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*“Study of decision making in small and medium industrial companies in Quito,
Cuenca and Bogotá based on the GDMS model”*

**Graduate thesis prior to obtaining a Bilingual Degree in International Studies
with mention in Foreign Trade**

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Cuenca – Ecuador

2020

DEDICATORY

Dedicated to all people who believe in themselves and follow their dreams.

Marissa Sánchez Pérez

DEDICATORY

Undoubtedly the university stage has been very important in my life, and this thesis is the symbol of this era. I carry with me all the knowledge and professional growth I have acquired, but this stage also leaves me with great friendships and teachings on a spiritual level.

I dedicate this thesis above all to my mother who has always been an iron lady, my motor, support in all these years of study and has been with me in every stage of my life. To my father, who always has a smile and the right answer to my questions since I was a child and whose eyes I still have.

To my sisters Lorena and Judith, who without a doubt have given me their unconditional love and wise advice, who have been my example, my guide and my best friends.

To my aunt Olga Bravo and my uncle Jaime Astudillo who always supported me and did not hesitate to extend a helping hand in times of need. And whom I admire very much for their personality and integrity.

To my nephews Martín, Pedro, Matías and Emilia from whom I always learn something new, who with their sweetness and innocence have taught me a lot about life and above all to keep a pure heart.

Pía Elissa Bravo

ACKNOWLEDGEMENT

I want to thank mainly my parents, Tere and Mario; for being with me, giving me their unconditional love and support in every decision. I am privileged to have them as part of my life and my professional development. To my brother Felipe, for being a great life partner and to my brother Mario, for being an example of perseverance.

To my classmates who became close friends with whom I shared many experiences that were a fundamental part of the university. To my teachers, who went beyond a technical education, and gave me knowledge of life.

Finally, I would like to thank my tutor Matías Abad, for being part of this research and for his support throughout my university career. And to my thesis partner, Pia Bravo, because this thesis is the product of our commitment and dedication.

Marissa Sánchez Pérez

ACKNOWLEDGEMENT

In the first place, I am grateful to the University of Azuay, because in its classrooms and spaces I was able to develop my social and political abilities and skills. I am also grateful to my teachers, because they transmitted to me their knowledge and wisdom. The same ones who with each class made me love my future profession.

Secondly, to my teacher and thesis director Matías Abad, who trusted us to carry out this project and who has supported us in this work to obtain a degree.

And thirdly to my family who has not hesitated to support every decision in my life.

A special thanks to my thesis partner Marissa Sanchez, who always knew how to have the patience and integrity during the realization of this research and to my two great friends Bernardo Gonzalez and Jose Cordova, in whom I trust completely and who have helped me in the achievement of this goal.

Pía Elissa Bravo

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ABSTRACT

The present study is descriptive, qualitative methods were mainly used to determine the decisions made by the manufacturing sector managers. The analysis is based on the international standards of General Decision-Making Style (GDMS). Within these standards five styles are established when making decisions: rational, dependent, avoidant, intuitive and spontaneous. The primary information found in Cuenca and Quito was compared with the recompilation studies of decision making in Bogotá. The analysis of the data shows that decision making by managers doesn't change significantly in these three cities. On the contrary, a combination of rational, dependent and intuitive styles are established as a pattern.

Key words: SMEs, Decision making, decision style, leadership, Cuenca, Quito, Bogotá.

INTRODUCTION

Every day, humans and organizations have to make multiple decisions, these can be as well as not be of great significance depending on the alternatives or options they have to choose and the consequences that may arise from it. The importance given to each decision is proportional to the uncertainty it generates.

Decisions are a daily task that is performed in all areas of an organization, despite being a task that involves risk, especially when there are factors of uncertainty. It is common in organizations, especially in SMEs, that this is done without a methodological basis, of the people who are part of it. Their actions can be linked to leadership.

According to Henry Fayol (1916), who contributes to this understanding of the manager by asserting that he is the one who must: "Lead the company towards its objective by trying to make the most of all the resources at its disposal". He adds his functions are: planning, organizing, commanding, coordinating and controlling. It is therefore the responsibility of the manager to choose the decisions.

The resolution of conflicts is part of daily life in organizations, it is argued that managers invest 25% of their time, to which they devote their activities to solve problems (Lussier and Christopher F, 2016). In this way, making managerial decisions is a fundamental element in the fulfillment of operational plans, and selecting an alternative will have an impact on the organization and its future.

The current situation reveals that international markets give room and space to small companies that are increasingly entering into this part of society with more strength. However, this does not mean there are no large emporiums or companies, rather that SMEs are becoming increasingly stronger in the industrial sector (VERGÉS, 2018).

It is necessary to point out why the study of management decisions in SMEs. The importance of SMEs lies at the global level since they have a high participation (90%

of companies), and therefore a strong impact on each country, contributing to the GDP and job creation. Consequently, proper attention should be paid to these organizations due to their relevance within the economy.

According to the data collected from National Statistics and Census Institute of Ecuador, the micro, small and medium companies represent the 99% percentage of enterprises in 2018; similarly, the data provided by the labor ministry of Colombia in 2019 assert that the micro, small and medium companies represent the 98%.

In recognition of the impact and importance of SMEs in both countries and at the global level, it is necessary to analyze the capacity of managers to act and the predominant decision-making styles. This research was conducted to identify similarities and differences in the decision-making choices of managers in Cuenca, Quito and Bogotá.

This thesis is developed from the analysis of surveys made to the managers of Cuenca and Quito, using the styles proposed by Scott and Bruce, called General Decision Making. Additionally, the questionnaire developed by Coscarelli and Johnson General Decision Making Inventory; the Decision Making Style Inventory is made up of 20 questions through which the style of individual management decisions is determined.

The General Decision Making Styles is a study that was designed to classify the multiple ways in which a decision can be made. As a result, this investigation concluded that a decision can be made based on five styles. The authors establish that the styles are rational, intuitive, dependent, avoidant and spontaneous. From the survey, it is possible to generate several conclusions and recommendations for the SMEs and the style that predominates in the researched cities.

This is a descriptive study in which a quantitative method was used, because the data was collected by a survey applied to managers of SMES of Cuenca and Quito. The number of surveys was obtained from a statistical algorithm and representative percentage from the industrial sector and each city.

In addition, the analysis of the Bogota decision making process is based on a collection of documents that are in harmony with the proposed research. These documents allowed for the abstraction of the most important information on management decision making in order to be analyzed and contrasted with the data obtained in this research.

CHAPTER 1: LEADERSHIP, DECISION MAKING, DECISION MAKING STYLES, ANALYSIS TOOLS AND SMES

1. Theoretical Framework

First of all, it is important to define what leadership means, because this term is important for introducing related means and concepts into this research. Miguel Angel Cornejo, author of *Total Quality and Leadership* (1995), established that the management style of a company is what will determine its productivity and development. Leadership enables the understanding of the importance of decision making at an organizational or management level. In turn, it is linked to the types of interpersonal skills of the leader, all of whose decisions are essential for companies to succeed.

Leadership is the set of skills that make a person a suitable person to be a leader. In addition, many activities can be guided by inclusive ideologies, however, leaders are also considered models or people who motivate others to perform their activities. Generally, a leader has the ability to motivate people because they gain empathy with their followers. In addition, leadership is necessary to achieve company goals; Warren and Burt said that "organizations cannot succeed without effective leadership" (Warren & Burt , 1985).

Like Lord & Maher (1991) said leadership is a process acquired by a superior process in social perception, in which the essence of the leader is what makes him/her perceived as a leader. For example, leaders and followers have specific behavioral characteristics or stereotypes that cause them to be considered a leader (Wofford, Wodwin, & Wittington, 1998).

Many management schools assert that leadership is a natural process of influence that occurs between the leader and his or her followers; this process enables the goals of

the organization to be achieved. In addition, leadership in business is identified in the aspects of motivating, coordinating, and representing a management function (Oswald et al., 2004).

Richard L. Daft in his book *The Leadership Experience*, leadership is understood as the relationship between the leader and his followers, a relationship that exists to generate change and achieve common goals. Therefore, this relationship is based on the leader's ability to inspire his followers to achieve their dreams (Raffino, 2019).

Leadership is a term that has been defined from different approaches over the years. In conclusion, "leadership" according to different theories can vary in its definition. But for this research, leadership will be understood as all the actions carried out by the manager at an organizational level that will influence the future of the company.

1.1.1. Leadership decision making styles

According to Lussier and Christopher (2016) five leadership decision making styles are distinguished that are: avoidant, complacent, autocratic, negotiate and collaborative.

1. Avoidant style: Leader ignore the problem expecting to this will disappear.
2. Complacent style: Leader let that the decision be made by the others without dislike any point.
3. Autocratic style: Leader makes decision and announces it to employees without discussion.
4. Negotiation style: Leader presents problem, gets suggestions, and makes decision as an agreement into the parts.
5. Collaborative style: Leader permits employees to make ongoing decisions within defined limits (Lussier y Christopher F, 2016).

1.2 Decision-making

Decision making is to choose an option between two or more possibilities to get the best result. Some decisions are more important than others, it depends of

characteristics, objectives and others. Decision making is a big responsibility for the manager from the organization because every decision will influence the company's future.

1.2.1. Conceptualization of decision- making

According to L. Bittel and J. Ramsey (1988), decision- making it is a mental process in which a manager by himself or in groups collect data to use it after in the enterprise as a conscientious act (Moody, 1990).

It is essential how the decisions are made because of accomplishing goals and legitimacy for the choice. Unlike, decision making processes create a dynamic between resources, self-interests and values from the company (Luna & Tirado, 2005).

1.2.2. Decision Making classification

Decision making is classified in base on Jairo Amaya's theories, according to this it is classify in descriptive and prescriptive theory

1. Descriptive's theory defines the environment in which the decision is made; for example, facts and variables such as pressure, personality, risk, and others are considered.
2. Prescriptive's theory is a normative method that analyzes information, resources before making a choice.

1.2.3. Decision making steps

There are seven steps in decision making according to Pedro Pérez la Rosa (2004) and Jairo Amaya (2010) and they are the following:

1. Identification and diagnosis of the problem: it is recognized that there is a problem to be solved, there is a discrepancy between the current state of the situation and the one you want to achieve.

2. Generation of alternative solutions: possible alternatives are formulated, identifying the relevant and pertinent criteria to solve the problem.
3. Weighting the alternatives: it must be ordered according to the degree of importance of each criterion, giving numbers according to priority.
4. Evaluation of alternatives: each possible solution must be analyzed along with the possible consequences. It is not possible to accurately predict the results, but it is possible to generate contingency plans.
5. Selection of the best alternative: choose a solution that fully satisfies the above specifications, that is, the best possible decision.
6. Decision implementation: the decision is implemented and this is analyzed if the decision was successful or if it generates certain problems during its execution.
7. Evaluation of the decision: all the information that indicates the status of the decision is collected; In other words, it is time for feedback that can be positive, otherwise it indicates that more time, resources, efforts, etc. are required.

1.3 Decision-making styles

Decision-making styles refer to the set of characteristics, influences, trends or behaviors employed by the manager in responding to conflicts. There are many models of decision-making styles, but this thesis will consider the Decision-Making Styles Inventory (DMS) and the General Decision-Making Styles Inventory (GDMS).

1.3.1. Decision-Making Style Inventory

Scott and Bruce (1995), *decision-making styles* is an investigation that responds to individuals' approach to decision situations. *DMS* not determine the leader personality.

According to this approach it identifies five styles at the moment of decision making that are rational, avoidant, dependent, intuitive and spontaneous.

1. Rational style: it applies a methodology and logical evaluation before make a decision.
2. Avoidant style: it emphasizes postponing and avoiding decisions until is inevitable.
3. Dependent style: it considerers opinions, advices or directions from others
4. Intuitive style: it bases on hunches and feelings.
5. Spontaneous style: it makes decision as soon as possible without a conscious process.

1.3.2. General Decision Making Styles Inventory

General Decision Making Style Inventory (GDMI) was elaborated by Johnson & Coscarelli (1983), the dimensions are evaluated by 25 items using 5-point ratings (1 = strongly disagree to 5 = strongly agree) that pretend to determine how decisions are made to make conclusions and recommendations.

GDM was designed to understand and classify the different ways that managers make decisions that is based on GDMS's hypothesis. It is important to understand that a person can use various decision making styles but one of those is predominant.

GDMS gets legitimacy when Scott and Bruce applied it to an example of 1943 participants including soldiers, students. engineers to confirm and validate it (Spicer & Salder-Smith, 2005).

1.4 Survey applied

The decision-making inventory has a Likert scale to measure attitudes in less or more satisfaction in each question. Next, there is the original questionnaire of GDMS de Scott y Bruce (1995).

1. I double-check my information sources to be sure I have the right facts before making decisions.
2. I make decisions in a logical and systematic way.
3. My decision making requires careful thought.
4. When making a decision, I consider various options in terms of a specific goal.
5. I usually have a rational basis for decision-making
6. When making decisions, I rely upon my instincts.
7. When I make decisions, I tend to rely on my intuition.
8. I generally make decisions that feel right to me.
9. When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it.
10. When I make a decision, I trust my inner feelings and reactions.
11. I often need the assistance of other people when making important decisions.
12. I rarely make important decisions without consulting other people.
13. .If I have the support of others, it is easier for me to make important decisions.

14. I use the advice of other people in making my important decisions.
15. I like to have someone to steer me in the right direction when I am faced with important decisions.
16. I avoid making important decisions until the pressure is on.
17. I postpone decision making whenever possible.
18. I often procrastinate when it comes to making important decisions.
19. I generally make important decisions at the last minute.
20. I put off making many decisions because thinking about them makes me uneasy.
21. I generally make snap decisions.
22. I often make decisions on the spur of the moment.
23. I make quick decisions.
24. I often make impulsive decisions.
25. When making decisions, I do what seems natural at the moment.

1.4 Decision making tools

There are several useful tools when making decisions; after having clearly defined the problem, collected information and identified possible solution alternatives, the next step is to select the best tool. From now on, based on GDMS, it will be determinate whether industrial managers of Quito and Cuenca use the following methods: Consultations with experts, Risk model, Decision model, Optimization model, Linear programming, Planning and control of processes (PERT method, network diagram), Multi-objective optimization (hierarchical analysis method) and Fuzzy logic.

1.4.1. Consultations with experts

This tool consists of identifying a group of people with a high degree of expertise in the problem field and consulting them about future developments. The data is collected anonymously to avoid "leader" effects through successive questionnaires (repeated 4 or 5 times) until a general consensus is reached. Therefore, this mechanism is based on the ability to predict through the systematic use of an intuitive judgment issued by a group of experts (Astigarraga, 2003).

1.4.2. Risk model

The current technique is based on some probabilistic event because there is no complete information for decision making. It is possible to consider the objective probabilities of an outcome and to decide on the best alternative in terms of the highest expected value (this can be done through mathematical models) or to use a subjective probability based on experience and judgment (Pérez La Rosa, 2004). In addition, this tool depends on: "a person's preference for taking a risk is proportional to the magnitude of the commitment involved in the decision" (Moody, 1990).

1.4.3. Decision model (Maximax, maximin)

This instrument is based on the subjective division of pessimism and optimism. If the person who will make the decision considers positive solutions, the maximax strategy is used which would represent the best alternative to occur; while, if the person is pessimistic, the maximin strategy is applied through a list and the "maximum of the minimums" is selected (Amaya Amaya, 2010).

1.4.4. Optimization model

It describes how individuals should behave at the moment of making a decision in order to maximize its outcome. It applies the following process: recognizing the need for decision making, identifying the alternatives, assigning a weighting to the alternatives, developing the criteria and evaluating them, and finally selecting the best option (Pérez La Rosa, 2004).

1.4.5. Lineal programming

This technique allows you to select the correct combination of limited resources to solve the problem. It requires the following features: decision variables from the numerical calculation of two or more variables, aims that are embodied in the best decision, objective function that measures the results of any exposed criteria and restrictions on resources (Amaya Amaya, 2010).

1.4.6. Process planning and control (PERT method, network diagram)

The PERT method (Program, Evaluation, Review, Technique) is used particularly by managers at the operational level in order to have an active participation in all areas of the organization and therefore to have contact and communication between all members. In the same way, it allows to discover mistakes in an easier way compared to other methods because it is a dynamic and constantly updated system. The PERT method is a graphic technique that consists of using a diagram to characterize the development of a project (Amaya Amaya, 2010).

1.4.7. Multi-target optimization (hierarchical analysis method)

This instrument is used when a solution to solve complex problems is desired and there are multiple alternatives. It requires that the decision maker evaluate the different criteria depending on the degree of importance presented by each one; in other words, to prioritize them. The technique allows the evaluation of both personal and quantitative decisions. In addition, it incorporates qualitative aspects that are usually excluded due to their complexity in order to be measured (Saaty, 1980).

