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**E-commerce in PYMES of the agricultural sector of the south-west Antioqueño**

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Faculty of International Studies

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## **THANKS AND DEDICATION**

Principally we are grateful to God for having accompanied ourselves and guided along our career, for offering to us a life full of learnings, knowledge and especially happiness.

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Once again thanks for being this unconditional support that they had, demonstrating to us that every moment through that we live there are the precise ones for the achievement of our goals, always presenting or not difficulties they stressed to us that in the life what one proposes to himself with love and dedication it is achieved.

God blesses them.

## **RESUMEN**

La presente investigación tiene por objetivo determinar la viabilidad de aplicar el comercio electrónico en los negocios de los medianos y pequeños agricultores del municipio de Betania en el suroeste del departamento de Antioquia. Se realiza un estudio exploratorio a través de una combinación de un método de análisis documental e investigación de campo. Principalmente se concluye que las compañías agropecuarias del municipio de Betania en el suroeste de Antioquia, no han experimentado un acercamiento con los medios electrónicos para sus operaciones comerciales, es por ello que la viabilidad de aplicar el comercio electrónico en estos modelos de negocio, se va a ver reflejada en el aumento del nivel de ventas porque mediante el e-commerce se tiene la opción de llegar a mercados potenciales muy amplios lo cual permitirá mejorar su nivel de calidad de vida gracias a la mejora en la productividad de su actividad.

## **PALABRAS CLAVE**

Comercio electrónico, productos agrícolas, tecnología, productividad.

## **ABSTRACT**

The present research aims to determine the viability of the use of electronic commerce in the businesses of the medium and small farmers of the municipality of Betania in the southwest of the department of Antioquia. This is an exploratory research, that's combine a documental analysis method and the application of an exploratory study with field research. Principally one concludes that the agricultural companies of Betania municipality in the southwest of Antioch, have not experienced an approximation with the electronic means for his commercial operations, is for it that the viability of applying the electronic commerce in these models of business, is going to meet reflected in the increase of the level of sales because by means of the e-commerce there is had the option to come to potential very wide markets which will allow to improve his level of quality of life thanks to the improvement in the productivity of his activity.

## **KEYWORDS**

E-commerce, agricultural products, technology, productivity

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## **INTRODUCTION**

At present, the small and medium-sized producers of the agricultural sector in the south-west Antioqueño are mostly peasants, who for different reasons are not provided with the necessary information means to extract profit of its productive activity, it is for it for that they realize its activities only obtaining the sufficient thing to live and hardly they can use resources for the development of its cultivation, causing more poverty and concentration of the purchasing power in the big unions of the country.

The main problems that the peasants face owe principally, to the process absence of technological transference, imports, lacking in infrastructure to facilitate the processes, weak action of the high politics of land reforms, high costs of inputs, interest rate for its credits and lacking in technical knowledge to maximize the yield of its cultivation.

A factor key to impel the investigation processes to give technical support to the activities of the small and medium-sized agricultural producers is of demonstrating how by means of new technological hardware how the Internet these producers can eliminate intermediaries.

Therefore, it is important to demonstrate what the viability is of applying the electronic commerce in the business of the medium-sized and small farmers. For it there is realized, in the first paragraph, a characterization of the medium-sized and small farmers of Betania. In a subsequent part, there are checked successful models of electronic commerce applied to the agricultural sector in the international and national context. The last part develops the design of a proposal of basic model for the implementation of the electronic commerce in the agricultural companies of the municipality of Betania.

The information compilation in the first instance is obtained of investigations previously realized, in the second instance he meets to the personnel of two producing companies of the municipality of Betania, chosen for the sample of the investigation with exploratory purpose.



## **1. Formulation of the project**

### **1.1 The State of the art**

As highlighted by Armenta, Alcalá and Sánchez (2009) the electronic commerce presents new fields for the PYMES<sup>1</sup> that think about how to expand the commercialization of its products, and in turn to support the strengthening of the channels traditionally used. This investigation was developed in order to show some of the profits that are obtained on having used the Internet as a fundamental factor of the distribution and search of new markets, also it tried to be investigated to depth on the electronic commerce, because the Internet turned into the best alternative to offer products without geographical limitations.

One of the most relevant research was that of Plana, Cerpa, & Bro (2006), in which a method appeared so that the PYMES adopts the electronic commerce of a systematical way, forming a few essential bases of the earliest stages of the acceptance to the electronic commerce and a series of operative steps so that the implementation of the new technologies is victorious. The above-mentioned investigation was applied to two companies that had to confront all the disadvantages that present the transitions to alternative models of the new technologies.

Although the preliminary investigations of the electronic commerce in the Colombian PYMES have been little explored, there must take like the work as basic to himself developed for Pinto (2013), where it shows itself that the PYMES is one of the sectors of the economy that more reaches port to the growth of the nations and to the generation of wealths. For example, in Colombia the PYMES along with the microcompanies, they shape a notable percentage in the economy of the nation, generating 73 % of the work places and 53 % of the entire production of some of the most important sectors of the country. Due to this, there was seen the need to realize an investigation carried out in the department of Boyacá, with the target to investigate thoroughly the implementation of the information technologies that the PYMES realizes in its productive and commercial activity, by means of a quantitative and qualitative methodology, with a questionnaire composed by indicators, applied to 500 companies approximately. The results of the above-mentioned investigation revealed that

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<sup>1</sup> Small and medium businesses

most of the PYMES do not think that the implementations of new information technologies do fundamental part of the managerial competitiveness.

In an investigation carried out in the country of Mexico, there developed a work in which, there was demonstrated the development that has had the implementation of the new technology in the PYMES of this country, studying the indicators that are part of the process of adoption of the computer means. With the previous thing, these authors proposed a model of application of new technologies that measure the characteristics of the e-commerce in the SME, and determined that with the new technologies there are generated advantages that alone are maintained until other companies begin to implement models to pair the above-mentioned competition. Cuéllar & Tovar (2005)

One of the pioneering investigations at regional level, took place in Central America, it was employed at which, the importance of the TICS was investigated for the development and the increase of the productivity in the PYME of this region. The study was realized by means of a few surveys realized to nearly 750 companies of small and medium-sized size, for which also sources of secondary information were used to develop the conclusions. The work threw a strong and alarming sign, because it was demonstrated that most of PYME do not count with sufficiently use of teams of calculation and of computer means, as if they it does the PYME of the developed country, generating a constant threat for globalization factors. González, Azofeifa, & Chamberlain (2005)

Now then, in direct relation in order to study of the present investigation, it is necessary to emphasize that, until now, they are not investigations record as regards the PYMES of the municipality of Betania. Nevertheless, one emphasizes that different institutions as the chamber of commerce of Medellin, FENALCO, and the Colombian camera of electronic commerce, have developed meetings and trainings as for the innovation for the kidlings and medium enterprises for its market positioning. For example, in the municipality of City Bolivar there was realized a meeting sponsored by the chamber of commerce of Medellin and the project called Colombia prospers with Antioquia, in which workshops and conferences were offered for the businessmen and entrepreneurs of the region, in topics like innovation, managerial formalization, financing and transformation of its business.

Other of the important events as for electronic commerce for the PYMES was the “electronic commerce to open doors” carried out by the Colombian electronic commerce camera last February 17, 2017 with the intention of that the kidlings and medium enterprises “knew the practices of the companies leaders of the country so that they could face the challenges and make use of the advantages that it bears the digital age in the XXIst century” CCCE (2017).

Bearing in mind the previous thing, the absence of investigations is clear as regards the study object here silver-plating. Although, it is true that this topic is quite specific, it is necessary to clarify that there have not been prolific the studies in tangential topics to this object either or that they develop similar topics. Hence there becomes detached the academic need to fulfill this gap and to generate a contribution in the field of knowledge of the international business.

## **1.2 Exposition of the Problem**

The small and medium-sized producers of the agricultural sector in the south-west Antioqueño are mostly peasants, who for different reasons are not provided with the necessary information means to extract the biggest profit of its productive activity, I motivate for which the big industries extract profit achieving a major margin of the product of its harvests. Situation that worsens because of two main threats that affect the sustainability of its grounds. First of all, the Colombian imports of agricultural products find from the United States that have grown in 27 % from the signature of the TLC (treated of free trade) what caused that the costs of production of the Colombian farmers could not compete with the price of market that there impose these foreign products (El Espectador, 2014). Secondly, there are the companies of the mining industry that want to exploit big properties for its natural wealth, putting in risk the natural resources that supply the agricultural activity of the region (Rodriguez, 2014).

A study realized by the department of planning Colombian national, revealed that 90 % of the peasants of the country is in situation of poverty and the economic breach between rural areas and urban areas, it continues in growth disadvantaging to the areas most removed from the central cities from the national territory. (El Espectador, 2014). Also, the peasants

are in an intersection, because when they salt its harvests, the prices of this one droop and for the small and medium-sized producers the income is not sufficient to correct the investment in its cultivation for not being provided with economies of scale, as if it can be done by the big multinationals and the big landowners. The previous thing demonstrates that, in most of occasions, the peasants realize its activities only obtaining the sufficient thing to live and hardly they can use resources for the development of its cultivation.

As it is affirmed by a peasant called Antonio Cuellar, who must wait one year so that a banana bush should produce a bunch, for which debit to sell at an approximate price for 1.500 pesos, while in the big cities the same bunch is commercialized in 10.000 pesos. That is to say that the one who cultivated, prepared its fertilization and gathered the harvest, in addition to having to fight with risks of plagues, of the climate, of illnesses, between other risks; at the end of all this process during the whole year, only it received less of fifth one part of what the final consumer pays (Martínez, 2013).

All this causes increasingly poverty and more concentration of the purchasing power for the big unions of the country, leaving in disadvantage the small and medium-sized producers of the rural areas. One of the most notable causes is the grounds concentration in hands of few ones, I motivate for which many of the peasants have gone out to protests to press the government, but the problem still continues after some frustrated attempts of land reforms, and its impact is so well-known that it is a topic that was a central discussion in the peace dialogues in Havana. Some of the main problems that everything previous generates in the peasants, are few technological acceptance, the existence of few preparation to face the advanced post competition, as there can be the imports, the absence of infrastructure to facilitate its processes, the weak action of the politics of land reforms, the high costs of the inputs that mostly are imported, the interest rates for its credits are usually higher than the valuations in the urban sectors and the absence of technical knowledge to maximize the yield of its cultivation (Martínez, 2013).

The existence of the above-mentioned problems is known for several decades in the country, and across the time it has been worsening doing that many of the peasants leave its grounds and its cultivation for lack of worthy conditions to live. Bearing in mind that most of displacements have happened for insecurity situations, added to the economic problems

of its activities, many years do not have to happen so that we see the cities more and more filled with persons who are not prepared to face the competition that exists in the main cities.

