

## Determination of competitive advantage: human capital in the footwear industry, Plaza Azul, San Mateo Atenco, Mexico

## Determinación de la ventaja competitiva: capital humano en la industria del calzado, Plaza Azul, San Mateo Atenco, México

ZENTENO-BONOLA, Ana Luisa†\*, CALDERÓN-RÍOS, Norma Otilia, PALOMAR-FUENTES, María del Pilar and OLVERA-PÉREZ, Alejandra

*Tecnológico Nacional de México - Instituto Tecnológico de Toluca, Mexico.*

ID 1<sup>st</sup> Author: Ana Luisa, Zenteno-Bonola / ORC ID: 0000-0003-3634-588X, CVU CONACYT ID: 213685

ID 1<sup>st</sup> Co-author: Norma Otilia, Calderón-Ríos / ORC ID: 0000-0002-6292-4140, CVU CONACYT ID: 528227

ID 2<sup>nd</sup> Co-author: María del Pilar, Palomar-Fuentes / ORC ID: 0000-0003-0809-2635, CVU CONACYT ID: 662249

ID 3<sup>rd</sup> Co-author: Alejandra, Olvera-Pérez / ORC ID: 0000-0002-6570-9374

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### Abstract

In San Mateo Atenco, Mexico, the traditional marketing system has been maintained. Shoe stores continue to handle products at a low price and, most critically, at a low competitive level. In the last 3 years the economic situation of the municipality has been affected because it is more frequent each year that workshops and shoe stores are forced to close. The problem in question lies in the lack of recognition of the situation: more than 70% of the families are dedicated to the production of footwear and depend on this line to be able to cover their expenses. Hence the relevance of analyzing the competitiveness of footwear SMEs. Therefore, the objective of this research was focused on determining the competitive advantage from the area of human talent. Considering that of the resources that make up an organization, human capital is the one that can make a significant difference. The work is of a descriptive transactional type. The results obtained were the design of strategies to improve the personnel integration process, the formalization of a training and development program aimed at certifying skills and the establishment of an incentive plan.

### Resumen

En San Mateo Atenco, México se ha mantenido el sistema de comercialización tradicional, las zapaterías siguen manejando productos a bajo precio y lo más crítico, a bajo nivel competitivo. En los últimos 3 años la situación económica del municipio se ha visto afectada debido a que anualmente es más frecuente que talleres y locales de zapatos se vean obligados a cerrar. El problema en cuestión radica en la falta de reconocimiento de la situación: más del 70% de las familias se dedica a la producción de calzado y dependen de este giro para poder sufragar sus gastos. De ahí la relevancia de analizar la competitividad de las PyMES de calzado; por lo que el objetivo de esta investigación se enfocó en determinar la ventaja competitiva a partir del área de talento humano, considerando que de los recursos que conforman una organización, el capital humano es el que puede hacer una diferencia significativa. El trabajo es de tipo descriptivo transeccional. Los resultados obtenidos fueron el diseño de estrategias para mejorar el proceso de integración de personal, la formalización de un programa de capacitación y desarrollo tendiente a la certificación de competencias y el establecimiento de un plan de incentivos.

**Competitive advantage, Personal, Footwear industry**

**Ventaja competitiva, Personal, Industria del calzado**

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\* Correspondence to Author: (E-mail: azentenob@toluca.tecnm.mx).

† Researcher contributed as first author.

## Introduction

In the municipality of San Mateo Atenco, State of Mexico, there are a large number of producers of leather footwear and other leather goods, the economy of the municipality is based on the economic activities of manufacturing and marketing of their products, thus contributing to the secondary and tertiary sectors that are the ones that contribute most to the state economy.

In recent years the economy of the municipality has declined, producers face a number of challenges such as lack of recognition of the situation in which they find themselves and their lack of updating their sales methods, as well as generate and publicize new trends in fashion and design, to try to survive in these situations the producers of the municipality have grouped in different places to market their products and strengthen with a more unanimous representation to their problems one of them is the Plaza Azul, which is the place where our study focuses.

The objective of this research is to analyze the variables that describe the characteristics of the human capital of the manufacturers that commercialize their products in the Plaza Azul, in San Mateo Atenco, State of Mexico.

The methodology used is SWOT Analysis, through the method and technique of diagnosis applicable in organizations, the SWOT matrix allows evaluating the strengths, opportunities, weaknesses and threats; through a descriptive study, the variables that describe the characteristics and evaluation of the competitiveness of the human capital of the footwear manufacturers in the Plaza Azul, in San Mateo Atenco, State of Mexico, are analyzed.

The contribution of the research is to inform the footwear producers in Plaza Azul, the design of strategies necessary to raise the competitiveness of human capital by improving the process of personnel integration, the formalization of a training and development program aimed at the certification of competencies and the establishment of an incentive plan.

The first section of this study contains the theoretical framework that supports the study, the description of the applied methodology detailing the parts of the procedure starting from the identification of the analysis criteria, determination of the real performance conditions in relation to the internal and external variables of the analysis, assignment of a weighting for each of the strengths (F), opportunities (O), weaknesses (D) and threats (A).

The calculation of the results and the determination of the strategic balance form the central part to present the optimization factor that will indicate the favorable position of the organization with respect to its competitive assets that are potentially and can be the source of a competitive advantage in the near future; the risk factor shows an unfavorable position of the organization that limit the competitive position of the organization. Optimization Factor =  $F + O$  and Risk Factor =  $D + A$ . The strategic balance of an organization is better as long as the difference between the optimization factor exceeds the risk factor.

