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*Artículos científicos*

**Factores determinantes de una innovación social en la zona rural  
en el estado de Guanajuato. Caso de estudio: comunidad de  
Magallanes**

*Determinants of Social Innovation in rural areas in the state of Guanajuato.  
Case study: Magallanes community*

*Fatores determinantes de uma inovação social no meio rural do estado de  
Guanajuato. Estudo de caso: comunidade de Magalhães*

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## Resumen

En este artículo se presentan los resultados obtenidos en una investigación realizada en la comunidad de Magallanes, municipio de Pénjamo, Guanajuato, la cual tuvo como objetivo identificar si dicha localidad cuenta con las condiciones para una innovación social. En las últimas décadas, la innovación social se ha utilizado como una alternativa de transformación y desarrollo humano para enfrentar las problemáticas sociales, lo cual fomentaría una mejor calidad de vida dentro de las comunidades. Para ello, por supuesto, se requiere de la participación de la sociedad, así como de diversos agentes sociales que permitan crear redes de apoyo y canales de comunicación efectivos para beneficiar a los involucrados (Millard, 2023). Sin embargo, la innovación social no se ha desarrollado en la mayor parte de las comunidades pertenecientes al estado de Guanajuato debido a factores como el desinterés de la sociedad o la falta de conocimiento para crear un proyecto, específicamente en la comunidad de Magallanes. Por eso, con esta investigación de enfoque cualitativo y descriptivo se pretende determinar si la referida comunidad es idónea para implementar y desarrollar un proceso de innovación social.

**Palabras clave:** innovación social, factores determinantes de una innovación, territorios rurales.

## Abstract

This article presents the results of an investigation carried out in the community of Magallanes, municipality of Pénjamo, Guanajuato, with the objective of identifying whether it has the conditions for social innovation. In the last decades, social innovation has been used as an alternative for social transformation and human development, with the purpose of facing social problems, in order to generate a better quality of life within the communities. This generates the participation of society, as well as various social agents, in order to create support networks and effective communication channels, establishing strategies that will benefit those involved (Millard, 2023). However, despite this, social innovation has not been developed in most of the communities belonging to the state of Guanajuato, even when it represents a substantial improvement for their environment, which is due to various factors, such as: lack of interest in society or lack of knowledge on the part of the community to create a project; in this case, within the community of Magallanes. The purpose of this qualitative and descriptive research is to generate an overview of whether the community is

suitable to implement and develop a social innovation process, through the determination of factors necessary for social innovation.

**Keywords:** Social innovation, determinants of an innovation, rural territories.

## Resumo

Este artigo apresenta os resultados obtidos em uma investigação realizada na comunidade de Magallanes, município de Pénjamo, Guanajuato, que teve como objetivo identificar se esta localidade possui condições para a inovação social. Nas últimas décadas, a inovação social tem sido utilizada como alternativa de transformação e desenvolvimento humano para o enfrentamento dos problemas sociais, o que promoveria uma melhor qualidade de vida nas comunidades. Para isso, é claro, é necessária a participação da sociedade, bem como de diversos agentes sociais que permitam a criação de redes de apoio e canais de comunicação eficazes para beneficiar os envolvidos (Millard, 2023). Porém, a inovação social não foi desenvolvida na maioria das comunidades pertencentes ao estado de Guanajuato devido a fatores como o desinteresse da sociedade ou a falta de conhecimento para criar um projeto, especificamente na comunidade de Magalhães. Portanto, com esta pesquisa de abordagem qualitativa e descritiva, pretende-se determinar se a referida comunidade é adequada para implementar e desenvolver um processo de inovação social.

**Palavras-chave:** inovação social, determinantes da inovação, territórios rurais.

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## Introduction

The objective of the present investigation is to determine the socioeconomic, cultural and governmental factors that would allow to potentiate the development of a social innovation in the community of Magallanes —municipality of Pénjamo, Guanajuato, Mexico— in order to encourage it to use its own resources in your profit. Magallanes is part of the isolated rural communities that have been directly affected by poverty within the state of Guanajuato.

According to data provided by the National Council for the Evaluation of Social Development Policy (Coneval) (2021), the poverty rate in rural areas is equivalent to 56.8%, while the urban population is 40.1%. In the specific case of Magallanes, since she is excluded,

she is unprotected from the concentration of activities in urban areas, which leaves her exposed to the possibility of falling into the trap of collective poverty.

In this context, researchers such as Arcos Soto et al. (2015), Tortosa Conchillo et al. (2018) and Arboleda Jaramillo et al. (2020) agree that social innovation stands as an essential tool that seeks to optimize solutions to various problems and social needs. Its objective is focused on improving the quality of life of the actors involved in the process so that they generate their own initiatives with the purpose of promoting significant changes in their respective territories. For this reason, social innovation in rural areas has experienced a notable increase in recent decades (Ortega Hernández et al., 2015) to try to achieve the sustainable development goals (SDGs) for the year 2030.

## **Theoretical framework**

### **Innovation**

The concept of innovation was explored from the works of David Ricardo (1817) and Adam Smith (1976), who addressed this issue in a generic way by establishing a connection between poverty and social progress. At that time, this concept was not specifically established, but as time progressed, other economists and philosophers took up this topic, which finally generated academic interest in its study. In 1803, the French economist Jean Baptiste Say shaped a definition of "innovation" with an organizational approach to its development.

On the other hand, Godin (2006) points out the evolution of this concept over the decades, and affirms that innovation is based on imitation and invention. In the 18th century, imitation was considered a positive practice among the artists of the time, since their work was associated with the art of imitation.

Then, around the fourteenth century, the term innovation managed to establish itself as a solid representation of the relationship between the discovery and the creation of new objects. Therefore, innovation focuses on the generation of innovative solutions for a variety of problems that arise in society, which is why over time this practice has become an essential element for both public and private organizations.

## **Social innovation**

Social innovation is a relatively new field of study in the academic landscape. Some authors, in fact, highlight that his academic interest began in the late nineties and early 2000s, although it should be noted that social innovations have existed throughout the evolution of society (Cajaiba-Santana, 2014).

In 2013, the European Commission published a guide on "social innovation" in which it was explained that there is no real consensus on the meaning of social innovation, despite the fact that it is considered a crucial strategy for the competitiveness of the region in which it develops.