During this investigation process one has noticed that most of the disadvantages are generated by the economic situation and the absence of technical knowledge of the peasants to maximize its income. Also, there is a key factor that impels to realize investigation processes to give theoretical support to the activities of the small and medium-sized agricultural producers, and it is of demonstrating how by means of new technological hardware, how it is the Internet one, these producers can eliminate consolidated intermediaries who are those who take the biggest profit of the process in the chain of food supplying in the big metropolises.

Due to the above-mentioned situation it is of big importance to formulate an investigation that it demonstrates what the viability is of applying the electronic commerce in the business of the medium-sized and small farmers, and for scope limitations it is necessary to elect a specific region as a sample of the population in study, which one is the area of the south-west Antioqueño.

### **1.3 Objectives**

- **General Objective**

To determine the viability of applying the electronic commerce in the business of the medium-sized and small farmers of the municipality of Betania in the south-west of the department of Antioquia.

- **Specific objectives**

- To characterize the medium-sized and small farmers of the municipality of Betania.
- To check the successful models of electronic commerce applied to the agricultural sector in the international and national context.
- To design a proposal of basic model for the implementation of the electronic commerce in the agricultural companies of the municipality of Betania.

## **1.4 Justification**

- **Theoretical justification**

The electronic commerce assembles hardware of easy access for all the actors of a commercial operation, due to this the implementation in the different sectors of the economy of this new way of selling and of buying products or services is an opportunity and need for study to recognize its fortitude and weaknesses compared to the conservative methods of the commerce.

This investigation will serve to give support to the different producers in its process of transformation of the models of traditional business towards an electronic commerce model. The academic contribution will have emphasis in demonstrating how the new technologies eliminate processes or links that disadvantage to the population who lacks information or sufficient means to achieve the biggest benefits of its productive activity, leaving behind the conservative commerce models to pass to direct negotiations between producer and consumer.

The utility of the results of this work will be that of reflecting the kindness of this new type of commerce that has taking force in the countries and regions in development like a new alternative of obtaining major benefits, because with the electronic commerce there are eliminated some costs of the management of the business, like the need for a physical space for the development of the corporative aim that happens to be a virtual space, in which there is extracted profit of the availability and facility that has Internet to maintain the active business 24 hours of the day without incurring high costs for the owners of the companies, doing that its productivity is higher and higher to be able to incur aspects of the TIC (technologies of information and communication) like support to attend to a new age of digital users who demand major innovation of the business for its decision of buy.

As for benefits this work will demonstrate that the implementation of the electronic commerce allows to create or come to markets without need to incur high investigation costs, being a strategic ally of the sectors that are provided with resources too much limited to invest in traditional marketing plans.

- **Social and / or business justification**

The economic inequality in Colombia answers to little capacity of action of the state politics in the rural areas, leaving the children and medium-sized producers of the agricultural sector in disadvantage with the big companies that possess the means and the information to take this food to the urban areas where there concentrates the biggest demand of goods and services. This is one of the biggest reasons for which it is necessary to look for a suitable way of providing the necessary means so that the scales between producing peasants and big industries begin balancing, and the electronic commerce offers hardware to achieve it.

With this investigation an academic contribution will happen so that the small and medium-sized farmers of the south-west Antioqueño could obtain information about the business models of electronic commerce.

The benefit of the implementation of the electronic commerce in its productive activity will allow to these to obtain information that serves for the feedback of its business, formalizing increasingly its simple harvest in companies of major economic influence for its region. Also, with the electronic commerce as strategic ally, the PYMES of the agricultural sector they will be able to create markets controllable as for supply and demand so that its products are always in a breakeven to manage to influence the final price of its food without depending on the price of market that the big industries impose.

It is important to highlight that, with studies like this one, one thinks about how to support the sectors least favored in the chain of national value, proposing innovative solutions and of less cost as it is the hardware of electronic commerce that offer clear and real information about the habits and the tendencies of consumption without need for high investments as in the traditional methods of compilation of information.



- **Personal justification**

The achievement of the present investigation allows to strengthen and put into practice the knowledge acquired during the professional training, likewise it is satisfactory to contribute that the small and medium-sized agricultural producers could have a major approach and knowledge on the electronic commerce.

## **1.5 Reference Framework**

- **Theoretical framework**

The globalization is a too wide term to define it in few lines, but its extract takes root in that globalization and integration are two terms that keep a narrow relation, because it is a process where the regions begin to be related to the others generating interdependence between the nations in different ambiences, which go from the cultural thing, up to the economic aspects.

From its beginnings, the globalization has had different criticism, some prints and other denials; for example, one of the reasons for which it has been more recognized is for the appearance of new opportunities, after new potential markets are for the products that perhaps in the proper territory the biggest yield does not have, but in turn the globalization has threats for the local producers when these are not prepared to face the competition fierce that the above-mentioned process bears.

One of the main factors of the globalization there are the technological ambiences, because the development of the technologies of communication, they generate that the resources and the products are mobilized in a more rapid way and that they are reinvented in less time. Also, the use of new technological means generates that the persons, the institutions and the governments communicate with major frequency and efficacy.

Since it mentions Reyes (2001) in the magazine tendencies, the new technological means that serve to facilitate the communication, places are more accessible to the PYME, by which a new field is generated to realize commercial operations, obtaining profit of the virtual monetary mechanisms and of computer means that generalize the communication in most of the world.

To form a solid investigation base, it is necessary to tackle the model of acceptance of technology (TAM)<sup>2</sup> developed by author Fred Davis, who raised a way of measuring the use of the TIC<sup>3</sup> as two factors that affect in the acceptance of the technological innovations: the

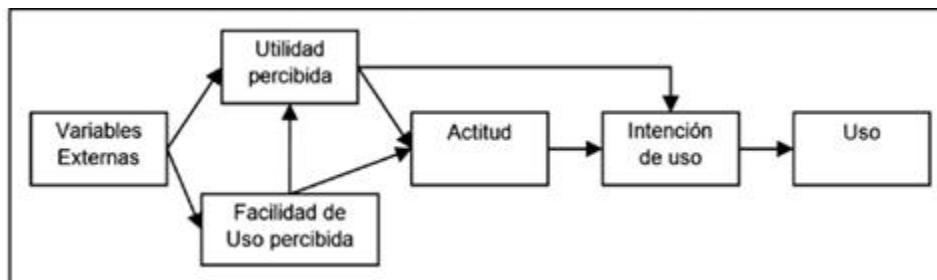
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<sup>2</sup> Technology Acceptance Model abbreviations

<sup>3</sup> Acronyms for Information and Communication Technologies.

first factor is known like perceived utility (PU)<sup>4</sup> that refers to the grade in which a person believes that the use of a system can improve its yield in some work or activity. The second factor is the facility of the perceived use (PEOU)<sup>5</sup> that is defined as the perception that an individual has of that the use of some system does not imply major effort of its part. With this model it tries to be analyzed like a set of external variables they influence the factors of PU and PEOU at the moment when a person defines its attitude towards using, behavioral intention to use and the conduct of real use of new technologies. The purpose of the author with its exposition was that of demonstrating that with the fact of defining the external variables that affect these two factors, it is possible to measure the impact that will have the use of the TIC in certain sector or region, as 1 learns in the figure.

**Figure 1.** The Technological Acceptance Model (TAM)



Source: (Tavera, Sanchez, & Ballesteros, 2011)

Other one of the theories that has tackled and based the investigations of uses of the electronic commerce is the “theory of the planned behavior” (TPB)<sup>6</sup> developed by author Icek Ajzen, who raised that the behavior of an individual is not a 100 % voluntary, what gave place to the appearance of a model that helps to understand the behavior of someone. According to this theory, the behaviors of the persons before the new technologies not only are ruled by the perception of the facility of use and the perceived utility of the use, as it was appearing in the TAM, but also it incorporated the idea of that the normative beliefs, of behavior, and the controlled ones, are considerations that they lead to the action of the individual (Tavera & Londoño, 2014).

This theory showed that:

<sup>4</sup> English acronyms for Perceived usefulness

<sup>5</sup> English acronyms for Perceived Ease of Use

<sup>6</sup> English acronyms for Theory of planned behavior

- The normative beliefs influence on the intention of using and the facility of use of the electronic commerce, that is to say, that the action rests on experiences of others.
- The control perceived on a new technology influences straight the intention of use and the facility of use of the electronic commerce.

On the other hand, the electronic commerce generated new advantages for the small and medium enterprises that are provided with limitations to come to new potential clients out of its regional scope. This new form of exposition of the commerce was based on the use of Internet like way of distribution, adopting hardware that allow to realize any type of business transaction, including payments for sure means, turning into a space in which the companies develop commercial activities between them, there is called here to this B2B (business to business) and in turn developing the commerce with sales to final clients, called B2C (business to consumer), and due to this, many of the companies are addressed or supported its sales process across electronic channels, eliminating intermediaries who were increasing the value of the products as (Jimenez & Hoyos, 2007)

In the year 2008, the author (Moncalvo, 2008) announced in its book called electronic commerce for PYMES seven stages for which it must spend any project of implementation of the electronic commerce, beginning with the making of a business plan and finishing with the treatment post-sale. The same author raised a series of fundamental corporate strategies for the success of the electronic commerce, which I call them "9C" of the electronic commerce that there are the following ones: content, customer care, customization, e-commerce, community, cooperation, collaboration, complement and growth.

(Neilson, 2009) it showed up, in its article about electronic commerce, the main advantages and opportunities to use the electronic commerce as an expansion plan for the different industries, demonstrating that the geographical limits disappear, that the costs as regards the advertising campaigns in other means are very low, that the availability of the platforms in line it is 24 o'clock of the day 7 days of the week, all this shaping an effect multiplier who turns out to be reflected in the low cost of the management of the business, making the companies more competitive in its certain sector.

As stated (Alfonzo, 2010) electronic commerce, or better known as e-commerce, created a virtual space that brought together buyers and sellers from different places regardless of geographical distance, creating market platforms where supply and demand remain the regulators of the flow of trade. An example of this are the success stories of the amazon.com and mercadoolibre.com platforms, which are a clear example of the profitability indices that these business models generate (p.72)

By 2011, according to (Mejia, 2011) Internet reached more than 25 million identified users in Colombia, reaching a total penetration of 54% of the population, the second highest figure in Latin America. Statistics like the previous one revealed the potential of the growing wave of electronic media to make adaptations of business models in this country. The internet and its developments facilitated the creation of new spaces in which companies developed their corporate purpose to meet customer needs, being the support of the new digital economy according to (Tavera, Sanchez, & Ballesteros, 2011)

Due to the increasing incorporation of electronic media into people's daily lives, the authors (Jones, Alderete, & Motta, 2013) carried out an exploratory-descriptive study of 108 companies of different sizes to develop indicators that represented the importance of the implementation of electronic commerce in the activity of companies, obtaining as a result that companies incur in E-commerce depending on their size and the influence that electronic media have on the environment.