Once the surveys with the answers of the interviewees were applied, they were concentrated in a SWOT matrix to later present the results graphically and from it the necessary strategies were proposed to increase the competitiveness of the human capital of the footwear industry of Plaza Azul, San Mateo Atenco, State of Mexico.

Finally, the elaboration of proposals is presented according to the results of the general situation of the footwear industry with respect to Human Capital, as well as individually for each of the variables studied.

It should be noted that this article is the product of a research project focused on the Plaza Azul footwear industry in San Mateo Atenco, Mexico, which is still in progress. For this reason, the background of this sector described in the frame of reference was taken from the article Zenteno *et al* (2019). Strategies of the Marketing Mix of the Footwear Industry in San Mateo Atenco Plaza Azul, because they are the same facts that are reported. Said article is mentioned in the section on sources of consultation.

**Frame of reference**

The earliest records of footwear manufacturing in Mexico date back to the 17th century. In the state of Guanajuato, the oldest data that the Municipal Historical Archive records regarding the manufacture of footwear in the Villa de Leon is from the year 1645. And Andrés González Cabildo is the name of the oldest shoemaker, according to information from the archives of the Chamber of the Footwear Industry of the State of Guanajuato (CICEG).

It is important to review the history and evolution of the footwear industry in Mexico. Some facts from the CIGEC archive will be highlighted. In 1719, the first census of the Villa de León was taken, showing the existence of 36 houses in which shoes were made by Spaniards, Indians and mulattos. Later, in 1869, there were 50 "shoe factories", that is to say, workshop houses in which families formed units of artisan production. The first formal shoe factory on record began operations in 1872. By 1900, 17% of Mexico's economically active population worked in the shoe industry, making it, along with the textile industry, the most important economic activity in León.

Small - scale manufacturing establishments were the pivot for the development of footwear manufacturing in Mexico between 1920 and 1930. The creation of productive workshops began to take place at a dizzying rate due to demand, with local capital acting as the main responsible for those areas becoming the main regions of the national footwear industry from that time on. On May 24, 1926, the Union of Shoe Manufacturers of Leon was constituted, whose founding president was Mr. Jose Padilla Moreno and the first secretary was Mr. Ignacio L. Hernandez.

"It should be remembered that the spread of small domestic establishments does not necessarily obey the logic of reproduction, where only the consumption needs of the domestic unit are taken into account, but, in many cases, it is also reconstructed from the situation that the storekeeper himself manages in the market. The proximity between productive units that manufacture footwear and productive units or people that manufacture certain processes supports the emergence and reproduction of productive units without a technological base." Iglesias (1998)

The consolidation of the footwear industry in Guanajuato came with World War II, due to the fact that the United States was one of its main consumers. By 1941, 47.39% of the economically active population was dedicated to this activity and the city of Leon had 1,315 establishments employing a total of 19,940 people.

In the 1950's, the mechanization of the production process began and the technical principles brought from abroad were integrated. Footwear manufacturers promoted their products individually. At the end of the decade, the directors of the National Chamber of the Footwear Industry began to organize a product exhibition, following the example of the North American model of commercial fairs. The first national exhibition was held in Mexico City in 1956.

In 1966, at a time when it was necessary to reactivate the sale of footwear, the X National Footwear Exhibition was held in Leon, already known as the Mexican Footwear Industry Exhibition, an event that the local press announced as the one that would show "all its industrial potential in the most ambitious exhibition held until then". The event, the result of the efforts of several visionaries, ceased to be held due to differences between the representatives of the different Chambers. However, the model was so successful that the Leonese producers decided to continue it.

The manufacturers of the Footwear Chamber of the State of Jalisco initiated in 1977 their "Spring National Exposition", being the venue the city of Guadalajara, Jalisco. Five years after SAPICA opened its doors in Leon, ANPIC, the first international supply show, was born in 1979.

Thanks to this path and the structure that was established over the years, the Chamber of the Footwear Industry of the State of Guanajuato planned and programmed the implementation of a special department that would serve as support for the activities that the committee in turn determined to carry out. Based on this programming, in 1980 the first steps were taken to incorporate human and material resources that would constitute the department in charge of the exposition.

Thus, as of the 8th. Thus, from the 8th Leather and Footwear Exhibition (SAPICA), the Chamber already had the foundations to achieve its objective. It was in 1982 that SAPICA was named the National Footwear Fair. The acceptance of this product in the domestic market was such that the National Chamber of the Footwear Industry (CNIC) reached its historical maximum production level with the production of 317 million pairs of shoes, of which 7.5% were exported to the U.S. market. However, the national crisis of the eighties irremediably affected this sector and Zarur (1993) comments: "While in 1980 per capita consumption was estimated at 5.6 pairs; in 1989, at the end of the decade it was 2.5 pairs of shoes, due to the loss of purchasing power of consumers, while footwear prices rose significantly, given the increases in production costs".

In 1999, on its 25th anniversary, SAPICA expected 10,000 buyers with visits from 25 countries around the world, and signed an agreement with CUOROMODA, then the first fair in Latin America, in order to make the two fairs known in neighboring countries and in their own.

According to INEGI figures, at the end of the 90's, 70 million pairs were produced per year and there were 73,439 workers in that direct employment, and in order to position the sector as a globally recognized producer, actions had to be taken to promote it, which were carried out by businessmen, chambers, research centers and government. Because of this, and because it is a basic consumption item and an important source of employment in the country, the footwear industry was given priority in the National Industrial Development Plan of the Federal Government 2000-2006, during the term of President Vicente Fox Quezada.

The 2009 economic census (INEGI) captured 7,398 economic units dedicated to footwear manufacturing, representing 1.7% of total manufacturing industries. They employed 112,727 people, accounting for 2.4% of total employment in the manufacturing sector. The micro establishments of this sector represented 78.5%, employing 19% of the total personnel and generated 6.2% of the total gross production. In comparison with large companies, which only represented 1%, they employed three out of every ten people employed and generated almost 40% of production.