Social innovation emerged as an alternative vision to conventional innovation, which was based on methods that were no longer viable to address current problems (Parada et al., 2017). For this reason, social innovation focused on the interactions of various actors in order to generate proposals to address cultural, environmental or economic problems according to each context.

However, social innovation is not restricted to a specific economic sector, but is oriented towards the creation of products and results of a social nature (Murray et al., 2010). In addition, one of the fundamental reasons why a society is inclined towards innovation lies in the conditions of its environment and its unsatisfied needs (Chambón et al., 1982).

Social innovation, therefore, demands the mobilization of a variety of resources, both tangible and intangible. In this way, it takes place in a context of foundations and strategies to foster relationships between individuals and their environment, as well as between nearby communities (Klein and Harrisson, 2007; Moulaert and Nussbaumer, 2005). In this sense, social innovation directly influences governance relationships and, therefore, the satisfaction of basic needs that affect society. (Irizar, 2008).

## **Characteristics of social innovation**

In recent years, there has been a considerable effort to highlight activities and initiatives that involve the process of social innovation. This is due to the significant increase in the number of initiatives and mechanisms that support it, which implies the need to identify its fundamental characteristics and define metrics that allow assessing the impact of proposed initiatives.

For this reason, authors such as Buckland and Murillo (2013) have decided to expose the variables that are key in the implementation of a social innovation proposal, which has



fostered a theoretical discussion about them. Within the literature, it is possible to identify a series of common characteristics. Some are closely interrelated and allow openness to collaboration and the creation of new roles.

However, it should be noted that a large number of innovations may have the aforementioned characteristics, however, as it is a subject that is constantly being updated. Even so, and following Ümarik et al. (2014), the particular characteristics that occur within the development of the social innovation process are five, as described below.

- The trigger for change: Refers to the reason why social innovation occurs within a sector. This occurs as a response to some type of social need or to the various internal or external changes to which society is exposed.
- Change agents: The main drivers of a social innovation process are the key agents or people for the change to take place. These can occur in any environment, whether they are inside or outside a study center.
- Social mechanisms of social interaction and interactive learning: These mechanisms tend to facilitate the participation of a group of people, as well as promote linked knowledge.
- The implications and the basis of legitimacy: The process of change in a society may imply a transformation in its structure and even develop new models of human interaction or institutions (Scott, 1995, cited by Ümarik et al., 2014).
- Social benefit: Refers to a value of social surplus. For a change to be considered social innovation, it must refer to empowerment through collective resources and capacity in society or the community. (Heiskala, 2007).

These characteristics found are common in the literature and serve to identify important aspects that a social innovation must contain.

### **Determinants of a social innovation**

Organizations that are willing to evolve must necessarily go through an innovation process that allows them to adapt to novelties. This perspective is supported by the fact that technique, or applied knowledge, must be, like all human knowledge, continuously reassimilated. In the words of Sachs (2005, cited by Abreu and Álvarez, 2011), "technological expertise is not automatically inherited, each new generation must acquire it" (p. 145). However, for a social innovation to be triggered effectively, a series of social, economic, public and cultural factors are required, which will encourage its adoption and

promotion. In this regard, numerous authors have identified the factors that influence the generation of social innovation:

- a) Size of the region (Abreu and Cruz, 2011).
- b) Cultural context (Echeverría and Gurrutxaga, 2012).
- c) The capacity to absorb knowledge (Unceta, 2016).
- d) The use of digital tools and technology (Mulgan, 2006).

For their part, García and Palma (2019) point out that there are five pillars that encompass various factors that facilitate the emergence of social innovation, which are presented below:

**Table 1.** Determinants of social innovation

Factors that determine the emergence of social innovation in territories	
Social and cultural elements	Socioeconomic level of the population
<ol style="list-style-type: none"> <li>1. Existence of social concern.</li> <li>2. Cultural propensity to change.</li> <li>3. Propensity for participation.</li> <li>4. Existence of a creative class, different economic agents and generate collective action.</li> <li>5. Existence of an associative culture of individuals.</li> </ol>	<ol style="list-style-type: none"> <li>1. Population density.</li> <li>2. Orography.</li> <li>3. Geographic position.</li> <li>4. Existence of nearby natural resources.</li> <li>5. Existence of other socially innovative experiences.</li> </ol>
Political and institutional support	Entities and mechanisms that determine the business and social productive structure.
<ol style="list-style-type: none"> <li>1. Existence of programs to support social innovation.</li> <li>2. Existence of laboratories or social innovation centers.</li> <li>3. Existence of public funding.</li> <li>4. Existence of efficient regulation and absence of obstacles.</li> <li>5. Education policies to promote innovation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Linkages that favor public-private relations.</li> <li>2. Existence of cooperatives.</li> <li>3. Existence of social entities.</li> <li>4. Active business activity.</li> <li>5. Entrepreneurship recognition and existence of awards.</li> </ol>

Knowledge and enabling mechanisms
<ol style="list-style-type: none"> <li>1. Knowledge of social reality.</li> <li>2. Knowledge of the opportunities and potential of new media and instruments.</li> <li>3. Facility and means to establish new communications and networks.</li> <li>4. Spaces for the development of initiatives.</li> <li>5. Presence of other types of innovations. Mechanisms of cooperation between university-science-society.</li> </ol>

Source: García y Palma (2019)

Now, for the present investigation, the work of García and Palma (2019) called Social innovation: key factors for its development in territories has been taken as a reference. In this, the most influential factors in the social innovation process are determined, as well as the variables that integrate them, that is, five factors integrated by a minimum of five variables.

In the case of the community of Magallanes —object of study of this research— it was analyzed if it had the essential factors to support a social innovation project, which would serve to achieve a competitive advantage in the region.