1.4.8. Fuzzy logic

Fuzzy logic represents mathematically the existing uncertainty and vagueness. According to the Boleyn theory, these are elements that may or may not be part of a set. For example, a man is classified as tall or short, the set of tall men is over 1.80m while the set of short men is under 1.60m. However, if a man is 1.70m tall, in what group is he? The answer is obtained through the present fuzzy logic tool (Pilar, 2012).

1.5 SMEs

Small and medium enterprises are a group of people organized with a common purpose which will be of economic benefit. SMEs are not a "reduced" version of large companies, nor are they a child's stage; rather, they are companies that differ in their structure, functioning, conduct and organization.

Currently, SMEs are very important within the global economy. According to data from the UN's International Council for Small Business (2019), SMEs represent more than 90% of all companies worldwide, between 60 and 70% of global employment. Consequently, they generate 50% of the Gross Domestic Product (GDP) worldwide.

SMEs have a high relevance in both the global and local economy due to the employment and income they generate. In this way, they contribute significantly to the reduction of poverty and unemployment. They provide opportunities to the most vulnerable sectors of society. In developing countries and emerging economies, this business modality prevails.

1.5.1. SMEs definition

There is no common definition for SMEs, according to Dini and Stumpo, so it varies by country and its application and classification criteria. For example, the number of employees, investment levels, technology used, sales volume, amount of assets, net worth, and annual gross income, which has made it difficult to obtain information (Dini & Giovanni, 2018).

In a wider conception, the small and medium enterprises are producing units of goods and services that due to its small size in terms of workers volume and sales have their own characteristics. In accordance with Storey (1987), SMEs are not a copy of large companies in a reduced size, but rather are small companies that have their own economic characteristics, differ in their operating logic, have their own medium and

short term objectives, with a particular conduct and entrepreneurial spirit and a simple bureaucratic organization.

1.5.2. SMEs characteristics

Based on the analysis of small and medium enterprises made by Carlos Cleri in the book of SMEs (2017), it is established that in general SMEs have predominant particularities, it is essential to know the ones presented in the following to understand their uniqueness.

Flexibility: being a small organization, it is affected by different factors that lead to changing and uncertain environments. However, it has greater elasticity, with the ability to sustain itself and adapt to new scenarios. Occasionally, the main activity of the SME can be totally changed.

Innovative and creative: these are companies specialized in a specific activity, thus, they seek to focus on it through goods or services made according to the customer's demands, creating a customized and innovative treatment.

Training school: they are large-scale employers, their massive hiring allows individuals to be trained and integrated into an economic system. They generate work for vulnerable sectors and in rural areas are almost the only source of employment.

Contribute to productivity and global economy: because of the large number of SMEs globally, are safeguarded the balance and sustained growth of the economy by contributing directly and indirectly to the country's GDP, thus contributing to global growth.

Volatility: at the birth of new ideas and with low and unstable capital they face several threats causing their disappearance. A high mortality rate exists mainly in the infant stage; some companies are born, grow and disappear. Other SMEs can retain their size and last longer than imagined.

Difficulty in financial access: a strong problem exists when accessing economies of scale in marketing, supply or production. However, this weakness is not necessarily relevant, as it depends on the country.

On the other hand, the UN provides support to facilitate access to financing. In accordance with goals 8.3 and 9.3 of the Sustainable Development Goals, these companies represent an enormous contribution to the fulfillment of Goal 8 (decent work and economic growth) and Goal 9 (industry, innovation and infrastructure).

CHAPTER 2: ANALYSIS OF SMES AND THE DECISION-MAKING STYLE OF CUENCA QUITO AND BOGOTÁ

2.1 Methodology

This research is descriptive, primarily using quantitative methods. The information was collected directly (research with primary sources), through a questionnaire collected from SME managers in Cuenca and Quito. The number of surveys done varies according to the size of the industrial sector of each city, using a statistically representative sample that is taken in reference to the data obtained from the database of the National Institute of Statistics and Census (INEC) of June 2012. As well as information provided by the Superintendence of Companies and the Ministry of Industries and Productivity Companies that filed their income tax returns in 2017 were considered, which are described in table 1.

Table 1: Sample classification by sector and province

Industrial Sector	Pichincha	Azuay	Sample's Total
Food	38	6	44
Graphic	28	7	35
Timber	13	2	15
Construction	9	2	11
Metal mechanic	55	12	67
Chemical	57	9	66
Textile	40	7	47
Total	240	45	280

Source .Own elaboration, 2020.

The methodology to evaluate the decision-making style is based on the *Decision Making Style Inventory*, an international model that was validated and reliable, it is developed as a Likert evaluation of 20 items that identify an individual's decision

making style preference. The questionnaire applied to the managers of small and medium enterprises in Cuenca consists of 42 questions, which are divided into four large groups: demographics (question 1-8); general decision-making style or GDMS (question 9-33); organizational practices (questions 34-35) and risk and uncertainty (question 36-42).

For the analysis of the decision-making style in Bogotá's SMEs, a compilation of documents and a bibliographic review were carried out, which have been used to carry out a similar analysis. The three texts are *Heuristics and individual management decision making in Bogotá's SMEs*, *Results on the relationship between decision making, communication and ICT management in SMEs in the industrial sector in Bogotá*, and *Impact of decision-making styles on the relationship between leadership and organizational performance* in a group of managers from Colombia, Peru and Ecuador. As there is no study based on the GDMS model carried out in Bogotá, other studies have been taken as a reference that have the same purpose as this research, however, its methodology is different.

First, one of the theses considered as bibliography an analysis of decision-making styles is made through heuristics; the research was collected from 3988 enterprises by a survey with 12 questions. The other considered is a qualitative research that analyzed ten small companies of industrial sector according variables as location, sector and operating time. Finally, the third document considered is a thesis that aims to identify the relationship between leadership, organizational performance and decision making through quantitative explanatory scope with empirical-analytical approach the sample was 363 people from Colombia, Peru and Ecuador.

2.2 SMEs according to the Andean Community of Nations

The Andean Community of Nations (2008) establishes that SMEs include all formal businesses legally constituted and/or registered with the competent authorities, which keep accounting records and/or contribute to social security, and which fall within the thresholds established in Article 3 of Decision 702. Similarly, Article 5 of Decision 702 establishes that member countries must produce and transmit harmonized

Community statistics on SMEs. Table 2 shows the accurate classification of SMEs provided by Andean Community of Nations

Table 2: Classification of SMEs provided by Andean Community of Nations

Variables	Micro companies	Small companies	Medium Companies	Big Companies
Workers	1-9	10-49	50-199	200
Annual Sales	≤100,000	100,001-1,000,000	1,000,001-5,000,000	≥5,000,000
Amount of assets	≤100,000	100,001-750,000	750.001-3.999.999	≥4,000,000

Source: Own elaboration, 2020 Source: Andean Community of Nations

In the case of Ecuador, the definition of SMEs is based on annual sales volume and number of employees; while Colombia is based on the number of workers and amount of assets (Cardozo, Velasquez de Naime, y Rodriguez Monroy, 2012).

2.3 SMEs in Ecuador

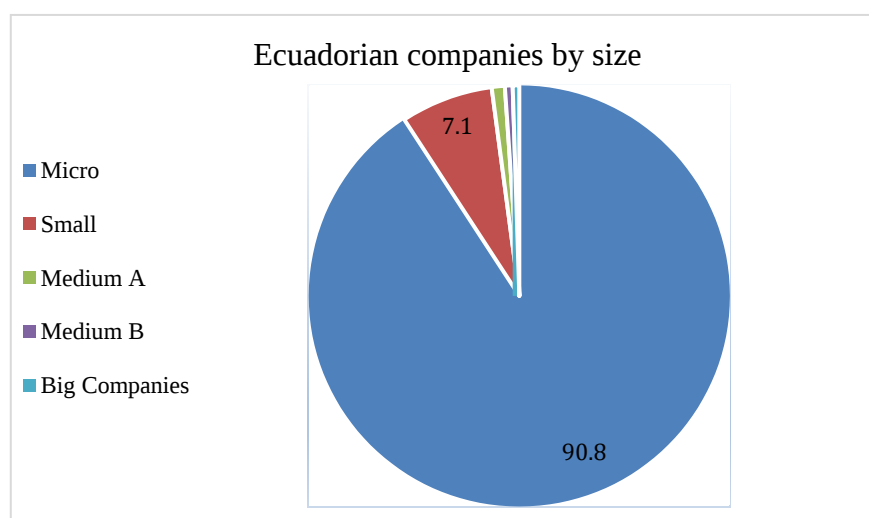
Article 53 from the Organic Code of Production, Commerce and Investment defines micro, small and medium enterprises as: "Micro, small and medium enterprises are any natural or legal person that, as a productive unit, exercises a production, commerce and/or service activity, and that complies with the number of workers and gross value of annual sales, indicated for each category, in accordance with the ranges that will be established in the regulations of this Code" (Ecuadorian Customs, 2018).

2.3.1 Current Situation: Number of companies and jobs

According to the most recent data from the National Institute of Statistics and Censuses, SMEs have a significant contribution in the country. The Business Directory records that in 2018 of the 899,208 companies in Ecuador, 90.81%

represent micro businesses, that is, 816,553 companies that generate annual sales of \$100,000 or less; 7.13% represent small businesses, that is, 64,117 companies that generate between \$100. 000 to \$1,000,000 annually; 1.59% are medium businesses A and B, that is, 14,278 businesses that have an annual sales volume between \$1,000,000 and \$5,000,000, and 0.47% are large businesses that represent 4,260 businesses that annually generate a sales volume greater than \$5,000,001.

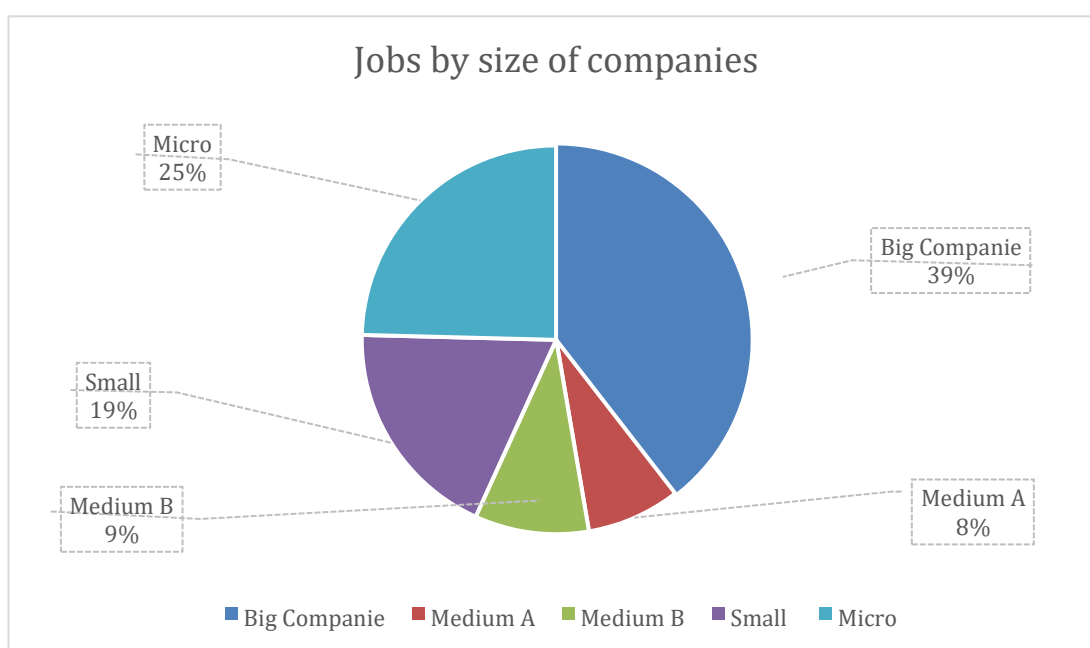
Figure 1 Ecuadorean companies by size



Source: National Institute of Statistics and Census, 2018

Similarly, SMEs play a very important role in the economy since they generate many jobs, and are responsible for more than half of the total number of jobs in the country (3,013,182 jobs registered in the IESS). In other words, micro, small and medium-sized enterprises together represent a total of 2,823,441 jobs.¹

Figure 2 Jobs by size of companies



Source: Own elaboration, 2020

Date of elaboration: February 5, 2020

Source: Ecuador's Institute of Social Security

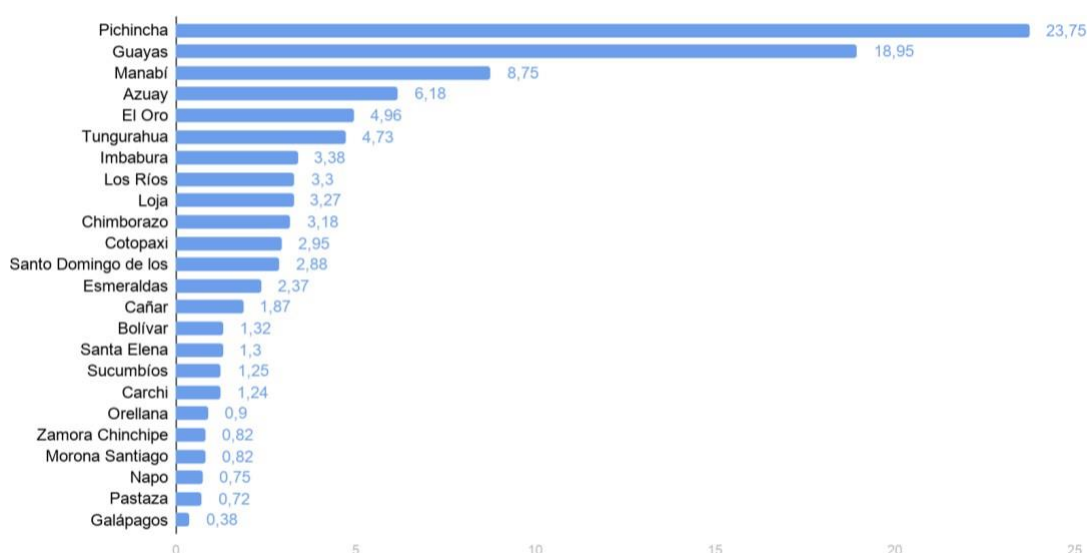
In Ecuador the first sector in terms of jobs generated is the service sector, this sector gives 1,681,587 jobs. The subsequent sectors are Commerce and Manufacturing.

2.3.2 Company structure by province

The structure of the companies is mainly concentrated in the economic sector of services (42.66% of companies) and in the trade sector (34.93% of companies). The remaining 22.41% of companies represent the sectors of agriculture, livestock, forestry and fishing, manufacturing industries, construction and exploitation of mines and quarries.

Similarly, the concentration of companies within the country is mainly in five provinces: Pichincha, Guayas, Manabí Azuay and El Oro. These represent 62.58% of the companies, or 562,724 companies

Figure 3 Companies by sector



Source: National Institute of Statistics and Census

2.3.3 Annual Sales

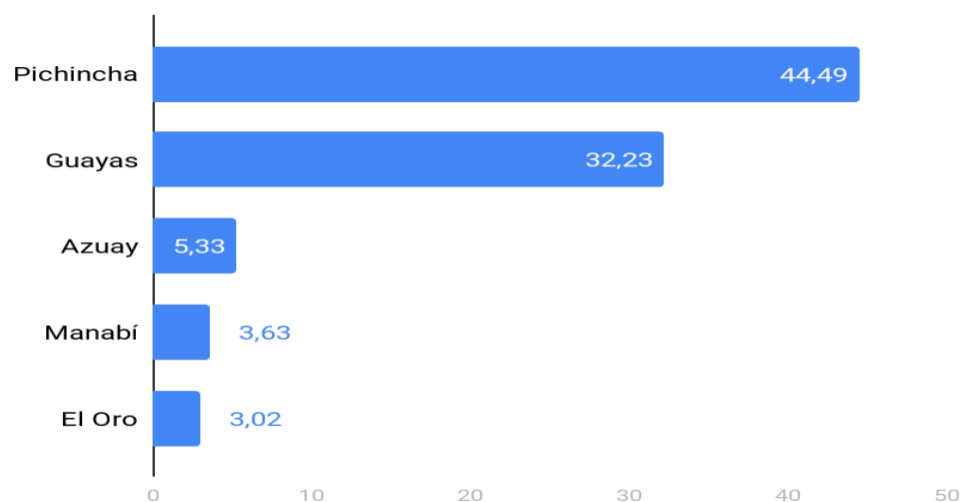
According to the most recent INEC's Directory of Companies made in 2018, the participation in sales of the companies can be classified according to the size of the company, the economic sector and what the province generates.