As for the total footwear production, 87% was destined for private consumption and the rest was for intermediate demand (domestic or foreign) referring to commerce, freight transportation, fabric manufacturing, to the manufacture of footwear itself, paint manufacturing, coatings, adhesives and sealants, among others.

In comparison with the years 2013, 2014 and 2015, the footwear industry only generated revenues in the amounts of \$17, 436, \$17, 462 and \$18, 013 (million pesos) and in terms of employed personnel, the figures were 93, 291; 92,877 and 94, 601, respectively. The contribution to the GDP decreased, as it averaged 0.6% in those years. According to data provided by the federal government.

The slowdown in the economic figures generated by the footwear industry is evident, and some situations can be observed that have contributed to this. The first important fact is the entry of the country of China to the World Trade Organization (WTO), at the end of 2001 and the other, the entry of Mexico to the Trans-Pacific Economic Cooperation Agreement on February 4, 2016, called the Trans-Pacific Partnership (TPP).

Referring to China and its incursion into the WTO, this country has managed to enter and maintain important advantages in sectors such as footwear, textiles, electronics, toys, information technologies, among others. The strategy generated by this country, according to Kerber (2002) "[...] in the case of labor-intensive industries, was often focused on learning the *modus operandi* to replace foreign producers with domestic producers in the medium term and then displace them from the markets they dominate. This is the case of the footwear industry where Chinese brands have been progressively incorporated." Other data that are highlighted are enunciated below. Esquivel (2015) "China is the world's leading footwear producer, manufacturing 5.5 billion pairs of footwear and exporting 3.1 billion pairs annually. In order of importance, China ranks first in foreign sales, followed by India with 682 million, Brazil with 520 million, Italy with 425 million, Indonesia with 318 million, Turkey with 270 million and Mexico ranks seventh with 170 million. Ten years ago Mexico imported only 3.0% of its domestic footwear consumption, now that consumption has increased to 20% of the total."

Olvera (2018) "Trade exchange between Mexico and the United States fell from 81 percent in the 1990s to 63 percent in 2016, a year after Republican President Trump issued since the campaign a protectionist speech. In contrast, Mexico's trade with China rose from -1 percent to 10 percent in 2016, according to the National Autonomous University of Mexico's Center for China-Mexico Studies that has researched the trilateral U.S.-China-Mexico relationship." And it adds that in 2017 while China sold us 67 billion 741 million dollars (computer and communication technology products, clothing, footwear, electrical appliances), Mexico only exported 6 billion 61 million dollars to it (computer, electronic, communication and auto parts products).

It is important to mention the Asia-Pacific Economic Cooperation Forum (APEC), whose member countries adopted the Bogor objectives, and whose commitment is that by 2020, the economies of the region should have implemented public policies aimed at the total liberalization of markets in order to achieve free and open trade. Both Mexico and China are members of APEC.

As for the TPP, the member countries are: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States and Vietnam. They accounted for about 40% of world GDP and 25% of international trade, and sought to create a new economic bloc in the Pacific by reducing approximately 18,000 customs tariffs. The objective: to change the rules on the exchange of goods and services. However, at the end of January 2017, the United States withdrew. This led to a rearrangement of the treaty and on March 8, 2018, it was signed again, but under the name of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), with the eleven remaining countries. In an interview conducted by *Expansión Magazine* in February 2018 with Mr. Alejandro Gómez, executive president of the Guanajuato State Chamber of Industry, he commented "We are much more concerned about the CPTPP, because as it is drafted it will allow Vietnam to produce footwear using inputs from China (which are up to 50% cheaper than those available in Mexico) and export them to the Mexican market duty free. In addition, wages in Vietnam are up to 50% lower than those paid in the sector. We will not be able to compete with this mix of cheap inputs and low wages."

And it is highlighted in the published article that Vietnam is the second largest footwear manufacturer globally, after China. And the bulk of its production is for export. So far, Vietnamese footwear pays a tariff to enter Mexico, which allows balancing the low costs. But once the CPTPP is signed, Vietnamese footwear will enter a phase of tariff relief. This has Mexican manufacturers worried, as the Asian product could displace the 235 million pairs sold in Mexico.

In view of this scenario, Ernesto Acevedo Fernández, Mexico's Undersecretary of Industry and Commerce, stated in a conference (February 25, 2019) that in view of the adverse situation faced by the footwear economic activity, the following actions were immediately proposed: the signing of two Presidential Decrees that would temporarily establish a 25 percent or 30 percent tariff on footwear imports. This was published in the Official Gazette of the Federation on April 10, 2019.

After this background and facts that have impacted the footwear industry, we proceed to describe the object of study, which is composed of 366 footwear manufacturers and traders established in Plaza Azul, which is located in the Municipality of San Mateo Atenco, State of Mexico.

The State of Mexico is divided into 125 municipalities, of which only 6 are in the footwear economic sector and are home to 81% of the establishments and 80% of the employment. These municipalities are Cuautitlán, Cuautitlán Izcalli, Naucalpan, Tlalnepantla, San Mateo Atenco and Toluca, among others, being the most important of them due to the number of companies and the level of employment it generates: San Mateo Atenco.

Eighty-seven percent of the companies in the footwear industry in the State of Mexico are classified as micro-companies, almost 7% as small companies, 4.55% as medium-sized companies and 1% as large companies. Most are located in San Mateo Atenco, which is home to slightly more than 40%.

