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## Presentation of the content

In the first article we present *Environmental education with ethics and sustainable and sustainable responsibility: The case of the Instituto Tecnológico Superior de Alvarado* by RIVERA-BLAS, Emmanuel Zenén, RODRÍGUEZ-CONTRERAS, Nayeli, GONZÁLEZ-MARTÍNEZ, María del Carmen de Jesús and SANTILLÁN-FERREIRA, Guadalupe with adscription in the Instituto Tecnológico Superior de Alvarado, in the next article *Analysis of the application of grammatical and systematic legal interpretation methods to article 36, section II of the ITL in Mexico* by RAMIREZ-ROSAS, José, ORTIZ-CARRANCO, Araceli, ARROYO-DIAZ, Salvador and LOZADA-LECHUGA, Jorge with adscription in the Universidad Politécnica de Puebla, in the next article *Legal and practical aspects of the use and development of cloud computing* by SUAREZ-JASSO, Elsa, OTERO-ESCOBAR, Alma Delia, MÉNDEZ-ANOTA, Mayra Minerva and MARTÍNEZ-HERRERA, Brenda Marina with adscription in the Universidad Veracruzana in the next article *Current situation of the development perspective for the microenterprise of the commercial sale of chicken, tortilla shop and grocery shop in the Municipality of Mixquiahuala de Juárez, Hidalgo* by SOTO-RODRÍGUEZ, Claudia Aurora, CRUZ-JUÁREZ, Ana María and ÁLVAREZ-CRUZ, Arminda with adscription in the Instituto Tecnológico Superior del Occidente del Estado de Hidalgo.

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**Environmental education with ethics and sustainable and sustainable responsibility:  
The case of the Instituto Tecnológico Superior de Alvarado (ITSAV)****Educación ambiental con ética y responsabilidad sostenible y sustentable: El caso del  
Instituto Tecnológico Superior de Alvarado (ITSAV)**

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**Abstract**

The present research work entitled "An Environmental Education with a Vision of Ethics and Sustainable and Sustainable Responsibility", was carried out with the purpose of promoting an environmental education from the teaching practice in subjects of Sustainable Development and Ethics Workshop, taught in all Federal and Decentralized Technology Institutes of Mexico. The subjects undoubtedly contribute an added value to the engineering profile, since through these the construction of environments with ethics and social responsibility begins, concluding that these actions limit the teaching-learning process, taking into account how Key elements for ecosystem sustainability. Therefore, the general objective is to promote environmental education for the students of the Higher Technological Institute of Alvarado (ITSAV, by its Spanish acronym) through proposals of what to teach and how to teach the sustainable and sustainable development of human-natural systems based on learning significant. In this way generate awareness in students to apply it in daily life and professional fostering sustainable and sustainable culture with a holistic vision, ethical practice and social responsibility.

**Environmental education, Ethics and sustainable responsibility, Ethics and sustainable responsibility, Significant learning**

**Resumen**

El presente trabajo de investigación intitulado "Educación Ambiental con Ética y Responsabilidad Sostenible y Sustentable", se realizó con la finalidad de fomentar una educación ambiental desde la práctica docente en asignaturas de Desarrollo Sustentable y Taller de ética, impartidas en todos los Institutos Tecnológicos Federales y Descentralizados de México. Las asignaturas sin lugar a dudas aportan un valor agregado al perfil de las ingenierías, ya que a través de éstas se inicia la construcción de entornos con ética y responsabilidad social, concluyendo que estas acciones limitan el proceso de enseñanza-aprendizaje, tomándose en cuenta como elementos clave para la sustentabilidad del ecosistema. Por lo tanto, el objetivo general consiste en fomentar una educación ambiental a los alumnos del Instituto Tecnológico Superior de Alvarado (ITSAV) a través de propuestas de qué enseñar y cómo enseñar el desarrollo sostenible y sustentable de los sistemas humano-naturales basado en el aprendizaje significativo. De esta manera generar conciencia en los alumnos para que la apliquen en la vida cotidiana y profesional fomentando la cultura sostenible y sustentable con una visión holística, práctica ética y con responsabilidad social.

**Educación ambiental, Ética y responsabilidad sostenible, Ética y responsabilidad sustentable, Aprendizaje significativo**

**Citation:** RIVERA-BLAS, Emmanuel Zenén, RODRÍGUEZ-CONTRERAS, Nayeli, GONZÁLEZ-MARTÍNEZ, María del Carmen de Jesús and SANTILLÁN-FERREIRA, Guadalupe. Environmental education with ethics and sustainable and sustainable responsibility: The case of the Instituto Tecnológico Superior de Alvarado (ITSAV). Journal-Law and Economy. 2018. 2-3: 1-12

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## Introduction

The present research work entitled "An Environmental Education with a Vision of Ethics and Sustainable and Sustainable Responsibility in the Higher Technological Institute of Alvarado (ITSAV)", was carried out with the purpose of promoting an environmental education through the teaching practice and propitiate in the student a change of attitude and conscience. The teaching practice will be carried out through subjects such as Sustainable Development and Ethics Workshop, both taught at the ITSAV, and in turn at all the Federal and Decentralized Technological Institutes of Mexico.

The aforementioned subjects contribute added value to the profile of engineering, since through these the construction of environments with ethics and social responsibility towards society begins, concluding that these actions limit the teaching-learning process, when taken into account as key elements for the sustainability of the ecosystem; Therefore, some proposals of what to teach and how to teach to achieve the sustainable and sustainable development of human-natural systems based on meaningful learning are presented.

It is important to mention that the human being has contaminated the air, water, soil, etc.; resources such as forests, raw materials, fossil fuels, etc. have been overexploited, and species of flora and fauna disappear, thus threatening the survival of the human being on planet earth.

For this reason (Stern, 2009: 06) mentions that it is necessary to raise awareness in the human being to achieve "a development that responds to the needs of the present without compromising the abilities of future generations to respond to theirs". Likewise, sustainable development necessarily associates good economic management, the social process and the protection of the environment.

Environmental awareness is increasingly important in our lives, but many people have not yet realized what they, as individuals, can do in favor of the environment.

Therefore, the general objective of this research is to: promote environmental education to the ITSAV students through teaching practice with proposals of what to teach and how to teach the sustainable and sustainable development of human-natural systems based on the significant learning. To achieve this, practical activities are proposed inside and outside the classroom that leave a real meaningful learning in the student and apply it in daily and professional life fostering a sustainable and sustainable culture with a holistic vision, ethical practice and with social responsibility.

The central hypothesis is: with the proposals of what to teach and how to teach to achieve the sustainable and sustainable development of human-natural systems based on meaningful learning, environmental education will be promoted in the ITSAV students with a sustainable and sustainable culture with holistic vision, ethical practice and with social responsibility.

The structure of the article consists of the following sections: introduction, problems, methodology (analysis, general proposals to achieve environmental education, Proposal I: Bali Green School, Proposal II: Sustainable development within your reach, Proposal III: Proposal based on significant learning), environmental education in the ITSAV, results, thanks, conclusions and references.

## Problematic

The lack that has from the teaching practice is the motivation in the student to generate a change of attitude and environmental awareness, since the teacher through the teaching-learning process exerts a great influence in the formation of the students, being able to generate the change to the great affectations to the nature. That is why teachers should work hand in hand with the student training them in environmental education, because it is lacking in the ITSAV, being some of the reasons the shortage of the following aspects:

- Involvement of teachers in the training on content related to environmental education for the teaching and projection of the subjects of Sustainable Development and Ethics Workshop.

- Content of the subjects addressed in a theoretical and impractical way without transcending the region.
- Participation at the local and regional level in events about care and conservation of the environment and therefore in sustainable projects.
- Activities that encourage environmental education.
- Awareness of the care of the environment, and transmission of sustainable culture to society.
- Knowledge about private institutions or governments that have implemented actions for the care and conservation of the environment.
- Participation of the personnel of the institution for the promotion of campaigns in promotion of environmental education.
- Awareness of the staff and students on the importance of the certification of the standard on the care of the environment "ISO: 14000" that the ITSAV has.
- Inclusion of students in sustainable projects that serves as a means of certification.
- Participation with students in calls for sustainable development and / or care and conservation of the environment.

With the passing of time, human beings organized in society have achieved great advances in industrial and technological development, positively influencing the economic development of the world society. However, this has also brought great effects on nature, its structure, its dynamics and its evolution (Toledo, 2000).

Currently, it is public knowledge that the planet Earth is undergoing serious changes in the environmental aspect. Some of these changes have brought about side effects such as: the deterioration of the ozone layer of the atmosphere, producing skin cancer or blindness in animals and humans; deforestation, causing global warming; the pollution of the oceans by industrial waste, causing the death of marine species, among many others. These affectations to nature occur in two ways: by appropriating natural elements and by expelling elements already socialized, by producing, circulating, transforming and consuming, producing waste towards the sphere of nature (Toledo, 2000).

Thus, nature has a triple value for society, being the primary source of all production and the final reservoir of waste we produce, while providing us with the ecological services necessary for human beings (Toledo, 2000). This assertion confirms the importance of preserving natural resources for the benefit of society. In this context, we believe that in order to conserve our ecosystems, the best strategy is undoubtedly to focus on production guidelines and processes and, therefore, on the use of natural resources and spaces (Challenger, 2001).

That is why a holistic vision of the environment must be incorporated, where the ecological ordering, conceived as the guiding guide for strategic planning of land use, includes strategies for the conservation of ecosystems.

In the particular case of natural ecosystems that are used directly to sustain extractive activities, the ecological ordering must guarantee the persistence of at least the minimum extension of the ecosystem that is required to maintain all of its biota and ecological services in optimal conditions. Obviously, for this as for other strategies mentioned below, it will be essential to have the close collaboration of ecologists and biologists, in order to link the knowledge on the carrying capacity and the ecological and biotic characteristics of the terrain with the process of ecological ordering itself (Challenger, 2001).

In the case of ecosystems that are eliminated or completely transformed to make way for different special uses of the soil, it is essential to calculate the aptitudes of the ecosystem to assign its vocation for land use. (Challenger, 2001).

In this new millennium, and despite the difficult moments that the world is experiencing today, we can perceive the near possibility of a new beginning, to build a planetary economy where the production and exchange of products and services do not exceed the true and limited capabilities of the biosphere. This means that if a nation or company extracts any product or raw material from an ecosystem, at a rate above that of its natural replacement, it would be producing an ecologically unsustainable production that sooner or later would end the resource and weaken the economy and with it the welfare of those who depend, directly or indirectly, on this activity (Challenger, 2001).

As described by the World Commission on Environment and Development in the Brundtland Report (1987):

"Sustainable development is one that meets the needs of the present without compromising the ability of future generations to meet their own needs".

To achieve this, a holistic vision of land, biodiversity and land uses is required, and not only to utilitarian perspective, in which everything depends on the aptitudes or vulnerabilities of the soil, topography, vegetation, etc. (Challenger, 2001).

### Methodology

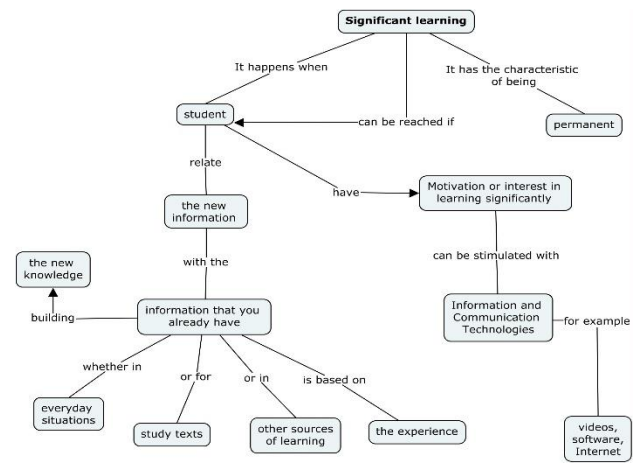
This research takes as reference the significant learning, because it is within the framework of the constructivist psychology, which emphasizes to stop being passive receivers and to be active constructors of the reality and their experiences that one can generate in their environment. (Ponce, 2004) mentions that: "Significant learning requires the student to carry out various activities to establish relationships between what is new and what he already knows, that is, nuance, reformulate, differentiate, discover, order, classify, hierarchize, relate, integrate, solve problems, understand a text, etc."

That is to say, learning means that the new learnings connect with the previous ones; not because they are the same, but because they have to do with these so that a new meaning is created.

(Galagovsky, 2004) notes that the meaning of the adjective "significant" is related to something close to the interests of the student.

The immediate consequence is an association of premises that establishes: if the content to be taught is related to the interests of the students, they will be motivated and the learning will be significant.

See in Figure 1, the abstraction on The Theory of Meaningful Learning by David Ausubel.



**Figure 1** Meaningful learning by David Ausubel  
*Source: Self Made*

A proposal was designed in accordance with the needs and perceptions detected in the environmental diagnosis applied to the collaborating teachers of this project and who have teaching experience as well as being knowledgeable about the subject. A checklist was used as an instrument; As a result of this proposal, below are some key elements that represent the guideline for the realization of the same:

- Lack of interest in carrying out activities for the care of the environment.
- Lack of updating in environmental knowledge by students.
- Lack of environmental awareness
- Lack of knowledge about environmental aspects linked to their graduation profile.

And as he said (Hardy, 2010) in his conference on the "Green School of Bali". Thinking about the development of sustainable projects involves three aspects:

- 1) Stay local
- 2) Let the environment send.
- 3) Think about how your grandchildren could build it to have a better future in life.

### Analysis

The General Assembly of the UN "emphasizes that education is an indispensable element to achieve sustainable development" (Carranza, 2007). Therefore, an institution committed to sustainable development must induce in all its members the new awareness of species and the new ethic of solidarity with all the members of the planet and the cosmos (Toledo, 2000).

The initiative of education for sustainability has an ambitious, complex and reforming character, whose purpose is to prepare all people, regardless of their profession and social status, to plan, face and resolve the threats that weigh on the sustainability of our planet (UNESCO 2005).