According to data provided by PayU Latam, the online payment platform that operates most in Latin America, to Dinero magazine, online transactions in Colombia in the e-commerce sector grew by 3.367% from 46 transactions registered in 2013 to more than 1,500 transactions in 2014. In turn, one of the food companies that operates under the e-commerce business called "hellofood" argued that after the implementation of online payment through its sales platform, such sales grew by 15% month to month. (Dinero, 2014).

- **Conceptual Framework**

Trade has long been known as an exchange of a product or service for an amount of money, through an operation in which a seller and buyer use space or physical interaction to reach an agreement. Due to different factors such as technological advances, the need to automate processes and the urgency of companies to make the most of their commercial activities by eliminating intermediaries, industries began to implement strategies to reach final consumers without having to be present in the physical area of influence of some distant places that did not offer the necessary conditions to physically locate businesses to supply these markets. E-commerce is basically the same transaction of a product or service, but performed through some kind of electronic media in real time, without having to be in physical interaction during the operation, hence the term e-business or e-business, which refers to the operations carried out by companies through some electronic means, (Seoane, 2005)

In the same way that the commercial routes on camels have disappeared due to the appearance of air routes that give greater efficiency in times, some traditional models of commerce begin to be weakened by the appearance of electronic commerce (Torres & Guerra, 2012). One of its greatest attributes is that nowadays anyone can sell or offer its products breaking the schemes of time and place, that is, a person only needs an internet connection and a web domain to show their products to a person who is anywhere in the world.

To understand the importance that electronic commerce has had in our society, we must specify that one of the greatest attributes of this non-conventional model of doing business is the ability to eliminate links during the distribution chain of the product or service. Before the appearance of e-commerce, the distribution chain was done in a very flat way, starting from a manufacturer, followed by the sale to a wholesaler, who has greater capacity of payment, so that this one sold them to a retailer, and finally the products or services arrive to the final consumer by means of the mentioned links, but with the arrival of the new era of doing business, the electronic commerce, some intermediaries were eliminated to generate the greatest profit.

Businesses that use ICT can take various forms due to the high flexibility of the internet and the same globalized system that governs industries. According to (Seoane, 2005) e-commerce can be graded according to the role of the buyer and seller in the business model as follows: Firstly, there are the so-called B2B (business to business) models, which refer to the business to consumer business model in which companies trade with each other; secondly, there are the B2C (business to consumer) models, which are identified because the position of the seller is assumed by a company, and the position of buyer is assumed by a final consumer; In third place is the C2C model, which translates consumer to consumer, is a model in which end consumers interact taking positions of buyers and sellers, one of the most successful cases are the virtual platforms "ebay" and "Amazon". The above are the most recognized forms of e-commerce business, although some authors also define business models according to other factors such as: whether business is conducted with the government, public administration entities, among others.

According to (Garibaldi, 1999), another aspect that makes e-commerce more efficient than traditional business models is time scenarios, because electronic commerce does not involve schedules, that is, e-commerce works relentlessly, because its functionality is 24 hours a day regardless of social, cultural or other disadvantages. In business models that are carried out through the Internet, there is always a system capable of receiving information and processing it in real time, greatly reducing the management costs of commercial activity, which in turn is complemented with the advantage that, by using virtual spaces, fixed business costs will be much lower than in traditional business models.

(Seoane, 2005) points out that for a company to make the transition from a traditional model to an e-commerce model, there are different options with which, depending on its commercial nature, consumers can be more likely to accept it. Some examples of e-commerce form adoption are: the virtual shop window, which is a web page where the company only shows its portfolio of products, but does not sell them directly through the website; virtual commerce, in which in addition to displaying its portfolio of products, are sold directly from the network; Subscription, where a user pays to obtain different services from the company; affiliation, which is a model where certain commissions are paid; and finally an adoption

called mediator, is an agent that gathers buyers and sellers generating market and charging certain fees for each sale made.



## **1.6 Methodological Framework**

- **Investigation method**

Research has a qualitative focus; therefore, it is considered to be that which studies the quality of activities, relationships, issues, means, materials or instruments in a given situation or problem. It seeks to achieve a holistic description, that is, it attempts to comprehensively and in great detail to analyse a particular issue or activity.

Aunado Sampieri (2006) considers that:

Qualitative research is based more on an Inductive process (explore and describe, and then generate theoretical perspectives). They range from 10 private to 10 general. For example, in a typical qualitative study, the researcher interviews a person, analyzes the data obtained and draws some conclusions; then interviews another person, analyzes this new information and reviews their findings and conclusions; in the same way, he or she conducts and analyzes more interviews to understand what he or she is looking for. That is, it proceeds on a case-by-case basis, data by data, until a more general perspective is achieved.

The research has an exploratory type of methodological design, designed to examine a research problem that has been little studied, of which there are many doubts or have not been addressed.

- **Research methodology**

In this research, a combination of a documentary analysis method is used in the first instance, and in the second place, an application of an exploratory type study with field research will be used, because it is one of the methods with which primary information is obtained for the good development of the research.

The population on which the research will be carried out is the southwestern sub-region of the department of Antioquia, which consists of twenty-three municipalities. For the sample will be considered two small and medium-size agricultural enterprises in the municipality of Betania, which have not implemented e-commerce in their business plans, this sample was selected in a targeted way, because it is recommended in the case of preliminary exploratory studies.

The information compilation in the first instance will be by means of investigations previously made found in reliable sources like academic Google and Ebsco, and in the second instance there will be done by means of a personal interview two producing companies of the municipality of Betania chosen for the sample of the investigation with exploratory purpose, since the topic has been little investigated and turns out to be a stranger for big part of these farmers; with the survey one will think about how to identify the technological acceptance level to recognize which are the external factors that influence the perceived utility and the facility of use of the electronic commerce and with this to be able to measure the possible impact that it would have in this agricultural sector, a transition of models of traditional business to electronic commerce models.

This survey will be designed by closed questions, all in order to generate reliable and measurable information about the variables determined in the investigation. Likewise it includes questions opened to know more specially some considerations and appreciations of the interviewees. Although in Colombia investigations have not been realized to depth with the farmers on the topics of the electronic commerce, in this work there will be used variables of measurement used as previous investigations in the agricultural sectors in emergent countries like Mexico and Argentina. The variables or items of measurement will take of the analysis of the theories TAM and TPB treated in advance in the theoretical frame of this work, and there are the following ones:

- Perceived use facility
- Perceived utility
- Attitude towards *e-commerce*
- Intention to use *e-commerce*
- Perceived control
- Perceived safety

To guarantee the equanimity and objectivity of the information we must look for the organizations that endorse us with accuracy, validity, functionality and cross-check of the details of the information is clear than on the such official pages like the Mayoralty, the different offices of the department, the analyses of the economic sector where it shows us the

growth and decrease of the demand and offer of the products. Allowing to discard this way the information that can be considered to be obsolete and use the updated one. Basing on these sources, we will manage to realize a study of more precise and dynamic field.

For the treatment of the information there are formulated counterfoils DOFA and strategic DOFA as hardware of analysis of the obtained information and likewise to design the proposal of basic model for the implementation of the electronic commerce in the agricultural companies of the municipality of Betania.

### **1.7 Scopes**

The present investigation is realized in the municipality of Betania in the south-west of the department of Antioquia.

## **2. Development of the investigation**

### **2.1 Characterization of medium-sized and small farmers of the municipality of Betania**

- **Generalities of the municipality of Betania**

The municipality of Betania was founded on July 29, 1889, is located at 5° 44'55" north latitude and 75° 58'46" longitude east of Greenwich. It has a total extension of 169 km<sup>2</sup> of which 106 km belong to the average thermal floor, 43 km to the cold thermal floor and 19 km to the moor. The temperature fluctuates between 16°C and 26°C, for an average temperature of 22°C (Alcaldía de Bentania, 2016). Likewise, 35% of this territory is classified as an intervened forest characterized by steep slopes and far from the penetration roads, but it still has urban settlements. (Alcaldía de Bentania, 2016).

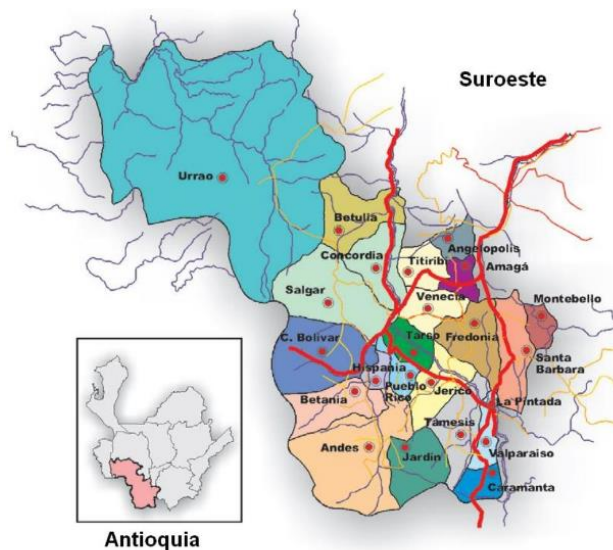
It is bordered to the north by the municipalities Hispania and Ciudad Bolívar, to the east by the municipalities Hispania and Andes to the south also bordered by the municipality of Andes and to the west by the department of Chocó. The urban case of Betania and all the sidewalks are located in the middle of the Pedral River Canyon and the Tapartó River and are located in the western Andes mountain range. (Alcaldía de Bentania, 2016).

It is located approximately 118 kilometers from the Valle de Aburrá<sup>7</sup>, the main economic sub-region of the department of Antioquia. The following is a map of Betania's location in the department of Antioquia and its political division.

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<sup>7</sup> El The Aburrá Valley is a sub-region of the Department of Antioquia, made up of the municipalities of Barbosa, Girardota, Copacabana, Bello, Medellín, Envigado, Itagüí, Sabaneta, La Estrella and Caldas. (Mesa Bedoya & Moreno Soro, 2015)

**Figure 2.** Betania in southeastern antioqueño



Source: Betania Development Plan 2016 -2019.