This municipality has a population of approximately 73,000 inhabitants and 75% of the families are dedicated to shoemaking, both artisanal and industrial. The history of the shoe industry in this jurisdiction is divided into three periods:

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- 1900-1912, the production was carried out manually.
- 1913-1931, mechanical machines are used: the first one, to sew the cut, the second one, to sew the sole and the third one, a machine with a pedal.
- 1932-1959, electric machines were used and the first shoe factories were established.

San Mateo Atenco has also suffered from the events described above regarding China and treaties with other countries. The impact can be seen in the serious decrease in sales. The president of the San Mateo Atenco Footwear Producers group (Procasma), Mr. Luis Gonzaga González Tapia, at the end of June 2019 has stated to the media that the footwear industry in this municipality is at risk due to flooding in the area and the sale of pirated footwear from China, which has caused the closure of 20% of footwear workshops.

"It has been very complicated to shield a border so that shoes do not enter clandestinely because, with the tariff measures, if they entered legally, prices would rise, but it is contraband and it is unfair competition, because we struggle with the payment of taxes, insurance affiliations and other obligations as taxpayers," said the representative of Procasma.

Pérez, J. (2020) Regarding the contingency situation originated by the SARS-CoV-2 that causes the COVID-19 disease, the representative of Plaza Azul, Ismael Gutiérrez Sánchez pointed out and exposed that, in spite of carrying out all the sanitary measures imposed by the Secretary of Health of Mexico, the business is still not rising because the attendance is "lukewarm" and many visitors arrive and leave without making any purchase in spite of prices that become a bargain.

In addition to this, the leader added: "The situation will not improve in the short term, there is no improvement in attendance of buyers and sale of products", so they are still waiting for the local city council to deposit the money they promised to manufacture 4,500 pairs of shoes for Atenco students of preschool, elementary and high school within the framework of this pandemic to reactivate the economy of shoe workers and other merchants in the municipality.

The Plaza Azul vendors are responsible for the manufacture of these four thousand five hundred pairs of shoes of the almost 10 thousand that the mayor's office requested from other manufacturers at a uniform cost of 350 pesos per pair; however, the prolongation of the start of classes until now indefinitely also originated the postponement of the deposit to the shoemakers. Therefore, the situation is serious.

In view of this scenario, this research proposed to determine the competitive advantage of this industry through the resource theory, which states that the success of organizations has its origin in the resources and capabilities that make it up. And it is through these that the competitive advantage is generated, which is the ability to achieve a favorable position that generates a superior performance to competing companies.

Diaz (2009) "For his part Gluck points out that competitive advantages are the characteristics that favorably differentiate the company from the current and potential competition, some authors relate the competitive advantage with the possession of resources, skills or distinctive competencies that allow the company to perform better and cheaper activities than competitors".

For Hamel and Prahalad, precursors of the resource theory, in their article "Strategic Purpose" (2005) mention that competitive advantage is the need to accelerate the organization's learning to outperform competitors in building new advantages. And they emphasize that priority should be given to the internal conditions of the organization. It is a process of mastering essential competencies and overcoming the barriers of the environment to achieve an advantage that allows it to achieve its objectives, although these may be in the longer term.

Rubio and Aragón (2008) argue that resources are the inputs available to the company to carry out its activity. Capabilities are precisely the ability to adequately manage resources to perform a given task within the firm. In short, capabilities are the way in which the company combines its resources; this increases the stock of intangible resources, enables it to carry out its basic activities more efficiently than its competitors and, finally, allows it to adapt to changes by implementing strategies in advance.

Ojeda (2007) "Each SME develops its own potential based on its strategic (valuable) resources, alone or in combination, to adapt to the demands of the environment. These resources represent those tangible and intangible assets that neutralize threats. This approach is based on the resource theory itself, which emphasizes the importance of the entrepreneur being aware of the potential synergies that can be created between resources and how to use them appropriately in the formulation of strategies."

While Porter (2007) states that competitive advantage results from the ability of organizations to execute required activities at a lower cost than rivals or to execute some activities in a unique way that creates value for the customer and allows the company to position itself, he also establishes within the value chain concept the need to have a mechanism to detect the potentiality of resources as a source of sustained competitive advantage.

Considering then the theory of resources, this research focused on human capital, taking into account that of the resources that make up a company, the collaborators that integrate it are the ones that can make a significant difference in the achievement of the objectives and the fulfillment of the organizational mission and vision. Highlighting that Hamel and Prahalad (2005) argue that to create a competitive advantage it is necessary, among other aspects, "to provide employees with the skills they need to work effectively."

The present research combines the principles of resource theory with the human capital variables established by Chiavenato, (2020) to evaluate the competitive advantage of the human resource in the footwear industry in San Mateo Atenco, giving an important contribution to this area of study.

There are several proposals regarding the classification of the resource theory, which are shown in Table 1.

Resource theory approach		
Author	Barney, (1991)	Human Capital Physical Capital Resources Resources
	Grant, (1996)	Human Tangibles Intangibles
	Hamel and Prahalad, (2005)	Workers Capabilities
	De la Cruz, Morales and Carrasco, (2006)	Technology Marketing Human Resources Financial Resources Production Logistics

**Table 1** Resource theory  
*Source: Own elaboration*

As for this research we focus on human capital, which according to Gonzalez et al. (2017) in the Mexican administrative world was incorporated without apparent problem as a result of the strong globalizing trend that organizations are experiencing.

Naumov (2018) defines capital as "The capabilities, knowledge, skills, abilities, aptitudes and experiences that a person accumulates throughout his life, personally and professionally, making him more valuable every day in the application of his activities and responsibilities."

Chiavenato (2020) highlights that people and their knowledge, skills, abilities, attitudes and competencies become the main basis of the new organization.