Enrique Leff states in his article "Environmental education and sustainable development" that environmental education is based on two basic principles: 1. A new ethic that guides values and behavior towards the objectives of ecological sustainability and social equity; 2. A new conception of the world as complex systems, the reconstruction of knowledge and the dialogue of knowledge. In this sense, interdisciplinarity became a privileged methodological principle in environmental education.

That is why ITSAV's mission is to train competitive professionals at the undergraduate and graduate levels that will allow them to become future generators of sustainable development in the region, the state and the nation, as well as being the promoter of development economic, technological, research and humanistic thinking that contributes to the improvement of the quality of life of society.

### **General proposals to achieve environmental education**

The Secretariat of the Environment (SEDEMA, 2017) in Mexico City (CDMX) through the Directorate of Environmental Education (DEA) defines environmental education as: "A training process that allows awareness of the importance of the environment, promotes in the citizenship the development of values and new attitudes that contribute to the rational use of natural resources and to the solution of the environmental problems that we face in our city".

(Martinez, 2010) mentions that sustainability means more than recycling paper, separating waste or turning off the tap while we wash our teeth. It means finding solutions that improve people's quality of life without degrading the environment, accumulating problems for the future or transferring them to other parts of the world. It is an innovation agenda that invites us to rethink how we organize our lives and our work.

For everything described in the previous sections, this research paper presents three general proposals that must be considered in any sustainable project, whether educational or otherwise to achieve an environmental education with a holistic vision with ethical sense and sustainable responsibility and sustainable.

### **Proposal I: Green school in Bali**

The proposal is abstracted from John Hardy in his conference on the "Green School of Bali" where he "teaches children to build, cultivate, create (and prepare to go to college). The central building of the campus, in the shape of a spiral, is the Heart of the School, perhaps the largest bamboo building in the world "(Hardy, 2010). The green school of Bali, is a project with a truly sustainable education that every teacher should know and pass on to students.

The following sustainable ideas are abstracted from this conference and it is very important to analyze and consider those that can be applied in the ITSAV region and thus put them into practice, both at school and out of school. For this reason, the teacher must propose activities that involve government agencies, competent authorities, internal teachers and other educational institutions, etc., succeeding in promoting environmental education in the first instance to students, teachers and secondarily to society in general.

- They must form integral people. If educated people are full, most likely they require a whole world to live.
- You should practice holism. Therefore, it is the system as all integrated and global, which determines how the parties behave.
- Green projects should be created where local people participate.
- Materials from the region must be used to work on the livelihood of green projects.
- It must be taught that the world is destructible if sustainable resources are exploited irrationally.
- We must teach not to damage their sustainable resources, and if they are damaged they must learn to repair them, so that they endure.
- Let the students know that they can control their world.



- Promote the green model in the community.
- Respetar las áreas verdes, adaptando la estructura de la institución al ecosistema.
- Respetar los ciclos de vida de la flora y la fauna de los alrededores para no alterar el ecosistema.
- Instill in the student not to go against the environment or nature itself, so that they use the natural resources within their reach, but without harming or modifying the characteristics of it.
- Promote ecological awareness in students, so that they use the resources they have, but without going beyond the limits of sustainability.
- Teach how to plant, care for, cultivate and cook a product to help them in the future.
- Propose an alternative for the institution to create its own electric power (for example, using a vortex turbine).
- Teach how to use technology to not depend on it.
- Introduce composting toilets in the institution to reduce the consumption of drinking water.
- Commit to educating a new generation of global green leaders.
- Reinvent new ways to meet their needs in the region.

(Martinez, 2010) mentions that the school has an important role to play in two fundamental aspects: increase the awareness and learning of children and adolescents about sustainability -providing them with the skills they need to participate, now and in the future, in projects designed to achieve it - and develop sustainable habits.

As a place of learning, the school can help students understand their impact on the planet, value the evidence for themselves, and give them the knowledge and skills they need to be active members of society.

The NATIONAL DEVELOPMENT PLAN (2007) mentions that: "environmental sustainability refers to the efficient and rational administration of natural resources, in such a way that it is possible to improve the welfare of the current population without compromising the quality of life of the generations future".

That is why in the ITSAV subjects are taught Sustainable Development and Ethics Workshop (under the competencies approach), with the purpose of achieving the sustainable and sustainable development of local and regional human-natural systems. It should be noted that these subjects are taught to all the careers offered not only by the ITSAV, but in all the Federal and Decentralized Technological Institutes of Mexico that depend on the National Technological Institute of Mexico (TecNM).

The subject of Ethics Workshop is very important in the student's training to apply sustainability in professional life with an ethical and responsible sense. It is about getting used to recognize in professional practice that ethics is a dimension always present in these activities. In addition, it must be recognized that any professional decision admits other alternatives, and that the option for one or the other depends on the ethical values from which it is decided and acts. Likewise, create a positive attitude towards the values that should preside over the activity of our professionals. Ethics is part of philosophy and as such consists essentially in a constant questioning of the moral realm. His conceptual framework, methods and the diversity of theoretical orientations allow him not only to question the different morals but also to be able to think and analyze moral concepts, to study what values are, how they arise and why; and in general you can investigate any fact related to the moral. (Del Rivero, 2004).

The subject of Sustainable Development has as a central core that the student acquires humanistic values and attitudes in daily and professional life, and thus exercise his profession tomorrow according to principles oriented towards sustainability; Likewise, it is promoted to train individuals who make the culture of sustainability their own and transmit it to society in general. It is proposed that the teacher establish constructivist strategies in the teaching-learning process for sustainable regional development but with a multidisciplinary approach, while developing the competence to work in an interdisciplinary manner. It is intended, then, the formation of citizens with values of social justice, equity, respect and care of the physical and biological environment, capable of facing, from their professional field, the emerging needs of development and the challenges that arise in the natural scenarios. , social-cultural and economic.

The challenge is to form individuals who make the culture of sustainability their own and in a short time transfer this culture to society in general.

Proposal II: Sustainable development at your fingertips

There are positive actions with which it has contributed inside the ITSAV and in some cases in collaboration with society, but they are not enough to generate significant learning, which will last over time. (Stern, 2009: 8) mentions: "For sustainable development to become a reality, solidarity and global management are necessary". Therefore, we must stop thinking that we are alone on the planet earth and that there will be no one to come after us. Caring for the planet is not difficult, and practicing with daily activities for the care and conservation of our environment, will soon become a habit.

Table 1 contains the content abstraction of the topics found in the book (Stern, 2009), which describes actions that should be considered to achieve sustainable development within your reach. These actions should be carried out with activities according to the needs of the area of influence of each academic unit of the ITSAV.

Topics	Actions
Principle of participation	<ul style="list-style-type: none"><li>* For sustainable development to become a reality, it is necessary for all of us to participate.</li><li>* It is necessary to be informed to understand the threats that fall on the planet and our future.</li></ul>
Replace fossil fuels with renewables	<ul style="list-style-type: none"><li>* In order not to depend more on fossil energies that are exhausted, it is necessary to replace them with renewable energies. There are many and also do not pollute: water, sun, wind, wood, Earth.</li><li>* <b>Solar energy</b> is produced by the Sun. With it, both heat and electricity can be produced.</li><li>* <b>Biomass</b>, known for millennia, is the energy stored in the materials that form living beings, especially plants. It consists, for example, in burning wood to warm up.</li><li>* <b>Wind energy</b> is produced from wind that uses wind turbines to produce electricity in regions with more wind and some installed even in the sea.</li><li>* <b>Geothermal</b> energy seeks heat inside the Earth to generate electricity.</li></ul>
Una montaña de residuos	<ul style="list-style-type: none"><li>* We produce more and more waste and it is urgent to reverse this trend. For example:</li></ul>

	<ul style="list-style-type: none"><li>* Avoid buying individually packaged cookies in a plastic wrap and then tucked into another aluminum wrap, and all inside a cardboard box.</li><li>* Instead of buying precooked dishes, ask your parents to prepare fresh products.</li></ul>
Long live Selective collection!	<ul style="list-style-type: none"><li>* For recycling, let's use <b>glass, plastic, cardboard, paper</b> and <b>metal containers</b>.</li></ul>
Protect the water: it's your turn!	<ul style="list-style-type: none"><li>* We can take actions to take care of the water when bathing, brushing our teeth, watering plants, washing clothes, etc.</li></ul>
Stop the disappearance of forests!	<ul style="list-style-type: none"><li>* The consequences are dramatic, as it affects the disappearance of flora and fauna, and its decline contributes to the current climate warming.</li><li>* Use recycled paper notebooks and write on both sides of the sheets; That will avoid cutting down trees.</li><li>* Adopt a tree to help the ecosystem. Giving a little money, you will help local people to replant trees.</li></ul>
The price of cheap or ethical consumption	<ul style="list-style-type: none"><li>* Buy products of biological origin that do not pollute the planet and that, in addition, are of better quality.</li><li>* Checking how the products you purchase have been manufactured.</li><li>* Ethical consumption means that we must ask ourselves before buying if what we have acquired has been manufactured in good working conditions and in a fair way.</li></ul>
The bad reasons for not doing anything	<ul style="list-style-type: none"><li>* I can not do anything. My action will not help.</li><li>* I'm too small</li><li>* My neighbors do nothing. Why do I have to bother myself?</li><li>* It is the government and the companies that must act, not the children.</li><li>* It's late. Nothing can be done. Everything is lost!</li><li>* It's too hard to change my habits.</li></ul>

Table 1 Proposal for sustainable development at your fingertips  
Source: Book (Stern, 2009)

For the authors (Fox-Davies and Davies, 2012: 6) environmental awareness is increasingly important in our lives, but many people have not yet realized what they, as individuals, can do in favor of the environment. So it is everyone's responsibility to safeguard the health of the planet. Because it is in homes where the greatest amount of CO<sub>2</sub> emissions are generated, that is where you should start. It is enough to change some habits, which collectively, will give positive results and will save money and reduce CO<sub>2</sub> emissions. Pay attention to the materials used in homes, will help reduce the amount of chemicals in our environment and will also benefit our health.

**Proposal III: Proposal based on meaningful learning**

UNIVERSIA (2015) mentions that the role of the teacher in meaningful learning, should take into account some steps, such as: worry about the qualities of the content to teach more than the amount of content, identify the prior knowledge that the student should have to acquire the new ones that it is intended to teach, to ensure that teaching is carried out as a knowledge transfer and not an imposition and to teach the student to put into practice what has been learned to assimilate knowledge, among other characteristics.

Then, to promote meaningful learning the teacher must propose activities that awaken the interest and curiosity of the student through a harmonious and innovative climate, where in addition to acquiring knowledge, the student feels that he can express his opinion and exchange ideas, being guided in his cognitive process UNIVERSIA (2015).

In addition to the two previous proposals, a third proposal is presented to reach the general objective of this research work. This last proposal contains indisputable elements from the teaching practice with a constructivist approach to the teaching-learning process when teaching the subjects of the Ethics and Sustainable Development Workshop, and thus achieve an environmental education from the teaching practice with a vision of sustainable and sustainable ethics and responsibility in the ITSAV, as shown in Table 2.

Elements to be considered of Teaching-learning proposal significant learning	
<b>It produces a cognitive change,</b> it goes from a situation of not knowing to know, where, the teacher will design learning activities on the care of our ecosystem and thus, raise awareness in the students about the care and conservation of our planet.	<ul style="list-style-type: none"><li>* The teacher must propose activities in which the student knows the ecosystem of their environment to raise awareness to the detriment of their environment and thus avoid damage to the flora or fauna.</li><li>* The teacher must propose activities to the students so they can not damage their sustainable resources, and if they are damaged they must learn to repair them, so that they endure.</li><li>* The teacher must propose to promote ecological awareness in students, that they use the resources they have, but without</li></ul>

	<p>going beyond the limits of sustainability.</p> <ul style="list-style-type: none"><li>* The teacher should look for teaching-learning strategies that truly generate awareness among students about the importance and use of technology so as not to depend on it.</li><li>* The teacher should propose activities such as planting, caring, cultivating and cooking a product to help them in the future.</li><li>* The teacher must teach the students the secondary effects produced by the lack of awareness of an environmental education.</li></ul>
<b>It is permanent:</b> The learning we acquire is long-term, where a teacher guides the student to generate their own learning.	<ul style="list-style-type: none"><li>* Reinvent new ways to meet their needs in the region.</li><li>* Inquire about the sustainable activities of daily life such as: save resources by applying the four Rs (Reduce, Reuse, Repair, Recycle).</li><li>* Visit government or private agencies dedicated to the conservation and care of the ecosystem, flora and fauna of the region. This with the purpose of participating in programs either reforestation, adoption of trees, care of species, etc.</li><li>* Go to seminars and talks about the care of our planet.</li></ul>
<b>It is based on experience, it depends on previous knowledge,</b> where the teacher evaluates the learning that the student has acquired.	<ul style="list-style-type: none"><li>* Create green projects where local people participate.</li><li>* Apply sustainable activities of daily life such as: save resources by applying the four Rs (Reduce, Reuse, Repair, Recycle).</li><li>* Use materials from the region.</li><li>* Create your own energy and / or use technology that helps in the care of the planet.</li><li>* Respect the green areas preaching with the example, and adapting the structure of the institution to the ecosystem.</li><li>* Respect the life cycles of the flora and fauna of the surroundings so as not to alter the ecosystem.</li><li>* Promote sustainable culture and transmit it to society.</li><li>* Encourage participation in forums to carry out talks with the student community and society in general.</li><li>* Teaching-learning practices must respond to the needs and interests of students, and offer opportunities to explore real-life issues in local contexts related to global.</li></ul>

**Table 2** Proposal based on meaningful learning  
*Source: Self Made*

### Environmental education at the ITSAV

All these actions carried out by the institution, without doubt contribute to the care of the environment, but it should be clear that this does not mean that they are working in a "green" or sustainable way, nor are they creating awareness in the students about sustainable development, and consequently, the sustainability of the human-natural systems is not achieved.

It is necessary the participation of the whole planet to generate an ecological conscience that resides in the reintegration of our environment in our anthroposocial awareness and in the complexity of the idea of nature through the ideas of ecosystem and biosphere (Morin, 1996).