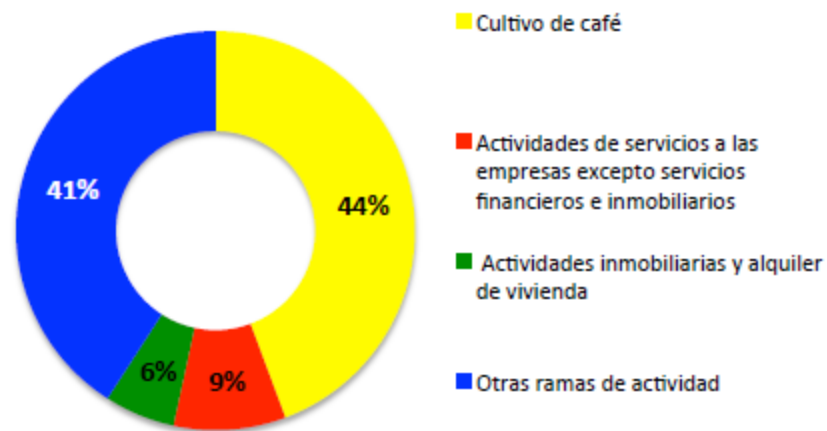
In relation to the socio-economic characterization of the municipality, in the development plan drawn up by the Betania 2016-2019 Mayor's Office, it refers to the fact that "80% of the territory of the municipality of Betania is destined to the cultivation of: coffee, banana, cassava, beans, corn and honey derivatives. Some of its inhabitants dedicate themselves to these activities for their livelihoods. Betania is a municipality that produces construction timber and joinery, and also in its mountains abound wild plants and fruit trees.

"10% of the territory belongs to the urban area, which is mainly destined for residential use and the rest of the commercial use that is developed around the park and along the main roads" (Alcaldía de Bentania, 2016).

- **Sectors of greatest importance in the added value of the municipality of Betania**

The following graph shows the most important economic sectors in the municipality and each of their percentages with respect to what they contribute to the added value of the same.

**Figure 3.** Sectors of greatest importance in the added value of the municipality of Betania



Source: Municipal File 05091 of Characterization. DNP

As can be seen in graph 1, coffee cultivation represents 44% of the added value of the municipality, this being the most important sector, followed by other branches of unspecified activities, the sector of business services activities except financial and real estate services represent 9% of the added value of the municipality and the real estate and housing rental sector represent 6% of the added value.

- **Small and medium-sized farmers in the municipality of Betania**

For the characterization of small and medium-sized farmers in the municipality of Betania, the interview in Annex 1 was applied to companies from the region, with the intention of knowing in greater depth their functioning and whether they were using or planning to use electronic commerce in the future.

Firstly, the interview was conducted with Finca Santa Anita (See Annex 2) and secondly with Café de las Cordilleras (See Annex 3). Each of the results obtained is described below.

### Company: Finca Santa Anita

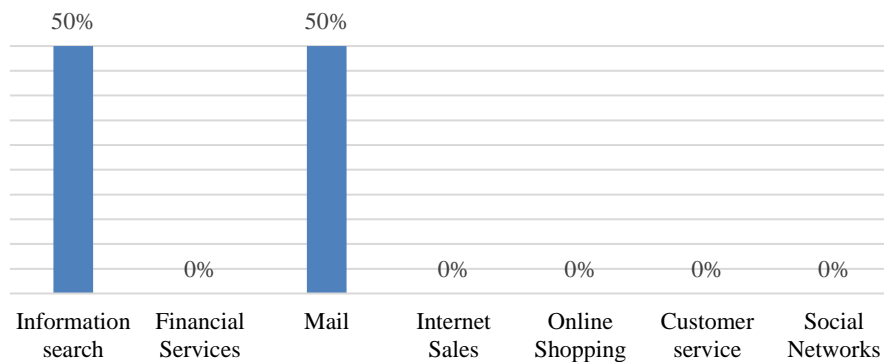
The Santa Anita farm, is a family business created in April 2005, the total area where it operates is eight (8) blocks, has between 1 and 10 workers, is classified at the microeconomic level and its production is mainly aimed at wholesalers. In this company, the production of dry parchment coffee is carried out, especially for the export of green coffee and they do not carry out any other type of activities.

With regard to the company's business management, it is first of all part of a producer organisation and in the past it was also part of this type of producer organisation.

The company exports through a cooperative of coffee producers. And it has each of the technical control records to carry out its activity.

The company currently owns one (1) computer. And use the internet as illustrated in graph 2, to carry out the activities such as: searching for information and mail. Activities related to: financial services, sales and/or purchases via internet, customer service and social networks are not carried out in this company via internet.

**Figure 4.** Internet Uses in the company Santa Anita



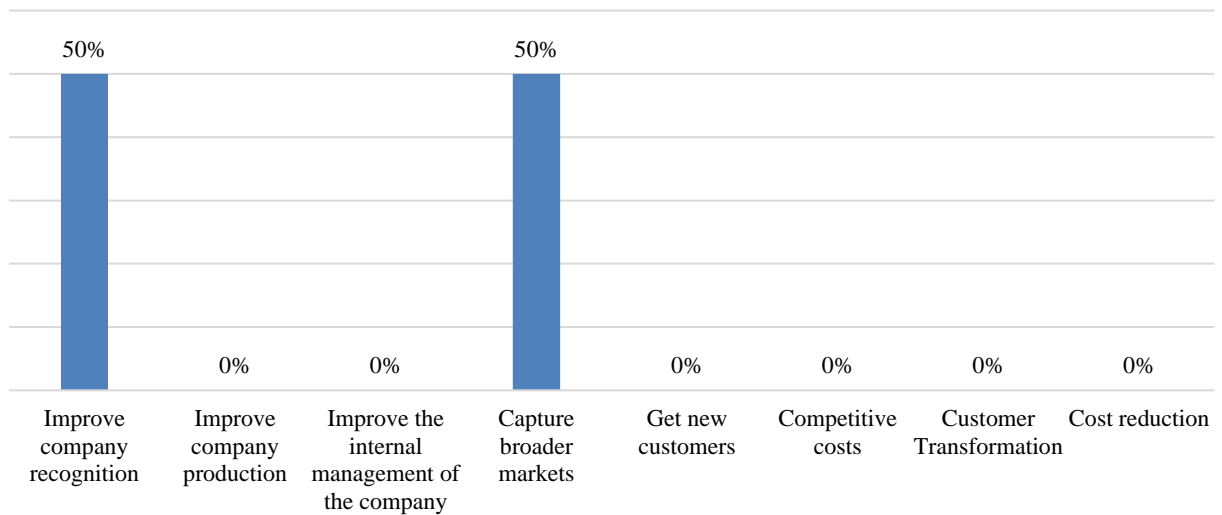
Source: Own elaboration with data of interview made to company Finca Santa Anita

It was also investigated whether the company has a website and/or social networks, until now Finca Santa Anita do not have this type of business marketing tools. But e-commerce is part of the company's strategic plans.

The following chart presents the main reasons why the company would use e-commerce.

Source: Own elaboration with data of interview made to company Finca Santa Anita

**Figure 5.** Main reasons why the Santa Anita company would use e-commerce



Mainly Finca Santa Anita, would initially use e-commerce to improve the company's recognition and capture larger markets.

Finally, there is no reason for the company's employees not to use e-commerce.



**Company: Café de las cordilleras**

Café de las Cordilleras is an association created on January 15, 2015. It has an operating area of eighty (80) blocks, currently has between 11 and 50 workers, is a company belonging to the macroeconomic level and its customers are retailers and wholesalers.

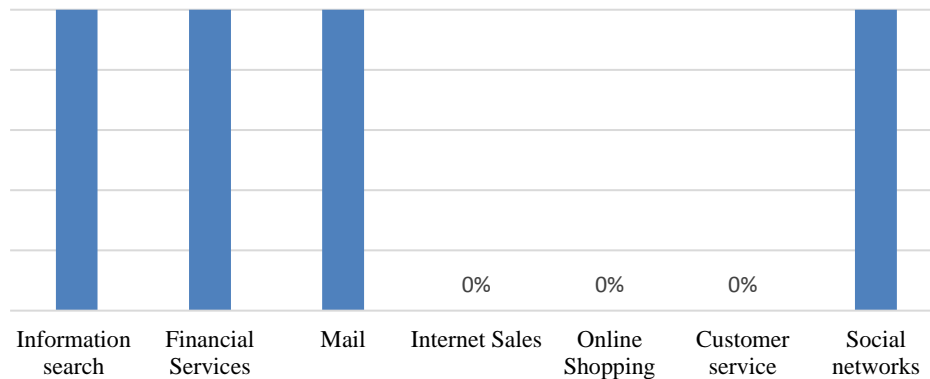
The productive activity and/or process they carry out is the purchase and sale of coffee and agricultural inputs. In addition to these activities, they also grow coffee and bananas.

With regard to the company's business management, they are currently part of a producer organisation and on previous occasions have also been part of it. They do not export and have each of the technical control records.

Regarding the use of electronic commerce in the company, it has ten (10) computers.

Using the Internet, the company carries out the activities illustrated in the following graph.

**Figure 6.** Internet Uses in the Company Café de las Cordilleras

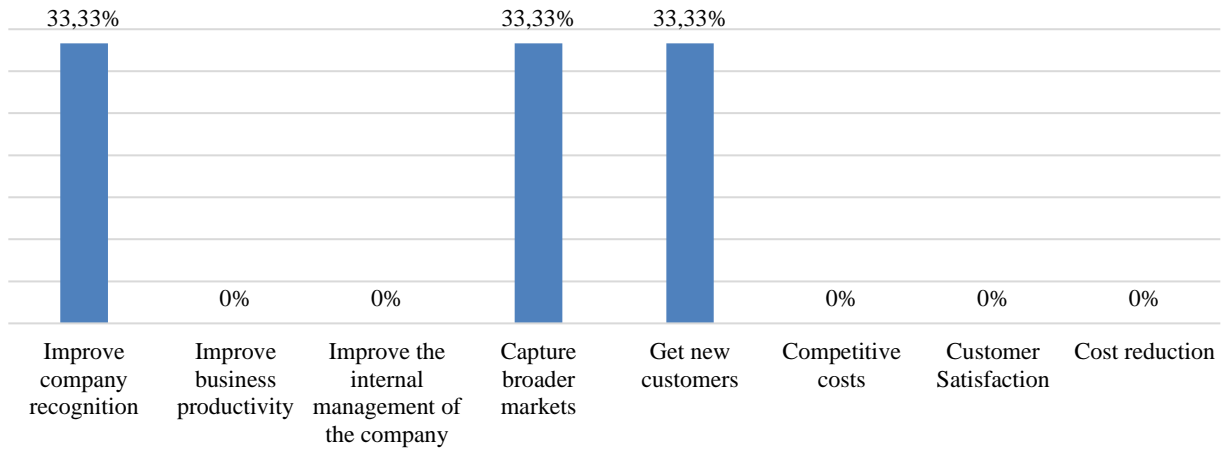


Source: Own elaboration with data of interview carried out to company Café de las Cordilleras

Figure 6 shows that Café de las Cordilleras uses the Internet to search for information, for financial services, mail and social networks. And activities such as sales and/or purchases via the Internet and customer service do not take place via the Internet.

The company does not have a website, but has presence in different social networks. For this company it is important and/or necessary to implement e-commerce in the company, but at the moment this is not part of its strategic plans.