**Table 2.** Sample of determinants of a social innovation

Factors that determine the emergence of social innovation in territories	
Social and cultural elements	Socio-economic level of the population
<ol style="list-style-type: none"> <li>1. Cultural propensity to change.</li> <li>2. Existence of social concern.</li> <li>3. Ability and willingness to work in a team.</li> </ol>	<ol style="list-style-type: none"> <li>1. Population density.</li> <li>2. Existence of nearby natural resources.</li> <li>3. Socioeconomic level of the population.</li> </ol>
Political and institutional support	Entities and mechanisms that determine the business and social productive structure.
<ol style="list-style-type: none"> <li>1. Existence of programs to support social innovation.</li> <li>2. Existence of laboratories or social innovation centers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Existence of social entities.</li> <li>2. Active entrepreneurial activity.</li> <li>3. Entrepreneurship recognition and existence of awards.</li> </ol>

3. Education policies to promote innovation.	
Knowledge and facilitating mechanisms	
<ol style="list-style-type: none"> <li>1. Knowledge of social reality.</li> <li>2. Knowledge of the opportunities and potential of new media and instruments.</li> <li>3. Mechanisms of cooperation between university-science-society.</li> </ol>	

Source:: Own elaboration based in García and Palma (2019)

## Methodology

The present work is part of the qualitative paradigm, since the case study approach was used. In addition, it is a non-experimental investigation with a cross-sectional design and a descriptive scope. The analysis and research focused on identifying the fundamental factors that would allow the development of socially innovative practices. For this, the owners of mango orchards larger than 10 square meters in the community of Magallanes, Pénjamo, Guanajuato were taken as a non-experimental sample.

The study was limited to a total of 15 mango orchards located along the community stream, which were family heirlooms from their owners. To collect the information, interviews were applied that provided the key elements to identify the essential dimensions in the appearance of this phenomenon. This instrument had a hybrid format, based on the detection of socioeconomic factors necessary for the development and implementation of a social innovation. This approach is based on the model developed by García and Palma (2019), who identified five essential pillars, which are mentioned below:

1. Social and cultural elements.
2. Spatial components.
3. Political and institutional support.
4. Entities and mechanisms that determine the business and social productive structure.
5. Knowledge and facilitating mechanisms.

## Study subject

The community of Magallanes —located in the municipality of Pénjamo, Guanajuato— has a population of 828 inhabitants, of which 461 are women and 380 are men. Likewise, 12.49% of its inhabitants are illiterate, and it has 9 young students at the high

school level and 7 at the university level. There are 471 homes, of which 204 (43%) are inhabited. Of the total number of homes, 95% have electricity, 88.44% have access to piped drinking water, 72% have a toilet or toilet, and 85% have a radio. In addition, there are 95 residential telephone lines, 60% have a cell phone and 70% have internet service (National Institute of Statistics, Geography and Informatics [Inegi], 2020).

Regarding migration, this is a social phenomenon that occurs due to the search for better opportunities, either in other places in the same country or abroad (Ortega Hernández et al., 2015). In the case of the state of Guanajuato, 62,476 people migrated to another country in 2020, mainly to the United States (93 out of 100 people), in order to reunite with their families or look for a better job offer (Cuéntame, Inegi, 2020). This made Guanajuato the fifth state with the highest immigration rate in the country.

This town is characterized by its mild climate, favorable for the cultivation of mango, mesperos, coffee, blue maguey and the endemic variety of agave "maguey tequila". In addition to this, the houses have worked quarries that offer a picturesque view. The community-rooted story is framed in Mexico's Cristero era (an armed conflict between "Cristeros" and the Mexican state that took place between 1926 and 1929). The religious festivities, the garments with artistic fraying, the exquisite food and the traditional mango orchards are distinctive of the community. However, the initiative to unite the inhabitants and their environment in a coalition that fosters a unifying social innovation, which could generate a radical change in their environment, as well as significant socio-economic improvements, is lacking.

## **Data treatment**

After completing the previous analysis of the aforementioned factors, coding was carried out using the Atlas.ti software, for which a triangulation of data from the interviews was used. In this way, following the information provided by the informants, it was possible to evaluate the degree of development of each one of the identified factors, which were divided into three dimensions that contained, in turn, three items. In this way, nine items per factor were totaled, except one that only consisted of three.

As part of the sample, fifteen interviews were conducted, including Magallanes residents who were responsible for a mango orchard. In each interview, the questions focused on the mango festival project or on researching the orchards and the mango in question.

This process resulted in a total of 585 responses. It should be noted that, for each instrument, the total number of responses per factor was 135, which served to determine the level of each factor within the community. To determine the level of influence of each factor, the number of similar responses that emerged from the 15 interviews conducted was considered. The levels were classified as follows:

S = Enough

M = Intermediate

I = Insufficient

**Table 3.** Codification

Number	Code	Group	Color
0	History of the community	Sense of belonging	Light blue
	Orchards		
	Person's profile		
	Sense of community		
1	Ability and willingness to work as part of a team	Social and cultural elements of the population	Brick
	Existence of social concern		
	Propensity for change		
2	Existence of laboratories or centers for social innovation	Political and institutional support	Purple
	Existence of programs to support social innovation		
	Education policies to foster innovation		
3	Knowledge of local reality	Knowledge and facilitating mechanisms	King blue
	Knowledge of the opportunities and potential of new means and instruments		
	University-science-society cooperation mechanisms		

4	Existence of resources	Spatial components	Lilac purple
5	Active entrepreneurial and innovative activity	Entities and mechanisms that determine the business and social productive structure	Green
	Existence of social entities		
	Recognition and existence of awards		

Source:: Own elaboration

## Results

From the previous analysis, the level of development of each of the factors that determine a social innovation in Magallanes was determined.

**Table 4.** Level of development by factor

Factor	Total number of interviews	Total number of items per factor	Total number of items per interview	Total number of similar responses per interview	Level		
					S	M	I
Social and cultural elements of the population	15	9	135	100	X		
Political and institutional support	15	9	135	120	X		
Knowledge and enabling mechanisms	15	9	135	85		X	
Spatial components, entities	15	3	135	110			X
Mechanisms that determine the business and social productive structure	15	9	135	75		X	

Source: Own elaboration

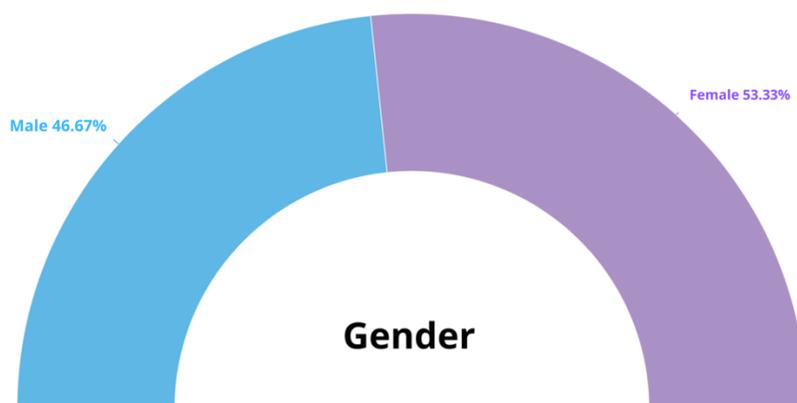
## Profile of the subjects interviewed



## Gender

In figure 1, it can be seen that, within the sample considered for this study, 53.33% of the owners are women.