The teaching actions used in the ITSAV with the purpose of achieving an environmental education with a vision of ethics and sustainable and sustainable responsibility that has been done so far, is described below:

- The courses on ethics and sustainable development are taught by teachers with a pedagogical profile according to these subjects. However, it is necessary to involve more teachers in the training for the teaching and projection of the same.
- Participation at the local and regional level of teachers and students in the week of Science and Technology, tackling different topics each year. Said event has the attendance of students from preschool, primary, secondary and high school, with the purpose of publicizing the projects that are worked internally. However, there is a lack of presence with activities that impact or leave significant learning in the region and in basic education schools.
- Before the holiday period of Easter, workers of the municipality of Alvarado in collaboration with teachers and students of the ITSAV clean the beaches of the area. However, there is a need to raise awareness about the care of the beaches and their environment, as well as not knowing if there are private institutions or governments that have already implemented actions for the care and conservation of beaches.
- Administrative staff, teachers and students participate in planting trees with workers and staff from the areas of the municipalities of Lerdo de Tejada and Tlalixcoyan. However, this type of actions must be done frequently and in all the extensions of the ITSAV, missing promotion and the participation of all students and staff of the ITSAV
- The ITSAV has the certification of the environmental care standard "ISO: 14000" that specifies how to establish an environmental quality management system. However, it is necessary to take this culture to the areas of influence. Some measures used within the institution to promote the care and conservation of the environment are:
  - a. It has a deposit for batteries that no longer serve.
  - b. Recycling of leaves in the administrative area (elaboration of trades, didactic planning and programmatic advances) and teaching staff (exams); as well as inculcate in the student the use of recycled sheets for work and tasks.
  - c. There is a deposit for plastic boats.
  - d. Trash cans are classified as organic and inorganic. ITSAV maintenance staff is responsible for taking it to their respective destination.
  - e. Students are asked once a year to bring electronic equipment (computers, TV, radio, cell phones, etc.) that they do not use to the school so that they can give special treatment for garbage.
- Teachers deliver programmatic advances and didactic instrumentations and partial grades through digital media, achieving much saving in the use of paper and ink to report partial evaluations, in addition to saving the transfer of teachers from various academic units to the central unit from Alvarado.
- Teachers exercise an educational participation of students in sustainable development:

- a. Industrial visits: Teachers along with students visit the industries and take a tour of the companies to learn about the manufacturing process of products or services offered. However, this knowledge must be applied in everyday tasks.
- b. Professional residences: Students propose solutions to the problems they detect in the companies to which they have decided to offer their service.
- c. Projects for subjects: Teachers request students at the end of the semester of Sustainable Development subject the generation of multidisciplinary or individual projects but always for the benefit of the region and the environment. However, it is necessary to take them to the real practice, the vast majority of the projects remain in the prototype version and do not transcend in projecting the works in academic events.
- d. Thesis: Generation of a thesis of a project with a principle of sustainable development. However, the lack of educational profile and constant training by teachers limits the development of sustainable projects in collaboration with students.
- e. Participation in calls for projects on sustainable development: Teachers and students must be aware of the calls that exist on sustainable development. However, greater participation on sustainable projects that detonate in the region is lacking.

## Results

In addition to the actions described in the section "Environmental education in the ITSAV", a new stage is being initiated with an environmental education with meaningful learning that will continue to grow with more actions that involve the students, teachers, staff of the institution and impacting in the areas of influence in each and every one of the academic units of the ITSAV, to mention the 1st. Great Environmental Forum ITSAV Lerdo, held in the City of Lerdo de Tejada on May 24, 2017.

In the news section of the ITSAV website ("1st Great Environmental Forum ITSAV Lerdo," 2017) it is mentioned:

"With the aim of raising awareness in the community in general with issues related to the preservation of the environment, students of the 4th semester of the Degree in Public Accountant of the Higher Technological Institute of Alvarado Academic Unit Lerdo de Tejada, held an event called **"1st Great Environmental Forum"** in the facilities of the Theater of the City of Lerdo de Tejada".

"Various institutions of the city of Lerdo de Tejada attended this event in order to learn about the different proposals to improve the deal with the ecosystem that the young people of ITSAV had to make known".

"The people who attended were interested in this topic, and through their participation, they showed that they are not indifferent to the care of the environment".

"With this type of actions, the ITSAV demonstrates that in addition to forming successful professionals, it also trains people interested in the welfare of their environment and who are capable of taking measures in favor of the environment".

In the 1st. Great Environmental Forum ("1st Great Environmental Forum ITSAV Lerdo", 2017), 4 teachers and 12 students from the ITSAV academic unit Lerdo de Tejada participated, as shown in Figure 2.



**Figure 2** 1st great environmental forum ITSAV Lerdo  
Source: Recovered from <http://itsav.edu.mx/2015/news/noticias/24May17-ambiental/>

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## Conclusions

In order to carry out an environmental education with a vision of ethics and sustainable and sustainable responsibility in the ITSAV, it is necessary to know the sustainability of the ecosystem, its qualities and its characteristics of the area of influence of the region, as well as to approach the institutions of government and private sector to know the actions that exist regarding the conservation and care of ecosystems and the environment. Likewise, it is necessary to involve students in the realization of projects that truly leave them meaningful learning both inside and outside the school and that can generate awareness in their professional training and transmit this culture towards society with ethical and sustainable principles. It is important to make this type of actions in each semester, in order to make them a habit in our way of life and not only to accredit the subjects.

There are many ways to live a lifestyle that respects the environment, it is not necessary to make radical changes, it is enough with small modifications that, collectively, will give positive results that will allow us to save money, reduce CO2 emissions, and improve our quality of life, both short and long term.

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**Analysis of the application of grammatical and systematic legal interpretation methods to article 36, section II of the ITL in Mexico****Análisis de la aplicación de los métodos de interpretación gramatical y sistemática del artículo 36, sección II de la ITL en México**

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**Abstract**

The laws are of public order so it can be assumed that any natural person can understand and apply them in a correct way; but this in real practice does not happen like that. Therefore, this article presents a descriptive study to show the discrepancy that exists in the application of grammatical and systematic legal interpretation methods of article 36, section II of the Income Tax Law in Mexico. To achieve the above objective, a review of the existing literature was made with respect to the interpretation of the legal norms and the Income Tax Law, specifically the aforementioned article. Subsequently, a hypothetical example of an investment in a new car is presented and the amount to be deducted is determined by the method of grammatical interpretation and the systemic method; The results are analyzed in which the discrepancy in the amounts to be deducted can be observed when applying the methods already mentioned; which represents an area of opportunity to clarify in the current legislation of article 36, section II of the Mexican Income Tax Law.

**Methods, Legal, Interpretation****Resumen**

Las leyes son de orden público por lo que se puede suponer que cualquier persona física puede entenderlas y aplicarlas de una forma correcta; pero esto en la práctica real no sucede así. Por lo anterior, en el presente artículo se expone un estudio de tipo descriptivo para mostrar la discrepancia que existe en la aplicación de los métodos de interpretación jurídica gramatical y sistemática del artículo 36 fracción II de la Ley del Impuesto sobre la Renta en México. Para lograr el objetivo anterior, se realizó una revisión de la literatura existente con respecto a la interpretación de las normas jurídicas y de la Ley del Impuesto sobre la Renta, específicamente el artículo ya mencionado. Posteriormente, se presenta un ejemplo hipotético de una inversión en un auto nuevo y se determina el monto a deducir mediante el método de interpretación gramatical y el método sistémico; se analizan los resultados en donde claramente se puede observar la discrepancia en los montos a deducir al aplicar los métodos ya citados; lo cual representa una área de oportunidad para aclarar en la legislación vigente del artículo 36 fracción II de la Ley del ISR en México.

**Métodos, Interpretación, Jurídica**

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Introduction

Deductions are allowable expenses that individuals or corporations make to subtract from their income and thus generate a basis to pay income tax (Congress of the Union, 2016), however in all the content of the Tax Law the Income (LIS) there are articles that interpreting them in one way or another generates a different meaning when applied in practice.

Although the laws are of public order, which means that any person has the ability to understand them, this is not the case, so problems arise for individuals leaving them in a paradigm of anxiety to know if they are well understood or do not (Carbonell, 2017).

Referring to a particular case, one can cite the application of article 36, section II of the ITL; which focuses on explaining that not understand what you mean actually use two methods of legal interpretation, exposing them in that the difference in the result of its interpretation generates in practice a higher or lower payment of income tax by of the taxpayers.

The main objective of this article is to analyze the two methods of legal interpretation that adhere to the study of the precept in question, to identify the difference that exists in its meaning and apply to a practical example of investment in automobiles.

Theoretical framework

Methods of legal interpretation

(Carbonell, 2017) Establishes that the legal language is very specialized so its domain requires a lot of concentration and constant learning, is to find a reasonable balance between the use of legal technicalities and the common language used by citizens.

The interpretation to the legal norm is used because in the same is not clear to arrive at a correct application, in the fiscal area the law is generating source of obligations, the tribute as an obligation of economic character in charge of the governed so that in this case for the taxpayer to reach their obligations in an adequate and harmonious way with the tax authority (Nava, 2010) is a priority.

However, the legal interpretation is to establish the true meaning within the scope of a rule or set of rules, according to (Castillo, 2003) the interpretation of legal rules is to know with certainty that the provision says as well as understand its cause and effect.

(Díaz, 2004) Says that interpretation is also called hermeneutics and this is the science that is responsible for unraveling the language, that is, interpreting it.

However, the interpretation to the legal norm implies the scope to explain what immediately in its meaning or content is not clear, however there are different methods of interpretation to the legal norm; The methods of grammatical and systematic legal interpretation in table No. 1, which will be used for the interpretation of article 36, section II of the ITL, are described below.

Method	Explanation
Grammar	Is the one who proposes to find the meaning of a rule from its literal meaning attributed to the terms used in the wording by the legislator.
Systematics	This interpretation seeks to extract from the text of the norm a statement whose meaning is consistent with the general content of the ordering to which it belongs.

Table 1 Explanation of methods of grammatical and systematic legal interpretation  
Source: Own Elaboration based on (Carbonell, 2017)

In this sense, the grammatical method is used in the case of tax burdens as well as those that fix infractions and sanctions; this method is used by the followers of the absolutist school, who only recognizes in the norms the literal scope of the words used (Burgoa, 2010).

On the other hand, the systematic method must be interpreted with all the set of rules that constitute the context of which it is part and not in isolation, this method is used by the supporters of the objectivist school which considers that the law is going adapting to social changes that the facts must adapt to the law (Fernández, 2006).

(Niño, 1975) establishes that the criteria to interpret the fiscal law is focused on two trends, a) interpretation in favor of the treasury that is based on the fact that the State must protect the liberty and rights of individuals and b) interpretation in favor of freedom fiscal: that the legislator is the creator of the legal norm and this is part of the public power then it is the state which must suffer the consequences for issuing a dark or deficient standard.

For its part (Zertuche, 1990) considers four forms of interpretation by their results: a) declarative, b) restrictive, c) extensive and d) evolutionary.

The declarative interpretation adheres to the letter of the law, says that the strict interpretation has the virtue of highlighting the effects, errors, obscurities or lacunae of the law.

The restrictive interpretation means that the scope that is attributed to the legal norm is more limited than that which appears in the expression, that is, there is a limitation to the meaning of the words.

Extensive interpretation broadens the meaning of a provision, including in its scope of factual assumptions that according to the literal interpretation would not enter with it and that legislative thinking because its imperfection does not reflect the effective scope thereof.

On the other hand the evolutionary interpretation maintains a disposition to a new meaning and different to its historical meaning, this kind of interpretation consists of considering the political, economic and social factors present at the moment of the application of the legal norm.

### **Practical Case: investment deduction in automobiles**

The Income Tax Law (ITL) is a regulation that establishes the income and deductions that are allowed for the calculation of income tax for natural and legal persons, fulfilling in the case of deductions certain requirements that must be observed the taxpayers so that they can be applied correctly.

However, the interpretation of the tax regulations in the case of deductions allows taxpayers to reduce their profit or increase their tax loss as the case meets the requirements established by the same legal rule, however there may be discrepancies in the interpretation to the normativity, which entails in making the correct or incorrect calculation of the tax.

Such is the case of the deduction of investments in automobiles, article 25 of the ITL (Congress of the Union, 2016) establishes the deductions that are allowed by the legal and physical persons, thus stipulating in fraction IV that the investments are deductions allowed for taxpayers as long as they comply with the rules established in section II of Title II of the ITL.

It is worth mentioning that Article 32 of the ITL stipulates that an investment is that of fixed assets, expenses, deferred charges and disbursements made in pre-operative periods by moral and physical persons.

For this purpose, Article 31 of the ITL establishes that investments may be deducted by applying the maximum percentage established by the ITL in each fiscal year, as allowed by article 34, fraction VI of the ITL, a 25% allowable deduction for automobiles, buses, cargo trucks, tractors, lifts and trailers.

However in Article 36, Section II of the ITL establishes the regulations that will be subject to the deduction of investments of automobiles that will be up to an amount of \$ 175,000.00 pesos, and that in electric cars the allowed deduction will be up to an amount of \$ 250,000.00 pesos.

In this sense it is understood the deduction that natural and moral persons are allowed up to the moment of an amount of \$ 175,000.00 and of \$ 250,000.00 thousand pesos depending on the case, the result of the application the maximum percentage allowed by the original law of the investment as put the article 31 of the ITL (Congress of the Union, 2016), having as a result that the deduction is the result of multiplying the original amount of the investment by the maximum percentage in the law, which in the case of automobiles will be 25%.

Case study

Now in a first interpretation to the regulations that establishes fraction II of article 36 of the ITL, the original amount of the investment is taken as the amount of \$ 175,000.00 taking into account that the limit amount of the investment is the amount mentioned, thus leaving a cap amount to apply the maximum percentage.

In this sense suppose that the company X, S.A buys a car whose original amount of the investment is \$ 250,000.00 the calculation of the deduction would be made as seen in table No. 2.