**Figure 7.** Main reasons why Café de las Cordilleras would use e-commerce



Source: Own elaboration with data of interview made to company Café de las Cordilleras

According to Chart 7, the main reasons why Café de las Cordilleras would use e-commerce would be to: improve the company's recognition, capture wider markets and attract new customers.

One of the reasons why those that would not use electronic commerce in the company Café de las Cordilleras, is because of the high costs they would have to incur for the positioning of the company in electronic commerce.

Therefore, it is inferred that the agricultural companies of the municipality of Betania have not experienced an approach with the electronic media for their commercial operations, advertising of their agricultural products, relationship with customers and suppliers among others.

## **2.2 Review of successful e-commerce models applied to the agricultural sector in the national and international context**

This section presents two successful e-commerce models at international level, the first of which is TruTrade - Africa (Uganda and Kenya), the second AgroCommerce (Chile). Two successful e-commerce models are also presented at the national level, such as Siembra Viva (Antioquia) and Merca Orgánico 100% natural (Medellín). Their selection was random. The intention of this section is based on the need to know first-hand the model they implemented and what are the weaknesses, opportunities, strengths and threats.

- **TruTrade – África (Uganda and Kenia):**

It is a social enterprise that enables small farmers to obtain a fair price for their products, mainly "offers a market linkage service that enables African farmers to earn more, improves consumer access to quality products and makes investment in value chains safer". (TruTrade, s.f.).

The business model is inclusive because it "provides an alternative to the predominant low-buy/low-sale/high-prevailing practice" (TruTrade, s.f.), this business model has an incentive to obtain the highest possible price for the farmer.

It is also an innovative e-commerce proposal because it "allows collaboration and trust along the entire value chain from producer to consumer". It has three main actors to successfully prepare its operation: farmers, aggregators and buyers.

Farmers work in unorganized basic food markets and do not generate any value added to food, often exploited by intermediaries who pay low values for the basic food produced by farmers, which boils down to farmers not having anyone on their side when it comes to marketing. Because of this problem, farmers in this region rely on a fair market for the marketing of their products, which is why TruTrade provides farmers with a price, reliable access to markets, payment for harvesting their products and a value-added bonus that creates supplier loyalty.

With the initiative proposed by TruTrade, farmers benefit from a better price and their products can be marketed in a safer market. Farmers receive an initial payment for harvesting

their crop and a sales bonus. In addition, TruTrade "increases the proportion of the final product's value that goes to farmers by allowing them to retain ownership of their crops as they move up the value chain. To represent the efficiency of this it is important to note that farmers' incomes increase by 10% and 15%, if the food product has added value this can increase to 20% and 30%.

Aggregators face many challenges in carrying out their activity, this is due to the remote areas where they perform their work because transport and capital are limited, being an intermediary is a hard and risky job without adequate logistics and investment. That is why TruTrade offers an attractive business opportunity for rural merchants and aims to eliminate the headaches of searching for buyers, seeking working capital and managing relationships with buyers which allows franchisees to focus on increasing volumes of high quality products, TruTrade aggregators are often women and youth.

Buyers of TruTrade obtain products in terms of quality and adequate volumes. In addition, the delivery of food products is timely and reliable. Transparency is provided, allowing buyers to see the entire value chain and track products from farm to factory or point of sale.

TruTrade has the following categories of buyers:

1. Consumers at the Base of the Pyramid (BOP) represent the greatest potential to grow this business idea by linking small farmers with the large number of low-income consumers in growing cities and towns. Distribution networks have been developed to supply vendors and outlets serving people in informal settlements and urban areas. Customers buy quantities on a regular basis and value safe and hygienic food.
2. Scaled processors: the logistical and financial capacity allows to meet the volume demand of larger buyers, supplying crops from various networks. Buyers recognize the importance of a strong relationship with their suppliers and value the type of information regarding farmers' prices and locations.
3. Premium buyers: this modality meets the demand of high-end buyers who are looking for fair trade and organic products.

TruTrade's business is based on the following:

- Networks: The power of these drives business on a large scale. They also share experiences, learn from each other and do business together, this structure allows for rapid growth and opens up regional business opportunities.
- Collaboration: The learning exchange of learning partners builds collaboration along the value chain. The different actors in the value chain can see all prices and costs throughout the process, making value chains more efficient and providing better benefits to all.
- Technology: TruTrade uses IBM's cloud-based online and mobile applications to provide controls and information for pricing, product tracking from pickup to delivery and tracking of buyer-to-farmer payments.

**Table 1.** DOFA TruTrade-África Matrix (Uganda and Kenia)

<p><b>Weaknesses</b></p> <p>The web portal does not have a specific section where customers can know each of the products they sell and their prices.</p>	<p><b>Opportunities</b></p> <p>Expand your market</p> <p>Make alliances with farmers in other countries to provide them with other types of food products and thus increase their supply.</p>
<p><b>Strengths</b></p> <p>It has a wide web portal for the user.</p> <p>Mobile applications that enable information control for pricing and product tracking from pickup to delivery.</p> <p>Support for small farmers, to boost the business idea on a large scale.</p> <p>Collaboration through knowledge sharing.</p>	<p><b>Threats</b></p> <p>Loss of customers who wish to know the details and prices of agricultural products offered by TruTrade.</p>

Source: Own elaboration

- **AgroCommerce - Chile:**

This company was founded in the year 2000, its head office is located in Santiago de Chile, they are dedicated to the import, distribution and commercialization of multiple categories of products, development of complementary services that contribute to the value chain and offers the market an integral service of the highest quality and efficiency (AgroCommerce, s.f.).

It has established itself as a strategic supplier of food and retail. Imports products from Argentina, Colombia, Ecuador, Brazil, Paraguay, Canada, USA, Germany and Asia, handles annual sales over USD 120 million.

It has 20.000 mts<sup>2</sup> with state-of-the-art technology for the storage and distribution of its products, as well as packaging lines and preparation of Ready to eat products, maintain strict control in the processes according to standards.

The categories of products handled in the company are: oils, rice, sugar, pulses, pâté, mashed potatoes, cereals, nuts, coffee, ready-to-eat dishes, vegetable fat, preserves, tuna, water, salt, household care and clothing care.

The services offered by AgroCommerce are:

- Distribution and marketing: It is an efficient distribution system that allows it to be present in all supermarkets and traditional channels of the country.
- Storage: This company has new wineries of 20,000 m<sup>2</sup> with state-of-the-art technology and store products such as: grain, groceries, nuts, snacks, coffee, preserves, home care, among others.
- Imports: This area specializes in purchasing products according to commercial planning and constant search for new market opportunities.
- Quality Department: Area specialized in quality control of all products according to the standards established by the company for the continuous improvement of processes.

- Packaging: The company has packaging lines for products such as rice, sugar, oats, pulses, nuts, etc.
- Marketing Department: This department develops strategic and tactical plans of all the brands owned by the company. It is at the forefront of seeking new business and profitable developments.

**Table 2.** DOFA AgroCommerce-Chile Matrix

<p><b>Weaknesses</b></p> <p>Customer unfriendly web portal. Not providing an efficient customer service through the web portal.</p>	<p><b>Opportunities</b></p> <p>Improve the design of the web portal so that customers can make purchases through it.</p>
<p><b>Strengths</b></p> <p>Large capacity of food supply. Wide logistic network for the distribution and commercialization of food products and for the household cleaning.</p>	<p><b>Threats</b></p> <p>Loss of potential customers who wish to make purchases online or know the price of products by this means.</p>

Source: Own elaboration



- **SiembraViva – Antioquia**

It is a social enterprise and a regenerative agriculture project that is transforming the lives of small producers, connecting them directly with consumers in the city. Supported by Acumed Fund since 2014, in 2016 they were certified as Company B (BCorp, System B) and seek to "not be the best company in the world, but the best company for the world".

The main objective is to "dignify the work of the farmer, provide a fair service for his products that allows them to improve their quality of life and guarantee sales of what they produce directly to consumers through the e-commerce shop at [www.SiembraViva.com](http://www.SiembraViva.com)" (SiembraViva, s.f.). We also offer healthy, delicious and better quality products.

In this company they rely on the cultivation of healthy food premises, which does not require or contain toxic agro-chemicals and the care of the land is their main mission.

The network of agro-ecological producers SiembraViva, works with small local producers and its objective is to dignify their work through:

1. Support for the production of seed and crop inputs
2. Knowledge transfer in organic and sustainable agriculture
3. Guaranteed market access for your products

Together, we work under the commitment of knowledge sharing, quality goals and fair trade.

In the virtual store you will find all the products available for sale. The customer can enter, assemble his basket, select the date and then receive your fresh produce at the door of his home.

SiembraViva's philosophy of regenerative agriculture is summarized in the following motto:

*Healthy Earth = Healthy Food = The Healthy Person*

Suppliers of local and artisanal products: They are local producers of Antioquia, for this reason SiembraViva is rigorous in the selection of these suppliers and take into account the comments of customers regarding quality and taste.

**Tabla 3.** DOFA SiembraViva-Antioquia Matrix

<p><b>W</b>eseaknesses</p> <p>Very short customer service hours.          Not attending customers on Sundays.          Do not have a section in the web portal directed to contact with suppliers.</p>	<p><b>O</b>pportunities</p> <p>Expand the product offering to potential markets.          Offer its service in the main cities of the country.</p>
<p><b>S</b>trengths</p> <p>Offer of organic products.          Cultivation of the best quality products.          Permanent idea of taking care of the customers.          Knowledge transfer regarding organic and sustainable agriculture.          Farmers' products are guaranteed access to the market.          Easy to access and manage web portal for placing orders.          Support to small farmers in the region.          Customer support via live chat installed on the web portal.</p>	<p><b>T</b>hreats</p> <p>Loss of potential clients due to not attending them at times when they will probably need the service.</p>

Source: Own elaboration

- **MerkaOrgánico100% natural – Medellín**

It is a market for organic fruit and vegetables at home in the city of Medellín. Food products are obtained from crops grown using non-polluting techniques, obtaining products free of fertilizers, agrochemicals and pesticides, etc.

Organic agriculture uses techniques compatible with nature's laws, prohibits the use of fertilizers, synthetic chemical pesticides and transgenic crops.

This business idea is born from "the need and scarce supply of guaranteed organic products in the community and the growing need of the population to take care of their health by becoming aware that we are what we eat". (MerkaOrgánico 100% Natural, s.f.).

MerkaOrgánico's products come from small-scale artisanal crops, which guarantees clean and 100% natural production.