**Figure 1.** Gender of interviewees

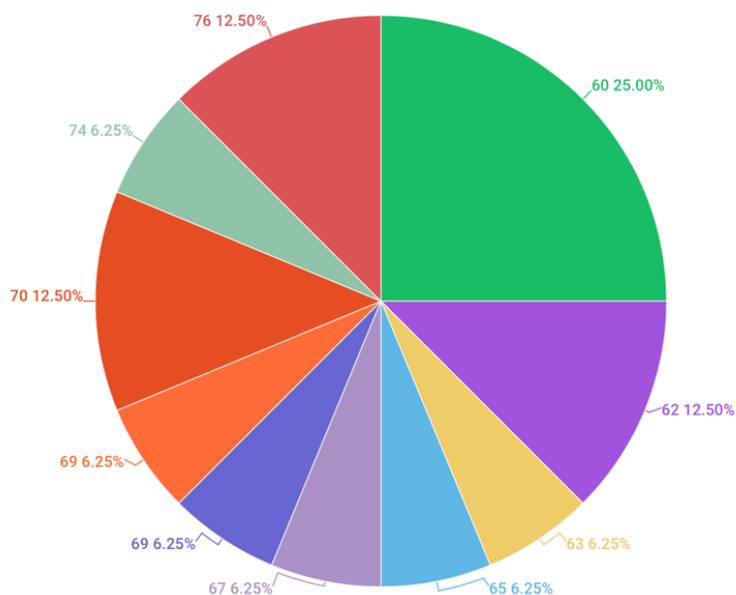


Source: Own elaboration

## Age

Figure 2 shows that most of the interviewees are older adults, that is, over 60 years of age.

**Figure 2.** Age of interviewees



Source: Own elaboration

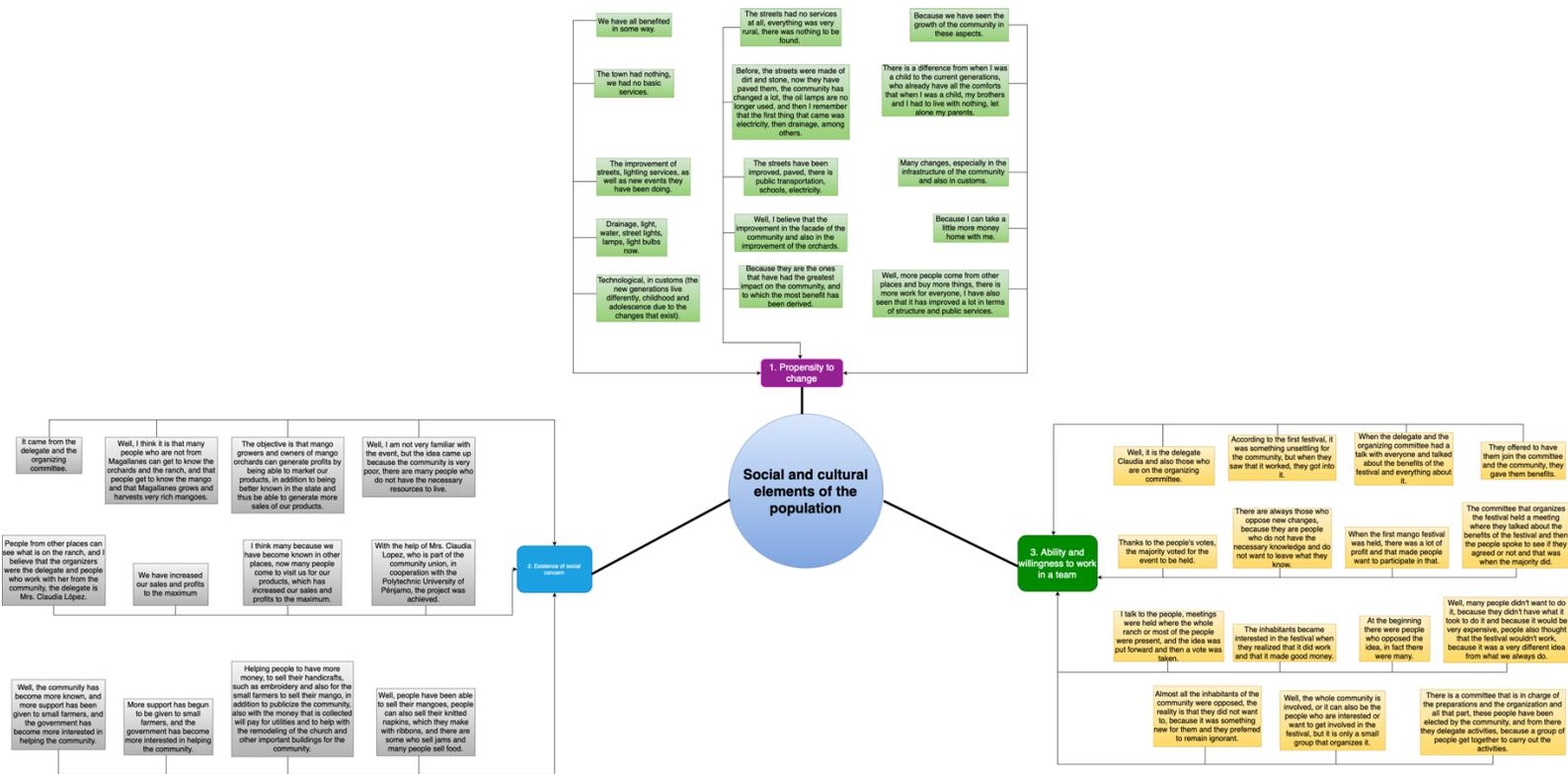
### Question 1:

- What are the determinants of a social innovation that the community has, and what is the level of development that these have?