Concept	Amount
Original Amount of the Investment	\$250,000.00
Less	
Limit of Art. 36 fraction II	\$175,000.00
Limit of Art. 36 fraction II	\$75,000.00

**Table 2** Determination of the maximum amount of the deduction in investment in automobiles case A  
*Source: Own Elaboration based on (Congreso de la Unión, 2016).*

As described in table No. 2, the original amount of the investment exceeded what is stated in the regulations of article 36, fraction II of the ITL, with an amount that is not allowed, in this interpretation of \$ 75,000.00, as shown in the table No. 3 the application of the percentage allowed to deduct.

Concept	Amount
Amount allowed to deduct	\$175,000.00
X	
Deduction percentage	25%
Annual deduction	<b>\$43,750.00</b>

**Table 3** Determination of the deduction Case A  
*Source: Own Elaboration based on (Congreso de la Unión, 2016)*

So in this example the deduction that the annual company is allowed is \$ 43,750.00 since the original amount of the investment allowed with this first interpretation is \$ 175,000.00

However, in what is established in article 36, section II of the ITL, in this interpretation it is not clear that what it wants to refer to is the original amount of the investment but rather it is limited in establishing that the deduction allowed in these assets is for the amount of \$ 175,000.00 thousand pesos.

Now in a second interpretation (what will be called case B) to article 36 section II of the ITL on automobiles does not establish that the original amount of the investment allowed in the purchase of automobile investments is \$ 175.00.00 pesos, per what is limited to saying that the allowable deduction will be up to an amount of the amount mentioned above, having a sense that the limit indicated by the regulations will depend on the deduction that results from applying the original amount of the investment to the maximum percentage allowed by law and not in the original amount of the investment, as shown in tables No. 4 and 5.

Concept	Amount
Amount allowed to deduct	\$250,000.00
X	
Deduction percentage	25%
Annual deduction	\$ 62,500.00

**Table 4** Determination of the deduction Case B  
*Source: Own Elaboration based on (Congreso de la Unión, 2016)*

Concept	Amount
Deduction	\$62,500.00
Less	
Limit of Art. 36 fraction II	\$175,000.00
Allowable deduction	\$62,500.00

**Table 5** Determination of the maximum amount of the investment deduction in automobiles Case B  
*Source: Own Elaboration based on (Congreso de la Unión, 2016)*

It can be seen that in this interpretation the amount of the limitation of \$ 175,000.00 pesos is based on the comparison with the deduction and not on the original amount of the investment, since the original amount of the investment allowed is the total value of the vehicle.

Analysis of the results

As can be observed in both interpretations there is a difference for the proper application of the rule, thus leaving a dilemma for the taxpayer of how to apply Article 36, Section II of the ITL. In this order of ideas and noting that the deduction is the result of applying the maximum percentage to the original amount of the investment, then what was referred to in the second interpretation would apply, however to arrive at this conclusion, the methods of legal interpretation to be able to make a better application to the precept.

The method of grammatical interpretation applied to article 36, section II of the ITL, would be explained in which it consists in understanding the law in a natural and obvious sense, it could be observed that the second interpretation would have a logic, since the sense that the limitation of the original amount of the investment is for the amount of 175,000.00 thousand pesos, but rather it is understood that the limitation of said amount is on the deduction. With respect to this method of interpretation, the maximum amount indicated by the regulations of article 36, fraction II of the ITL will be the deduction that results from applying the maximum percentage established in the law to the original amount of the investment, so that it is ultimately compared to the amount allowed to be deducted.

On the other hand, in the method of systematic interpretation as explained in Table No. 1, a limitation would be seen in the original amount of the investment as established in article 36, fraction of the ITL, which says that in the case of the investment in aircraft the deduction will be calculated considering as original amount of the investment the amount of \$ 8, 600,000.00

In this case, as explained in the method of systematic legal interpretation in extracting a sentence from the text to find a meaning to the rule, for the limitation of investments in airplanes it is clearly established that the original amount of the investment as a limitation to obtain the corresponding deduction.

Now, the deduction of cars is included in the article of the deduction of aircraft, so it would be understood what the legislator tried to say in the regulations of the car deduction is based on the original amount of the investment, without However, when applying the grammatical legal interpretation method, this meaning is not seen, leaving a dilemma by applying the method of systematic legal interpretation.

So in this case the taxpayer moral person would leave it in a clear limitation in applying Article 36, fraction II of the ITL, having an impact on not correctly fulfilling its obligations.

## Discussion of the results

It can be seen as already commented on the discrepancy that exists in the application of the two methods of legal interpretation, however the effect that would be clear is on the amount of tax payment (ISR) which in an interpretation would be paid more and applying the other interpretation would pay less.

In the event that the taxpayer has income of \$ 100,000.00 and that only the investment for automobiles is deducted, the calculations would be described as follows:

- A) Applying the systematic legal method the calculation of the tax would result in a higher taxpayer base, as described in table No. 6.

Concept	Quantities
Income	\$100,000.00
Deductions	\$43,750.00
Basis for paying the tax	\$56,250.00

**Table 6** Determination of the basis for the calculation of the ISR by the systematic method in the deduction in investment in automobiles (case A)  
*Source: Own Elaboration based on (Congreso de la Unión, 2016)*

- B) Now applying the grammatical legal method, the tax calculation would result in a lower taxpayer base, as described in table No. 7

Concept	Quantities
Income	\$100,000.00
Deductions	\$62,500.00
Basis for paying the tax	\$37,500.00

**Table 7** Determination of the basis for the calculation of the ISR by the grammatical method in the deduction in investment in automobiles (case B)  
*Source: Own Elaboration based on (Congreso de la Unión, 2016)*

As can be seen if the systematic method is applied, the basis for applying the tax is greater than applying the grammatical method that is less, in this context the taxpayer would fall into an uncertainty of how to correctly apply Article 36, Section II of the ITL and bring consequences as indicated by the Federal Tax Code for incorrectly deducing an expense (Congreso de la Unión, 2017)

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## Conclusions

It is seen that the application of a method of legal interpretation is obtained different results, it is shown that the lack of clarity in Article 36, section II of the ITL gives guidelines to the application of the same generate disputes with the treasury authority.

In this sense, it would be important for the legislator to clarify the regulations established by rule 36, section II of the ITL, since it leaves a dilemma of interpretation on the part of the taxpayer and tends to fall into an error of application of the deduction of investments in cars and generate fines at the same.

Coupled with this, as explained above in a grammatical interpretation, what could be understood in article 36, fraction II of the ITL is an allowable deduction and not a limitation on the original amount of the investment, since in a logical sense the comparison does not it would be about the original amount of the investment but rather about the deduction that is obtained from applying the maximum percentage allowed by the law on the original amount of the investment.

However, applying the systematic legal interpretation method, it would be understood that the limitation established in article 36, fraction II of the ITL is on the original amount of the investment.

Said then the previous thing, proposes to the legislator to modify what establishes the article 36, fraction II of the ITL to expose that the original amount of the investment in the purchase of automobiles will only be allowed up to 175,000.00 pesos if it is the case or but effectively clarify that the allowable deduction once applied the maximum percentage established in law will be 175,000.00 pesos.

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Legal and practical aspects of the use and development of cloud computing

Aspectos legales y prácticos del uso y desarrollo de la computación en nube

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Abstract

Cloud computing has now proliferated in an extraordinary way in various work, professional and educational fields. In Mexico efforts have been made to cover the legal aspects involved in the use of such an important service, trying to solve the existing gaps, since the advancement of technology has exceeded the time of legislation of the same. It is noteworthy that the legislation regarding cloud computing, not only includes the Mexican norms, but also the corresponding international norms ones according to the location of the service provider. The objective of this research is to identify the legal aspects of cloud computing based on the generalities that identify its use and application in current organizations. It is a documentary and descriptive investigation and its main contribution prevails in the compilation, interpretation of the legal aspects of cloud computing applied to a real case.

Cloud computing, Legislation, Technology

Resumen

La computación en la nube actualmente se ha proliferado de manera extraordinaria en diversos ámbitos laborales, profesionales y educativos. En México se han hecho esfuerzos por cubrir los aspectos legales que implica el uso de tan importante servicio, tratando de solventar los vacíos existentes, ya que el avance de la tecnología ha rebasado el tiempo de legislación de las mismas. Es de resaltar que la legislación respecto a la computación en la nube, no solo incluye las normas mexicanas, sino también las normas internacionales correspondientes de acuerdo a la ubicación del proveedor de servicios. El objetivo de esta investigación es identificar los aspectos legales de la computación en la nube partiendo de las generalidades que identifican su uso y aplicación en las organizaciones actuales. Se trata de una investigación documental y descriptiva y su principal contribución prevalece en la recopilación, interpretación de los aspectos legales del *cloud computing* aplicados a un caso real.

Computación en Nube, Legislación, Tecnología

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Introduction

The paradigm of the digital era is the framework of *cloud computing*. This is a term that, now and several years ago, is read and heard everywhere: in educational, technological, business, government, social networks, journals, research, innovation, among others, both in the national sphere and in international.

This article is presented as an analysis of the concept and legal uses of cloud computing. The legal situation is analyzed passing through different stages that go from the concept, the providers, services that offer, models of services of the cloud computing, advantages and disadvantages, until arriving precisely at the revision of laws, regarding the security measures and legal to be adopted in relation to this technological service, applicable when receiving / giving the aforementioned service. Finally, reference is made to some practical cases of companies to determine how their use and implementation is carried out.

This article aims to achieve the following specific objectives:

- Identify the provider, as well as the user.
- Understand the development and operation of cloud computing.
- Publicize the legal framework in which the confidentiality of cloud computing is developed and developed.
- Identify the risks of data security and privacy.
- Understand the legal commitment to the new scenario that cloud computing puts before the user and the provider.

Basic generalities and techniques of cloud computing

Cloud computing is a beneficial technological trend if it is used correctly, otherwise it can lead to legal problems. Thus, the National Institute of Standards and Technology has defined it as a model that allows a convenient access, in demand of the network, to a shared set of computer resources (Mell & Grance, 2009). It has also defined cloud computing as "it is a service that works through the Internet that allows users to store information of any kind: music, videos, in general and can have them hosted on dedicated servers, in teams that always they remain on 24 hours a day and 365 days a year " (Martínez & Gutiérrez, 2013).

The company (2017) defines in a simple way the cloud computing as: "A technology that allows remote access to software, file storage and data processing through the Internet, thus being an alternative to running on a personal computer or local server. In the cloud model, there is no need to install applications locally on computers ".

Cloud Computing offers individuals and businesses a large capacity and variety of computing resources with good maintenance, insurance, easy access and on demand.

Within the characteristics of cloud computing can be listed:

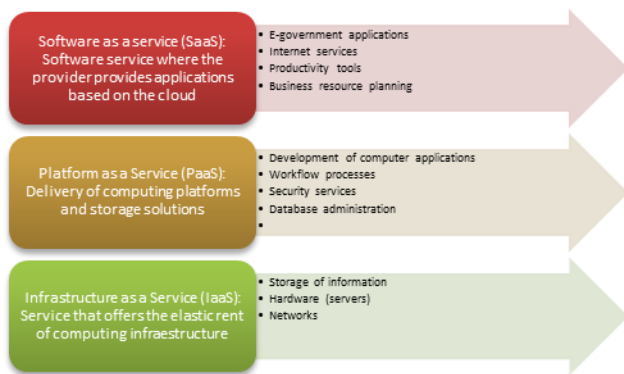
- Payment according to consumption, that is, paying only the services that are used.
- Ubiquitous access, allowing the use of services anywhere, anytime, provided that the internet service and the equipment for access are available.
- Availability of resources, that is, they can be used by different users or at the same time if required.
- Flexibility, in this way saves time and facilitate online procedures.
- Controlled service, the services that the user consumes are measured for control purposes.

Cloud computing works through various service models, which are related to hardware, platform and applications, then Table 1 describes these services:

SaaS Software as a Service	PaaS Platform as a Service	IaaS Infrastructure as a Service
Organizations buy or develop their own business applications and run and manage in their own infrastructure. Security is controlled by the service provider, the subscriber of the service only has access to limited administrative privileges.	It is delivered on demand, deploying in the software and hardware that is needed. Subscribers have partial control of the applications and environment configuration. Easy access to application programming.	The provider provides the technological means necessary for the client to make use of both the hardware and software of the requested service. It represents a saving in the acquisition of resources by offering them in a virtual way, being their use efficient and on demand.

Table 1 Model of cloud computing services  
Source: Self Made

Figure 1 shows the three cloud computing services with some examples:



**Figure 1** Cloud computing services  
Source: (GSA, 2010)

Table 2 shows several models of cloud computing, according to the availability and access to data in the business environment.

Public	Private	Hybrid	Community
Everyone has access to information.	The information is only available for one unit.	Different dependencies share information between them.	Set of dependencies share resources for a single benefit.

**Table 2** Cloud computing models  
Source: Self Made

Regardless of the services in general and the models of cloud computing, the user always seeks the security that the service can provide, being this a relevant point for the design and implementation when solving cases of cloud computing.

Currently, the outsourcing of services has made it essential to increase and reformulate security and legal measures, in order to ensure that the management of information in the cloud is real and completely secure. One of the main concerns addressed in the subject of security and reliability of information is the loss of it, which can cause serious economic and legal problems. To be able to provide cloud computing services it is important to have a provider, responsible and interested to safeguard the information, in such a way that guarantees a good service without risks that lead to the loss of information or damage to any of its critical systems.

Thus, it can be said that within the basic security aspects that must be taken into account by a cloud computing service provider are:

- Physical security
- Logical security
- Security and legal, political and technical certainty.

These types of security include as relevant aspects: confidentiality, authentication and availability, among others, all of them to guarantee the availability of work in the cloud. The concerns are the same as in the rest of the world with regard to security in cloud services, and have to do with the development of a project that resolves essential aspects such as who connects, who accesses, where access and under what conditions have certain access privileges. For this, it is necessary to review the conditions of the contract with the provider of cloud computing services, in order to ensure an adequate forecast of the issues related to the treatment and / or a transfer of personal data.