There is a strong contrast according to the size of the companies, the big companies are the ones that generate more with a percentage of 71.97%, that is 121,675 million current dollars. The combination of the medium sized companies A and B represents 15.8%, that is a total of 26,716 million dollars; the small companies represent 11.29% of sales, that is 19,091 million dollars. Finally, with 0.93% are the micro enterprises, with a value of 1,574 million current dollars.

The participation in sales by the economic sector is mainly concentrated in three sectors that represent 83.91% of sales: Commerce generates 64,384 million dollars, the Services sector generates 41,246 million dollars and the Manufacturing Industries generate 36,227 million dollars. On the other hand, the remaining 16.09% represent the sectors of Mining and Quarrying, Agriculture, Livestock, Forestry and Fishing, and the Construction sector, generating a total of 27,217 million dollars.

The participation in sales in Ecuador has a strong concentration among the five main provinces: Pichincha, Guayas, Azuay, Manabí and El Oro.

Figure 4 Participation in sales of Ecuadorian SMEs by province



Source: Own elaboration, 2020

Date of elaboration: Febrero 6, 2020

Source: National Institute of Statistics and Census de Ecuador

2.3.4 Pichincha and Azuay

In 2018 the data from INEC about the Directory of companies in the provinces, Pichincha and Azuay were among the five most important provinces in the country's economy because they are the ones that show the highest performance in sales, employment and therefore in the existing number of companies.

Table 3 Comparison of the number of companies, sales and employment between Pichincha and Azuay

	Pichincha	Azuay
No. of companies	213,561	44,600
Participation in sales (Millions of USD)	75,213	9,010
Job positions	1,041,958	178,681

Source: Own elaboration, 2020

Source: National Institute of Statistics and Census

2.4 SMEs in Colombia

Law number 905 defined SMEs as “any economic exploitation unit, carried out by a natural or legal person, in business, agricultural, industrial, commercial or service activities, rural or urban. In addition, it is based on two criteria to classify micro and SMEs, which are:

- The value of the assets.
- The number of employees.

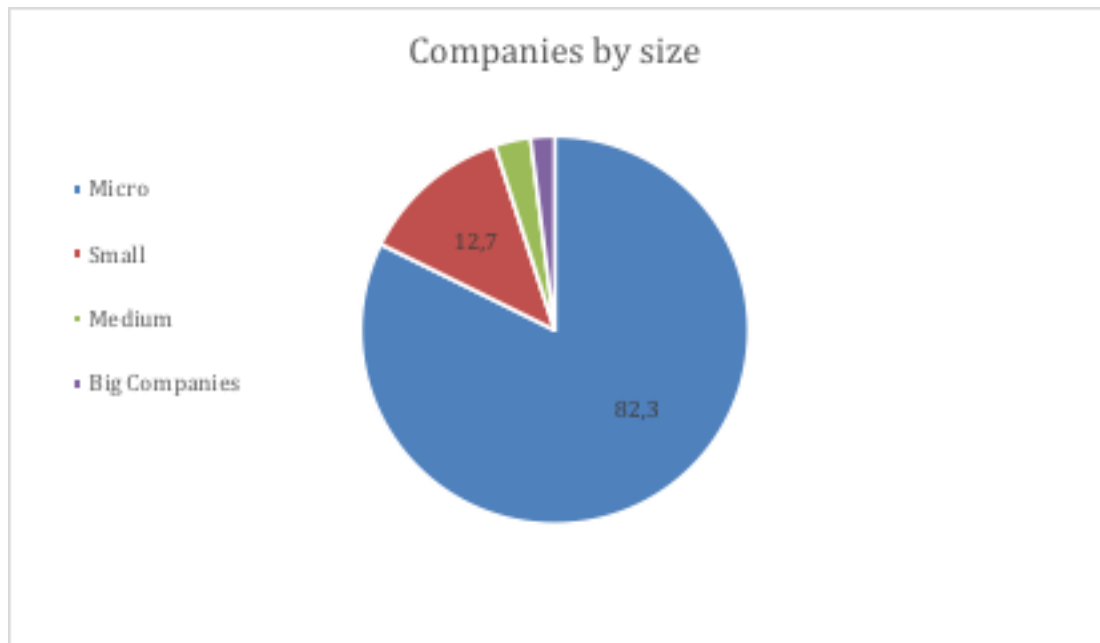
Then a company is considered medium sized if it has between 51 and 200 workers with total assets between 5,001 and 30,000 monthly minimum wages. In accordance with these criterion, a small company has between 11 and 50 workers with total assets between 501 and less than 5,000 minimum monthly salaries (Law 905,2004)

2.4.1 Current Situation: Number of companies and jobs positions

National Administrative Department of Statistics (NADS), which is the entity responsible for collecting, analyzing and distributing Colombia's official statistics, SMEs and micro-enterprises make a significant contribution to the country, representing 80% of the country's employment and 90% of the national productive sector (Ministry of Labor Colombia, 2019).

Colombia has around one million six hundred thousand twenty companies, just 1,23% are large companies (19,926 companies), furthermore 59,616 are medium sized companies (3,68%), and 201,042 are small companies, that is 12.41%. Meanwhile, micro-companies are the ones with a higher rate with 82.3%, representing 1,308,474 companies (Dini & Giovanni, 2018).

Figure 5 Classification of Colombian companies by size



Source: National Administrative Department of Statistics

SMEs and micro enterprises are important in Colombia's economy and society. Ministry of Commerce, Industry and Tourism for 2018 established that micro, small and medium enterprises represent 99.9% of productive establishments. Also, it generates 80% of the employment in the country and has a contribution of 40% of the national Gross Domestic Product (Dini & Giovanni, 2018).

Likewise, in 2017 the industrial sector the small and medium enterprises are responsible for 44.45% of the employment in the industrial sector with 320,906 jobs. Furthermore, medium-size companies employ 214,888 people and small companies generate 106,018 jobs (National Administrative Department of Statistics , 2017)

2.4.2 Companies structure

According to the technical bulletin published in 2017 by NADS, the survey of micro-establishments investigated 33,013 economic units in the 24 main cities and their metropolitan areas, the sectors with more companies are: Commerce, Commerce, Professional, Scientific and Technical Activities, Manufacturing Industries, Services (Administrative and Support), Construction and Telecommunications (National Administrative Department of Statistics, 2019)

In Colombia, the geographical concentration of small and medium enterprises shows that the 50% of the national SMEs are located in Bogotá (National Administrative Department of Statistics, 2019)

2.4.3 Annual Sales

According to NADS data the annual sales of 2017 in Colombia, in terms of gross industrial production, is 242,952,070,619 pesos.

Large companies in relation to the total represent 62% of sales in 2017 and their gross production was 151,278,326,526. The medium sized company registered 52,610,416,229, the 22% of the total, and finally the small companies with 39,063,327,864 represent 16% (National Administrative Department of Statistics, 2019)

2.5 Analysis of the decision-making style of SMEs in Cuenca

Cuenca's industrial sector has a very important role in Ecuador since it contributes significantly to the economy, being the second city (after Quito) that generates more Gross Domestic Product (GDP) per capita by manufacturing in the country; this way this manufacturing sector has turned Cuenca into the only city in the country that contributes and generates more than the commercial sector.

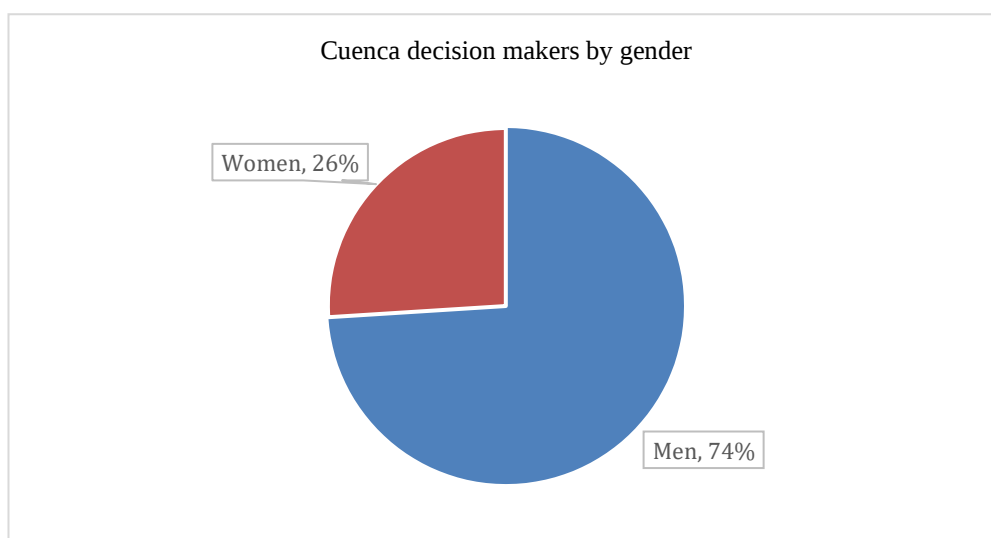
On the other hand, according to the Chamber of Industries, Production and Employment (2018), the commercial exchange of Cuenca's industry generates 1,500 million dollars a year, and more than 90% of the production in the province is consumed outside the province, reaching more than 30 countries.

For the analysis of the decision making style, a total sample of 47 industrial companies of the province of Azuay was considered, corresponding to the following sectors: Food, Graphic, Timber, Construction, Metal-mechanic, Chemical and Textile.

2.5.1 Results of demographic questions

The first indicator evaluated among decision makers was the gender of the company managers in a general way and specifically according to the sector. In general, male managers predominate, as can be seen in the Figure 6 the 74% of the companies in Azuay being headed by men.

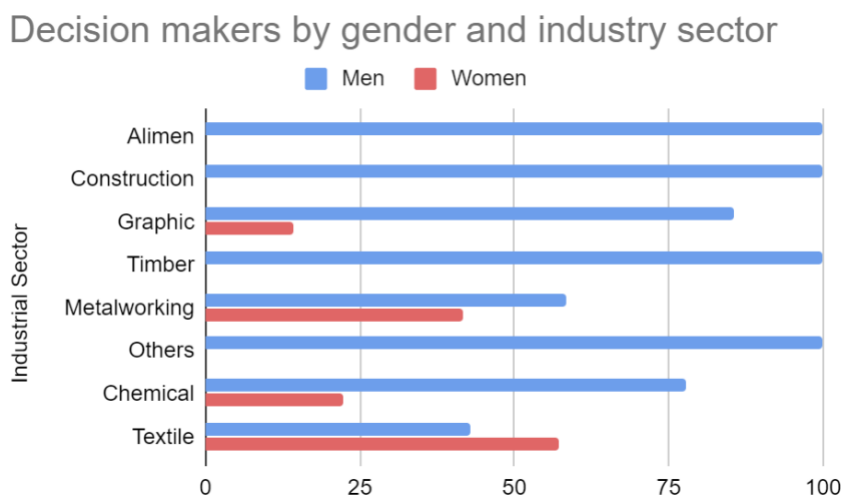
Figure 6 Cuenca Decision Makers by Gender



Source: Own elaboration, 2020

In the industrial sector the male gender predominate as managers of the companies, in other hand, in the construction and alimentary sectors there is an abence of women in the head of the companies. However, the textile sector is the only one in which the female sector predominates.

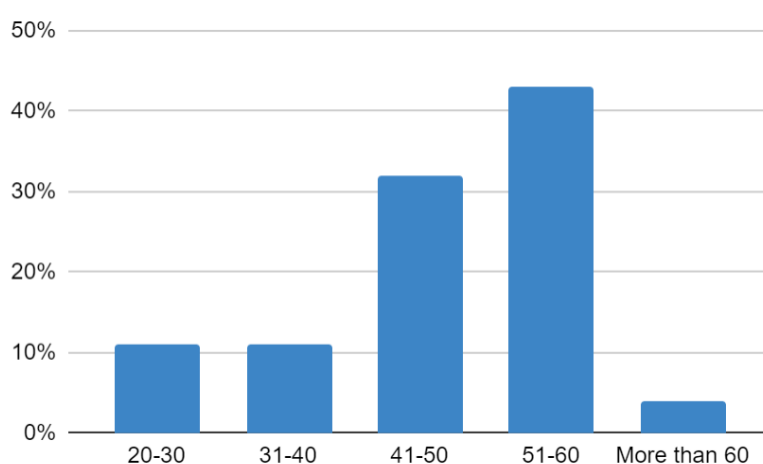
Figure 7 Decision makers in Cuenca by gender and industry sector



Source: Own elaboration, 2020 Date of elaboration: Febrero 20,2020

About the age of the managers, it is possible to observe that almost half are in the range of 51 to 60 years old, followed by the range of 41 to 50 years old which represents 30%. In other words, most of the people who are in charge of the companies in Azuay are adults who are between 40 and 60 years old.

Figure 8 Age of Cuenca managers

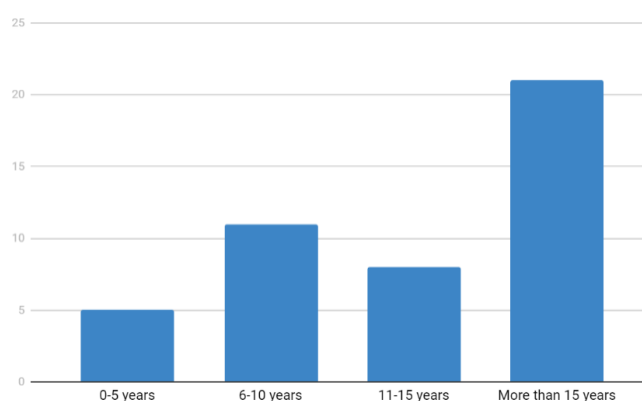


Source: Own elaboration, 2020

Most of Cuenca's industrial sector managers have been at the head for more than 15 years, in other words, they have extensive knowledge and experience about the company. Generally, these companies are family businesses with a family nucleus, in

other words the owners or the children of the owners of these institutions are the managers and those who are in charge of the company. Subsequently, there is the range of 6 to 10 years of management experience. The number of managers with less than 5 years in charge is minimal.

Figure 9 Years of management experience in Cuenca

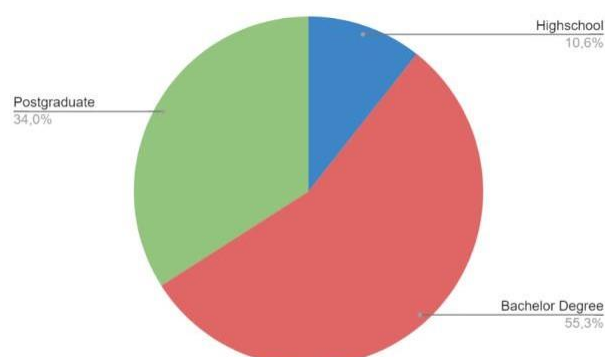


Source: Own elaboration, 2020

Date of elaboration: Febrero 20,2020

Experience is a very important element in the position as manager because at the moment of making decisions it could be either based on their knowledge, training or using different tools and expertise acquired throughout their career. According to the Figure 7, all managers have a high degree of experience; more than half have completed their higher education, 34% have postgraduate higher education experience and only 10.6% of decision makers have completed just their secondary education.

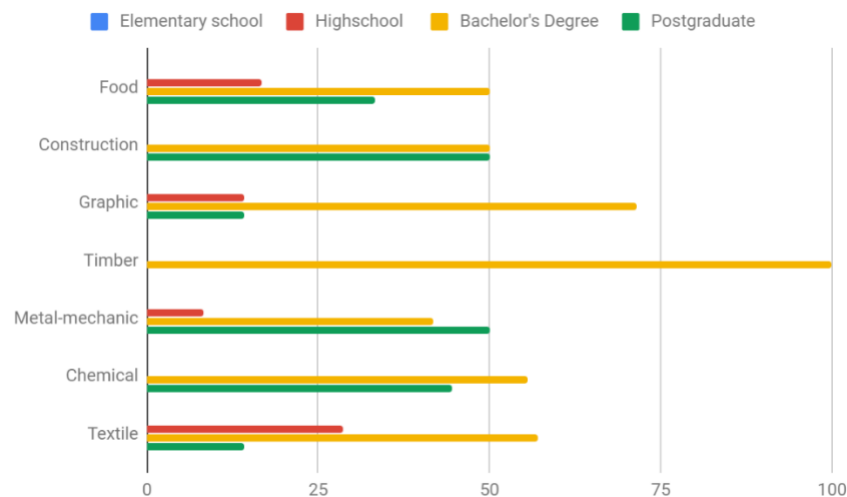
Figure 10 Education of Cuenca's managers



Source: Own elaboration, 2020

In the same way, by relating the data obtained from management experience in general to the specific industrial sector, it is evident that in all sectors the managers have higher education. However, the Metalmechanical and Chemical sectors are the ones that have more experience, since their studies are o Bachelor's degree and Postgraduate.