### Factor 1: Social and cultural elements

For a better analysis of this factor, a series of questions focused mainly on the history of the community and its inhabitants was established. Figure 3 shows some of the most relevant testimonials.

Figure 3. Analysis of the factor Social and cultural elements



Source: Own elaboration

Within the first factor, three dimensions were considered: propensity to change, existence of social concern, and ability and availability to work as a team. According to the first dimension, the relationship that the community has had with the changes generated over time, which have been significant for the social development of Magallanes, is highlighted. In other words, its impact has been positive, since the most far-reaching changes have been in the town's infrastructure and the supply of public services.

On the other hand, in terms of social concern, Magellan's society is concerned about problems neglected by public bodies, but at the same time feels intimidated by too abrupt changes that put their daily routine at risk. This means that the inhabitants are reticent about the possibility of cooperation between them.

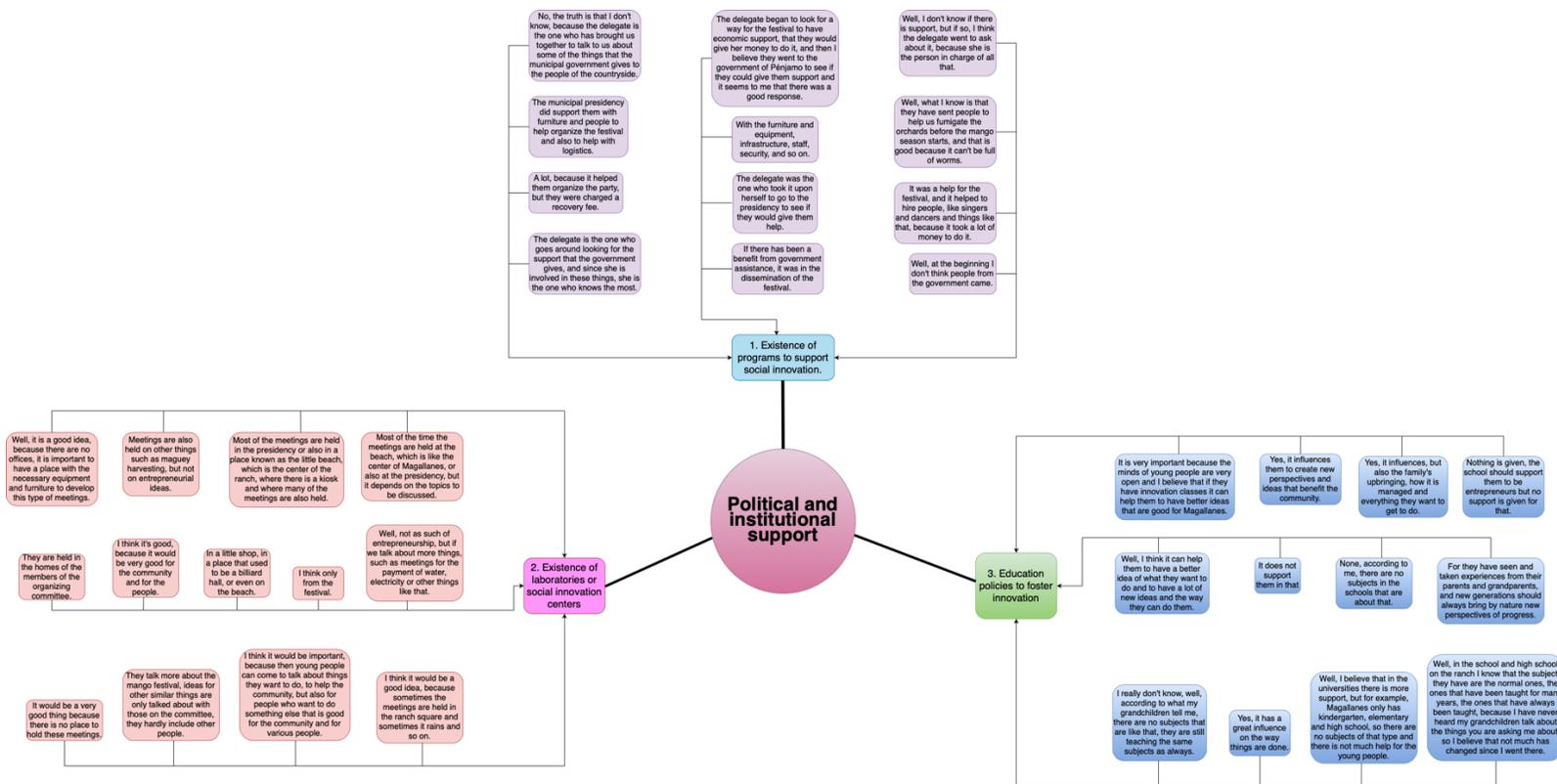
Finally, in the dimension Capacity and availability to work as a team, it can be indicated that the inhabitants, being fearful of changes, are more reluctant to cooperate and collaborate among themselves, since they do not respond easily to proposals in which large number of people participate.



## Factor 2: Political and institutional support

Subsequently, an analysis was prepared around certain external activities to generate better criteria on the part of the inhabitants.