According to (Vizcaíno & Cruz Valencia, 2010) in the security magazine, the provider and the user should comply with the following guidelines to ensure the security and privacy of information in the use of the service:

Regarding the provider:

- Guarantee the user the security practices and procedures that are included in the service levels.
- Disclose to the user the geographic location of the information.
- Inform the user when the provider is obliged to deliver his information to a legal authority.
- Count in the terms of the service with a clause that guarantees that access to data is denied as a general policy.
- Apply the access requirements to the information imposed by the user.
- You may not claim ownership of any aggregate information, created, generated, modified, stored, or in any other way associated with the user's intellectual property, engineering effort or media creative.
- Specify what the provider can and can not do with the user's information.



- Provide at least one access mechanism.
- Ensure that the user's information is backed up and not mixed with other users' information.
- Guarantee that a robust encryption of information storage is used, which prevents access to it when it is recycled, disposed of or accessed by any means other than applications, processes or authorized entities.
- Destroying the information, when the user requests it, in all physical and logical locations.
- Deliver audit reports, which specify that your business continuity plans work.
- Explain how you monitor and control access to information made by your employees.

Regarding the user:

- Understand how privacy is maintained and make evident the commitment of this to the benefit of the client.
- Consider laws and directives of the country where the information is physically located.
- Carry out an evaluation of the information and systems proposed to be moved to the cloud.
- Conduct, if you have the necessary knowledge, an evaluation of the impact of privacy to identify and mitigate the risks derived from the privacy of information.
- Determine who should have access to the information, what their rights and privileges are, and under what conditions access is granted.
- Generate a default deny policy.
- Define and identify the classification of information.

In addition to the guidelines proposed by Vizcaíno & Cruz Valencia in the security magazine, in terms of the user we could add:

- Provide the authority with the information requested.
- Understand the sharing mechanisms where users are separated and the information they present.
- Encrypt the information stored in the cloud, as well as the one that is in transit.

- Accept from the provider the withdrawal mechanisms of information storage.
- Have plans for the conservation and destruction of information.

### **Business advantages and disadvantages offered by cloud computing**

It is a reality that cloud computing has planted a novel scenario for companies, which have used this and technological advances to offer their goods or services trying to reach the largest possible market, so a list of the possible business advantages and disadvantages in the use of cloud computing.

Among the business advantages offered by cloud computing, we can list the following:

- Cost savings: they are only paid for the services that are used, since the additional costs are eliminated, for example the software licenses.
- Accessibility: provision in real time and shared information stored in the cloud from anywhere in the world, the only requirement being the connection to the internet.
- Speed: the information can be consulted at the moment you want, without having to wait for late downloads.
- Security: this is considered its main advantage, however it is not 100% safe, but more and more professionals are prepared to have the best security and reliability in the cloud, able to solve problems that arise.
- Multi-user structure: allows you to connect to different users, regardless of whether they are searching or using the same information.

Among the disadvantages that have been visualized for the activity of the company in its experience with cloud computing, we can mention:

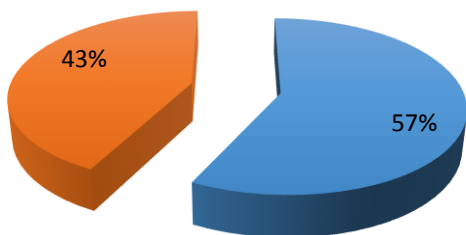
- Privacy: this disadvantage is understandable, however cloud computing offers the opportunity for the user to determine with whom he shares or gives his information.
- Availability: if for any reason the service fails, you only have the possibility to wait for the provider to solve it.

- Lack of control over resources: the user lacks access to services code.

Dependency: both the user and the provider must have a connection to the network to enjoy the cloud services.

### Legal aspects of cloud computing in Mexico

The Digital Agenda of the National e-Mexico System, headed by the Ministry of Communications and Transportation, defines that it is a strategy of the national e-government to orient and promote the country's transition to the information and knowledge society, with the main objective accelerating the process of technological adoption in all areas of national life, intensifying and guiding its use to generate impacts on competitiveness, social and human development, as well as for the greater empowerment of citizens. Figure 1 shows the degree of availability of Information Technology (IT) in Mexican households, according to the National Institute of Statistics and Geography (INEGI), including fixed and mobile Internet users.



**Graphic 1** Availability of IT (Mexico, 2015)  
Source: INEGI(2016)

According to the Ministry of Communications and Transport (Mexico, 2015), the low international performance is explained by the persistence of the main inhibitors that characterize the digital divide in Mexico, of which:

*People:* There are 68 million Mexicans who are not Internet users, mainly in low-income and low-education sectors. The digital divide of people is inevitably transferred to all institutional environments, notably companies and governments.

*Connectivity:* The high costs of connectivity and computing devices related to the income of individuals, companies and governments makes technological adoption difficult.

*The contents:* The low relevance of the contents in relation to people in conditions of vulnerability where the priorities are subsistence, makes the adoption of technology from its irrelevant perspective. (Mexico, 2015)

The author Valdés points out that the Digital Agenda has the following strategic objectives: Bridging the digital divide that separates Mexicans with access and without access to information and knowledge technologies.

Universalize broadband institutional and community connectivity, to achieve comprehensive coverage of schools, hospitals and health centers, government offices, and where government programs are provided to care for the population, as well as community access points, especially those that are required in marginalized areas. (Valdés T., Lex Cloud Computing, Legal Study of Cloud Computing in Mexico, 2013)

In this way, the Digital Agenda of the National e-Mexico System contributes to the use and development of cloud computing in Mexico, where there are aspects of the services that cloud computing offers having legal incidents, so its knowledge is relevant to avoid and avoid penalties of a legal nature. Within those aspects are:

#### – Privacy

One of the most important threats posed by cloud computing is the loss of the right to privacy, a human right guaranteed by various fundamental laws and international regulations. Currently, the right to protection of personal privacy charges and is very relevant, due to the manifest technological advances, which have increasingly caused the vulnerability of people's private lives. The right not to be disturbed in your privacy implies some aspects, but in the case of cloud computing, it has a direct impact on the control and handling of information and personal data collected in databases.

#### – Security

Ensure that suppliers have the necessary security measures, so that the information provided continues to have the characteristics of being reliable, secure and that a third party can not dispose of and make use of it.

– *Interoperability*

That users continue to have the possibility of choosing goods, services or technologies.

– *Permanence and Access to information*

The service provider must guarantee the access and content to the information until the moment in which the validity of the contract established with the users is fulfilled.

– *Availability*

The provider must provide users with sufficient services to ensure rapid response times and permanent access to stored information.

– *Clauses of rights of Suppliers and limitation of liability*

Users of cloud computing services should pay attention to those clauses where they mention the terms of access to cloud services, which can give providers rights over the information that is hosted on their servers.

– *Cloud Computing services to governments*

As the technology advances, the rules of contracting or guaranteed rights online are not advanced, which generates the government to come up with a value proposition of service in the cloud.

– *Taxes*

Several fiscal aspects must be taken into account by both providers and users. No matter which country it is or where it is, the fiscal aspects applicable to the jurisdiction of the State where the user is domiciled should always be considered.

All these aspects must be analyzed under the magnitude of the legislation that applies to cloud computing, since there are laws that require the confidentiality and security of information to be maintained, among which we can list the following:

- General Law of Professions
- Federal Labor Law
- Industrial Property Law
- Federal Law for Protection of the Consumer

- Federal Law of File
- Federal Law of Electronic Signature
- Commercial Code
- Federal Law on the Protection of Personal Data Held by Individuals

This legislation basically addresses the confidentiality and security of the information handled in the electronic media.

Regarding the **General Law of Professions**, whose purpose is to regulate the professional practice among the federal and local authorities, prescribing the way to prove the records, acts and procedures that within said function are carried out, as well as the warrant to preserve the secret professional in the exercise of the profession.

While article 134, section XIII of the **Federal Labor Law** mentions that it is the obligation of the worker to keep technical, commercial and product manufacturing secrets, in addition to reserved administrative matters, whose disclosure may cause harm to the company. Likewise, fraction IX of article 47 of the mentioned order prohibits the worker to reveal the secrets of factory or reserved matters to the detriment of the company, being the reason for the disclosure of the information, the termination of work without responsibility for the employer.

Following in the legal analysis, in the **Law of Industrial Property** addresses the issue of confidential information through the definition of what should be considered as an industrial secret in Article 82:

Considers an industrial secret to all information of industrial or commercial application kept by a physical or moral person in a confidential manner, which means obtaining or maintaining a competitive or economic advantage over third parties in the conduct of economic activities and in respect of which it has adopted the means or systems sufficient to preserve their confidentiality and restricted access to it.

With regard to sufficient means or systems in the preservation of the confidentiality of information, Article 83 of the same law makes reference that it must consist of documents, electronic or magnetic media, optical discs, microfilms, films or other similar instruments.

In addition to this, it is contemplated that any person who, because of his work, employment, position, position, performance of his profession or business relationship, has access to an industrial secret of which he has been warned about his confidentiality, should abstain to disclose it without just cause and without the consent of the person who keeps said secret, or of its authorized user<sup>1</sup>. If you are a natural or legal person and hire a worker who is working or has worked, or a professional, consultant or consultant who provides or has provided their services for another person, in order to obtain industrial secrets from it, the number 86 of the Industrial Property Law establishes that he will be responsible for the payment of damages and losses caused to said natural or legal person.

This same Law of Industrial Property considers a crime by complaint the disclosure of an industrial secret, the sanction being a prison sentence of 2 to 6 years in prison and a fine of one hundred to ten thousand days of the general minimum wage in force in the Federal District<sup>2</sup>.

As for the **Federal Law of Consumer Protection**, a chapter is provided regarding the rights of consumers in transactions made through the use of electronic, optical or any other technology. Being the article 76 BIS the one that lists the legal dispositions related to it, highlighting some that must be fulfilled:

1. That the provider will use the information provided by the consumer in a confidential manner, unable to disseminate it or transmit it to other suppliers outside the transaction, unless expressly authorized by the consumer or competent authority.
2. That the supplier must use any of the available technical elements to provide security and confidentiality to the information provided by the consumer and inform the consumer of the characteristics of said elements.
3. The consumer has the right to know all the information about the terms, conditions, costs, additional charges, if any, forms of payment for the goods and services offered by the supplier.

The **Federal Law of Archives** establishes the provisions that allow the preservation of the archives in possession of the Powers of the Union, as well as the protection, dissemination and access of private archives of historical, technical, social, cultural or scientific importance.

With regard to the **Commercial Code**, its Second Title dedicated to Electronic Commerce, it is divided into four chapters, the first of which refers to data messages, a subject in which cloud computing is included. From this we can mention that Article 89 of this Code indicates that:

The activities regulated by this Title will be subject in their interpretation and application to the principles of technological neutrality, autonomy of will, international compatibility and functional equivalence of the Data Message in relation to the information documented in non-electronic media and the Electronic Signature in relationship with the signature autograph.

In this article 89 some definitions referring to electronic commerce are mentioned, giving indications that cloud computing begins to be regulated, these are: recipient, digitization, issuer, electronic signature, data message, certification service provider and systems of information, which permeate to act legally under the premise of cloud computing services (for more information see the law and the article mentioned).

The mentioned definitions are transcribed from this article 89, in order to know that cloud computing:

- Recipient: The person designated by the Issuer to receive the Data Message.
- Digitization: Migration of printed documents to data message, in accordance with the provisions of the official Mexican standard on digitization and preservation of data messages issued by the Ministry of Economy for that purpose.

<sup>1</sup> Article 85 of the Industrial Property Law.  
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<sup>2</sup> Article 224 of the Industrial Property Law.  
SUAREZ-JASSO, Elsa, OTERO-ESCOBAR, Alma Delia, MÉNDEZ-ANOTA, Mayra Minerva and MARTÍNEZ-HERRERA, Brenda Marina. Legal and practical aspects of the use and development of cloud computing. Journal-Law and Economy. 2018.

- Electronic Signature: The data in electronic form consigned in a Data Message, or attached or logically associated to it by any technology, which are used to identify the Signatory in relation to the Data Message and indicate that the Signatory approves the information contained in the Message of Data, and that produces the same legal effects as the signature autograph, being admissible as evidence in court.
- Data Message: The information generated, sent, received or filed by electronic, optical or any other technology.
- Certification Services Provider: The person or public institution that provides services related to electronic signatures, issues certificates or provides related services such as the preservation of data messages, the digital time stamp and the digitalization of printed documents, in the terms that be established in the official Mexican standard on digitization and preservation of data messages issued for that purpose by the Ministry of Economy.
- Information System: Any system used to generate, send, receive, file or otherwise process data messages will be understood.

As we can see, cloud computing uses the concepts presented in order to act legally under the premise of cloud computing services.

The **Federal Law of Electronic Signature** establishes the regulation of the advanced electronic signature, the electronic certificate and the related services of its surroundings (Téllez, 2013), in addition it intends to homologate the advanced electronic signature with the advanced electronic signatures regulated in other legal ordinances.

Among the concepts to be highlighted in this law, which go hand in hand with cloud computing and the services it offers, are:

- a) Electronic Media: are the technological devices for the processing, printing, deployment, conservation and, where appropriate, modification of information.

- b) Message of Data: is the information generated, sent, received, filed or communicated through electronic communication means, which may contain electronic documents.
- c) Website: is the website that contains information, applications and, where appropriate, links to other pages.

However, despite the fact that this law represents an advance talking about electronic information systems, it is an order that aims to regulate the performance of public entities and dependencies, their servers and individuals that use the advanced electronic signature in terms of of this Law.

Although this does not mean that the same public entities do not use the services of cloud computing. In fact, we start from the reality that is shown to us today, since many of the services that are offered by public agencies are through the web, materializing a part of what we call e-government or electronic government.

The e-government and cloud computing are currently an indissoluble binomial, the first tended an electronic network for various services or public activities, understood as the use that the public function made of ICTs in order to provide the population with better and faster services by their agencies, through the organization and automation of their processes, especially in the procedures they offer, optimizing the resources of each public entity from financial to human, while cloud computing presents the e-government with the ability to manage and store large amounts of information streamlining your work. All of the above, taking as frame of reference a, perhaps, incipient legislation.

To conclude the legal analysis, we have the **Federal Law for the Protection of Personal Data Held by Private Parties (FLPPDHPP)** that entered into force on July 5, 2010, being its first article that establishes its legal-public scope, having as its object the protection of personal data in the possession of individuals, in order to regulate their legitimate, controlled and informed treatment, in order to guarantee privacy and the right to self-determination of people.