Figure 11 Management education in Cuenca by industrial sector



Source: Own elaboration, 2020

Date of elaboration: February 20,2020

2.5.2 Decision-making style results from the surveys to SME managers in Cuenca

In this subchapter we analyze the results obtained from the data collected in the surveys of the general decision-making style group. It is important to note that this group is comprised of 25 questions and in turn 5 questions correspond to each of the decision-making styles (dependent, spontaneous, avoidant, intuitive and rational).

2.5.2.1 Intuitive style of managers in SMEs in Cuenca

The intuitive decision-making style is characterized by the fact that decisions are based on your intuitions and feelings. Questions related to this decision-making style are surveyed in questions 9, 11, 20, 24, and 25, which are detailed below in Table 4.

Table 4 Intuitive Style Questions

Q9	When decision-making, I rely upon my instincts.
Q11	When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it.
Q20	When I make a decision, I trust my inner feelings and reactions.
Q24	When I make decisions, I tend to rely on my intuition.
Q25	I generally make decisions that feel right to me.

Source: Own elaboration, 2020

1. When I make decisions, I tend to rely on my intuition.
2. I generally make decisions that feel right to me.

These questions allowed us to determine that the managers in the city of Cuenca have an intuitive tendency in their decisions, because the representativeness of the total answers "Agree" and "Completely agree" of this style represents 54.05%; that is, the managers answered that their decisions are of an intuitive nature since the weighting represents more than half of the answers in the survey conducted. This style is one of the three predominant in management decision making in the city of Cuenca.

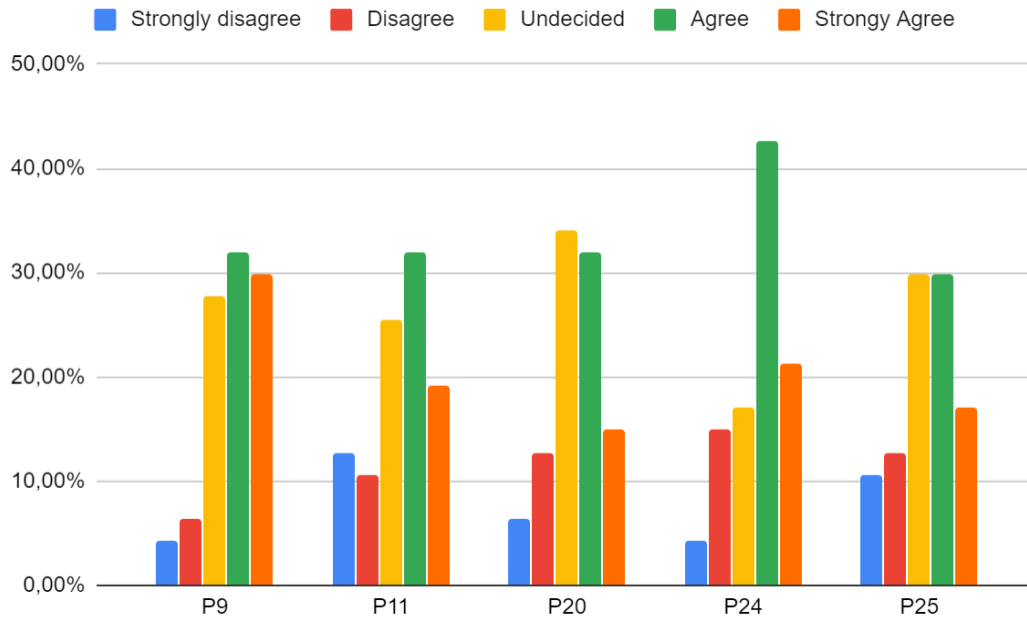
Table 5 Global Answers in Cuenca from the Intuitive Style

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
7,66%	11,49%	26,81%	33,62%	20,43%

Source: Own elaboration, 2020

The global analysis allows us to observe the overall average, considering all questions and variables. Figure 12 and Table 7 show the answers to the five variables of the five questions of this style, which will allow a detailed analysis.

Figure 12 Cuenca's intuitive style answers per question



Source: Own elaboration, 2020

Table 6 Cuenca's intuitive style answers per question

	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
Q9	4,26%	6,38%	27,66%	31,91%	29,79%
Q11	12,77%	10,64%	25,53%	31,91%	19,15%
Q20	6,38%	12,77%	34,04%	31,91%	14,89%
Q24	4,26%	14,89%	17,02%	42,55%	21,28%
Q25	10,64%	12,77%	29,79%	29,79%	17,02%

Source: Own elaboration, 2020

The figure 12 shows that the bars representing the answers "undecided", "agree" and "completely agree" are the ones that have the greatest acceptance and predominance; while the answers contrary to the decision-making style, are almost null in some questions or not very relevant. On the other hand, when analyzing in more detail the percentage of responses from managers, we can examine that in question 24 almost all managers agree; that is, their decision making is usually based on their instinct, on their innate behavior rather than on previous experience. However, it is important to think about the percentage of answers in the "Neither agree nor disagree" parameter, since this is the second most predominant value in several questions, as in questions 11 and 25.

2.5.2.2 Dependent style of managers in Cuenca's SMEs

The dependent style is characterized because the decision makers trust a third party to choose the decision to be made or executed. The questions that allow us to have a result about this type of decision in our applied questionnaire are questions 10,13,18,26 and 30. These are the same as the following:

Table 7 Dependent style questions

Q10	I rarely make important decisions without consulting other people.
Q13	I use the advice of other people in making my important decisions
Q18	I like to have someone to steer me in the right direction when I am faced with important decisions.
Q26	I often need the assistance of other people when making important decisions.
Q30	If I have the support of others, it is easier for me to make important decisions.

Source: Own elaboration, 2020

All the questions are suggestive to know if it is necessary the support of other people who guide the leader of the company at the moment of taking decisions. In this way, it can be seen that there is a dependent tendency in Cuenca. Most questions focus on the answers "Neither agree nor disagree" and "Agree"; however, the answers in favor of this style are more than those against. That is, the total of the answers in favor (agree and completely agree) represents 52.76%. Therefore, respondents chose that when making decisions they have a tendency to trust third parties.

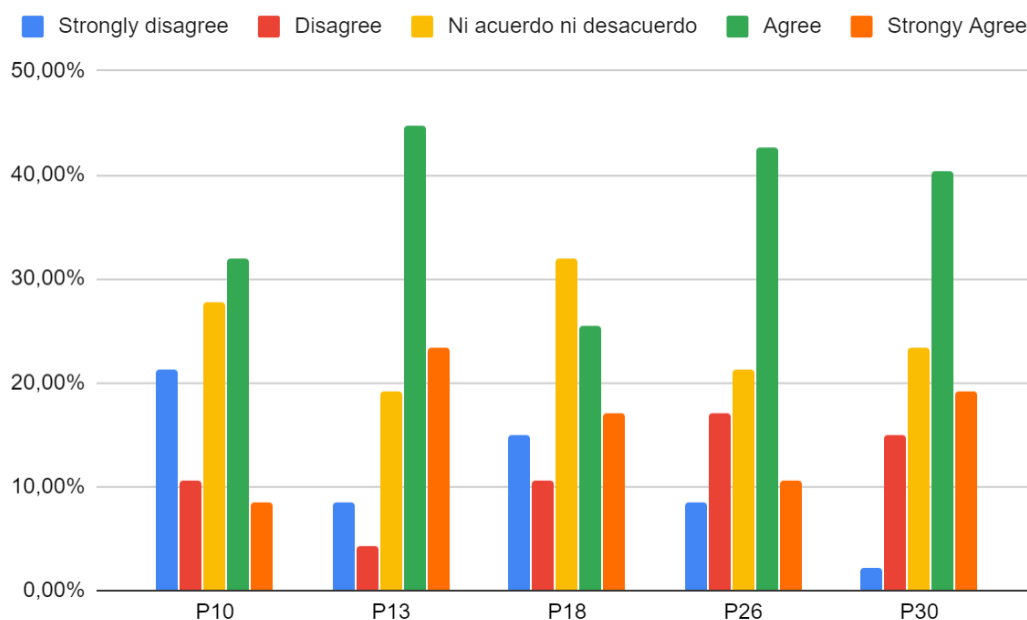
Table 8 Global answers in Cuenca of the intuitive style

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1,06%	11,49%	24,68%	37,02%	15,74%

Source: Own elaboration, 2020 Date of elaboration: March 2, 2020

With the further analysis it becomes clear that the dependent style is a predominant style in Cuenca's SME managers. Figure 13 and Table 10 provide a detailed analysis per question. They illustrate graphically and with their percentages the answers to the five variables of the five questions of this style.

Figure 13 Cuenca's answers of dependent style by question



Source: Own elaboration, 2020

In the detailed analysis of the answers to each question, it shows that in four of the five answers, the answer "agree" predominates and is followed by the answer that represents the manager's impartiality (neither agree nor disagree). In question 18, however, it is the only answer that is the most unbiased, so managers are indifferent to having someone guiding them in the right direction when making important decisions.

Table 9 Cuenca dependent style answers by question

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Q10	21,28%	10,64%	27,66%	31,91%	8,51%
Q13	8,51%	4,26%	19,15%	44,68%	23,40%
Q18	14,89%	10,64%	31,91%	25,53%	17,02%
Q26	8,51%	17,02%	21,28%	42,55%	10,64%
Q30	2,13%	14,89%	23,40%	40,43%	19,15%

Source: Own elaboration, 2020

Spontaneous Style Spontaneous Style 2.5.2.3 Rational style of managers in SMEs in Cuenca

In a rational decision-making style, the decision is understood as a process of reflection, using different tools or in a logical and systematic way. In the survey, the questions to determine if the managers of the SMEs in Cuenca use a rational style in their decisions are questions 12,15,19,21 and 33. The questions included in the questionnaire are those shown below in Table 11.

Table 10 Rational style questions

Q12	I double-check my information sources to be sure I have the right facts before making decisions.
Q15	You make decisions in a logical and systematic way.
Q19	My decision making requires careful thought.
Q21	When making a decision, I consider various options in terms of a specific goal.
Q33	You usually have a rational basis for decision-making

Source: Own elaboration, 2020 Date of elaboration: March 4,2020

The rational decision-making style is predominant in Cuenca. This statement is made on the basis that most of the responses from SME managers are in favor of this style. In other words, 75.74% concentrate on the "Agree" and "Strongly Agree" responses, recognizing that there is a strong tendency for analysis prior to an action within the company.

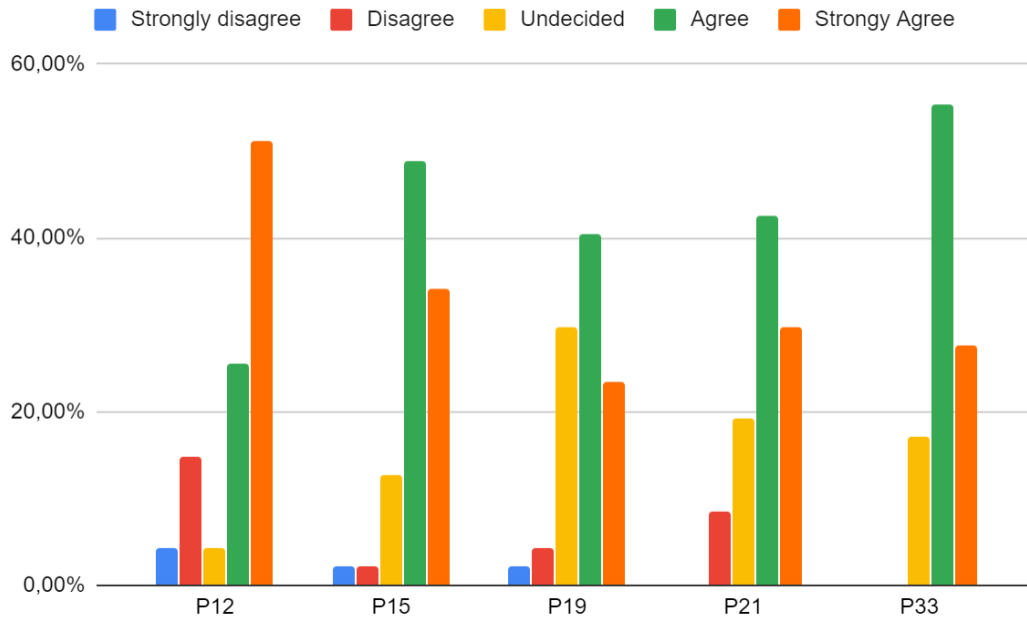
Table 11 Global answers in Cuenca of the rational style

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1,70%	5,96%	16,60%	42,55%	33,19%

Source: Own elaboration, 2020

The overall average of all responses shows a predominance of Agree and Strongly Agree responses of the rational style (See Table 11), thus assert that this style is used by Cuenca's managers in decision making. Also, Figure 14 and Table 13 show the rational style. They illustrate graphically and with their percentages the answers to the five variables of the five questions of this style, which will allow later detailed analysis.

Figure 14 Cuenca's rational style answers per question



Source: Own elaboration, 2020

Date of elaboration: March 4,2020

Table 12 Cuenca's rational style answers per question

	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
Q12	4,26%	14,89%	4,26%	25,53%	51,06%
Q15	2,13%	2,13%	12,77%	48,94%	34,04%
Q19	2,13%	4,26%	29,79%	40,43%	23,40%
Q21	0,00%	8,51%	19,15%	42,55%	29,79%
Q33	0,00%	0,00%	17,02%	55,32%	27,66%

Source: Own elaboration, 2020

The answer "Strongly agree" is the most representative in this style of decision making, because other responses in favor of one style generally concentrate on the bar that represents "agree", while in this style there is a large percentage in the answer "agree". Hence, managers often review the information to ensure accuracy and it requires both logical and systematic reflection on a rational basis.

2.5.2.4 Spontaneous style of managers in SMEs in Cuenca

Spontaneous style in decision making is reflected in terms of decisions that have no elaborate reasoning, decisions that are impulsive in the face of the moment and situation, or that are made simply through hunches. In the survey, the questions aimed at determining whether managers of SMEs in Cuenca use a spontaneous style in their decisions are questions 16, 17, 23, 28, 32, shown in table 14

Table 13 Spontaneous style questions

Q16	When making decisions, I do what seems natural at the moment.
Q17	I generally make snap decisions.
Q23	I often make impulsive decisions.
Q28	I often make decisions on the spur of the moment.
Q32	I make quick decisions.

Source: Own elaboration, 2020 Date of elaboration: March 6,2020

In terms of decision-making style, it can be observed that there is no trend in a specific response; however, the items "Undecided" and "Disagree" are the largest percentage, together representing 38.72%. In turn, there are more Disagree responses in this style. Consequently, Cuenca's managers do not base their decision making on impulse, unanalyzed or quick decisions.

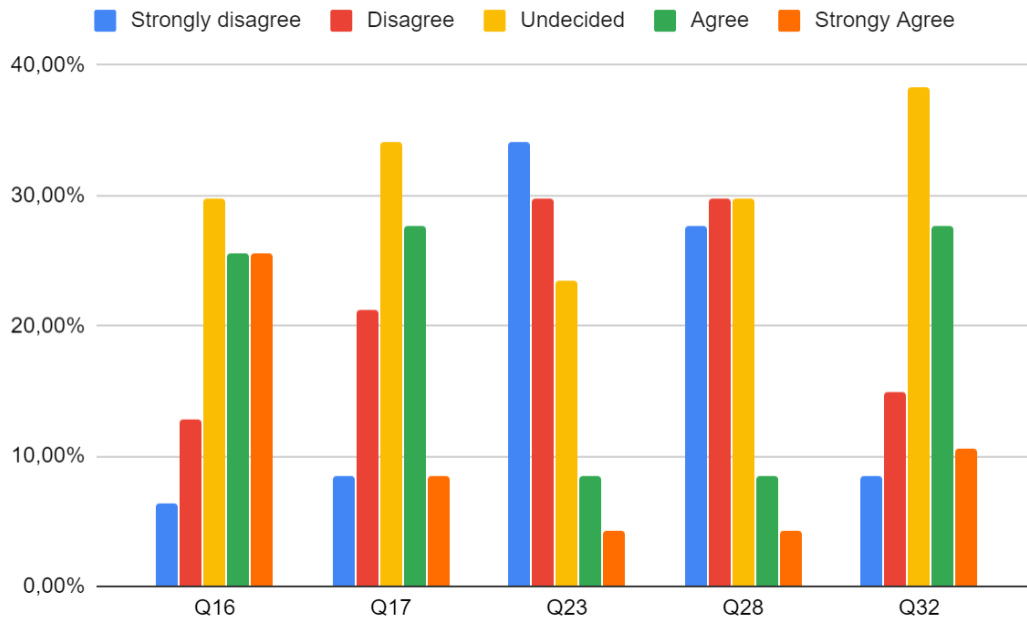
Table 14 Global Answers in Cuenca of Spontaneous Style

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
17,02%	21,70%	31,06%	19,57%	10,64%

Source: Own elaboration, 2020

The spontaneous style has a high weighting in the answer of “strongly disagree” and “disagree” However, the spontaneous style has also been analyzed by question and considering all the variables can be seen in Figure 15 and Table 16. They illustrate graphically and with their percentages the answers to the five variables of the five questions of this style, which will allow later detailed analysis.