Figure 4. Factor analysis *Political and institutional support*



Source: Own elaboration

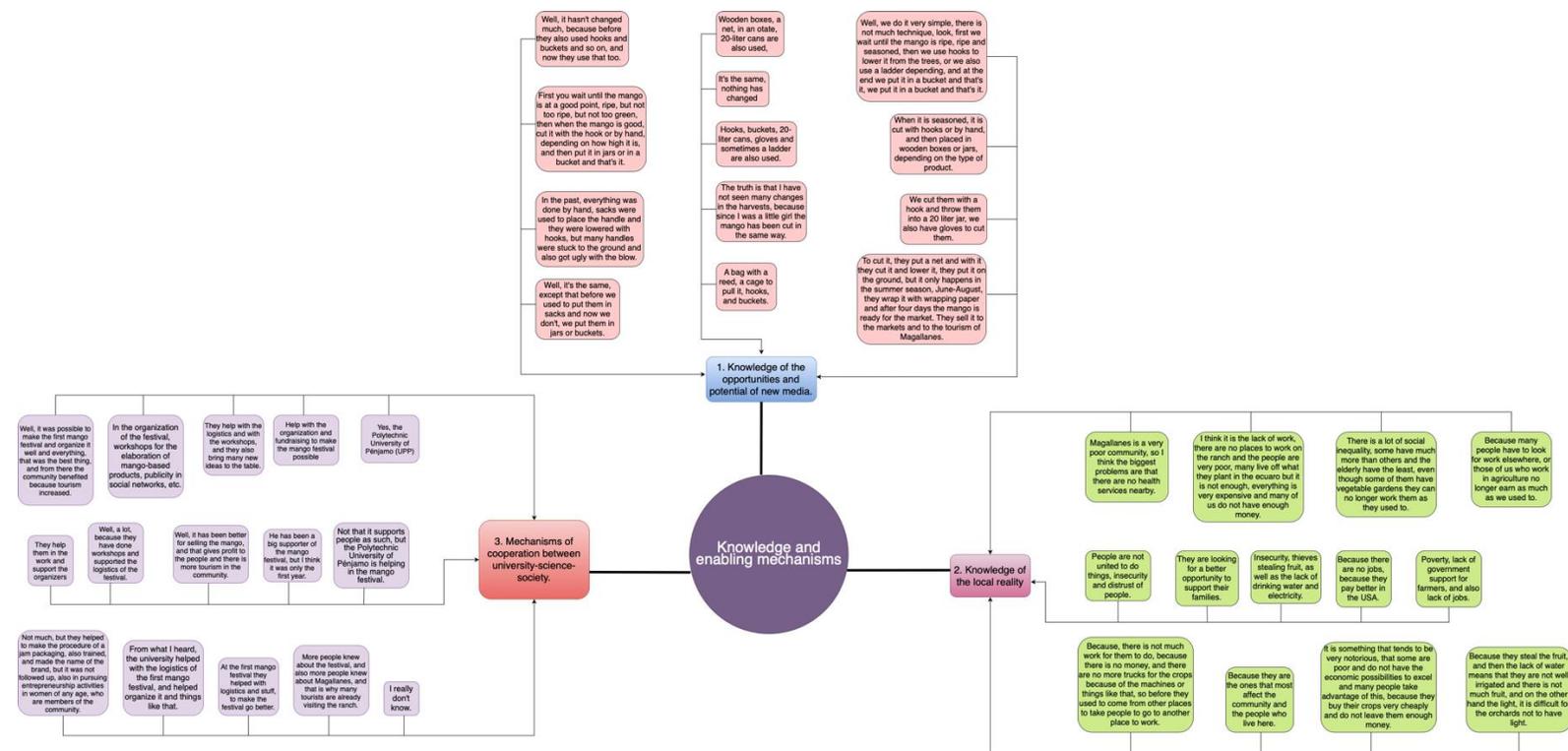
The dimensions found were the following: existence of support programs for social innovation, existence of laboratories or social research centers and education policies to promote innovation. In this sense, it can be noted that in the state of Guanajuato there are some programs to support social innovation, as shown in the Proposal for the development of social innovation in Mexico (2018), a document that describes the various programs that the federal government has to support the innovative society. However, in this case, the inhabitants of Magallanes were unaware of this document and the various government supports; for this reason, the representatives of the community went personally to the government offices to obtain information on the subject in question.

Regarding dimension two —Existence of social innovation laboratories or centers—, the community of Magallanes does not have any social innovation center or laboratory. Therefore, the inhabitants are forced to hold the meetings in public places (such as the town square) or in one of the homes of the participants. This hinders the process because they do not have the appropriate materials and furniture.

Regarding the third dimension —Education policies to promote innovation—, according to the interviewees, the study plan that was used at the time of developing this research did not yet offer an innovative approach within its constituents. This hinders the innovative development of young people, but it may change when this year (2023) the current curriculum is replaced.

## Factor 3: Knowledge and enabling mechanisms

Figure 5. Analysis of the factor *Knowledge and enabling mechanisms*



Source: Own elaboration

The dimensions of this factor were knowledge of the opportunities and potential of new media and instruments, knowledge of the local reality, and cooperation mechanisms between university-science-society.

Within the first dimension —Knowledge of the opportunities and potential of new media and instruments—, several results were obtained, which were mainly focused on the mango harvest process. In this sense, the interviewees unanimously agreed that they did not have an established process, so each one performs it differently. Even so, and although the instruments usually vary depending on the needs of the garden, they are mostly similar.

Regarding the second dimension —Knowledge of the local reality—, the data obtained show that the inhabitants are really aware of the reality that surrounds them, as well as the difficulties to which they are exposed on a daily basis. For this reason, they unanimously agreed that the most relevant problems that have the greatest impact for them are poverty, the few job opportunities and, above all, the lack of health services.