Besides, its purpose is to establish and maintain administrative, technical and physical security measures that allow protecting the personal data of any individual against damage, loss, alteration, destruction or unauthorized use, access or treatment, placing people in the center of state guardianship.

The day after the issuance of this law, the companies of all the activities were forced to publish privacy notices and protect the personal information that they could find in their databases, such as financial, banking and financial institutions, credit, insurers, media, telephone companies, commercial, industrial, service, hospitals, airlines, schools, doctors, laboratories, law firms, accounting firms, advertising companies, department stores, restaurants, car agencies, etc.

And it is that this law is addressed to private individuals or individuals of a private nature, who carry out the processing of personal data, in accordance with its Article 2.

It has been mentioned that the Mexican Data Protection Act contains clear and respectful rules regarding the privacy of information provided by individuals, as a result of international principles accepted and regulated in other sovereign States and various international organizations.

Taking this as a reference, we highlight some key concepts listed in the FLPPDHPP, based on accepted international principles, which frame cloud computing, as they are

1. Privacy Notice: Physical, electronic document or any other format generated by the person in charge who is put at the owner's disposal, prior to the processing of their personal data.

From the privacy notice, it should be noted that companies that make use of cloud computing, must manifest it clearly on their electronic pages, where the user can read and accept the conditions provided by law.

2. Databases: The ordered set of personal data referring to an identified or identifiable person.

3. Blocking: The identification and preservation of personal data once the purpose for which they were collected has been achieved, with the sole purpose of determining possible responsibilities in relation to their treatment, up to the legal or contractual limitation period of these. During this period, personal data can not be processed and once this has elapsed, it will be canceled in the corresponding database.

4. Consent: Manifestation of the will of the owner of the data through which the treatment of the same is effected.

Again, for companies whose object is borrowed through cloud computing, the manifestation of the will will be ticking a box accepting the conditions described by the company.

5. Personal data: Any information concerning an identified or identifiable natural person.

6. Sensitive personal data: Those personal data that affect the most intimate sphere of its owner, or whose misuse could give rise to discrimination or entail a serious risk to it. In particular, those who can reveal aspects such as racial or ethnic origin, present and future health status, genetic information, religious, philosophical and moral beliefs, union affiliation, political opinions, sexual preference are considered sensitive.

7. Source of public access: Those databases whose consultation can be carried out by any person, with no more requirement than, in his case, the payment of a consideration.

It is established in the legislation that if the personal data are violated by the companies that store them, that is, if they are lost, if there is unauthorized access or if they are hacked, the holders of the data should be informed as soon as possible personal information, so that they can take the necessary and necessary measures in defense of their rights. (Gomez, 2012)

The Federal Institute of Access to Information (IFAI), has stated that the most important thing to know about the FLPPDHPP:

- A personal fact is any information related to the individual.
- They are personal data: the name, address, telephone, photograph or fingerprints, as well as any other data that serves to identify the person.
- The person owns their own personal data and only she decides how, when, to whom and for what she gives her personal information, except for the exceptions established by law.
- It is important that the person takes care of their personal data for security reasons, besides being their right.
- The data or personal information must be protected against misuse such as: identity theft, illegal transmissions or unauthorized access.
- The Law regulates the conditions in which companies must use personal data.
- There are sensitive data requiring greater protection, they are considered as such: racial or ethnic origin, health status, genetic information, religious, philosophical and moral beliefs, union affiliation, political opinions and sexual preferences.

To these concepts are added the legal principles that must be met by companies, individuals or corporations in the processing or storage of information or personal data in physical or electronic form, which are: consent, lawfulness, purpose, information, quality, loyalty, responsibility and proportionality.

Starting from the fact and right that, in the treatment and handling of personal data, it is assumed that there is a privacy agreement, understanding this as the trust that is deposited between two or more people, with respect to the personal data or information provided, will be treated as agreed by the parties, being subject to the consent of the owner<sup>3</sup>. Said consent may be expressed expressly or tacitly, for the first case may be verbal, in writing, by electronic means, optical or by any other technology, or by unambiguous signs.

While tacitly it will be when the processing of your data or information, when you do not state your opposition and you have made yourself available to the privacy notice.

This leads us to reference the content of the privacy notices that must be met by those responsible for the handling of information, including those that are dedicated to cloud computing services, namely:

1. The identity and address of the person responsible for collecting them.
2. The purposes of data processing.
3. The options and means that the responsible party offers to the holders to limit the use or disclosure of the data.
4. The means to exercise the rights of access, rectification, cancellation or opposition.
5. In your case, the data transfers that are made.
6. The procedure and means by which the responsible will communicate the holders of changes to the privacy notice. (Article 16 FLPPDHPP)

Following the privacy notice and as indicated by the FLPPDHPP, it must be made available to users through printed, visual, digital, sound or any other technology. In the event that they are obtained directly from the owner by any electronic, optical, sound, visual, or through any other technology, the responsible must provide the owner immediately, at least information regarding the identity and address of the person responsible that collects them, as well as the purposes of data processing; as well as providing mechanisms for the owner to know the full text of the privacy notice. Currently have established cloud computing agreements, which provide for public or private agencies allow the outsourcing of services, while providers offer security, privacy and protection of personal data. If the provider complies with the privacy policies and complies with the regulations that subscribe to the legislation, it could be affirmed that the provider is really reliable and legally established.

Undoubtedly, cloud computing or cloud computing has been a necessary tool for the storage and handling of information, giving a special and confidential treatment of the data that customers or users make of various services that companies offer on the web, the responsibility of these part of the confidentiality notice and later with the handling of the information found in the web servers.

<sup>3</sup> Article 7 FLPPDHPP

### Case study: Legal applications in cloud computing

In this section it is assumed that privacy policies and conditions of use are a common denominator in commercial and public websites. In Cloud Computing all pages and / or web services have this section of Privacy Policies and Conditions of Use. The following cases are explored:

#### – Dropbox

Dropbox is a cloud server that allows you to store, host and share files through a personal account, either for free or for a fee. Therefore, in its Privacy Policies we can find that they apply the Data Protection Law. Dropbox specifies the information that they require to be their clients, likewise establishes the way in which the information provided will be used and under what security regime and Privacy.

Dropbox service conditions in which it explains what happens with the files they share and the permissions that they have, making the person responsible for the information they share in the files, briefly detailing the uses accepted by creating an account, reiterating that in The moment the client no longer wants the service, a cancellation (Opt-out) is made without any problem.

- Storage of email account (Hotmail, Gmail the most common)

#### Google (Gmail)

Drive is the storage option offered by Gmail, by having an account with this email provider, it offers us a space to store files that we can have available through our account, anywhere, anytime, as long as we count with Internet connection. Google in the privacy policies, tells us the conditions of service (Google, s.f.), which says:

[...] you will remain the owner of the intellectual property rights you have over that content. In short, what belongs to you, yours is.

We do not claim ownership of any of your content, which includes the texts, data, information and files you upload, share or store in your Drive account.

Our Terms of Service allow us to provide the services you are looking for. So, if you decide to share a document with someone or want to open it on another device, we can offer you that functionality.

You control who can access your files saved in Drive. We will not share your files and data with anyone except to the extent specified in our Privacy Policy.

- We will not publish any private documents.
- We will not use any private documents for marketing or promotional campaigns.
- We will save your data as long as you want.
- You can take the data with you if you decide to stop using Google Drive.

#### Microsoft (Hotmail, Live, Outlook)

OneDrive - from Microsoft - like Gmail, offers storage by having an account with this email provider (Outlook, Live, Hotmail), in this one space we can store files, which we can have available through our e- mail, anywhere, anytime, provided you have an Internet connection.

In the Microsoft privacy statement (2017), it details us about:

- Personal information that they collect
- How they use personal data
- Reasons for sharing personal data
- How they access and control personal data
- Cookies and similar technologies
- Microsoft account

It is important to note that storage options are not the only thing that these email providers offer, there is also the office software (applications for text editing, spreadsheets, digital presentations among others), collaborative work (calendars, virtual communities), among others.

### Conclusions

As we already examined, cloud computing or cloud computing has its main foundation in the remote management of information.



Companies, public entities and organizations transfer large amounts of information to servers belonging to third parties (other companies dedicated to this). This brings with it several implications or legal consequences, even more in the case when the data is hosted or stored in servers in other countries, converging two or more jurisdictions, arising the need to determine legal and contractual aspects applicable to the case. In several countries laws have been enacted where their main objective is to protect information, being Sweden in 1973 the first country in the world to have a data protection law, following the example of the United States in 1974 and others in Europe western.

On the other hand, Mexico has enacted its own data protection law, which is one of the newest in the world; However, in the analysis of this law and other correlatives of the subject, it can be identified that they do not explicitly contemplate the processing of personal data in cloud computing services, while in countries of the European Union, Argentina, Canada and others, consider safe ports to countries that have the possibility of transferring stored data in a secure manner and protected by the contract and data protection law of their country.

Now, starting from the environment of the information society, Mexico has a significant advance in the digital economy and electronic government, as already explained in the development of this research; however, some tasks are still missing. The current mandate of the government is crucial in the information age, since the combination of technological advances with new forms of operation and the handling of information stored in the cloud, will make it more efficient and effective. Our country has important efforts in this area (trinomial: ICTs-operation processes-handling and storage of information in the cloud); However, there is still no comprehensive and legal public policy on the matter, which concentrates efforts and brings together the agents involved in the development, competitiveness and technological innovation worldwide.

As a diagnosis, we could say that our country needs to create strategies to promote small and medium-sized companies that are obsolete with regard to technology, as well as developing media outlets that report the benefits, advantages and disadvantages of cloud services.

The State for the web services it offers must have the objective of optimizing public spending by having a better treatment of the information it has and generates inside and outside of its dependencies, in order to increase the quality and speed of its services with the population, being the cloud computing the key piece to start and start up as part of the public services of the country.

Regarding the private area, users of the services or products offered on the web, seek not only the versatility of the search for information, but also the security and privacy of the data or information they share in an application, or in a purchase, etc.

The user's peace of mind is based on the fact that their information has been delivered in order not to be violated, that the storage and management of the information is professional, that sufficient means have been adopted for the storage of their information, with cloud computing being a means to achieve those objectives.

Undoubtedly and after analyzing the relevant legislation, there are important legal challenges for the success in the adoption and development of cloud computing from the public as well as the private perspective, with the two priority issues to be addressed: privacy and security of information on the web. Explain clearly the results obtained and the possibilities for improvement.

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### **Legisgrafía:**

- General Law of Professions
- Federal Labor Law
- Industrial Property Law
- Federal Law for Protection of the Consumer
- Federal Law of File
- Federal Law of Electronic Signature
- Commercial Code
- Federal Law on the Protection of Personal Data Held by Individuals

## Current situation of the development perspective for the microenterprise of the commercial sale of chicken, tortilla shop and grocery shop in the Municipality of Mixquiahuala de Juárez, Hidalgo

## Situación actual de la perspectiva de desarrollo para la microempresa del giro comercial de venta de pollo, tortillería y abarrotes del Municipio de Mixquiahuala de Juárez, Hidalgo

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### Abstract

The economic structure of Mexico is based on the development and economic growth of companies, prevailing 94.3% of economic units considered as micro enterprises according to INEGI (2015), which only contribute a tenth of the country's gross domestic production, being an analysis and discussion table to evaluate the obstacles that the micro company faces. The State of Hidalgo in recent years has become more competitive, the result of its favorable location and industrial infrastructure that has allowed to establish national projects, in such a way that a new perspective of development for the micro-enterprise of the region is opened and in particular for the Municipality of Mixquiahuala de Juárez, the study presents the current situation of the level of adoption of strategies that the commercial companies in the sale of chicken, tortillas and groceries apply to improve their positioning in the local and regional market, through an analysis descriptive and correlational factors are identified that in a certain situation affects them in the fulfillment of their goals. The main contribution of this article lies in the identification of the variable that directly affects the perspective of development being the competition, hence the need to propose marketing strategies that allow to encourage the economy of companies.

### Strategies, Market, Development

### Resumen

La estructura económica de México se encuentra basada en el desarrollo y crecimiento económico de las empresas, prevaleciendo el 94.3% de unidades económicas consideradas como micro empresas según INEGI (2015), las cuales sólo aportan la décima parte de la producción interna bruta del País, siendo mesa de análisis y discusión evaluar lo obstáculos que enfrenta la micro empresa. El Estado de Hidalgo en los últimos años se ha convertido más competitivo, resultado de su favorable ubicación e infraestructura industrial que ha permitido establecer proyectos nacionales, de tal manera que se abre una nueva perspectiva de desarrollo para la micro empresa de la región y en particular para el Municipio de Mixquiahuala de Juárez, el estudio presenta la situación actual del nivel de adopción de estrategias que las empresas comerciales en la venta de pollo, tortillas y abarrotes aplican para mejorar su posicionamiento en el mercado local y regional, a través de un análisis descriptivo y correlacional se identifican los factores que en determinada situación les afecta en el cumplimiento de sus metas. La principal contribución del presente artículo radica en la identificación de la variable que afecta directamente en la perspectiva de desarrollo siendo la competencia, de ahí se deriva la necesidad de proponer estrategias de mercadotecnia que permitan incentivar la economía de las empresas.

### Estrategias, Mercado, Desarrollo

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## Introduction

The contribution of MSMEs in the country's economy lies in the generation of 72% of employment and 52% of the country's Gross Domestic Product (GDP) (CONDUSEF, 2018). Microenterprises in Mexico generate annual sales of up to 4 million pesos and represent 95 percent of total companies and 40 percent of employment in the country; In addition, they produce 15 percent of the Gross Domestic Product (SECRETARÍA DE ECONOMÍA, 2010).