Rubio and Aragón (2008) "The literature recognizes that human resources management in SMEs has a series of singularities that make it different from the management carried out by large companies. Regarding the impact of this resource on the competitiveness of SMEs, most studies point to a positive relationship (Viedma, 1992; Huck and McEwen, 1991; Yusuf, 1995; Wijewardena and Cooray, 1995; Luk, 1996; Gadenne, 1998; Warren and Hutchinson, 2000) and even qualify it as the key resource to compete".

The human capital variables used in the SWOT matrix are those established by Chiavenato (2020) in the human talent integration process. These are: recruitment, selection, hiring, training, policies, procedures, motivation and remuneration (see Table 2).

Human talent integration process		
Variables	Recruitment	Communication process to attract candidates in the talent market.
	Selection	It works as a filter that only allows people with the desired characteristics to join the organization.
	Contratación	Formal incorporation of the new employee to the organization where rights, responsibilities and obligations are established.
	Training	It is a medium that adds value to employees, the organization and customers.
	Policies and procedures	Guidelines that guide the actions of employees in the performance of their duties.
	Motivation	Increase individual and team awareness and responsibility within the organization.
	Remuneration	Reward system capable of increasing employee commitment to the organization's business.

**Table 2** Integration process

Source: Own elaboration based on Chiavenato (2020)

### Problem statement

Footwear manufacturing in Mexico has a history of more than 400 years, according to data published by the Ministry of Economy, and has been perfected to become an industrial chain of supply-leather-footwear of national and international renown and prestige. The main states where production is concentrated are Guanajuato, with 78%, Jalisco 12%, 3.5% in the State of Mexico and Mexico City, with 2.4%.

However, and according to figures from the National Institute of Statistics and Geography (INEGI), in 2017 the total factor productivity and contribution to Mexico's economic growth of this sector had an annual growth rate of -0.33% and in January 2019, based on the Monthly Survey of the Manufacturing Industry (EMIM), the percentages of personnel employed in the production of footwear was -1.5 and 0.5 referring to the plant capacity used.

This alarming situation highlights the crisis faced by this economic activity. In the State of Mexico; more specifically in the municipality of San Mateo Atenco in the last 3 years the economic situation of the municipality has been affected due to the fact that every year it is more frequent that shoe stores are forced to close. The problem in question lies in the lack of recognition of the situation; not only are the small and medium-sized shoe businesses in the municipality closing, but also 70% of the families are dedicated to the production of footwear and depend on this business to cover their expenses.

And if to this scenario, we add the worldwide contingency that began in 2020 originated by SARS-CoV-2 that causes the COVID-19 disease, the economic consequences are shocking and the footwear industry, object of study of this research, was not the exception, so the problem of the decrease in sales became more acute.

### Methodology

This is a descriptive transectional study because it is intended, through the analysis of the variables that describe the characteristics of human capital, to propose strategies to enhance the performance of human capital in the footwear industry, specifically the manufacturers who sell their products in Plaza Azul. Based on what is established by Hernández, Fernández, & Baptista (2010), the type of study corresponds to the so-called descriptive one, which seeks to specify the properties, characteristics and profiles of people, groups, communities or any other phenomenon that is subjected to analysis. Trans-sectional descriptive designs aim to investigate the incidence of the modalities or levels of one or more variables in a population; they are purely descriptive studies. The procedure consists of locating one or more variables in a group of people, living beings, objects, situations, contexts, phenomena, communities, etc. and providing their description.



This research focuses on the evaluation of the competitiveness of the human capital of the footwear producers of Plaza Azul in San Mateo Atenco, using the SWOT Analysis methodology. Of the diagnostic methods and techniques applicable in organizations, the SWOT matrix allows the evaluation of strengths, opportunities, weaknesses and threats, highlighting the procedure to follow for its analysis and derivation of strategies for its enrichment. According to the various classifications of the types of research that exist, this work corresponds to a descriptive type of research; according to Hernández, Fernández & Baptista (2010) descriptive research works with factual realities and its fundamental characteristic is to present a correct interpretation, which may include the following types of studies: surveys, case studies, exploratory, causal, developmental, among others.

Based on the study problem posed and in correspondence with the state of the art, the procedure proposed by Ramirez (2009) will be taken as a basis; this procedure does not contemplate the necessary elements to give validity to the research, elements that are incorporated in the present research. In addition to the determination of the strategic balance, the SWOT matrix is elaborated where the proposals of strategies to potentiate the human capital in order to increase the competitiveness of the footwear producers will be developed.

In order to facilitate understanding and practical application, a breakdown of the procedure that was carried out is presented.

Application of the procedure:

1. Identification of the analysis criteria. The evaluation of the variables considered by Chiavenato (2020) as fundamental for the human capital integration process was determined, namely: Recruitment and Selection, Training, Motivation, Policies and Procedures, Hiring and Remuneration.

2. Determination of the actual performance conditions in relation to the internal and external variables of the analysis.

2.1. Delimitation of the field of action. The study was carried out taking as its universe the producers of the Plaza Azul in San Mateo Atenco. When counting the footwear producers

that have activity within the Plaza Azul in San Mateo Atenco, it was determined that the exact number is 324 manufacturers; information provided by Mr. Ismael Gutiérrez Sánchez, president of the Plaza Azul Association.