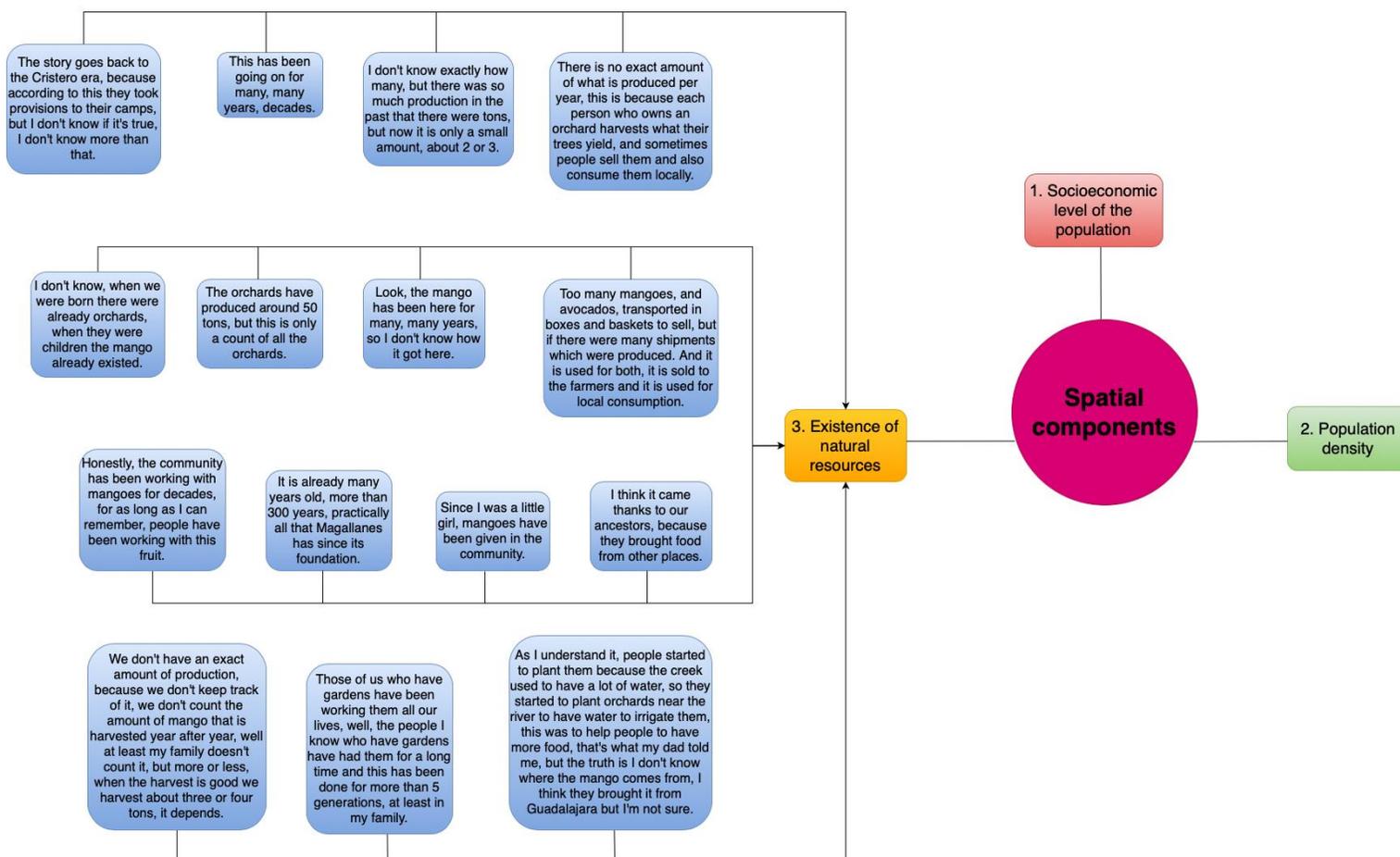
The third dimension —Cooperation mechanisms between university-science-society— focused mainly on the development of the Mango Festival. In this sense, it was



known that during the first period of development there were not many interested in supporting the project, except the Polytechnic University of Pénjamo. However, due to the good reception of inhabitants and tourists, private companies and public entities later began to join.