Figure 15 Cuenca answers spontaneously by question



Source: Own elaboration, 2020

Table 15 Cuenca's answers spontaneously by question

	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
Q16	6,38%	12,77%	29,79%	25,53%	25,53%
Q17	8,51%	21,28%	34,04%	27,66%	8,51%
Q23	34,04%	29,79%	23,40%	8,51%	4,26%
Q28	27,66%	29,79%	29,79%	8,51%	4,26%
Q32	8,51%	14,89%	38,30%	27,66%	10,64%

Source: Own elaboration, 2020 Date of elaboration: March 6, 2020

In general, Cuenca's managers do not act spontaneously it is asserted because of a "Disagree" answer has a higher percentage in almost all questions from this section; however, there is a discrepancy between question 23 and question 32. Because in question 23 the managers show a clear Disagree posture to the spontaneous tendency, but in question 32 that corresponds to the same style the managers answer in an affirmative way. In summary, their decisions in certain occasions can be spontaneous, but this does not mean that this style is dominant in general.

2.5.2.5 Avoidant style of managers in SMEs in Cuenca

Avoidant decision-making style is when the decision is postponed or avoided until it is all but inevitable to make a choice and this decision will be made at the last minute. In the survey, the questions aimed at determining whether managers of SMEs in Cuenca use an avoidant style in their decisions are questions 14, 22, 27, 29 and 31. The questions in the questionnaire that correspond to this style are found in Table 17.

Table 16 Avoidant style questions

Q14	I put off making many decisions because thinking about them makes me uneasy.
Q22	I avoid making important decisions until the pressure is on.
Q27	I postpone decision making whenever possible.
Q29	I often procrastinate when it comes to making important decisions.
Q31	I generally make important decisions at the last minute

Source: Own elaboration, 2020 Date of elaboration: March 14,2020

The data collected in these questions reflect a higher concentration in the answer of "Undecided" with 28.09%, the next in descending order of weighting is the answer of "Disagree" with 25.96%, followed by the answer of "Strongly in disagreement" with 22.13%, the answer "Agree" represents 19.57% and finally 4.26% corresponds to the answer of "Strongly Agree". In other words, this style does not predominate, and therefore Cuenca's managers are not avoidant when it comes to making decisions.

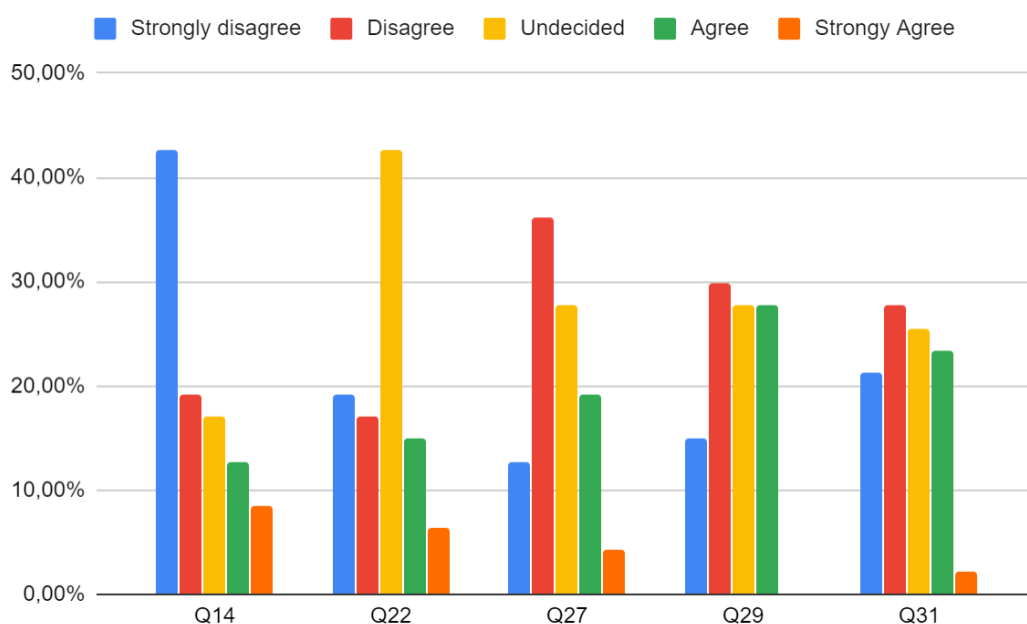
Table 17 Cuenca's global answers of spontaneous style

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
22,13%	25,96%	28,09%	19,57%	4,26%

Source: Own elaboration, 2020 Date of elaboration: March 14,2020

As previously stated, the avoidant style is not predominant in the decision making of SME managers in Cuenca, however, it is important to review the existing trend per question to illustrate this point. Figure 16 and Table 19 are shown below. They show the answers to the five variables of the five questions in this style, which will allow further detailed analysis.

Figure 16 Cuenca answers avoidant by question



Source: Own elaboration, 2020 Date of elaboration: March 14,2020

Table 18 Cuenca answers avoidant style by question

	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
Q14	42,55%	19,15%	17,02%	12,77%	8,51%
Q22	19,15%	17,02%	42,55%	14,89%	6,38%
Q27	12,77%	36,17%	27,66%	19,15%	4,26%
Q29	14,89%	29,79%	27,66%	27,66%	0,00%
Q31	21,28%	27,66%	25,53%	23,40%	2,13%

Source: Own elaboration, 2020 Date of elaboration: March 14,2020

In terms of detailed percentage analysis, it was found that a low percentage of managers prefer to avoid or delay decision making, while the majority of managers choose never or rarely to delay decision making. Especially in question 14, it can clearly be seen that managers can make decisions without delaying them actions.

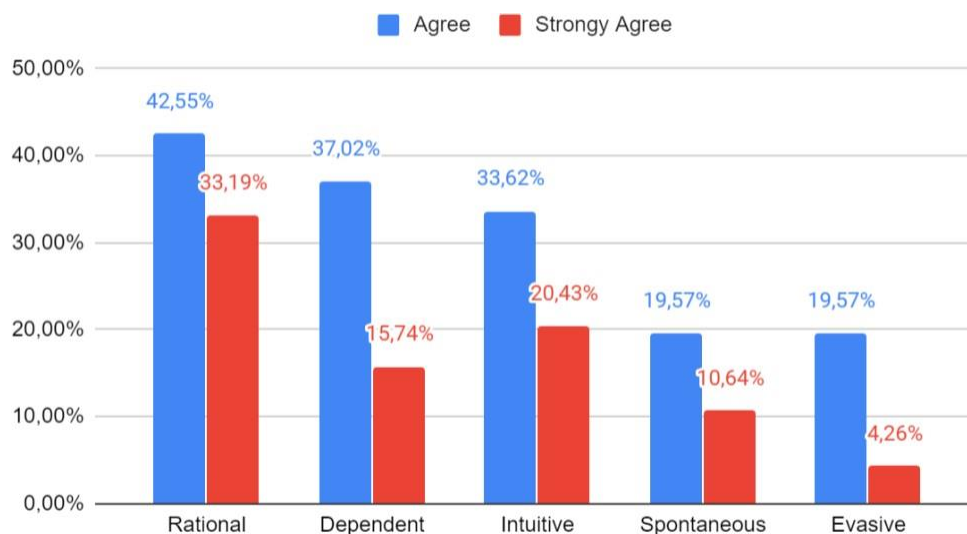
2.5.3 Predominant decision-making style in Cuenca's SMEs

The results obtained show that within the decision making of the managers of the industrial SMEs in Cuenca there are the styles: rational, dependent and intuitive.

However, the rational style is the one that predominates in the managers, since the total of answers "in agreement" and "completely in agreement" represents 76%. The avoidant and spontaneous styles represent a minimum percentage, in other words, Cuenca's managers do not base their decisions on these styles.

The results obtained show that in the decision making process of the managers of the industrial SMEs in Cuenca the following styles can be identified: rational, dependent and intuitive. However, the rational style is the one that predominates in the managers, since the total of answers "agree" and "strongly agree" represents 76%. The avoidant and spontaneous styles represent a minimum percentage, in other words, Cuenca's managers do not base their decisions on these styles.

Figure 17 Management decision-making styles in Cuenca's manufacturing sector



Source: Own elaboration, 2020 Date of elaboration: March 14,2020

2.6 Analysis of SMEs' decision-making style in Quito

The industrial sector of Pichincha plays a very important role in Ecuador since it contributes directly to the economy, as it is the city with the highest per capita gross domestic product per manufacture. There are 213,561 companies in the manufacturing industry in this province. At the same time, at a national level, Pichincha is the

province with the largest concentration of enterprises in the nation. Therefore, it is the province that annually generates the highest sales and provides the most employment.

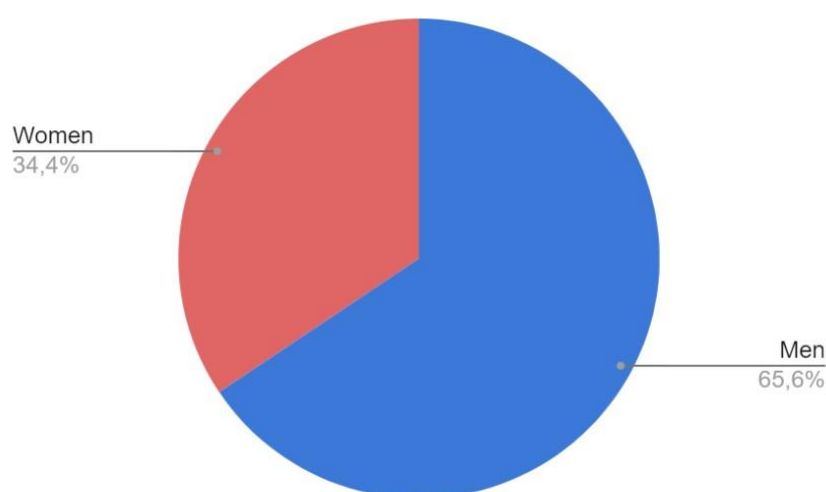
The decision making style study in this city is based on the data collected in a total sample of 233 industrial companies, corresponding to the following sectors: Food, Graphic, Timber, Construction, Metal-mechanic, Chemical and Textile. First results to be analyzed are the demographic questions (question 1-8), such as: sex, age, experience, educational background in general and by industrial sector.

2.6.1 Results of demographic questions

First, a gender analysis was carried out on the managers of the manufacturing sector in Quito. The results obtained were the participation of men and women in general (in the entire manufacturing sector in Quito), as well as participation by gender according to the sectors analyzed.

Men's participation as decision makers in Quito represents 65.6%; on the other hand, women's participation as SME managers represents 34.4%. Consequently, in Quito, male managers predominate as shown in the graph below.

Figure 18 Participation of male and female managers in Quito

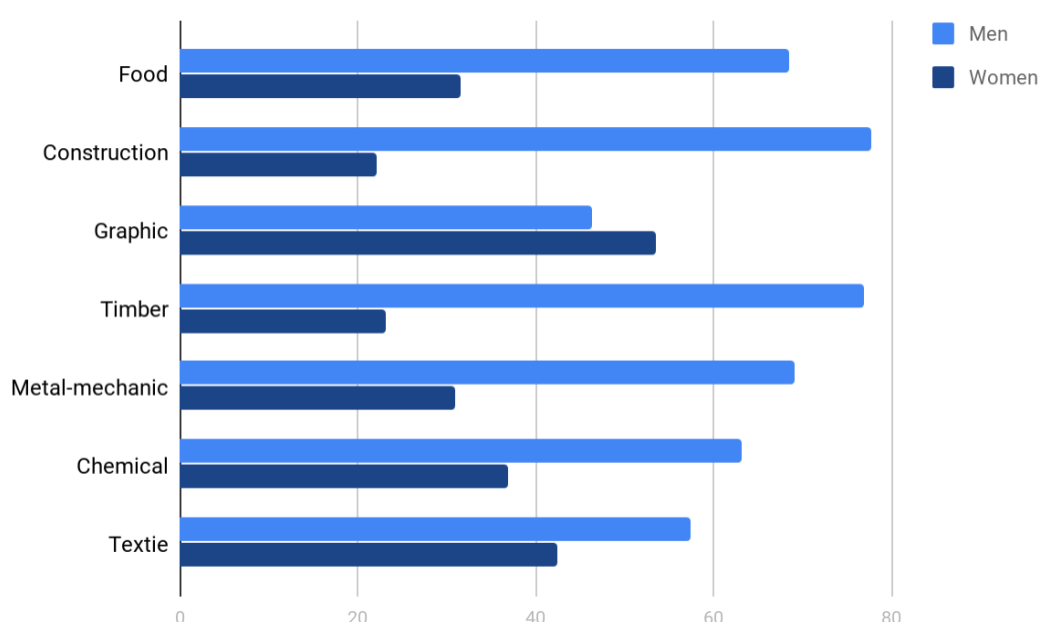


Source: Own elaboration, 2020

Date of elaboration: Marzo 30, 2020

Regarding the participation of men and women as SME managers, it is considered of utmost importance to examine their involvement by sector, appreciating that the greatest male participation is in the timber and construction industry. In fact, based on the data, it can be inferred that women's participation is present in all industrial sectors, a contrary reality of Cuenca, where there were sectors with no women's participation. Similarly, the industry in which there are more women than men is the graphic industry.

Figure 19 Participation of men and women in Quito by industry

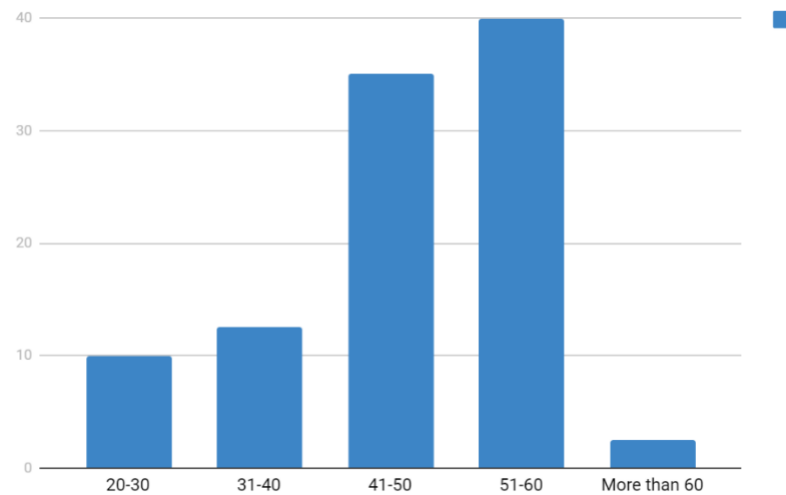


Source: Own elaboration, 2020

Date of elaboration: March 30,2020

In relation to the age of managers, there is a concentration of 75% of executives between 41 and 60 years of age. A higher weighted representation is found with 40% of decision makers in the 51-60 age range, while executives between 20 and 40 and over 60 years old represent only 25%. In other words, Quito's SME managers are adults between the ages of 40 and 60.