**Table 4.** DOFA MerkaOrgánico Matrix 100% natural-Medellín

<p><b>W</b>eseaknesses</p> <p>Orders placed by customers are only received for half a day.</p> <p>Orders are only delivered on Wednesday.</p>	<p><b>O</b>pportunities</p> <p>Extend product delivery schedules, meeting the needs of customers.</p>
<p><b>S</b>trengths</p> <p>Wide product portfolio.</p> <p>Marketing of natural products free of pesticides and transgenic.</p> <p>Support to small farmers in the region.</p> <p>Customer support via live chat installed on the web portal.</p>	<p><b>T</b>hreats</p> <p>Loss of customers for not delivering orders on the day they request it and at the time they wish.</p>

Source: Own elaboration

The successful models of electronic commerce TruTrade – Africa (Uganda and Kenya) and AgroCommerce (Chile) international presented previously, have several similarities with regard to the design and services that the clients find in its web portals, both are wide and they offer large number of agricultural products. TruTrade is characterized for supporting the farmers in its business ideas, while AgroCommerce is provided with a wide logistic network for the commercialization and distribution of its products. Likewise both portals are not provided with a specific section where the clients could enter to know to the detail the characteristics of the agricultural products and its respective prices.

SiembraViva - Antioquia and MerkaOrgánico 100% natural - Medellín, chosen in the present research as successful models of national electronic commerce. They have a wide portfolio of organic and pesticide-free agricultural products, and the web portal is user-friendly in the sense that they have designed an exclusive section where each of the products are located, the price per pound or per kilogram of them, allows the customer to make the purchase order of the products required. They also have live chat to serve users in real time. As for the delivery times of the orders, they are short, which is a limitation for the customer because they must place the orders within a specific schedule and delivery of the same is also made within a specific and limited schedule.

### **2.3 Design of a basic model proposal for the implementation of e-commerce in agricultural enterprises in Betania municipality.**

The above-mentioned in the previous section allows us to have two perceptions of international e-commerce models and two national e-commerce perceptions, which allows us to formulate the following DOFA strategic matrix based on the DOFA matrices formulated for each of the business models analyzed.

The following matrix DOFA strategic, is a variant generated by the authors, comparative and for propositive purposes to be able to design an optimal proposal for the generation of a base model, on which to design future proposals for electronic commerce in businesses of agricultural character in the municipality of Betania.

Taking into account each of the weaknesses, opportunities, strengths and threats detected in the e-commerce business models analysed, strategies are formulated FO (directed to the strengths and weaknesses detected), DO (directed to the weaknesses and opportunities detected), FA (directed to the strengths and threats detected) and DA (directed to the weaknesses and threats detected).

Table 5. Strategic DOFA Matrix

STRATEGIC DOFA	STRENGTHS		WEAKNESSES	
	TruTrade	<ul style="list-style-type: none"> <li>- It has an extensive web portal for the user.</li> <li>- Mobile applications that enable information control for pricing and product tracking from pick up to delivery.</li> <li>- Support for small farmers, to boost the business idea on a large scale.</li> <li>- Collaboration through knowledge sharing.</li> </ul>	TruTrade	<ul style="list-style-type: none"> <li>- The web portal does not have a specific section where customers can know each of the products they sell and their prices.</li> </ul>
	Agro Commerce	<ul style="list-style-type: none"> <li>- Large supply capacity of food products.</li> <li>- Wide logistic network for the distribution and commercialization of food products and household cleaning.</li> </ul>	Agro Commerce	<ul style="list-style-type: none"> <li>- Customer unfriendly web portal.</li> <li>- Not providing an efficient customer service through the web portal.</li> </ul>
	Siembra Viva	<ul style="list-style-type: none"> <li>- Supply of organic products.</li> <li>- Cultivation of products of the best quality.</li> <li>- Permanent idea of taking care of the customers.</li> <li>- Knowledge transfer regarding sustainable organic agriculture.</li> <li>- Farmers' products are guaranteed access to the market.</li> <li>- Web portal of easy access and management for the realization of orders.</li> <li>- Support to small farmers in the region.</li> </ul>	Siembra Viva	<ul style="list-style-type: none"> <li>- Very short customer service hours.</li> <li>- Not attending customers on Sundays.</li> <li>- Not having a section in the web portal directed to contact with suppliers.</li> </ul>
	Merka Orgánico	<ul style="list-style-type: none"> <li>- Wide portfolio of products.</li> <li>- Marketing of natural products free of pesticides and GMOs.</li> <li>- Support to small farmers in the region.</li> </ul>	Merka Orgánico	<ul style="list-style-type: none"> <li>- Orders placed by customers are only received for half a day.</li> <li>- Orders are only delivered on Wednesday.</li> </ul>
OPPORTUNITIES	STRATEGIES FO		STRATEGIES DO	
TruTrade				
<ul style="list-style-type: none"> <li>- Expand your market.</li> <li>- To make alliances with farmers from other countries to provide them with other types of food products and thus increase their supply.</li> </ul>	<ul style="list-style-type: none"> <li>- Advertise the platform or web portal in cities or countries where you want to enter to capture potential markets, reaching more customers in the world.</li> <li>- Partner with farmers from other countries, which will enable us to attract customers worldwide.</li> <li>- Support small farmers in different parts of the world.</li> <li>- To offer a wide portfolio of agricultural products, attending the requirements of the clients in their totality.</li> </ul>		<ul style="list-style-type: none"> <li>- Design a section in the web portal, where agricultural products that are available (its specifications, prices, etc.) are made known.</li> <li>- Include within the platform or web portal an online chat that is available for customer service 24 hours a day.</li> <li>- Extend customer service hours.</li> <li>- Serving customers on Sundays, on this day several users need the service.</li> <li>- Extend the timetable for receiving orders.</li> <li>- Deliver orders to the customer at least 5 days a week.</li> </ul>	
AgroCommerce				
Improve the design of the web portal so that customers can make purchases through it.				
SiembraViva				
<ul style="list-style-type: none"> <li>- Expand product offerings to potential markets.</li> <li>- Offer your service in the main cities.</li> </ul>				
MerkaOrgánico				
Extend product delivery schedules, meeting the needs of customers.				
THREATS	STRATEGIES FA		STRATEGIES DA	
TruTrade				
Loss of customers who want to know the details and prices of agricultural products.	<ul style="list-style-type: none"> <li>- Adapt the web portal in such a way that it attends to each of the customer's requirements so that they can find all the necessary information regarding agricultural products and the process of buying them.</li> <li>- Make use of applications that allow the most affordable pricing for buyers.</li> <li>- Partner with small farmers in the region to provide a wide range of agricultural products.</li> <li>- Offer organic and pesticide-free products.</li> </ul>		<ul style="list-style-type: none"> <li>- Include a section in the web portal where suppliers of both agricultural products and inputs can be contacted.</li> <li>- Adjust order reception times according to customer needs.</li> <li>- Schedule the delivery of orders or purchase orders according to the requirement of each customer and/or user.</li> </ul>	
AgroCommerce				
Loss of potential customers who wish to make purchases online or know the price of products by this means.				
SiembraViva				
Loss of potential clients due to not attending them at times when they will probably need the service.				
MerkaOrganico				
Loss of customers for not delivering orders on the day they request it and at the time they wish.				

Source: Own elaboration

Based on the strategic DOFA matrix, below is presented the proposal aimed at transforming the business models of small and medium sized farmers in the municipality of Betania towards electronic commerce.

This proposal contains the general aspects for the design of an e-commerce platform or web portal where small and medium-sized farmers in the municipality of Betania, Antioquia can offer their products at national and international level.

Therefore, by detecting the weaknesses, opportunities, strengths and threats of national and international business models, the following is proposed:

1. In the e-commerce platform or web portal, it is necessary to offer a wide portfolio of agricultural products, in order to meet each of the specific requirements of customers.
2. Design a section in the web portal where agricultural products that are available (specifications, prices among others) are made known.
3. Include within the platform or web portal an online chat that is available for customer service 24 hours a day.
4. Adapt the platform or web portal in such a way that it attends to each of the customer's requirements so that they can find all the necessary information regarding agricultural products and the process of buying them.
5. Include a section within the platform or web portal where producers of both agricultural products and inputs can leave their data to be contacted later.
6. Advertise the platform or web portal in the cities or countries where you want to enter, in order to capture potential markets in the region, other cities in Colombia and the world.

In addition to directing the strategy to the creation of the platform or web portal and include what it should contain for its efficient operation, the following strategies are proposed so that the service provided is efficient and productive for small and medium farmers of Betania, Antioquia.

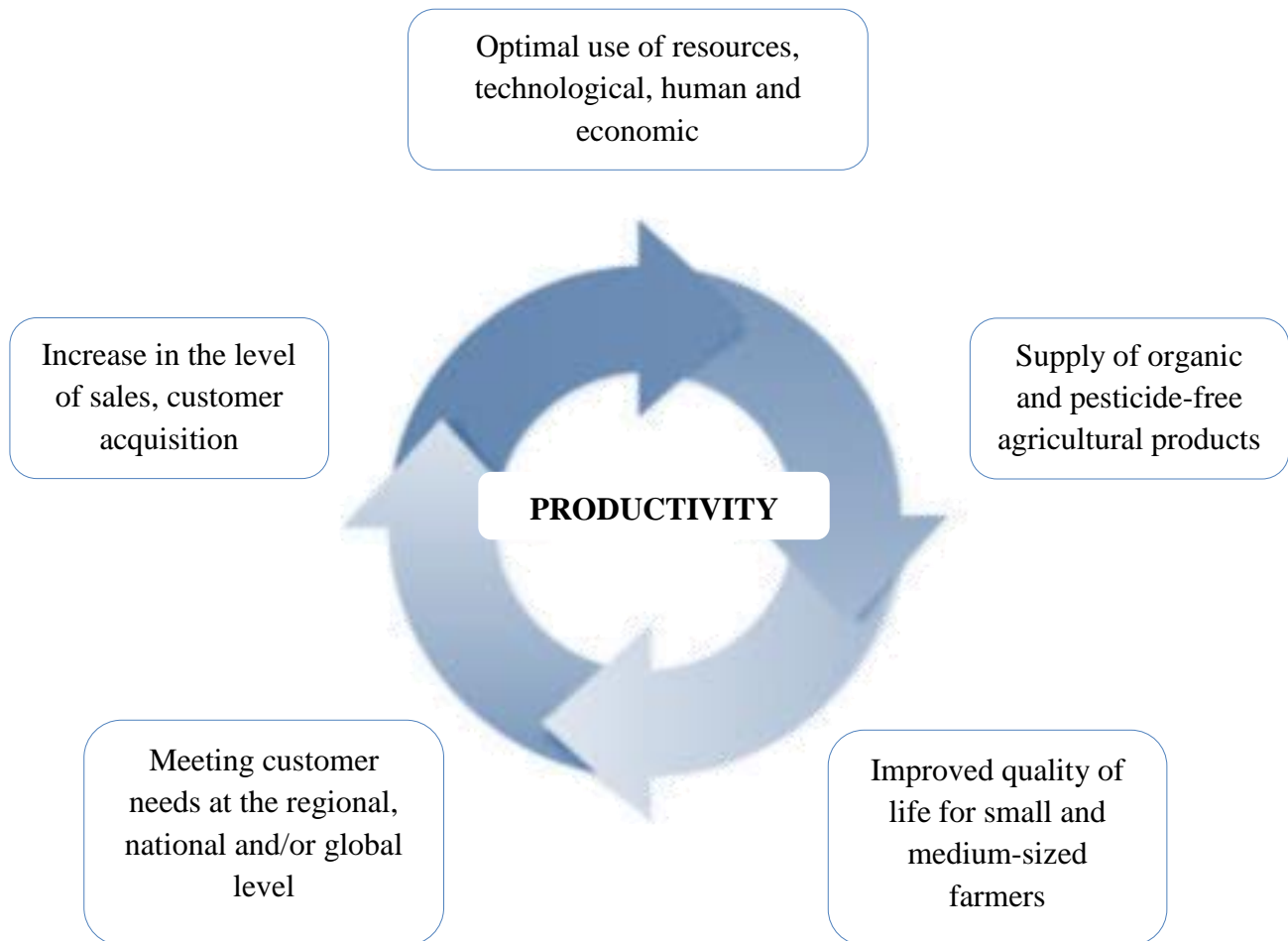
1. Create alliances and/or partnerships with small farmers in the region and when required with farmers from other cities and/or countries, in order to expand the portfolio of products offered.
2. Support small farmers who wish to be part of this business model.
3. Attend to customers every day of the week including weekends, both in the reception of orders or purchase orders and also for delivery of them.
4. Have an extended schedule for receiving orders, customers usually enter at different times of the day.
5. Schedule deliveries of orders as soon as possible, to meet the customer's needs in a timely manner.
6. It is important to make use of applications and take into account the prices of agricultural products in other web portals; that allow the administrator of the platform or web portal, to set prices more affordable to users and/or customers.
7. To create a differentiating factor regarding the agricultural products offered, it is important that they are organic and pesticide-free.