## Factor 4: Spatial components

Figure 6. Analysis of the factor *Spatial components*



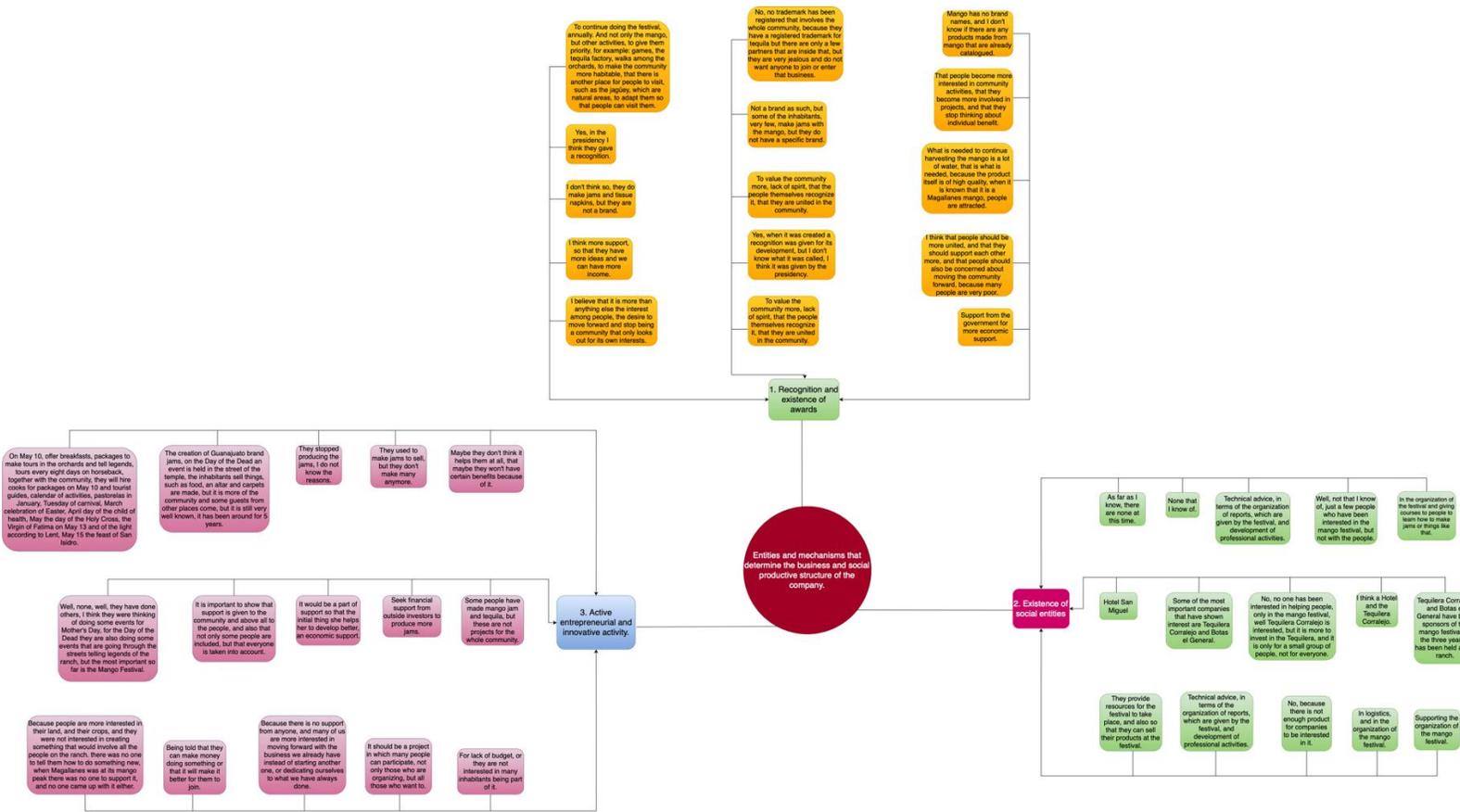
Source: Own elaboration

The dimensions of this factor were the following: socioeconomic level of the population, population density and existence of natural resources. It should be noted that in this paper only the Existence of natural resources dimension was analyzed, focused mainly on orchards and mango production, since the data for the remaining two were obtained from Inegi (2020).

Specifically, it was determined that although the mango is the main natural resource of Magallanes, the community has not been able to take advantage of it, since the owners do not keep records of the annual production. In addition, they do not have distributors, so the largest amount of mango produced per year is not sold or used for local consumption.

### Factor 5: Entities and mechanisms that determine the business and social productive structure

Figure 7. Entities and mechanisms that determine the business and social productive structure



Source: Own elaboration

The dimensions of this factor were recognition and existence of awards, existence of social entities, and entrepreneurial and innovative activity, focused mainly on the Mango Festival.



In the first dimension, it was determined that the community of Magallanes currently has recognition formally granted by the public body to the inhabitants for their hard work in terms of the implementation of the Mango Festival.

In the second dimension —Existence of social entities—, it was found that there are no formal social entities involved in the Mango Festival, although some members of communities surrounding Magallanes participated, providing certain required support.

In dimension three —Entrepreneurial and innovative activity—, it was noted that in recent years there has been an exponential growth in the interest of the inhabitants of Magallanes to get involved in projects that benefit the economic growth of the community. However, none of these complement what is already established (eg, the Mango Festival) or the use of mangoes to create new proposals for innovation.

## Discussion

The present work analyzed the level of development of factors that determine a social innovation in the community of Magallanes. In this sense, the results obtained determined that, in the first instance, the members of said locality are not prepared to develop a process of social innovation because they do not have a sufficient level of development in the factors analyzed. However, it can also be said that this situation can change, since both young people and community leaders are interested in developing social innovation processes and projects. However, the factor against it is the disorganization, inequality and lack of determination on the part of some involved in certain activities.

In this sense, the importance of social innovation projects should be underlined, which focus on meeting the needs of the population that have not been solved by the Government. To do this, however, unification must be encouraged among individuals from an area whose interests are similar in order to support a collective and cooperative perspective.

In the case of the inhabitants of Magallanes, they have addressed the common problem of poverty through the project known as the Mango Festival. The purpose of this initiative has been to increase income to promote community development. According to García and Palma (2019), the existence of characteristic factors of social innovation provides an adequate impulse for the implementation of practices and initiatives carried out by the community, such as products, services or models generated by them. This ensures the creation of models or processes specifically designed to address objectives focused on finding creative and alternative solutions to the needs and problems of the territory.

The foregoing also coincides with what was indicated by Jardon and Gierhake (2017), who explain that local knowledge on the part of those involved constitutes a source of social innovation, especially when there is solid leadership and adequate training for the participants, elements key to the growth process.

Finally, it is worth mentioning a limitation in the present study related to the choice of sampling, since due to the abundance of subjects, an exhaustive delimitation of the sample had to be made. In addition, the results of future research could generate various types of results derived from current projects and the number of people involved in the analysis of future research.

## Conclusions

According to the analysis carried out, it can be concluded that the data obtained from the applied instrument show that each factor is influenced by specific dimensions. In this context, the factor Social and cultural elements of the population is defined by the dimensions of propensity to change, social concern and ability to work in a team. On the other hand, the Political and institutional support factor is based on the dimensions of support programs for social innovation, laboratories or centers of social innovation, and educational policies to promote innovation.

Likewise, the Knowledge and facilitating mechanisms factor is based on the dimensions of knowledge of opportunities and potential of new media and instruments, knowledge of the local reality and cooperation mechanisms between universities, science and society. The Spatial Components factor is linked to the dimensions of socioeconomic level of the population, population density and natural resources. Finally, the Entities and mechanisms that determine the business and social productive structure factor is related to the dimensions of recognition and existence of awards, social entities and active entrepreneurial and innovative activity.

The results of the level of development of the factors in this research are varied: two of them present a "sufficient" level of development (Social and cultural elements of the population and Political and institutional support), two are at a "medium" level. (Knowledge and facilitating mechanisms and Entities and mechanisms that determine the business and social productive structure), and one is at an "insufficient" level (Spatial components). This indicates that Magallanes is not yet in a position to generate and implement an effective and

successful innovation project focused on orchards or mangos as main resources due to the lack of significant interest from the community.

In addition, the inhabitants seem to be more interested in involving skills, knowledge or resources that only affect specific groups in the community, which indicates a lack of collaboration between individuals and an orientation towards personal development. Also, existing collaborative projects no longer allow for the participation of other stakeholders, which promotes individuality within the community.

### **Future lines of research**

For future research focused mainly on rural territories, it is suggested to consider the use of a non-probabilistic sample or, failing that, a probabilistic sample that covers a larger number of participants. In other words, it is recommended to interview a larger number of individuals without restricting the sample too much. In addition, it is suggested to take into account not only a specific age range, but also include young adults interested in the socioeconomic development of the community or territory. This will allow generating an even more enriching discussion about the results obtained and obtaining different perspectives on the same study.

Likewise, the implementation of similar investigations in other rural areas is proposed, either in the same state or in others of the Mexican Republic. This will allow comparisons between territories and obtain information on the different limitations or impulses in relation to particular disagreements, either between areas or between the subjects involved in the study. In this way, a comparison between rural territories will be obtained to evaluate the level of development of the factors that determine social innovation in the various communities that make up the state.

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