promote additional income through profit sharing and dividend distribution and support community infrastructure and services, such as health centers And the schools. Cooperatives foster democratic practices and knowledge and social inclusion. They have also proved resilient to economic and financial crises" (ilo.org, 2015)

Regarding HEIs in Mexico that offer PE related to the Social and Solidarity Economy or some variant thereof, the following results are available, table 3:

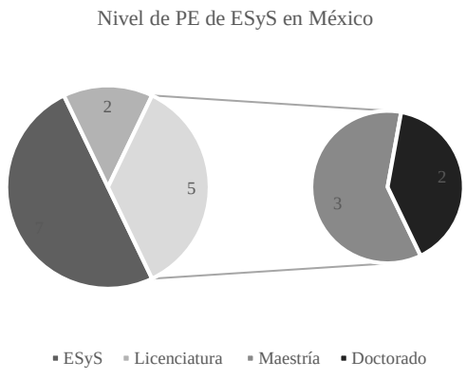
Logo	Institution	Address	Number	Level of Educational program	...
	Instituto Intalectual Nouhu, A.C.	Porfirio Díaz # 15 Col. Lomas de los Blancos, San Ildefonso Tultepec, Qro. CP. 76880	52 (448) 1706129	Bachelor's degree	Licenciado en emprendimientos en economías solidarias
	Universidad Autónoma Benito Juárez de Oaxaca	AV. Universidad S/N Ex Hacienda 5 señores, Oaxaca mex. Cp. 68120	01 (951) 502 0700 01 (951) 502 0701	Bachelor's degree	Licenciado en Economía Social y Desarrollo local
IBERO CIUDAD DE MÉXICO A. C.	Universidad Iberoamericana (Campus México)	Prolongación paseo de Reforma 880, Lomas de Santa Fe México, CDMX CP. 01219	(55) 595 04000	Postgraduate master's degree	Maestro en Creación y Desarrollo de empresas sociales y solidarias
IBERO PUEBLA A. C.	Universidad Iberoamericana (Campus Puebla)	Blvd. del Niño Poblano CP. #2901 Col. Reserva Territorial Atlixcáyotl San Andrés Cholula Pue. CP. 72820	(222) 372 3000 y (222) 229 0770	Postgraduate master's degree	Maestría en Gestión de empresas de Economía Social
UAGro	Universidad Autónoma de Guerrero	Joyas del Marqués II Largo, Acapulco de Juárez, Gro.	S/N	Postgraduate master's degree *PNPC[2]	Maestría en Economía Social
CHAPINGO	Universidad Autónoma de Chapingo	Km 38.5 carretera Mexico Texcoco CP. 56230 Chapingo Edo. De México	(01595) 9521500 Ext: 5813	Postgraduate Interinstitutional Doctorate *PNPC[2]	Doctorado en Economía Social Solidaria
BUAP	Benemérita Universidad Autónoma de Puebla	Av. San Claudio y 22 sur Col. Jardines de San Manuel, Pue.	2295500 Ext: 2880 y 2890	Postgraduate Interinstitutional Doctorate *PNPC[2]	Doctorado en Institucional en Economía Social Solidaria

Table 3 PE in Social and Solidarity Economy or some variant of this topic, offered in Mexico:
Source: Own elaboration, with information obtained through google, 2019
PNPC[2]: National Quality Postgraduate Program.

According to Table 3, it follows that: 7 HEIs offer PE related to the Social and Solidarity Economy or some variant thereof, graph 1 comparing the total HEI with the offer of HEI in ESyS in Mexico:



Graphic 1
Source: Authors, 2019



Graphic 2 The breakdown by level of PE on ESyS in Mexico is observed
Source: Authors, 2019

The panorama described to the situation awaited by the Educational Programs that offer Social and Solidarity Economy or some variant of this topic, in Mexican territory, guides elements of attention:

Although the term Social and Solidarity Economy is not current, this issue in the Educational Programs, in Mexico, is of recent appearance, so that the present and future graduates together with the HEIs that are committed to their vision, philosophy and values, they produce changes in the fields of activity both local and regional, with the participation action with the main actors: the cooperative members.

The proposal of PE whose theme is ESy S or some variant, both current and future in more educational spaces and in various modalities (UT's, State Public Universities, State Public Universities with Solidarity Support and Intercultural Universities) would increase coverage mainly by IES public, mentioning that this topic is contemplated by one of the private HEIs with national recognition (ranking of the best universities in Mexico 2018, which includes both public and private university studies); in a position to comply with local, regional and national development projects and mainly participating in the Sustainable Development Goals (SDGs), benefiting mainly groups in situations of vulnerability, economic and social marginalization.

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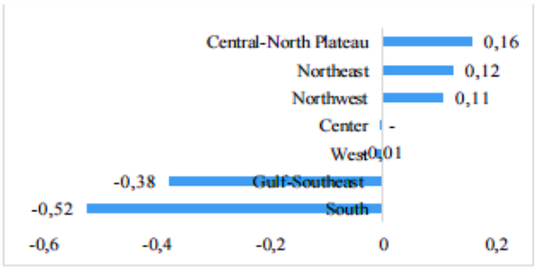

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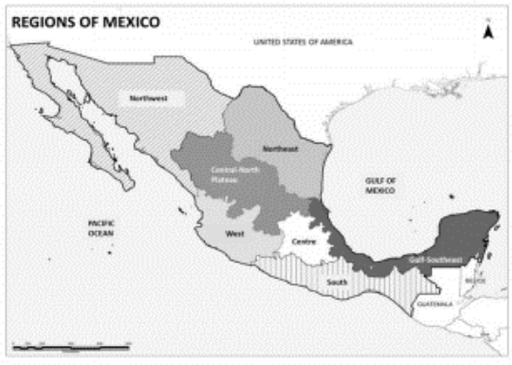

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REGION	STATE	Participation (%) on Surface	Population	Gross Production
1. Northwest.	Baja California; Chihuahua; Sonora; Baja California Sur; Sinaloa.	32.1%	11.1%	13.1%
2. Northeast.	Coahuila; Nuevo León; Tamaulipas.	15.1%	9.3%	15.6%
3.Center North Plateau.	Aguascalientes; Durango; Guanajuato; San Luis Potosí; Zacatecas.	15.1%	10.9%	9.2%
4. West.	Colima; Jalisco; Michoacán; Nayarit.	8.7%	11.9%	10.2%
5. Center.	Distrito Federal; Hidalgo; México; Morelos; Puebla; Querétaro; Tlaxcala.	5.1%	33.7%	34.8%
6. South.	Chiapas; Guerrero; Oaxaca.	11.8%	10.0%	4.7%
7. Southeast Gulf.	Campeche; Quintana Roo; Tabasco; Veracruz; Yucatán.	12.1%	12.4%	13.0%
TOTAL	MEXICO	100%	100%	100%

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