## 2.2 Determination of the sample size

Since the number of footwear manufacturers in Plaza Azul de San Mateo Atenco is known, the formula for determining the sample size of a finite population was used (Münch & Ángeles, 1998). (Münch & Ángeles, 1998)

$$n = \frac{k^2 * p * q * N}{(e^2(N-1)) + k^2 * p * q} \quad (1)$$

Where:

N=324

k=1.96 Z-value for 95% confidence level

p=0.5 probability of success (determining the strategic Human Capital Balance Sheet)

q=0.5 probability of failure (determining the Strategic Human Capital Balance)

e=0.05 maximum permissible error

$$n = \frac{(1.96)^2 * (0.5) * (0.5) * (324)}{((0.05)^2(324-1)) + (1.96)^2 * (0.5) * (0.5)} = 176.01 \quad (2)$$

Given the current conditions of the COVID-19 pandemic caused by the SARS-CoV-2 virus, it was practically impossible to conduct the number of surveys mentioned above. It was decided to work with a 90% confidence level and to accept a 20% error.

Thus, the sample size was determined as follows:

$$n = \frac{(1.645)^2 * (0.5) * (0.5) * (324)}{((0.20)^2(324-1)) + (1.96)^2 * (0.5) * (0.5)} = 16.12$$

n = 16

Where:

N=596

k=1.645 Z value for a confidence level of 90%.

p=0.5 probability of success (determining the strategic Human Capital Balance Sheet)

q=0.5 probability of failure (determining the Strategic Human Capital Balance)

e=0.20 maximum permissible error

2.3 Collection of information. The structured interview technique was used, for which a questionnaire was designed consisting of a set of strategically designed questions regarding the variables to be measured according to Hernández, Fernández, & Baptista (2010). The interviews were carried out using the available media: Google Duo platform, WhatsApp and Zoom.

Given that the list of strengths, weaknesses, opportunities and threats was very extensive, only the two most relevant in each section were considered.

For the selection of the elements that make up the sample (footwear manufacturers), convenience sampling was used, in which the elements to be sampled were selected because they are accessible through existing contacts.

3. Assignment of a weighting for each of the strengths, opportunities, weaknesses and threats. For each of the factors mentioned in point 1, the interviewees were asked to assign a rating according to the following scale: where 5 denotes the highest level of performance, 3 the medium level and 1 the lowest level. In this way, the differences between them were established, which made it possible to rank them in order of importance.

4. Calculation of the results. To calculate the results, a matrix was prepared with the totals of each factor, as well as the individual contribution of each variable.

5. Determination of the strategic balance. The strategic balance is the ratio between the optimization factor and the risk factor.

The optimization factor indicates the favorable position of the organization with respect to its competitive assets and the circumstances or events that can potentially be the source of a competitive advantage in the near future.

The risk factor shows an unfavorable position of the organization, i.e. it shows a competitive liability coupled with conditions that limit the organization's competitive position.

$$\text{Optimization factor} = F + O$$

$$\text{Risk factor} = D + A$$

The strategic balance of an organization is better as long as the difference between the optimization factor exceeds the risk factor.

6. Elaboration of the SWOT matrix. The answers of the interviewees were concentrated in a matrix to be later plotted. With the list of the answers of the interviewees classified and weighted, the SWOT matrix was elaborated and from it the necessary strategies were proposed to increase the competitiveness of the human capital of the footwear industry of Plaza Azul, San Mateo Atenco, Edo. de México.

7. Elaboration of proposals. With the analysis of the results, conclusions are obtained regarding the general situation of the footwear industry with respect to human capital, as well as individually for each of the variables studied. Subsequently, these will form the basis for the elaboration of proposals for strategies to strengthen human capital in order to achieve a competitive advantage.

## Results

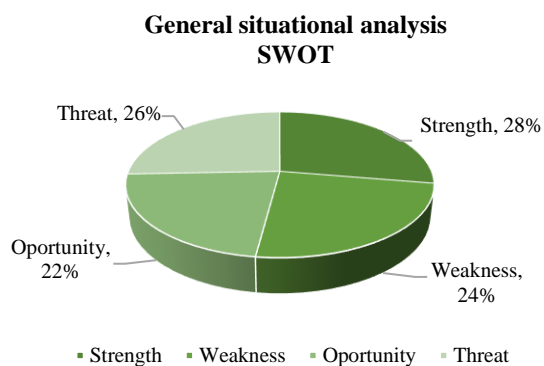
To contextualize the results presented in this section, regarding the evaluation of the human capital variables used in the SWOT matrix: Recruitment and Selection, Training, Motivation, Policies and Procedures, Hiring and Compensation, 16 structured interviews were carried out, according to the questionnaire technique, with questions designed to measure these variables, the result of the questions were assigned a weighting for each of the strengths, opportunities, weaknesses and threats.

To calculate the results, a matrix was prepared with the totals of each factor, of the 6 human capital variables, as well as the individual contribution of each variable with the weighting of 5, 3 and 1 where 5 represents the highest level, 3 medium level and 1 low level for the strengths, opportunities, weaknesses and threats as shown in Table 3.

Variable	Fortress	Weakness	Opportunity	Threat
1. Recruitment and selection	74	62	52	76
	28%	23%	20%	29%
2. Training	58	48	52	60
	27%	22%	24%	28%
3. Motivation	54	66	58	47
	24%	29%	26%	21%
4. Policies and procedures	68	54	50	43
	32%	25%	23%	20%
5. Hiring	64	48	48	58
	29%	22%	22%	27%
6. Remuneration	64	60	48	70
	26%	25%	20%	29%
Total	382	338	308	354
	28%	24%	22%	26%

**Table 3** Overall situational analysis and by variable  
Source: Own elaboration: Own elaboration

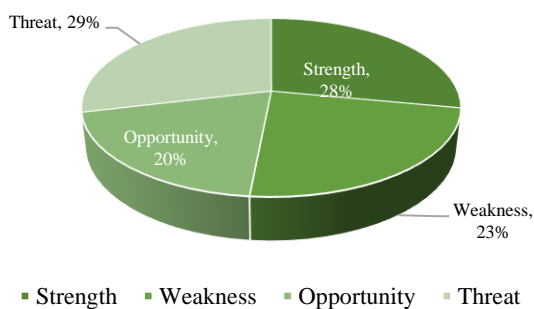
The sum of the variables in general is the SWOT situational analysis and it is shown in the following chart 1.