Figure 20 Age of Quito managers

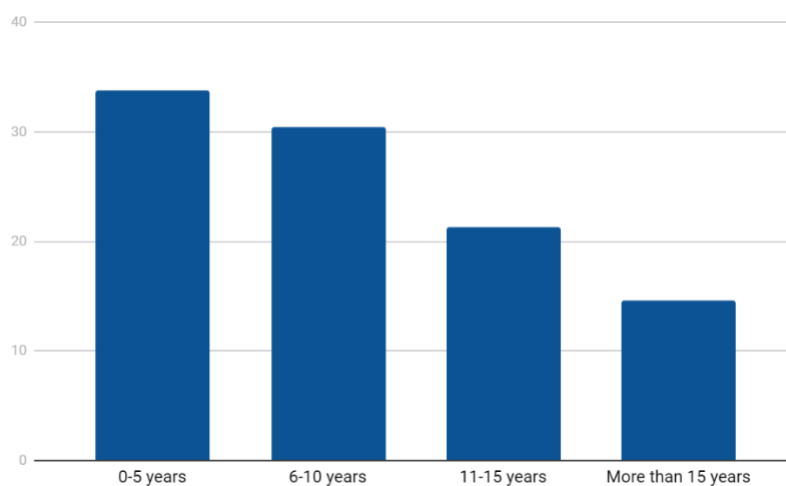


Source: Own elaboration, 2020 Date of elaboration: March 30,2020

Experience is always a factor that influences and drives the way a manager determines his or her actions. This is why managers have been analyzed based on this criterion, since experience in a management position is based on different lessons learned along the way. In the data obtained with reference to the years of managerial experience, it is deduced that the majority of the managers who run the companies in Quito have been in managerial positions from 0 to 10 years.

Managers with 0 to 5 years represent 33.4% while from 6 to 10 years of management experience represent 30.43%. The experience as Heinrich Heine would say "is a very good school" (Heine, 1967). It does not define if a person is doing well or poorly his work; therefore, the greater the experience, the more effective the solution of the problems will be.

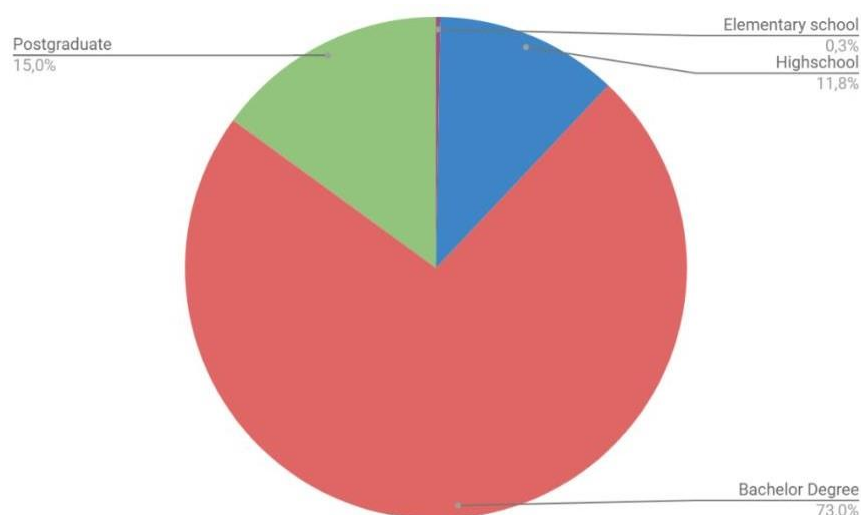
Figure 21 Years of management experience in Quito



Source: Own elaboration, 2020 Date of elaboration: March 30,2020

In reference to management training, the managerial instruction that predominates in Pichincha's managers is the Superior University study with a weighting of 73%. The 27% weighting includes the training data: primary, secondary and Superior Postgraduate. It is important to emphasize that only 0.3% are managers who have studied up to primary school, 11.8% of the managers surveyed have a secondary education and, finally, 15% correspond to managers who have studied a higher postgraduate education. Managers in the province of Pichincha have mostly studied at the university level.

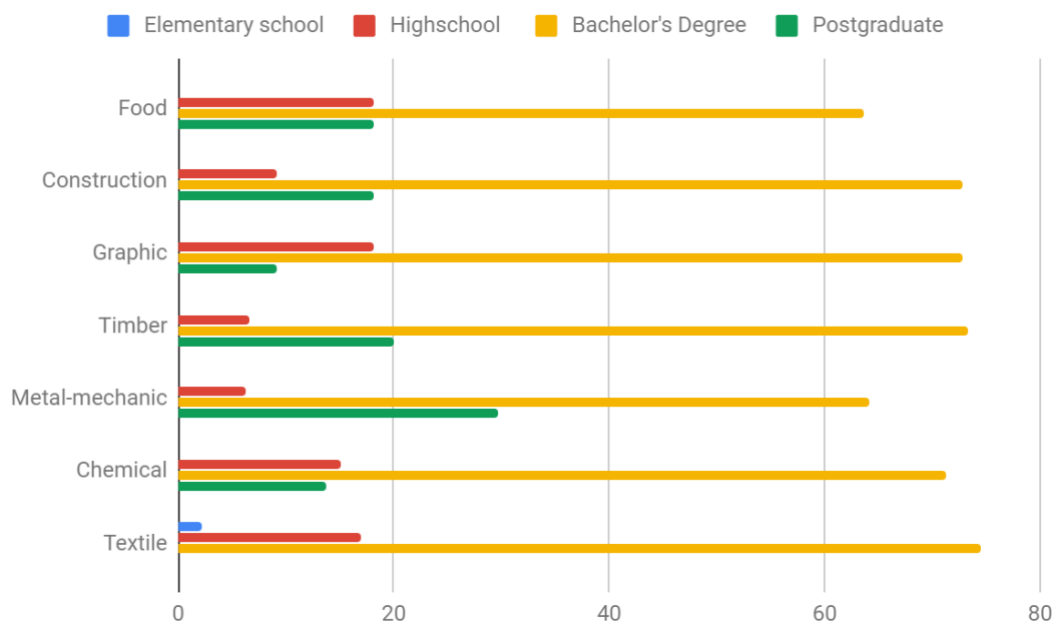
Figure 22 Education of Quito's manager



Source: Own elaboration, 2020

The education level of managers in Quito, according to each sector, reveals a higher level of educational attainment for all decision makers. However, the textile sector has a minimal percentage of primary education and lacks managers with a post-graduate level. Nevertheless, all the sectors of the industry present managers with higher education in their majority. At the same time, the sector with more managers with a postgraduate education level is the metal-mechanic sector.

Figure 23 Management education by industry sector in Quito



Source: Own elaboration, 2020

2.6.2 Results of the decision-making style from the surveys of SME managers Quito

This second section of the survey will document the data on management decision-making style in Quito, comprising 25 questions that cover the five decision-making styles.

2.6.2.1 Rational Style of Managers in Quito's SMEs

There is a rational trend in decision making by SME managers in Quito, due to the concentration of "Agree" and "Completely agree" responses, on average these responses represent 84.42%. Clearly, it is possible to assert that systematic and logical decision-making is predominant in Quito.

Table 19 Global responses of the rational style in Quito

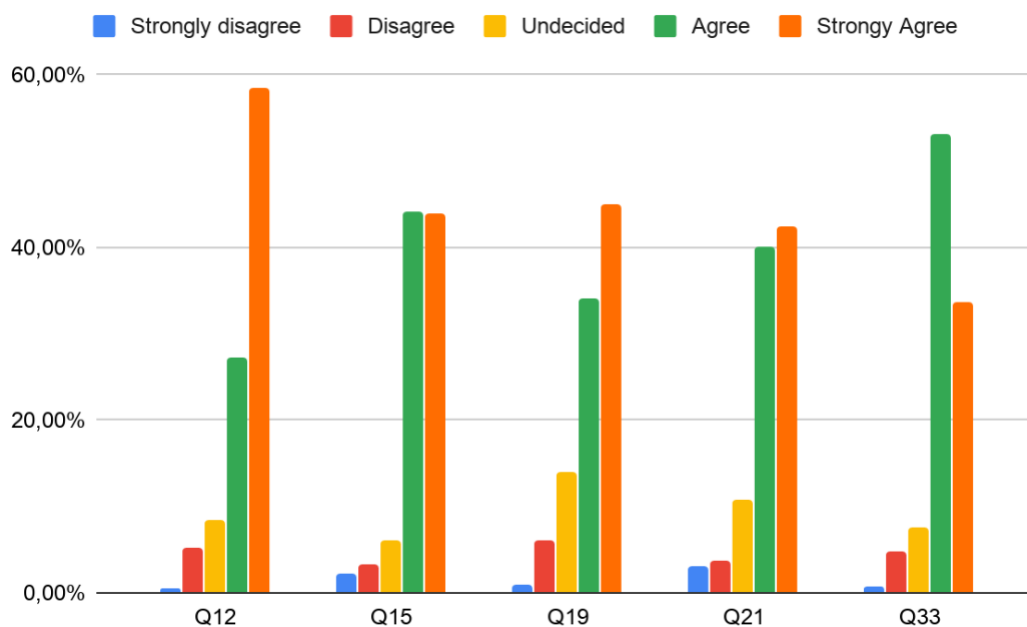
Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
1,52%	4,64%	9,36%	39,72%	44,70%

Source: Own elaboration, 2020

Date of elaboration: Abril 2,2020

The graph indicates a strong trend in the "completely agree" response, in other words, they are confident that their companies' decision making requires a logical and structured analysis. On the other hand, the percentage of managers who expressed not to use a rational methodology is minimal, in some questions they do not even reach 1%.

Figure 23 Quito rational style answers question by question



Source: Own elaboration, 2020

Date of elaboration: Abril 2,2020

Table 20 Quito rational style answers per question

	Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
Q12	0,6%	5,2%	8,4%	27,2%	58,4%
Q15	2,2%	3,4%	6%	44,2%	44%
Q19	1%	6%	14%	34%	45%
Q21	3%	3,8%	10,8%	40%	42,5%
Q33	0,8%	4,8%	7,6%	53,2%	33,6%

Source: Own elaboration, 2020 Date of elaboration: Abril 2,2020

2.6.2.2 Dependent Style of Managers in Quito's SMEs

There is a tendency in Quito for managers to make decisions in a dependent style. This conclusion is reached taking into account the concentration of answers in "Agree" and "Completely agree" are more than half, on average these answers represent a concentration of 55.2%. Therefore, it can be said that in Quito more than half of the managers of the SMEs trust in others to be able to make a final decision.

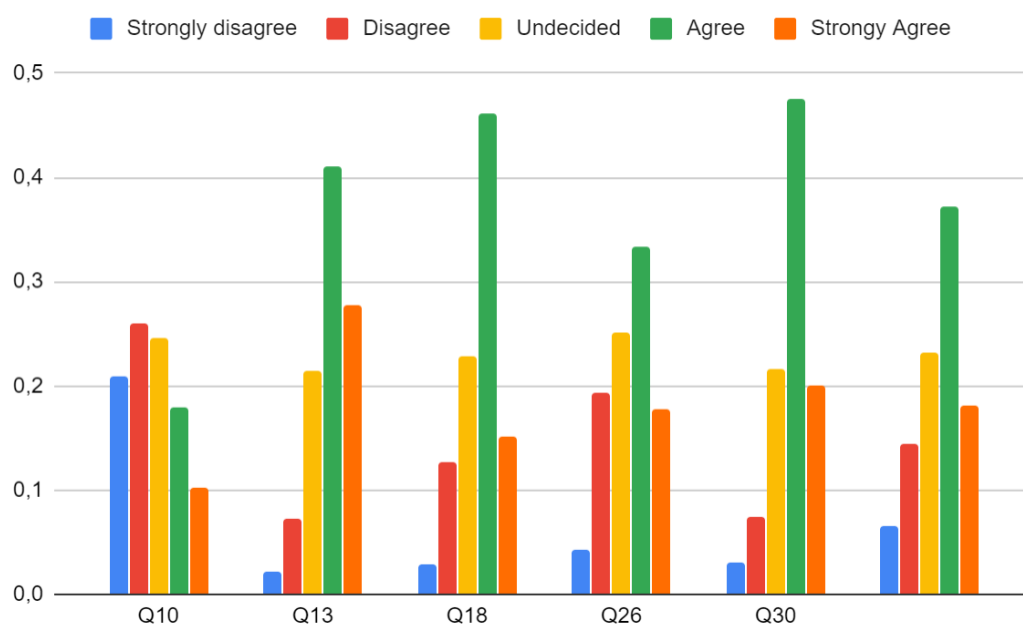
Table 21 Global Responses of the Dependent Style in Quito

Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
7%	15%	23,12%	37%	18,20%

Source: Own elaboration, 2020

Additionally, to determine the current trend in all the responses of the style per question, Graph 25 and Table 23 should be observed. They illustrate the answers to the five variables of the five questions of this style in a graphical way with their percentages, allowing the subsequent detailed analysis.

Figure 24 Quito dependent style responses by question



Source: Own elaboration, 2020

Table 22 Quito dependent style responses by question

	Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
Q10	21%	26%	24,6%	18%	10,2%
Q13	2,2%	7,2%	21,4%	41,1%	27,8%
Q18	2,8%	12,6%	22,8%	46,2%	15,2%
Q26	4,2%	19,4%	25,2%	33,4%	17,8%
Q30	3%	7,4%	21,6%	47,6%	20%

Source: Own elaboration, 2020

In accordance with the bar graph, there is evidence of this style of decision making, 4 of the 5 questions show that they are dependent when it is time to take a management

action. Furthermore, the question number 10 varies because the answers do not follow this style, since it refers to the fact that managers in Quito have the capacity to make important decisions without the opinion of a third party.

2.6.2.3 Intuitive Style of Managers in Quito's SMEs

In regard to the intuitive decision-making style of managers in the city of Quito, it is clear that there is a significant dispersion of responses and no concentration of more than 50% in any of the extremes of the responses, neither accepting nor denying. However, the greatest representativeness corresponds to the question "Agree" with 32.28%, the next representative response is "Neither agree nor disagree" with 27.52%, followed by 20.48% "Disagree", then 13.24% "Completely agree" and finally 7.56% "Completely disagree".

Based on this data, 45.52% of the respondents were in favor of this style, 28.08% disagreed with it and 27.52% answered neither in favor nor against it. Finally, we found that managers in Quito rarely base their decisions on intuition.

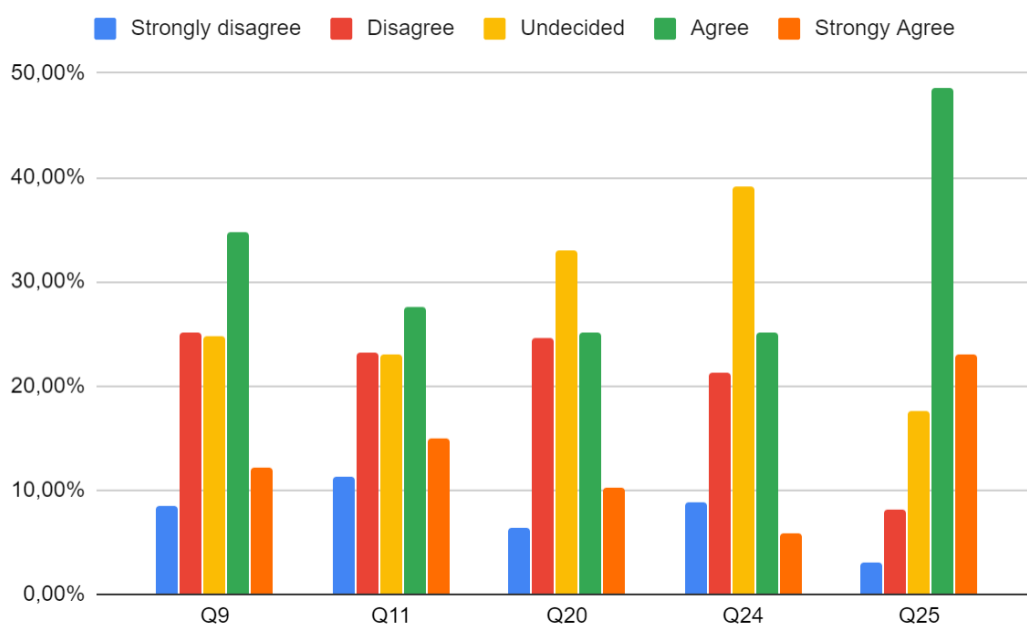
Table 23 Global Responses in Quito from the Intuitive Style

Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
7,56%	20,48%	27,52%	32,28%	13,24%

Source: Own elaboration, 2020 Date of elaboration: Abril 4,2020

Intuitive style in contrast to the other styles is considered to be in the third degree of relevance or use by managers in Quito. Likewise, the intuitive style is analyzed by question and considering all the variables can be seen in Figure 26 and Table 25. These illustrate graphically and with its percentages the answers to the five variables of the five questions of this style, allowing the detailed analysis later.