According to data from INEGI in 2015, in Mexico 28.4% of them do not want their businesses to grow due to their own insecurity and 25.1% because they feel satisfied with their company, together with this, the main causes for which it is considered that microenterprises do not grow is due to lack of credit and competition from informal companies. (INEGI, ENAPROCE, 2015)

The most common expenses in e-commerce in Mexico are in clothing and accessories, 59% of Internet users said they bought items in this category as part of their quarterly consumption. It is followed by digital downloads (48%), tickets for events (36%) and trips (35%). Mexicans preferred to make more purchases with credit than with debit cards in 2016, now the trend changed. 55% of the transactions in 2017 were made with debit cards (65.5 million), the remaining 45% with credit. (HUFFPOST, 2018)

In Hidalgo there are 21, 245 companies, of these 99.94% are SMEs, and the remaining 0.06% are large. Of the total of MSMEs, 81.51%, 14.62% and 3.86% correspond to the commerce, services and industry sectors, respectively. (Terrones, 2011). Mixquiahuala de Juárez is one of the municipalities that make up the State of Hidalgo, with an area of 114.79 km<sup>2</sup>, which represents 0.55% of the State made up of 29 localities, located in the Mezquital Valley region.

Currently the total population of the municipality of Mixquiahuala de Juárez, corresponds to 46,224 inhabitants (INEGI, 2018), and economically active population 17,155 people, of which 11,416 are men and 5,739 are women, representing a human development index of 0.7809 (SNIM, 2010).

The main economic activities are agriculture and livestock, corresponds to the largest ejido of the republic, endowed with 7,853 Has., And with the production of cattle, pigs, sheep, goats and birds.

In this sense, the object of study of the present investigation is of an exploratory nature of a descriptive and correlational type to identify which aspects affect the development perspective of the micro companies selling chicken, tortilla and groceries of the municipality of Mixquiahuala de Juárez, Hidalgo, identifying the needs that currently have in the use of internet technology or confidence in the use of electronic commerce as a strategic measure of growth to gain market positioning.

When recognizing the total of micro businesses of the commercial line of sale of chicken, tortilla and groceries that are located in the region, a representative sample of 132 micro companies (80% confidence level) was selected, applying a survey to identify the state that keeps the main study variable, defined as "*Development Perspective*" and the secondary variables "*Permanence in the Market, Competition, Confidence in the use of Electronic Commerce and Infrastructure*", resulting in a significant increase in competition, a factor that affects the lack of interest in the development and promotion of business.

This current situation gives guidelines to define strategies that can contribute to the growth of the group of micro companies to which the present study is directed.

## Problem Statement

In the Municipality of Mixquiahuala de Juárez, Hidalgo, in the commerce sector, retail trade predominates, with 1244 economic units (ue), 401 ue correspond to micro businesses selling groceries, chicken and tortillerías, distributed in the different localities of the municipality as shown in *Table No. 1 Retail sale of tortillas, chicken and groceries*.

Location	No. establishments	of
Bondho	45	
The Calvary	48	
Center	83	
Danfhi	11	
Two hills	1	
The dye	35	
Station	25	
The cross	1	
The wheel	3	
The sorrow	26	
Reform	29	
The Vega	1	
The Tigers	12	
Narciso Mendoza	10	
Taxhuada	71	
Total	401	

**Table 1** Retail trade by location of the municipality of Mixquiahuala de Juárez, Hgo  
*Source: DENUE INEGI (2018). Obtained in <http://www.beta.inegi.org.mx/app/mapa/denue/default.aspx>*

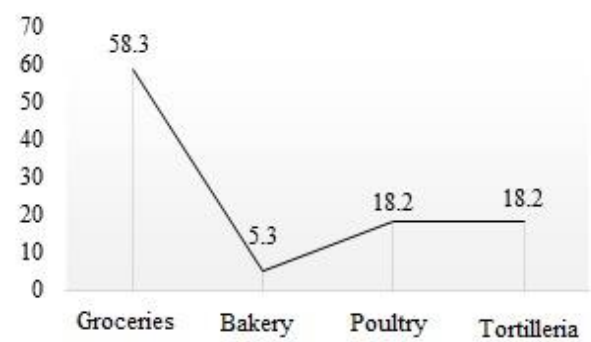
The localities with the highest number of establishments represent it, the Colonia Centro, Taxhuada, El Calvario and El Bondho, it was identified that in these there is a greater movement of commerce, during the tour of each of the localities the dispersion or distance was detected of the establishments that exists to access the population, concentrating mostly on the provision of basic input materials for the population in the Colonia Centro in the center of the municipality.

When conducting an interview in a random way to the population, the need to have new services that facilitate the provision of basic foods is detected.

In the study area as shown in Graph 1 Type of Company, the presence of the businesses is identified, with 58.3% of grocery sales, 18.2% of poultry stores and tortillerías respectively and 5.3% of bakeries, in this sense the owners of the micro business, are aware that various causes intervene that prevent them from having the immediate provision of the inputs required by the population, among them, if they do not have an adequate supply of the products because they do not favor fresh food, disposition or immediate delivery, and the distance of the establishments that allow the supply of the products in accessible hours for the population.

In this sense, the following question is asked: What is the current situation of the micro enterprise perspective to implement actions that contribute to its growth? What factors can intervene in the lack of development perspective in the market?

In addition to the lack of knowledge in the new ways of encouraging business promotion, whether through the use of information and communication technologies or other means, the business economy is limited, which prevents growth favoring.



**Graphic 1** Type of company  
*Source: Own Elaboration (2018)*

Finding 1. It is observed that the majority of MSMEs in the Mixquiahuala de Juárez region, Hgo. They are grocery businesses and 18.2% are followed by poultry and tortilla shops, finally with 5.3% bakeries.

**Justification**

The importance in the realization of the present study lies in knowing, in what way the micro companies recognize the current situation of their Development Perspective, what influence does the market permanence, competition, confidence in the use of electronic commerce and the level of infrastructure to achieve market positioning. It seeks to examine the current structure of the microenterprise and identify the factor that significantly influences its development, based on the quantitative method, applying statistical techniques. As well as, its relation or degree of association between the study variables.

When knowing the Development Perspective of the micro-enterprise of the region, it will be possible to be involved in the design of strategies that contribute to the growth of the same.

Hypothesis

The level of "Permanence in the Market, the level of Competition, the lack of Trust in the use of Electronic Commerce and lack of Infrastructure" are factors that influence the development perspective in the market, the micro business of the commercial line of sale of Chicken, Tortillería and Groceries of the Municipality of Mixquiahuala.

Methodology

In order to achieve an objective study, the focus of this research is centered on a quantitative level, according to Hernández et al. (2010), the characteristics of the method mainly follow a predictable and structured pattern, determining a segment or sample of the study population, which try to explain and predict the phenomena investigated by looking for causal relationships between their elements, the analysis of the results is supported by statistical models to obtain measurable or observable data.

The phases of the study are focused on carrying out first the determination of the sample, operational design of the study, design and application of the instrument; and application of probabilistic tests at a descriptive and correlational level. The scope that defines the investigation is descriptive and correlational, that seeks to know characteristics or dimension of the current situation of the problem in question. When integrating the correlation between the study variables, it is intended to answer how the secondary variables influence the current situation of the main study variable, with the purpose of knowing the degree of relationship that they have subjected to probabilistic tests.

Determination of the sample

It was defined as the main study variable "development perspective" and secondary variables "permanence in the market, competition, confidence in the use of electronic commerce and infrastructure", through a survey applied to the micro businesses of the region with a level confidence of 80% (1.28), with margin of error of 5%, standard deviation of the population .5, a total sample of 132 surveys was determined, of the 401 micro businesses that are in total according to the query system DENUE (INEGI, 2018).

Applying the simple random sampling method, according to Vivanco (2005), the formula corresponds to:

$$n = s^2/(e^2/(z^2 \alpha /2) + s^2/(N - 1)) \tag{1}$$

$$n = .5^2/(\frac{.05^2}{1.28^2 \alpha_2} + .5^2/(401 - 1)) \tag{2}$$

$$n = 132 \text{ encuestas}$$

Where:

- S<sup>2</sup>= Population variance
- z<sup>2</sup>α /2= Tabulated value of the confidence coefficient
- N= Size of the population
- e= Maximum admissible error
- Source: (Vivanco, 2005)

Operational design of the research

In the design of the research, the dimensions of the study, data collection and study scope indicator were analyzed, as shown in Table 2. Operationalization, 10 closed questions were designed with multiple options aimed at the market to measure the variables "Permanence in the market, competition, confidence in the use of electronic commerce and infrastructure" at the descriptive level, it has also been defined at the correlation level to identify the significant relationship that can be maintained with the main variable of the study" Development Perspective".

Information you want to know	Dimensions	Get information	Indicators
How many years have you been offering your products or services?	Permanence in the Market	Poll	Descriptive Correlation al
Do you usually have your main competence identified?	Competition	Poll	Descriptive
Do you think you have been affected in your sales by the presence of large supermarkets or shopping centers that are in your area?	Competition	Poll	Descriptive Correlation al

Have you seen the disappearance of micro businesses by the arrival of large companies in your area?	Competition	Poll	Descriptive
Do you know the new online sales method?	Confidence in the use of electronic commerce	Poll	Descriptive
Have you purchased or contracted any product or service online?	Confidence in the use of electronic commerce	Poll	Descriptive Correlation al
What type of products or service have you purchased?	Confidence in the use of electronic commerce	Poll	Descriptive
What benefits do you think are generated in the use of online mode?	Confidence in the use of electronic commerce	Poll	Descriptive
Would you like to know more about the online sales method?	Confidence in the use of electronic commerce	Poll	Descriptive Correlation
Do you currently have internet service?	Infrastructure	Poll	Descriptive

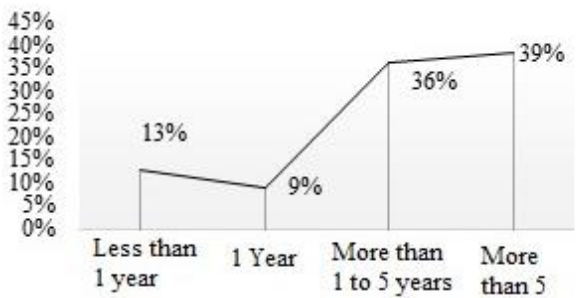
**Table 2** Operationalization  
*Source: Own Elaboration (2018)*

**Descriptive Analysis**

The application of the instrument was carried out in 8 locations with the highest concentration of micro-enterprise population: Taxhuada, Centro, Bondho, Calvario, Teñhé, Estación, Peña and Reforma, due to the distance of the localities and the joint effort of collaborating students and teachers the time of application was in two weeks, the treatment and analysis of the descriptive and correlational level data was carried out in the software SPSS (Statistical Package for the Social Sciences), which allowed to integrate the database of the indicators and generate the graphs of the results, the findings identified by each study variable are described below:

**a) Permanence in the Market**

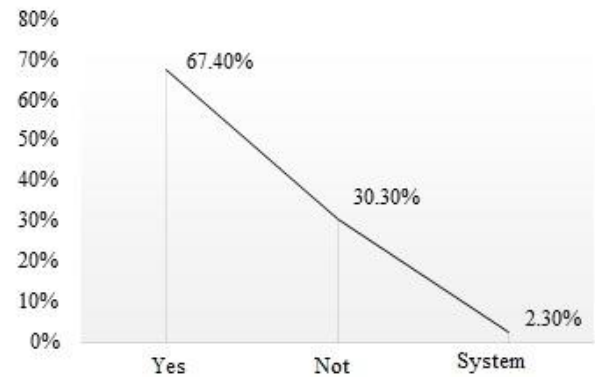
In Graphic 2, how many years have you been offering your products or services ?, shows the identified findings, most of the companies have more than 5 years in the market with 39%, followed by 36% that are companies that have between 1 and 5 years in the study region.



**Graphic 2** How many years have you been offering your products or services?  
*Source: Own Elaboration (2018)*

**b) Competition**

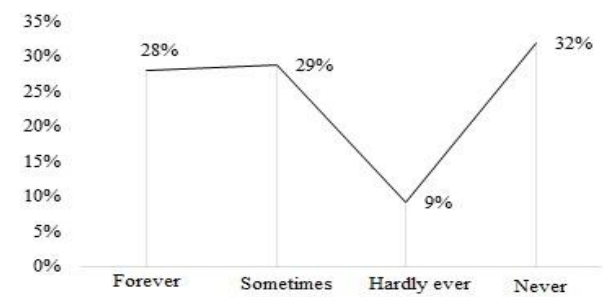
In the Graphic 3 ¿Do you currently have your main competence identified?, shows the identified findings, 67.4% of the MSMEs of the study region consider that if you have identified their main competence within the market, 30% consider that they do not.



**Graphic 3** Do you currently have your main competence identified?  
*Source: Own Elaboration (2018)*

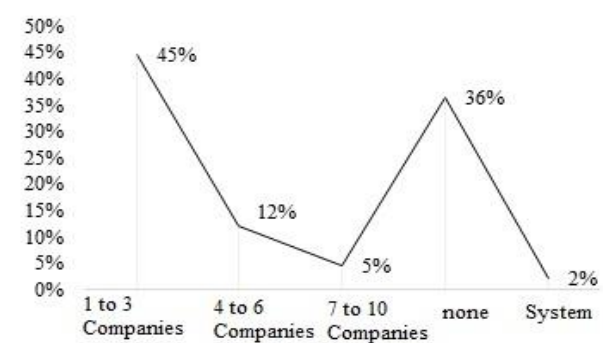
In Graphic 4. Do you think you have been affected in your sales by the presence of large supermarkets or shopping centers that are in your area? The findings are that 32% of companies consider that they have never been affected by the presence of large supermarkets and shopping centers, while 28% believe that they are always affected, 29% sometimes consider it that way and 9% consider almost never having been affected.





**Graphic 4** Do you think you have been affected in your sales by the presence of large supermarkets or shopping centers that are in your area?  
*Source: Own Elaboration (2018)*

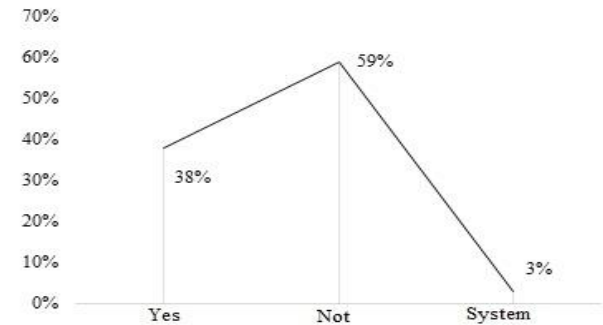
In Graphic 5. Have you seen the disappearance of micro-enterprises due to the arrival of large companies in your area?, it was found that 45% of the sample surveyed indicated that 1 to 3 micro-enterprises have disappeared due to the arrival of large companies companies to the region, while 36% consider that no microenterprise has disappeared for this reason.