**Graphic 1** General SWOT situational analysis by percentage  
Source: Own elaboration

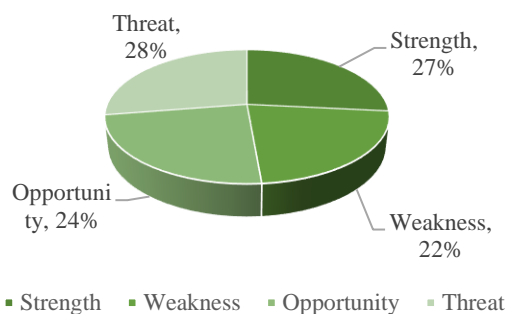
The percentage of each variable horizontally shows us the participation of the impact that the internal and external conditions of the company have, and they are shown in graphs 2, 3, 4, 5 and 6.

**1. Recruitment and selection**



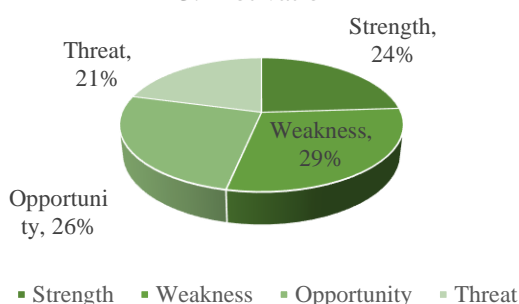
**Graphic 2** Situational analysis of the variable Recruitment and selection  
Source: Own elaboration

**2. Training**



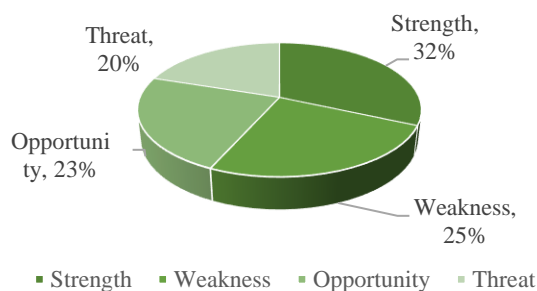
**Graphic 3** Situational analysis of the Training variable  
Source: Own elaboration

**3. Motivation**



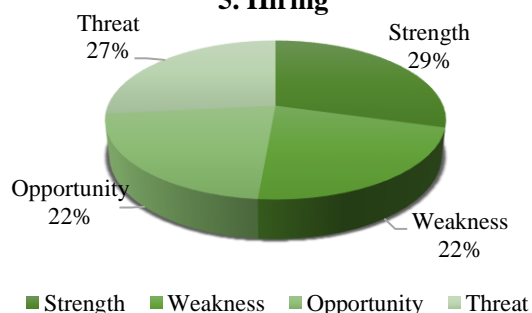
**Graphic 4** Situational analysis of the Motivation variable  
Source: Own elaboration

**4. Politics and procedures**

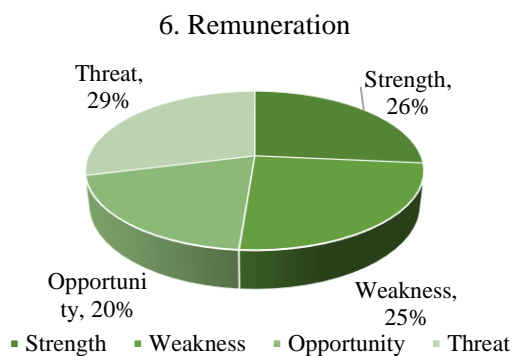


**Graphic 5** Situational analysis of the variable Policies and procedures  
Source: Own elaboration

**5. Hiring**



**Graphic 6** Situational analysis of the variable Hiring  
Source: Own elaboration

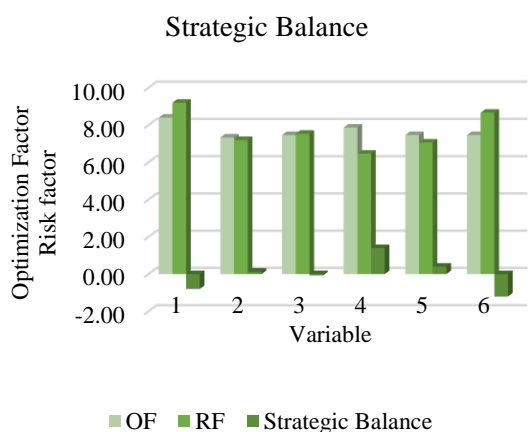


**Graphic 7** Situation analysis of the variable Remuneration  
Source: Own elaboration

Subsequently, the strategic balance is determined, which is the relationship between the optimization factor and the risk factor. It is calculated by subtracting the risk factor from the optimization factor. The results are shown in table 4 and then plotted (graph 8).

Variable	FO	FR	Strategic Balance
1. Recruitment and selection	8.40	9.20	-0.80
2. Training	7.33	7.20	0.13
3. Motivation	7.47	7.53	-0.07
4. Policies and procedures	7.87	6.47	1.40
5. Hiring	7.47	7.07	0.40
6. Remuneration	7.47	8.67	-1.20
Total	46.00	46.13	-0.13

**Table 4** FO: Optimization Factor and FR: Risk Factor. Overall strategic balance and by variable  
Source: Own elaboration



**Graphic 8** Strategic Balance by variable  
Source: Own elaboration

Figure 1 below shows the SWOT matrix based on the results obtained from the instruments applied and presented above.