Figure 25 Quito intuitive style responses per question



Source: Own elaboration, 2020 Date of elaboration: Abril 4,2020

Table 24 Quito Intuitive Style Answers by Question

	Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
Q9	8,4%	25,2%	24,8%	34,8%	12,2%
Q11	11,2%	23,2%	23%	27,6%	15%
Q20	6,4%	24,6%	33%	25,2%	10,2%
Q24	8,8%	21,2%	39,2%	25,2%	5,8%
Q25	3%	8,2%	17,6%	48,6%	23%

Source: Own elaboration, 2020 Date of elaboration: Abril 4,2020

Despite the lack of a specific trend in favor or against this style in Quito, it is evident that more people indicate that their decisions are based on their hunches and feelings. In question 25, the answer "according" is predominant, in other words, managers act intuitively, especially if this decision is comfortable for them.

2.6.2.4 Spontaneous style of managers in Quito's SMEs

Spontaneous decision-making style in Quito city managers strongly concentrates the responses of Completely in disagreement and In disagreement with a global representation of 63.16%. For this reason, it can be concluded there is no tendency to make spontaneous, impulsive decisions with no prior analysis or by means of quick decisions.

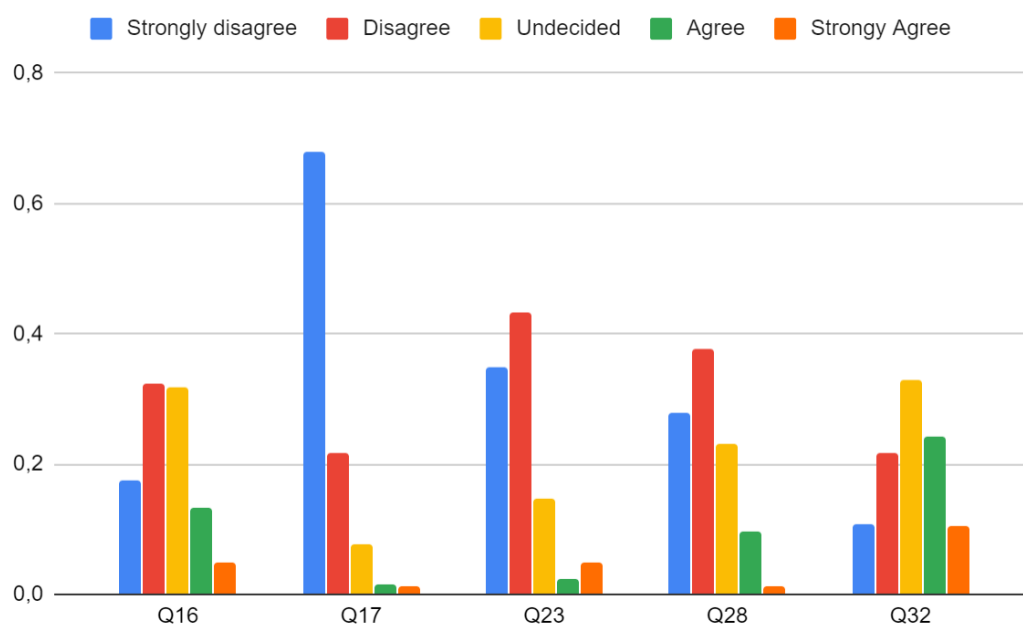
Table 25 Global responses in Cuenca of the spontaneous style

Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
31,72%	31,44%	22,04%	10,20%	5%

Source: Own elaboration, 2020 Date of elaboration: Abril 10,2020

There is no doubt that when Table 25 is analyzed with the percentage average of all the questions, the variables that deny the use of this style have greater weight. Therefore, the spontaneous style in Quito is not a style used. On the other hand, an analysis of all the questions and considering all the variables has been carried out. This can be observed in Graph and Table 27, showing the answers to the five variables of the five questions of this style, which allows for a detailed analysis.

Figure 27 Spontaneous style Quito responses per question



Source: Own elaboration, 2020 Date of elaboration: Abril 10,2020

Table 26 Spontaneous Style Quito Answers by Question

	Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
Q16	17,4%	32,4%	31,8%	13,4%	5%
Q17	67,8%	21,8%	7,6%	1,4%	1,2%
Q23	34,8%	43,4%	14,6%	2,4%	4,8%
Q28	27,8%	37,8%	23,2%	9,6%	1,2%
Q32	10,8%	21,8%	33%	24,2%	10,4%

Source: Own elaboration, 2020

In the detailed analysis by question, an overall clear indication is that there is a bigger choice of "Completely Disagree" and "Disagree" answers. However, a high percentage of "Neither agree nor disagree" responses can be noted, showing that decision makers were indecisive with this style and did not take the responses either for or against.

In this situation, a clear case in point is question 24, where the highest percentage representation corresponds to "Neither agree nor disagree" with 33%. Similarly, in question 8 the percentage is the second most representative and in the other questions it is the third most representative. Lastly, taking these data into consideration, it is possible to conclude that managers did not make a significant choice, although the general distribution of responses indicates that no decisions are made spontaneously in Quito.

2.6.2.5 Avoidant Style of Managers in Quito's SMEs

In terms of the avoidant style, the data collected in these questions reflect a higher concentration in the response of "Disagree" with 33.64%. In descending order of weighting, the response of "Completely disagree" is 29%, followed by "Neither agree nor disagree" with 20%, "Agree" represents 11.887% and finally 5% corresponds to "Completely agree". These overall scores, as an average of the percentages of the five questions of this style, demonstrate that managers in Quito do not tend to avoid making decisions.

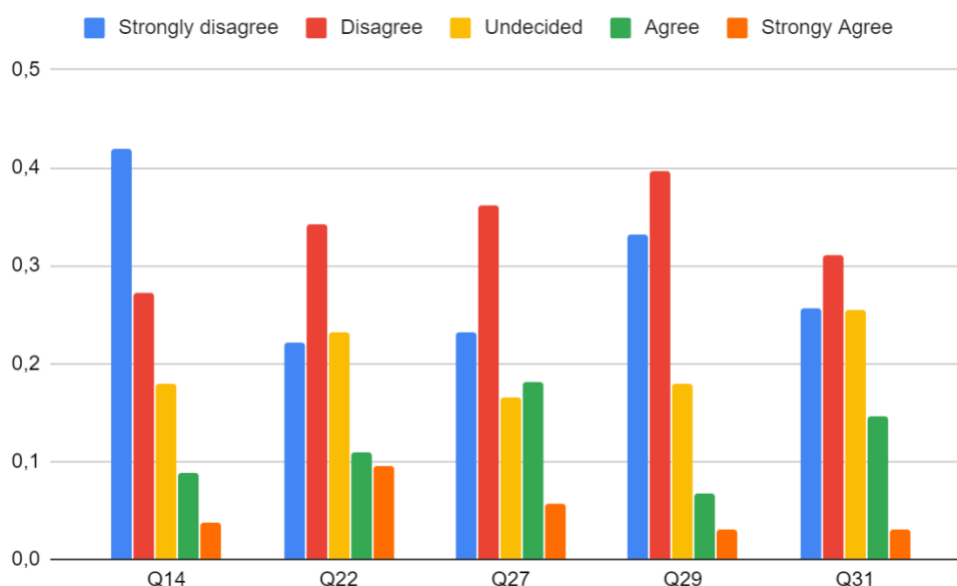
Table 27 Overall responses in Quito of the avoidant style

Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
29%	33,64%	20%	11,88%	5,00%

Source: Own elaboration, 2020

Regarding the avoidant style, it is evident that this style is not frequently used or relevant in Quito's managers. Nevertheless, the avoidant style is analyzed by question and considering all the variables can be seen below in Figure 28 and Table 29. These illustrate graphically and with their respective percentages responses to the five variables of the five questions of this style.

Figure 26 Quito answers of the avoidant style by question



Source: Own elaboration, 2020

Table 28 Quito Avoidant Style Answers by Question

	Strongly in disagreement	Disagree	Undecided	Agree	Strongly Agree
Q14	42%	27,2%	18%	8,8%	3,8%
Q22	22,2%	34,2%	23,2%	11%	9,6%
Q27	23,2%	36,2%	16,6%	18,2%	5,6%
Q29	33,2%	39,6%	18%	6,8%	3%
Q31	25,6%	31%	25,4%	14,6%	3%

Source: Own elaboration, 2020

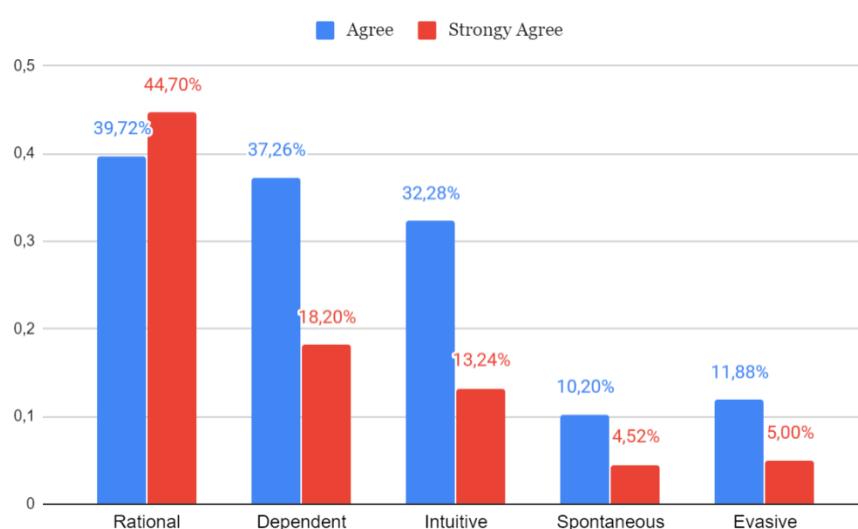
As for the detailed analysis of the responses to this decision-making style, it can be observed in the bar graph that a high concentration of data exists in the "Disagree" responses. This reality is confirmed by the percentage table, data revealing that in Quito they definitely do not tend to avoid their decisions. A low percentage of managers tend to postpone or avoid making decisions.

2.6.3 Predominant decision-making style in Quito's SMEs

The rational decision-making style is the predominant one among managers of industrial SMEs in Quito because it has a weighting of 83.79% the sum of the answers

"in agreement" and "completely in agreement". The dependent and intuitive styles, with 55.2% and 45.52%, are important in the manager's decision. Finally, it is evident that the spontaneous and avoidant decision-making styles are not commonly used at the time of choosing. In summary, SME managers in Quito make their decisions on the basis of rational, dependent and intuitive.

Figure 27 Quito's Decision Style in the Manufacturing Sector



Source: Own elaboration, 2020

2.7 Analysis of the decision-making style of SMEs in Bogotá

Bogota is a city with a population of 11 million, that it represents 22% of Colombians. In turn, it represents 31.58% of the country's total GDP and a share of 36.07% in international trade. In Bogotá lies a concentration of 50.51% of the participation in the national total of small and medium businesses in Colombia. This indicator allows us to understand the importance of analyzing the reality of the management decision making style in this city (Invest in Bogotá, 2018).

According to the Bogotá Chamber of Commerce, in 2018, the capital had 764,639 companies, being the city with the highest number of businesses and commercial establishments. The principal sectors of this city are services, with a total of 363,705

companies, equivalent to 47.5%. This is followed by the commerce sector with a total of 259,195 companies, or 33.9%. The industrial sector is 17.7%, or 135,931 companies.

After having investigated in detail the decision-making style of SMEs in Bogotá, it was determined that no studies based on the GDMS have been carried out yet. However, multiple investigations with different methodologies have examined in a general way how management decisions are made in this Colombian city. Consequently, the following is a descriptive analysis of two investigations that will allow us to clarify the predominant style in Bogotá.

2.7.1 Heuristics and individual management decision making in SMEs in Bogotá

The first study under consideration was conducted by Jorge Mario Cortés Cortés (2015) and recovered from the digital repository of the National University of Colombia, a work entitled *Heuristics and individual management decision making in SMEs in Bogotá*.

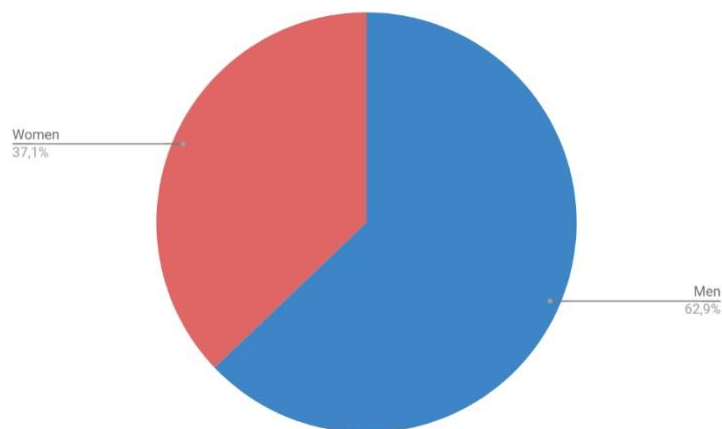
In first place, Cortés Cortés refers to heuristics as a shortcut when making the choice, and to the simplification of the steps contemplated in the traditional dogma. The argument in favor of heuristics is that nowadays businesses need a faster response that does not allow the whole logical process prior to the choice of a decision to be carried out. Furthermore, as human beings we do not achieve decisions that are only mechanized or totally rational and there is always the possibility of the influence of the empirical. However, in the same way it is contemplated that a decision that uses only the empirical part can lead to errors.

The data for the present analysis was collected both quantitatively and qualitatively with a sample of 3,988 companies. The survey was divided into four sections to analyze management decision making style: the first aims to investigate the anchoring of a general knowledge topic; the second, the anchoring of a general knowledge topic focused especially on business management. The third, to evaluate knowledge about

unknown or little known content; and finally, to examine what managers rely on when deciding topics that involve an estimate of value.

As the first aspect to be analyzed in the study, it is related to the sex of the managers. The majority of managers are men, or 2,507 managers surveyed, representing 62.9%; while female managers are 1,481, or 37.1%.

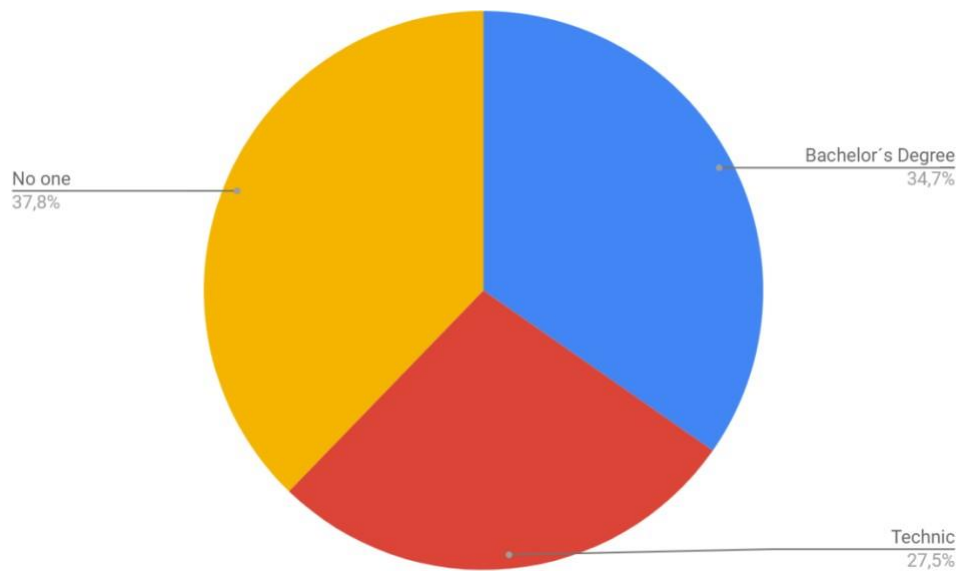
Figure 28 Bogotá Decision Makers by Gender



Source: Heurísticas y toma de decisiones gerenciales individuales en pymes de Bogotá

In terms of the educational training of managers, in this research it is divided into university, technical or none. The most representative is the answer "none"; nevertheless, it is not specified what this answer refers to, but rather that no study or no study after primary or secondary school has been carried out. This is followed by university training, with a total of 1,384 managers who have this level. Lastly, there are 27.5% who represent the respondents who have carried out a study of a technical level.

Figure 29 Decision makers by level of training



Source: Heurísticas y toma de decisiones gerenciales individuales en pymes de Bogotá

Next, the survey will be presented, consisting of 12 questions divided into 4 stages mentioned above, which are as follows:

1. Does your company currently have loans with any banks?

The responses to this question could be due to the sector to which they belong, their profitability or due to the way each manager manages, implying the use of heuristics based on their experience and cognitions regarding their relationship with the banking system.