With this proposal, small and medium-sized farmers in the municipality of Betania, Antioquia, will be able to offer their products to customers from different parts of the region, the country and the world, which allows them to increase their target market and thus be more productive.

Next, a scheme is presented to relate the level of productivity that farmers in the municipality of Betania could have.



**Figure 8.** Level of productivity that small and medium-sized farmers in the municipality of Betania, Antioquia, could have



Source: Own elaboration

The small and medium-sized farmers of Betania, Antioquia, when offering their agricultural products on the platform or on the web portal, can improve the productivity of their business models through the adoption and optimal use of human, technological, human and economic resources. Likewise, the level of productivity will be reflected in the increase in the level of sales because through e-commerce you have the option of reaching very large potential markets which allows a greater customer acquisition.

The level of productivity of small and medium farmers can be higher if organic and pesticide-free agricultural products are offered to meet the increasingly stringent and rigorous requirements of users and/or customers. The strategy aimed at partnering with small and medium-sized farmers in different regions, cities and/or countries enables us to meet the needs of our customers.

The above-mentioned, allows small and medium farmers in the municipality of Betania, Antioquia, to improve their quality of life by improving the productivity of their activity.

Similarly, following the recommendations of Mesa, Duarte and González (2014), from the Betania mayoralty there itself might request support route decentralized international cooperation, for the purpose of which other cities and cooperating international, they finance the starting of this project; since, since the authors mention, with the management that is realized from the mayoralty of Medellín, managerial initiatives have been started by totals that overcame 9,6 million dollars in the year 2014.

### **3. Conclusions**

- The agricultural companies of the municipality of Betania in the southwest of Antioquia, have not experienced an approach with the electronic media for their commercial operations, advertising of their agricultural products, relationship with customers and suppliers among others. This is why the feasibility of applying e-commerce in these business models will be reflected in the increase in the level of sales because through e-commerce you have the option of reaching very large potential markets, the productivity level of small and medium sized farmers can be higher if organic agricultural products are offered and pesticide-free to meet the requirements that are increasingly strict and rigorous by users and / or customers, the strategy aimed at partnering. This will allow you to improve your quality of life by improving the productivity of your activity.
- Small and medium-sized farmers in the municipality of Betania are mostly engaged in coffee cultivation. Two companies were studied, the first of which is Finca Santa Anita, which is a family business and belongs to the microeconomic level, serves wholesale customers, exports through a cooperative and how many with each of the registers for proper functioning; in this company use the Internet to search for information and send mailings, currently does not have a website but its adoption is contemplated within their strategic plans and would use e-commerce for: improve company recognition, capture broader markets and find no reason why e-commerce should not be implemented in your company. In the same way, we also had an approach with the company Café de las Cordilleras, which is an association that belongs to the macroeconomic level. Its clients are retailers and wholesalers who have all the registers for its operation and are part of a producer organization; in this company they use the Internet to search for information, financial services, mail and social networks; In this company do not have a web page but if they are present in social networks, also consider important and / or necessary to implement e-commerce but at the moment this is not part of their strategic plans; the reasons for adopting e-commerce in this company is mainly to improve the recognition of your company,

capture wider markets and get new customers, but at the same time consider not to use it for the high costs that would generate them.

- Successful international e-commerce business models studied as TruTrade - Africa (Uganda and Kenya) present weaknesses regarding the web portal which does not have a specific section where customers can know each of the products they sell and their prices, opportunities to expand their market and make alliances with farmers from other countries to provide them with other types of food products and thus increase their supply; within the fortresses are a comprehensive web portal for the user, mobile applications that allow the control of information for pricing and product tracking from collection to delivery, support to small farmers, to boost the business idea on a large scale and collaboration through the exchange of knowledge and threats such as loss of customers who want to know the details and prices of agricultural products offered by TruTrade. And AgroCommerce-Chile presents weaknesses regarding the web portal that is not very customer-friendly and does not provide an efficient customer service through this one; opportunities to improve the design of the web portal so that customers can make purchases through this, strengths such as the large capacity of food supply, extensive logistics network for the distribution and marketing of food products and household cleaning and threats such as the loss of potential customers who want to make purchases online or know the price of products through this means. In the national context, the SiembraViva-Antioquia models were reviewed, which present weaknesses in the hours of customer service because they are very short, not serving customers on Sundays, not having a section in the web portal aimed at contact with suppliers; opportunities to expand the offer of products to potential markets, offer their service in the main cities of the country; strengths such as: offer of organic products, cultivation of the best quality products, permanent idea of taking care of the customers, transfer of knowledge regarding organic and sustainable agriculture, guaranteed access to the market for the farmers' products, easy access and management of web portal for the realization of orders, support to small farmers in the region, customer service through live chat installed on the web portal and threats related to the loss of potential customers by not attending them at

times when they will surely need it. And MerkaOrganic 100% natural-Medellín that presents weaknesses concerning the reception of orders, the deliveries of orders are made only on Wednesday; opportunities to extend the schedules of delivery of products, meeting the needs of customers; Fortresses such as the broad portfolio of products, marketing of natural products free of pesticides and transgenics, support to small farmers in the region, customer service through live chat installed on the web portal and threats such as loss of customers for not delivering orders on the day they request it and at the time they want it.

- The proposal of the basic model for the implementation of electronic commerce in the agricultural enterprises of the municipality of Betania is based on the following strategies: in the e-commerce platform or web portal, it is necessary to offer a wide portfolio of agricultural products, in order to attend to each one of the specific requirements of the clients, to design a section in the web portal where the agricultural products available are made known (specifications, prices among others), to include within the platform or web portal an on-line chat that is available for the attention of the clients 24 hours a day, to adapt the platform or web portal in such a way. In addition to directing the strategy to the creation of the platform or web portal and include what it should contain for its efficient operation, the following strategies are proposed so that the service provided is efficient and productive for small and medium farmers of Betania, Antioquia: create alliances and/or partnerships with small farmers in the region and when required with farmers from other cities and/or countries, to expand the portfolio of products offered, support small farmers who wish to be part of this business model, attend to customers every day of the week including weekends, both in the reception of orders or purchase orders and also for delivery of them, have a wide schedule for receiving orders, schedule the delivery of orders, schedule the delivery of orders, and so on; that allow the platform or web portal administrator to set prices more affordable to users and/or customers, to create a differentiating factor regarding the agricultural products offered.

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## 5. ANNEXES

### ANNEX 1. INTERVIEW FORMAT, MEDIUM AND SMALL PRODUCERS OF THE MUNICIPALITY OF BETANIA - ANTIOQUIA

1. Name of the company: \_\_\_\_\_

#### COMPANY CHARACTERISTICS

2. Type of company:

Individual\_\_\_\_\_

Familiar\_\_\_\_\_

Association\_\_\_\_\_

3. Date of creation of the company: \_\_\_\_\_

4. Total area of the property (fanned): \_\_\_\_\_

5. How many workers the company has:

Between 1 and 10\_\_\_\_\_

Between 11 and 50\_\_\_\_\_

Between 51 and 200\_\_\_\_\_

More than 200\_\_\_\_\_

6. At what level or category can the company be classified?

A. Microeconomic

B. Macroeconomic

7. The clients to whom the company directs its production are:

A. Retailers

B. Wholesale

C. All of the above

#### CORPORATE ACTIVITY

8. Please describe the production process in your company.

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9. Within your company, they carry out other types of activities YES\_\_\_\_, NO\_\_\_\_\_.

10. If the answer above was yes, please describe what other types of activities are being carried out in your company. If no, please continue with question 11.

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**ENTERPRISE MANAGEMENT**

11. Are you currently part of a producer organization (s)? YES\_\_\_\_, NO\_\_\_\_.
12. Previously, did you belong to a producer organization (s)? YES\_\_\_\_, NO\_\_\_\_.
13. In your company Do you export? YES\_\_\_\_, NO\_\_\_\_.
14. Do your company's activities include technical control records? YES\_\_\_\_, NO\_\_\_\_.

**USE OF E-COMMERCE**

15. Does the company own computers? \_\_\_\_\_.
16. How many computers do you have in the company? \_\_\_\_\_.
17. For which activities or services does the company use the Internet?
- A. Information search
  - B. Financial Services
  - C. Mailing
  - D. Internet Sales
  - E. Online Shopping
  - F. Customer service
  - G. Social networks
  - H. Others
- Which one? \_\_\_\_\_

18. Does the company have a website and/or social networks? YES\_\_\_\_, NO\_\_\_\_.

If the answer above is yes, please continue to the next question, otherwise continue with question 27.

19. How long has the company been running a website and/or social networks?  
(Write: Month and year) \_\_\_\_\_
20. Does the company have its own domain name? Understand domain as the name that identifies the website. For example: www.esumer.edu.co YES\_\_\_\_, NO\_\_\_\_.