Factors internal	Strengths	Weaknesses
	<p>F1. Extensive knowledge in recruitment and selection of personnel.</p> <p>F2. A formal remuneration system is in place.</p> <p>F3. Personnel hiring is planned.</p>	<p>D1. There is no written contract</p> <p>D2. There is no human resources area in the company.</p> <p>D3. Loss of trained personnel due to lack of budget.</p>
Factors external	<p><b>Opportunities</b></p> <p>O1. Recruitment of new talent.</p> <p>O2. Training of personnel using the platform of the Ministry of Labor and Social Welfare (STPS).</p> <p>O3. Implementation of new systems and processes.</p>	<p><b>D2, O3:</b> Automate the management of the human capital area.</p> <p><b>D3, O3:</b> Implement internet sales system.</p>
	<p><b>Threats</b></p> <p>A1. Partial or total closure of activities caused by the contingency situation (COVID-19).</p> <p>A2. Subcontracting with little experience and seriousness.</p> <p>A3. Change in tax legislation</p>	<p><b>D3, A3:</b> Establish a hiring policy to take advantage of the benefits of the personal income tax.</p>

**Figure 1** SWOT Matrix  
Source: Own elaboration

**Conclusions**

By applying the proposed procedure and using the described techniques, it was possible to determine the competitive position in terms of human capital of the footwear producers of Plaza Azul. The global strategic balance with 90% confidence is between -0.16 and -0.10. The ideal strategic balance between the opportunity factors and the risk factor in each case is not 50% and 50% between them, but rather, the former should exceed the latter, in search of the best condition to operate. In this case, it can be observed that the strategic balance is negative, which shows a weak position in relation to competitors.

The analysis by variable allowed to visualize that the potentialities, present in the highest optimization factors are in recruitment and selection of personnel, followed by policies and procedures; on the other hand, the variables where the main competitive weakness is determined is the remuneration system.

The competitive advantage of the Human Capital of the Plaza Azul footwear industry located in San Mateo Atenco, Mexico, resulting from this research is based on the strategies proposed in the SWOT matrix. Regarding the "Max-Max" quadrant and with respect to strategy F3, O1, it is suggested that the Plaza Azul footwear association establishes a link with the educational institutions of higher and technical education with the objective of consolidating an agreement that allows the graduates of these professional or technical careers that have the requested profiles to be candidates for employment in these footwear industries through the labor exchange of these institutions, managing to capture new talent according to the personnel hiring planning required by the companies.

Continuing with the same quadrant and with the other proposed strategy (F2, O2), it is suggested to elaborate the procedure for training and development of human capital in which it is established the conformation of the training plan, training and productivity of the personnel of the organization based on two sites: National Registry of Training Courses (RENAC) and National Registry of Competency Standards (RENEC), both belonging to the STPS. This allows, on the one hand, to train the company's personnel by considering an incentive program for those employees who comply with the training plan and, on the other hand, to comply with the provisions of the same secretariat in relation to the delivery of such plan through the DC-2 format. It should be noted that the courses offered are affordable, and some are even free of charge.

Regarding the "Min-Max" quadrant and strategy D2, O3, it is necessary to highlight the importance of having the human resources area in the organizational structure, since the functions of human capital integration (recruitment, selection, hiring, training, evaluation and compensation) are essential in every company; therefore, it is proposed that the footwear industry obtain software that has the tools for personnel management.

Currently there is a diversity of software designed for SMEs and even some of them are free and others are quite accessible. In this way they would have the necessary elements to help them make assertive decisions in this department.

Continuing with the same quadrant and with the other proposed strategy (D3, O3) it is urgent to increase sales in this industry so the idea of implementing or reinforcing the Internet sales system is presented. Design an attractive web page that contains a catalog with the products that are manufactured and above all a diversity of payment and delivery methods. They can be supported by graphic design students for this activity through professional practices.

Related to the "Max-Min" quadrant and the F2 strategy, A1 highlights the situation originated by SARS-CoV-2 that causes the disease COVID-19, as a response to this contingency, government authorities decided to establish an epidemiological risk traffic light to move towards a new normality; it is a monitoring system for the regulation of the use of public space according to the risk of contagion. At this moment, a return to normal activities is being initiated, respecting the indicated capacity, so it is required that all the members of Plaza Azul develop a cleaning, disinfection and sanitization protocol so that the general public can attend with the certainty that there are basic prevention measures for the care of people. This leads to an increase in sales and impacts on the proper planning of payroll.

And to conclude with the same quadrant and with the other proposed strategy F1, A2, it is suggested to take advantage of the experience that these companies have regarding the recruitment and selection of personnel to design a comprehensive human capital management system, which would consider an analysis to determine the elements that the software mentioned in previous paragraphs should have.

Regarding the "Min-Min" quadrant and strategy D3, A3. Due to the economic impact that the Plaza Azul footwear industry is facing due to low sales, it is proposed to take advantage of the tax benefits that are being granted to companies that are established in the territory of the State of Mexico in terms of the tax on expenses for remuneration of personal labor.

The benefit consists of a 100% subsidy in certain periods of time and applies when hiring human capital under certain circumstances. The period can be from 12 months to 36 months. Taking advantage of this strategy can have a favorable impact on these organizations.

Finally, the importance of strengthening the Plaza Azul footwear industries located in San Mateo Atenco is highlighted, and it is hoped that the results and strategies proposed will help this sector to emerge from the critical situation in which it finds itself.

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