**Graphic 5** Have you seen the disappearance of micro businesses by the arrival of large companies in your area?  
*Source: Own Elaboration (2018)*

### c) Confidence in the use of electronic commerce

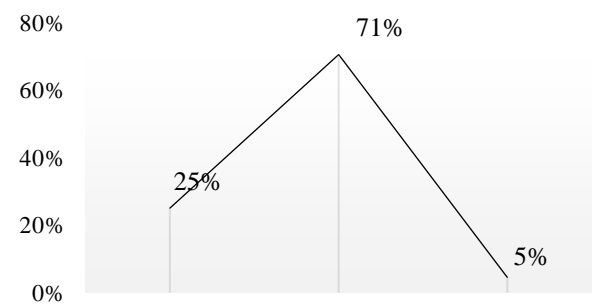
In Graphic 6. Are you familiar with the new online sales method? 59% of the surveyed sample does not know the online sales method, while 38% know this type of sales method.



**Graphic 6** Do you know the new online sales method?  
*Source: Own Elaboration (2018)*

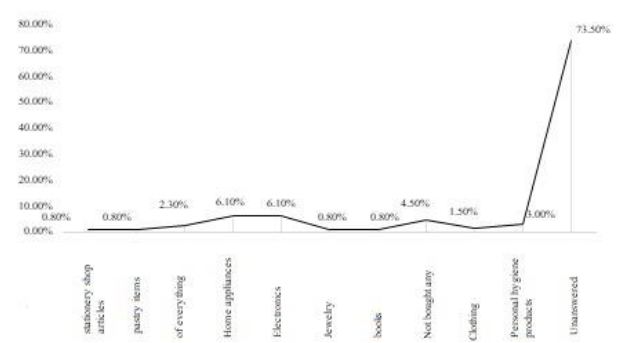
In this sense, confidence in the use of electronic commerce is also assessed with the type of products or services that are currently carried out online or their opinion regarding the benefits that are considered necessary by this modality.

In Graphic 7. Have you purchased or contracted any product or service online? It is identified that at least 25% of the study region has made online purchases or contracts, while more than 70% claim never to have done so.



**Graphic 7** Have you purchased or contracted any product or service online?  
*Source: Own Elaboration (2018)*

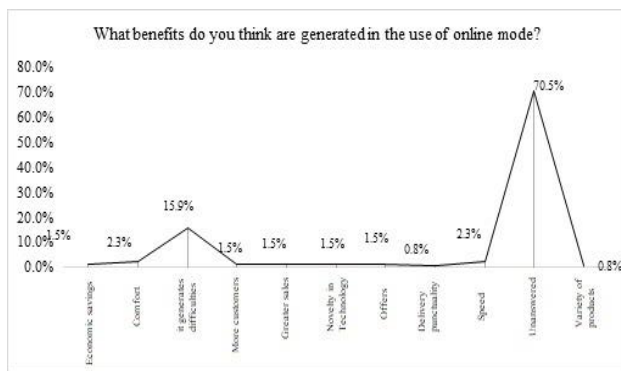
In Graphic 8, what type of products or service have you purchased? 73.50% of respondents omitted any answers about the products purchased online, the majority declares that they have not made purchases online. On the other hand, the purchase of household appliances and electronic devices stands out, 6.10%.



**Graphic 8** What type of products or service have you purchased?  
*Source: Own Elaboration (2018)*

En el Graphic 9 ¿Qué beneficios considera que se generan en el uso de la modalidad en línea?, el 70.5% de la población seleccionaron sin respuesta, puede representar la falta de interés en el tema o no hay conocimiento al respecto.

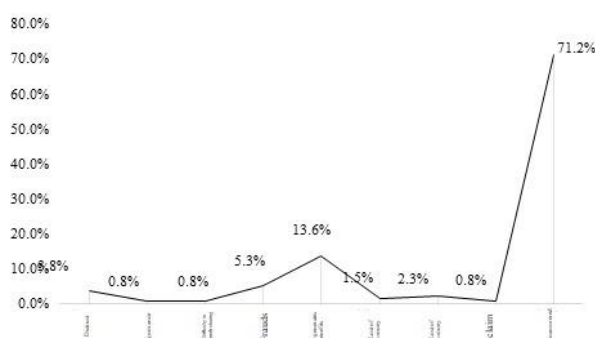




**Graphic 9** What benefits do you think are generated in the use of online mode?

Source: Own Elaboration (2018)

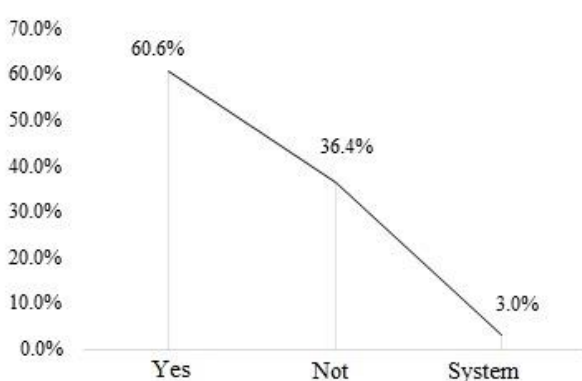
In Graphic 10, what difficulties do you think are generated in the use of the online modality? 71.2% of the population consider the claim generated by using the online modality a difficulty.



**Graphic 10** What difficulties do you think are generated in the use of online mode?

Source: Own Elaboration (2018)

In Graphic 11 Would you like to know more about the modality of online sales ?, 60.6% of MSMEs surveyed, indicate that if they would like to know more about the modality of online sales, 36.4% are not interested.

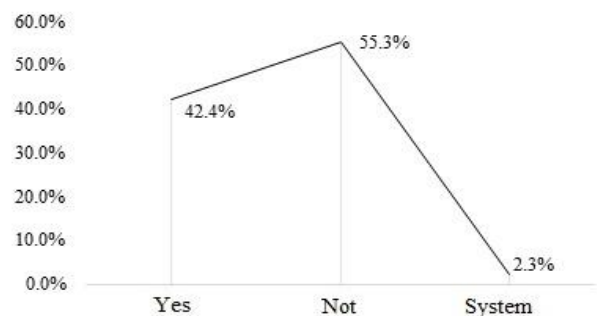


**Graphic 11** Would you like to know more about the online sales method?

Source: Own Elaboration (2018)

## d) Infrastructure

In Graphic 12. Do you currently have Internet service? Infrastructure is defined as the current internet position, 55.3%, which means more than half of the population of MSMEs, indicated that they do not have Internet service. Internet.



**Graphic 12** Do you currently have internet service?

Source: Own Elaboration (2018)

## Correlation analysis

According to Hernández et al. (2010), Pearson's simple correlation method, establishes that it is a statistical test to analyze the relationship between two variables measured at a level by intervals or by ratio. It is calculated from the scores obtained in a sample of two variables. The collected scores of one variable are related to the scores obtained from the other, with the same participants or cases. A Pearson correlation may be significant, but if it is less than 0.30, it is weak, but in any case it helps to explain the link between the variables. (Sampieri, Collado, & Lucio, 2010)

The questions were coded to define categories and integration of the study variables, the statistical correlation test was applied based on the Pearson r coefficient, it can vary from - 1.00 to 1.00, the sign indicates the direction of the positive correlation. In this sense, the bivariate test was performed with the main variable and each one of the secondary variables obtaining its correlation value.

## Results

The instrument applied in the towns of Mixquiahuala de Juárez, Hidalgo, showed that 39% of the majority of microenterprises have more than 5 years in the market, and 36% have between 1 to 5 years, at the same time they reflect a similar behavior, being important that the permanence in the market is greater.

However, there are also relatively new micro-enterprises, not unrelated to what happens in a traditional way, with a stay in the market of 12 to 24 months, according to Manuel Molano Ruiz, deputy general director of the Mexican Institute for Competitiveness (Imco). (Becerril, 2012).

67.40% of the micro companies consider identifying their competitors, 57% on average respond to always or sometimes if it affects them in sales the presence of large supermarkets or shopping centers, 45% are witnessing the disappearance of a three microenterprises, 12% from 4 to 6 companies and 5% from 7 to 10 companies, mainly from large companies that have established themselves in the region, which means that the population of the municipality stops acquiring the products or services offered in small companies, therefore, they are forced to disappear, because according to the survey more than a quarter consider that if they are affected by the arrival of these establishments, while another similar amount considers that only occasionally.

On the other hand, even though data from Big Data Corp. reveal that 92.90% of total sales pages in Mexico are small (Marketing, 2015), the knowledge and use of online buying and selling by of the MSMEs in the region is very low, because more than half of them do not know it, but even so 60.6% would like to know more about the way to sell and purchase products and services in this form of sale.

In relation to the trust in the use of electronic commerce, only 38% of the companies know the modality of online sales, 25% have made at least one online purchase, mainly in hygiene products, the rest have not made no purchase or contracted any online service mainly due to distrust.

70.5% of the population showed a lack of interest in selling online modality, due to lack of knowledge on the subject, 15.9% considered that it generates difficulties in the process, 71.2% considered facing customer complaints, also a 5.3 % by the presence of some fraud. 60.6% would like to know more about the modality of online sales, 36.4% there is no interest in knowing about.

Another aspect identified is the provision of the Internet as infrastructure, only 42.4% have the service, this may represent a lack of knowledge on the subject that has caused lack of interest in knowing about the online sales method.

The main variable defined as "Development Perspective", with the secondary variables permanence has a correlation of .050, competition .224, confidence in the use of electronic commerce .194 and with the variable Infrastructure obtains .086. The significant positive correlation that is closest to one corresponds to the competition variable (.224); as shown in Table No.3 Correlation analysis between variables.

Main variable	Secondary variables	Correlation value
Development perspective	Permanence	.050
	Competition	.224(*)
	Confidence in the use of electronic commerce	.194(*)
	Infrastructure	.086

\* The correlation is significant at the 0.05 level (bilateral)

**Table 3** Correlation analysis between variables  
*Source: Own Elaboration (2018)*

The variable Competition, therefore, is the one that most affects the main variable, this represents that micro companies consider the competition as an important factor that directly affects the perspectives they have in the development of the management of their business.

It should be noted that all variables have a positive relationship, but there are two variables that are significantly related, being the case of Competition and Trust in the use of electronic commerce.

In relation to the level of confidence in the use of electronic commerce, there is also a significant correlation, to a lesser degree than competition, this means that micro businesses consider that their development perspective affects them due to the presence of large supermarkets or shopping centers located in your locality, as it also represents difficult or no interest in incorporating the sale of products online over the internet.

These results are important, with the opportunity to propose strategies that contribute to the creation of a collaborative network project among micro-enterprises that allows the economic development of businesses and the region to be promoted.

### Acknowledgement

We appreciate the support provided by the program for professional teacher development (PRODEP) for the funding granted to the project assigned to the Academic Body "Knowledge Management, Innovation and Business Development" of the Engineering course in Business Management.

### Conclusions

The main contribution of the present investigation is the identification of the current situation that keeps the Development Perspectives of the micro business of commercial sales of chicken, tortilla and grocery sales, only 25% of the micro company uses the sale service in line, 59% do not know about this modality, they consider to have been affected by the competition, causing the disappearance of 3 companies, this may represent a lack of confidence to implement online sales strategies, when performing the correlational analysis, it is identified that the competition variable affects significantly, represents for this study the lack of confidence that the micro company has regarding the modality.

There are several proposals to encourage the economy of micro-enterprises, according to the Mexican Journal of Agribusiness, collaboration networks is one of the alternatives of economic development which leads to the creation of better living conditions, in order to find better opportunities in the market of inputs and add value to their products, the producers of any sector and turn are associated to define strategies that lead people and organizations to give an integral response to the problems they face. (Vota, Murga, Balderrama, & Díaz, 2010)

The irruption and massive use of information and communication technologies are enabling relationships between companies to be established, without being an obstacle to geographical distance, new technologies allow communications to be practically real time and the information can be decentralized.

Networks allow companies to face the challenge of globalization, by becoming an organization that acquires greater size and power over the market. (Arroyabe & Peña, 1999)

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Instructions for Scientific, Technological and Innovation Publication

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Objectives  
Methodology  
Contribution

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Introduction

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General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

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

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

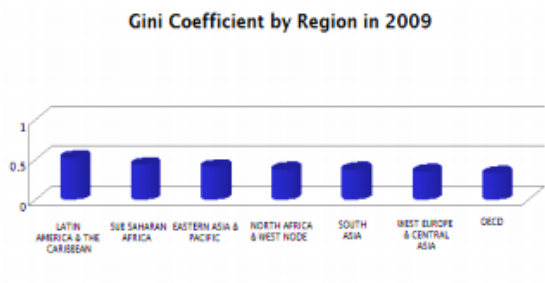
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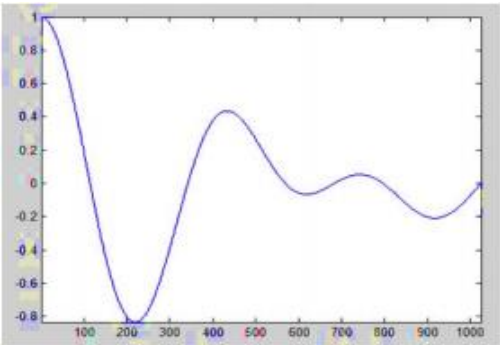


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Explanatory variable	Coefficient	Probability
Log (GDP)	2.137862	0.0110
Unemployment	0.652732	0.0004
R <sup>2</sup> 0.281790		

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For the use of equations, noted as follows:

$$Y_{ij} = \alpha + \sum_{h=1}^r \beta_h X_{hij} + u_j + e_{ij} \tag{1}$$

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Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

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Tables and adequate sources

Thanks

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Explain clearly the results and possibilities of improvement.

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