21. What kind of activities does your company carry out through e-commerce? you can select several options in response.
- A. Sale of tangible goods or products.
  - B. Sale of intangibles.
  - C. Shopping online.
  - D. Online quotes.
  - E. Online counseling.
  - F. Online Payments.
  - G. Online customer service.
  - H. Others
- Which ones? \_\_\_\_\_
22. Indicate the percentage of sales made by the company online \_\_\_\_\_
23. Indicate the percentage of purchases made by the company online \_\_\_\_\_
24. How do you see the level of sales your company achieves through e-commerce?
- Little \_\_\_\_\_
  - Regular \_\_\_\_\_
  - Adequate \_\_\_\_\_
  - Good \_\_\_\_\_
  - Excellent \_\_\_\_\_
25. Indicate the approximate monthly average value of Internet sales in the immediately preceding year \_\_\_\_\_
26. Indicate the approximate monthly average value of Internet purchases in the immediately preceding year \_\_\_\_\_

### **E-COMMERCE IMPLEMENTATION**

27. Do you think it is important and/or necessary to implement e-commerce in the company? YES\_\_\_\_, NO\_\_\_\_.
28. Is e-commerce part of the company's strategic plans? YES\_\_\_\_, NO\_\_\_\_.  
Which ones? \_\_\_\_\_
29. What would be the main reasons why the company would use e-commerce? you can select several options in response.
- A. Improve company recognition
  - B. Improve business productivity
  - C. Improving the internal management of the company

- D. Capture broader markets
- E. Get new customers
- F. Competitive costs
- G. Customer Satisfaction
- H. Cost reduction
- I. Others

Which ones? \_\_\_\_\_

30. What would be the main reasons why the company would NOT use e-commerce?  
you can select several options in response.

- A. Does not believe it is necessary to improve the company's recognition.
- B. The productivity of the company will not improve by entering the electronic market.
- C. You are not interested in entering the electronic market.
- D. Getting new customers is not part of the company's strategic plans.
- E. The costs of positioning the company in e-commerce are very high Others.

Which ones? \_\_\_\_\_

## **ANNEX 2. ENTREVISTA REALIZADA A EMPRESA FINCA SANTA ANITA**

1. Name of the company: Finca Santa Anita

### **COMPANY CHARACTERISTICS**

2. Type of company:

Individual \_\_\_\_\_

Familiar  \_\_\_\_\_

Association \_\_\_\_\_

3. Company creation date: April 2005

4. Total area of the property (Squares): Eight (8)

5. How many workers the company has:

Between 1 and 10  \_\_\_\_\_

Between 11 and 50 \_\_\_\_\_

Between 51 and 200 \_\_\_\_\_

More than 200 \_\_\_\_\_

6. At what level or category can the company be classified?

A. Microeconomic

B. Macroeconomic

7. The clients to whom the company directs its production are:
- A. Retailers
  - B. Wholesale X
  - C. All of the above

**CORPORATE ACTIVITY**

8. Please describe the production process in your company.  
Production of dry parchment coffee for export of green coffee
9. Within your company, they carry out other types of activities YES\_\_\_\_, NO\_X\_\_.
10. If the answer above was yes, please describe what other types of activities are being carried out in your company. If no, please continue with question 11.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**ENTERPRISE MANAGEMENT**

11. Are you currently part of a producer organization (s)? YES\_\_X\_\_, NO\_\_\_\_\_.
12. Previously, did you belong to a producer organization (s)? YES\_\_X\_\_, NO\_\_\_\_\_.
13. In your company Do you export? YES\_\_X\_\_, NO\_\_\_\_\_. Note: They are made through a cooperative of coffee producers.
14. Do your company's activities include technical control records? YES\_\_X\_\_, NO\_\_\_\_\_.

**USE OF E-COMMERCE**

15. Does the company own computers? YES\_\_X\_\_, NO\_\_\_\_\_.
16. How many computers do you have in the company? One (1)
17. For which activities or services does the company use the Internet?
- A. Search for information X
  - B. Financial Services
  - C. Mail X
  - D. Internet Sales
  - E. Online Shopping
  - F. Customer service
  - G. Social networks
  - H. Others

Which ones? \_\_\_\_\_

18. Does the company have a website and/or social networks? YES\_\_\_\_, NO\_\_X\_\_.

If the answer above is yes, please continue to the next question, otherwise continue with question 27.

19. How long has the company been running a website and/or social networks?  
(Write: Month and year) \_\_\_\_\_

20. Does the company have its own domain name? Understand domain as the name that identifies the website. For example: www.esumer.edu.co YES\_\_\_\_, NO\_\_\_\_.

21. What kind of activities does your company carry out through e-commerce? you can select several options in response.

A. Sale of tangible goods or products.

B. Sale of intangibles.

C. Shopping online.

D. Online quotes.

E. Online counseling.

F. Online Payments.

G. Online customer service.

H. Others

Which ones? \_\_\_\_\_

22. Indicate the percentage of sales made by the company via internet \_\_\_\_\_.

23. Indicate the percentage of purchases made by the company via internet \_\_\_\_\_.

24. How do you see the level of sales your company achieves through e-commerce?

Little \_\_\_\_\_

Regular \_\_\_\_\_

Adequate \_\_\_\_\_

Good \_\_\_\_\_

Excellent \_\_\_\_\_

25. Indicate the approximate monthly average value of Internet sales in the immediately preceding year \_\_\_\_\_.

26. Indicate the approximate monthly average value of Internet purchases in the immediately preceding year \_\_\_\_\_.

## E-COMMERCE IMPLEMENTATION

27. Do you think it is important and/or necessary to implement e-commerce in the company? YES , NO \_\_\_\_\_.

28. Is e-commerce part of the company's strategic plans? YES , NO \_\_\_\_\_.  
Which ones? \_\_\_\_\_

29. What would be the main reasons why the company would use e-commerce? you can select several options in response.

- A. Improve company recognition
- B. Improve business productivity
- C. Improving the internal management of the company
- D. Capture broader markets
- E. Get new customers
- F. Competitive costs
- G. Customer Satisfaction
- H. Cost reduction
- I. Others

Which ones? \_\_\_\_\_

30. What would be the main reasons why the company would NOT use e-commerce? you can select several options in response.

- A. Does not believe it is necessary to improve the company's recognition.
- B. The company's productivity will not improve by entering the electronic marketplace.
- C. Not interested in entering the electronic marketplace.
- D. Getting new customers is not part of the company's strategic plans.
- E. The costs of positioning the company in e-commerce are very high.

Which ones? \_\_\_\_\_

## ANNEX 3. INTERVIEW WITH CAFÉ DE LAS CORDILLERAS COMPANY

1. Name of the company: Café de las cordilleras

## COMPANY CHARACTERISTICS

2. Type of company:

Individual \_\_\_\_\_

Familiar \_\_\_\_\_

Association

3. Company creation date: January 15,2015
4. Total area of land (fanned): 80 blocks
5. How many workers the company has:  
Between 1 and 10 \_\_\_\_\_  
Between 11 and 50  X   
Between 51 and 200 \_\_\_\_\_  
More than 200 \_\_\_\_\_
6. At what level or category can the company be classified?  
A. Microeconomic  
B. Macroeconomic  X
7. The clients to whom the company directs its production are:  
A. Retailers  
B. Wholesale  
C. All previous  X

### **CORPORATE ACTIVITY**

8. Please describe the production process in your company.  
Purchase and sale of coffee and agricultural inputs
9. Within your company, they carry out other types of activities SI X, NO.
10. If the answer above was yes, please describe what other types of activities are being carried out in your company. If no, please continue with question 11.  
Coffee and banana cultivation

### **ENTERPRISE MANAGEMENT**

11. Are you currently part of a producer organization (s)? YES X, NO.
12. Previously, did you belong to a producer organization (s)? YES X, NO.
13. In your company Do you export? YES, NO X.



14. Do your company's activities include technical control records? YES\_\_X\_\_, NO\_\_\_\_\_.

**USE OF E-COMMERCE**

15. Does the company own computers? YES\_\_X\_\_, NO\_\_\_\_\_.

16. How many computers do you have in the company? \_\_\_\_10\_\_\_\_.

17. For which activities or services does the company use the Internet?

- A. Search for information X
- B. Financial services X
- C. Mail X
- D. Internet Sales
- E. Online Shopping
- F. Customer service
- G. Social networks X
- H. Others

Which ones? \_\_\_\_\_

18. Does the company have a website and/or social networks? YES\_\_\_\_\_, NO\_\_X\_\_\_\_.

If the answer above is yes, please continue to the next question, otherwise continue with question 27.

19. How long has the company been running a website and/or social networks?

(Write: Month and year) \_\_\_\_\_

20. Does the company have its own domain name? Understand domain as the name that identifies the website. For example: www.esumer.edu.co YES\_\_\_\_\_, NO\_\_\_\_\_.

21. What kind of activities does your company carry out through e-commerce, you can select several options in response.

- A. Sale of tangible goods or products.
- B. Sale of intangibles.
- C. Shopping online.
- D. Online quotes.
- E. Online counseling.
- F. Online Payments.
- G. Online customer service.
- H. Others

Which ones? \_\_\_\_\_

22. Indicate the percentage of sales made by the company via internet\_\_\_\_\_.

23. Specify the percentage of purchases made by the company via internet\_\_\_\_\_.

24. How do you see the level of sales your company achieves through e-commerce?

Little \_\_\_\_\_

Regular \_\_\_\_\_

Adequate \_\_\_\_\_

Good \_\_\_\_\_

Excellent \_\_\_\_\_

25. Indicate the approximate monthly average value of Internet sales in the immediately preceding year\_\_\_\_\_

26. Indicate the approximate monthly average value of Internet purchases in the immediately preceding year\_\_\_\_\_

### **E-COMMERCE IMPLEMENTATION**

27. Do you think it is important and/or necessary to implement e-commerce in the company? YES\_\_X\_\_, NO\_\_\_\_\_.

28. Is e-commerce part of the company's strategic plans? YES\_\_\_\_\_, NO\_\_X\_\_\_\_\_.

Which ones? \_\_\_\_\_

29. What would be the main reasons why the company would use e-commerce? you can select several options in response.

A. Improve company recognition X

B. Improve business productivity

C. Improving the internal management of the company

D. Capture broader markets X

E. Get new customers X

F. Competitive costs

G. Customer Satisfaction

H. Cost reduction

I. Others

Which ones? \_\_\_\_\_

30. What would be the main reasons why the company would NOT use e-commerce?  
you can select several options in response.

- A. It does not feel it is necessary to improve the company's recognition.
  - B. The productivity of the company will not improve by entering the electronic market.
  - C. You are not interested in entering the electronic market.
  - D. Getting new customers is not part of the company's strategic plans.
  - E. The costs of positioning the company in e-commerce are very high X
  - F. Others
- Which ones? \_\_\_\_\_