2. Does your company have a marketing plan?

The purpose of this question is to understand if the company is based on an approach that contributes in the decision making to satisfy customers, workers and owners. Or if they show the use of heuristics and decisions made at the last moment without considering objectives or plans.

3. Does your company have a mission and vision?

The reason is to recognize whether the company's decisions consider theoretical management schemes or are empirical.

4. What is your favorite or most enjoyable day of the week? 1=Monday, 2=Tuesday... 7=Sunday.

This question and the next one is combined, the number given is the reference to the answer of question 5.

5. Of the number you marked, do you think that the economic growth GDP (in percentage) for the current year will be above that value?

Based on the number chosen from the previous question, managers have to provide a concrete answer that will show the anchor bias in the past.

6. Is the population of Japan less than 127 million?

The explanation for this question is to know the general knowledge and interest of the world, because it is not related to management issues.

7. What would be your best estimate of Colombia's annual GDP in billions of dollars?

The reason for this question is very interesting, since it could be that it arises from a knowledge of economic projections by managers or because it shows an anchorage in the past.

8. If your company had to get into debt with a commercial credit with a bank in the country, what effective annual interest rate would you be willing to pay?

This is related to the first question and its answer is based on real data that managers of small and medium enterprises handle.

9. What would be your best estimate of sales revenue (in dollars) from the DOWN Company in the fourth quarter of this year?

The answer may be based on the manager's experience, the use of heuristics or consider official data from the economy.

10. When projecting sales from one year to the next in your company, which criterion, parameter, indicator or measure do you consider the most appropriate to make the estimate?

The following question can be: financial statement figures of your companies, economic figures of the country, personal intuition or judgment or recommendation/advice of some advisor (accountant). The purpose is to recognize if the decision is guided by advisors and internal figures of the company or based on their intuition.

11. When you generally negotiate or contract, it may be for the purchase of goods, supplies, inputs or other types of raw materials or services. Who are the people who set or agree on the prices or values?

The purpose of this question is to show anchorage or biases when negotiating or whether your industry knowledge and experience guides you.

12. Do you consider yourself a good manager of human and financial resources?

This seeks to know the self-concept of each manager, according to what they have built and what they know how to do.

We could summarize below, that the way in which Bogotá managers manage is a combination of rational theory, that is, specialized knowledge, and other less orthodox theories based on empiricism as well as intuition and experience, especially in cases that require an immediate response.

In spite of being aware that their decisions should be according to their academic knowledge, historical data, statistical figures, market research and rationality; their decisions are also managed based on what they feel and perceive their experiences, memory and intuition. Consequently, the results demonstrate the aim of this research: Bogotá managers do make use of heuristics, especially for anchoring and adjustment. Nonetheless, in aspects related to their field, they do not always fall into their biases and their professional decisions are not at risk of being influenced by their biases.

The use of heuristics is demonstrated in a special way in questions that managers do not control, and their decisions are not always limited, but they probe different alternatives.

Recommendations

Since heuristics are typical of management administration, it is recommended that tools be used. If heuristics are given the importance, they usually have in management decision making, it is recommended that they be included in the curriculum in order for future managers to be able to make correct use of them and avoid falling into bias.

2.7.2 Results on the relationship between decision making, communication and ICT management in SMEs in the industrial sector Bogotá

The second study considered was conducted by William Eduardo Mosquera Laverde, Luisa Alejandra Rojas Melo and Camilo Mauricio Grillo Torres, who are professors of administration branches at the Universidad Cooperativa de Colombia. This paper was recovered from the journal *Ingeniería solidaria*, published in volume 9 of the same journal. The article entitled *Results on the relationship between decision making, communication and ICT management in SMEs in the industrial sector*.

This is a qualitative study that used semi-structured interviews, process observation and contrasted the two instruments in a group interview. The sample was not selected in a probabilistic way and this study was carried out in ten small companies that respond to indicators of location, sector and time of operation.

Two phases are detailed for obtaining results: data collection phase and data analysis phase. In the first stage, three moments are distinguished. The first moment the data was obtained through a semi-structured survey to ten managers, an instrument that varied according to the needs of the research and it should be emphasized that it was an open interview that allowed to deepen the information.

In the second moment, an observation of the processes of information flow and application of ICT was performed, the information was collected through protocols and guides to keep a systematic and valid record, for these two actions were used:

1. Information was collected from the flow of information and the ICTs used in it by means of diagrams,
2. Indicators were established to establish categories and codifications.

Finally, the third moment was a group interview with ten managers of the companies studied that were part of the sample.

The second stage and data analysis phase, initially, all the interviews were transcribed, then a classification of the information was made to produce synoptic and comparative tables. In the same way that the observations were analyzed, the flows of information and the initial conjectures with the information obtained were examined to develop a general theory about the decision-making process.

The research results were expressed in three ways: managers' perception, decision making, and ICT category. For the purposes of this work, the results obtained in terms of decision making will be explained.

In this sense is determined that in the SMEs analyzed, decision making is centralized in the general manager mostly. In addition, the SMEs have their power divided into sub-managements that make decisions separately, which does not allow a long term vision. At the time of selection, most SMEs limit themselves to internal company data and do not often use external consultants. They do not use roadmaps or a clearly established process. What finally allows to elucidate that managers depend on their intuition and personal experience.

2.7.3 Incidence of decision-making styles on the relationship between leadership and organizational performance in a group of executives from Colombia, Ecuador and Peru.

The third study considered for the triangulation of information on decision making in SMEs in Bogotá was conducted by Juan Carlos Espinosa Méndez (2018) from the digital repository of the Universidad del Rosario.

The research includes a theoretical and descriptive collection of information regarding different decision making styles. It is important to note that this research takes into consideration the General Decision Making Style model and validated survey, making it a relevant article for our research. In the present document the three countries have been chosen since a similarity in the types of leadership has been found. In order to

obtain information, anonymous samples of 363 managers were taken in all three countries. In Colombia 149 people participated, in Ecuador 90 people and in Peru 124.

The results prove that managers in Colombia, Ecuador and Peru predominantly have a rational, dependent and intuitive style, thus demonstrating a wide use of information. The dependent decision-making style is related to consultative and participatory decisions that also tend to involve abundant use of information. On the other hand, the avoidance and spontaneous style are reported to a lesser extent, possibly associated with what the author Brousseau et al. (2006) suggests, that the way of deciding affects the development of the managerial career. In the styles mentioned, it would imply that workers avoid deciding or try to go through the decision process as quickly as possible resulting in a reduction in considering them for large positions.

2.7.4 Conclusion of the management decision making analysis in Bogotá

Based on the three studies collected and analyzed, a data triangulation has been generated since no exact study of the GDMS model proposed by the authors of this thesis has been found. Therefore, information of relevance has been extracted to conclude the predominant decision-making style in the management of small and medium enterprises in Bogotá.

Firstly, in the study of *Heuristics and individual management decision making in SMEs in Bogotá*, it was determined that managers in Bogotá employ a combination of rational theory and heuristics or shortcuts in choice. In other words, the use of specialized knowledge and factual data such as statistics, academic knowledge, etc. As well as empiricism; this is, in intuition and experience, especially in cases that require an immediate response, without the influence of bias.

Secondly, in the study *Results on the relationship between decision making, communication and management of ICTs in SMEs in the industrial sector Bogotá*, decisions are taken by the manager and are based on internal company data rather than using external consultants. For this reason, managers base their decisions on their intuition and personal experience.

Thirdly, a study was considered to *support Incidence of decision-making styles in the relationship between leadership and organizational performance in a group of managers in Colombia, Ecuador and Peru*, gathering information from management decisions with the same GDMS model applied in this study, but the mentioned research is carried out at the country level. It is concluded that the managers in Colombia, Ecuador and Peru have a predominance of rational, dependent and intuitive styles.

In sum, the first supporting text provides conclusions regarding the use of rationality and empiricism. The second text abstracts that managers use non-rational processes to make decisions, since they are based on intuition and personal experience, and finally the use of rational, intuitive and dependent decision styles within management decisions is mentioned.

Finally, the information gathered and analyzed establishes that management decisions in small and medium sized companies in Bogotá are based on a combination of rational, intuitive and dependent styles. Most of the decision-making processes are rational, but less orthodox processes are also used, such as the intuitive empirical part or the dependence on the opinion or consultation of third parties.

2.8 Tools for management decision-making

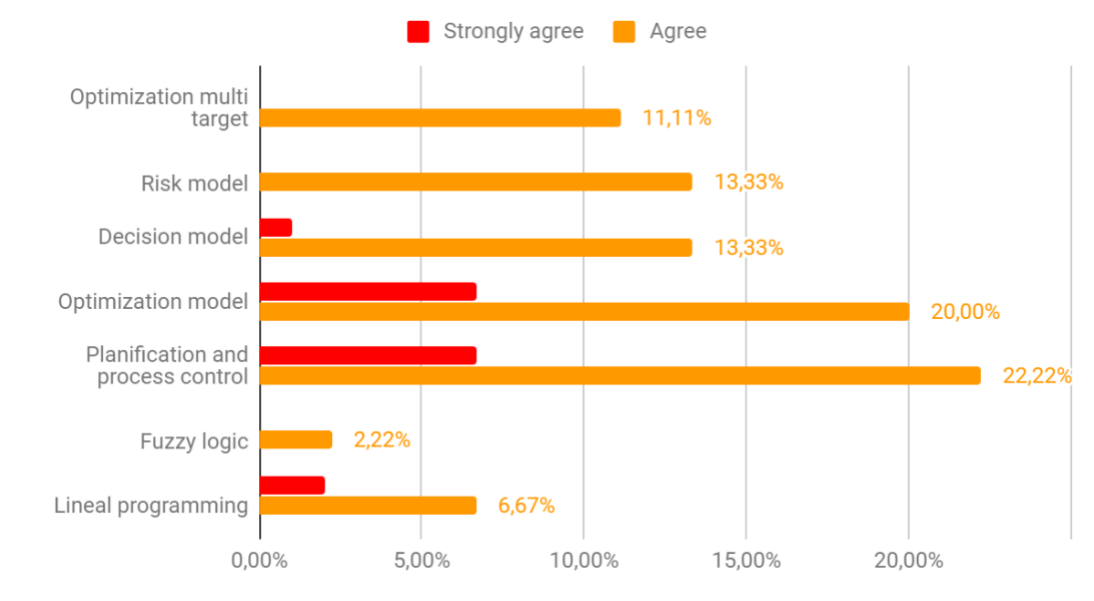
The survey of SME managers in Cuenca and Quito provided information on the tools they use to make decisions. The instruments according to the doctrine help to choose the best option, since they consider the set of alternatives and variables to choose the best option (Garza, Gonzales and Salinas 2007), since the elements of the tools have a theoretical foundation and methodology that help the election process.

2.8.1 Analysis of management decision-making tools in the Cuenca

Regarding this topic in Cuenca, among the eight tools analyzed, three tools have more weight than the others which are: Expert Consultation, Planning and Control of Processes and Optimization Models. In fact, these tools represent 61.7%, and the last

two represent 40.43%. Therefore, it coincides and is related to the styles of rational, dependent and intuitive decision making, which stand out in this city and have been defined previously in this work.

Figure 30 Tools for decision making in Cuenca

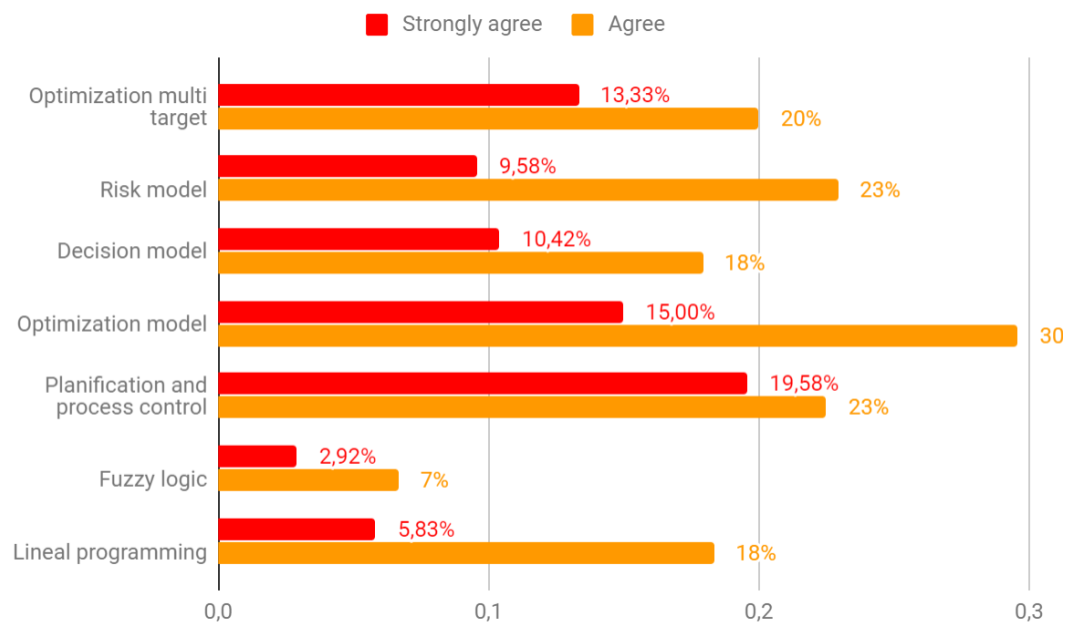


Source: Own elaboration, 2020 Date of elaboration: Abril 2,2020

2.8.2 Analysis of tools for management decision-making in Quito

In the paper "Decision-making in Ecuadorian SMEs: Pichincha and Azuay industries" by Acuña, Ortiz, Abad and Naranjo, the following information is presented in figure 33. In this figure, it can be seen that only seven tools are taken into consideration, excluding the Expert Consultation. In other words, it can be concluded that the three tools most used by Quito's managers are: Process Planning and Control, and the Multi-Objective Optimization and Optimization Model.

Figure 31 Decision making tools in Quito



Source: Own elaboration, 2020

CHAPTER 3: COMPARISON OF DECISION-MAKING STYLE OF CUENCA, QUITO AND BOGOTÁ.

This chapter will compare the manager's decision-making style between the cities of Cuenca and Quito based on data obtained previously from GDMS. After that, it will give some the conclusions of these two cities and it will be compared with the decision-making styles in Bogota; in order to interpret and obtain similarities and differences between them.

3.1 Comparison of demographic data between Cuenca and Quito

Next, a comparison will be made of the management decision-making style, as well as of the demographics between the cities of Cuenca and Quito, based on the data obtained through the surveys conducted previously. It is especially important to emphasize that these two cities in Ecuador are very important, because they have a high concentration of SMEs, are the capitals of the provinces Pichincha and Azuay. Also, these cities represent a great economic contribution in the country and generate jobs.

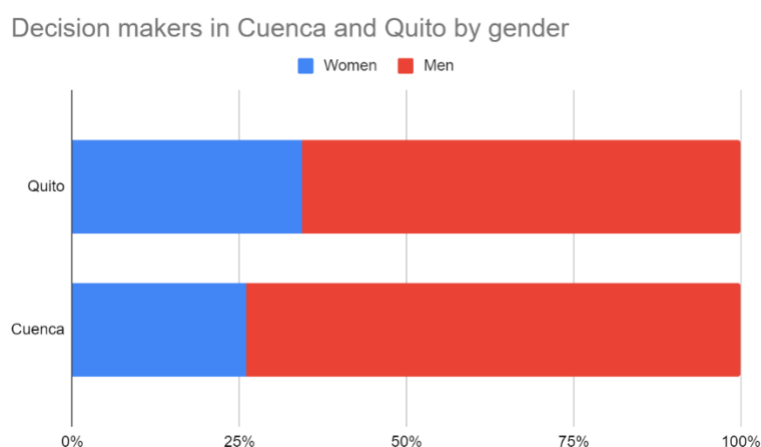
3.1.1 Gender

The first indicator evaluated in the survey applied to the managers of the cities of Quito and Cuenca was the gender of the decision makers, since the purpose was to obtain accurate information about the participation of men and women to get a general and specific information according to the sector. In general, male managers predominate as can be appreciated in the figure 34, in other words, there are more men in charge of the SMEs in both cities.

The percentage of men in Cuenca is 74%, while in Quito it is lower but still higher percent of 65.6%. Although both cities show a higher male participation in

management positions, this tendency may change in Quito because of more women are management positions

Figure 32 Decision makers in Cuenca and Quito by gender



Source: Own elaboration, 2020

In the same way, as for the analysis of management participation according to the industrial sector, several differences and certain similarities can be appreciated. Firstly, it was observed that in Quito there are women in all sectors in management positions and in Cuenca there are no women in four sectors such as timber, construction, Food and others.

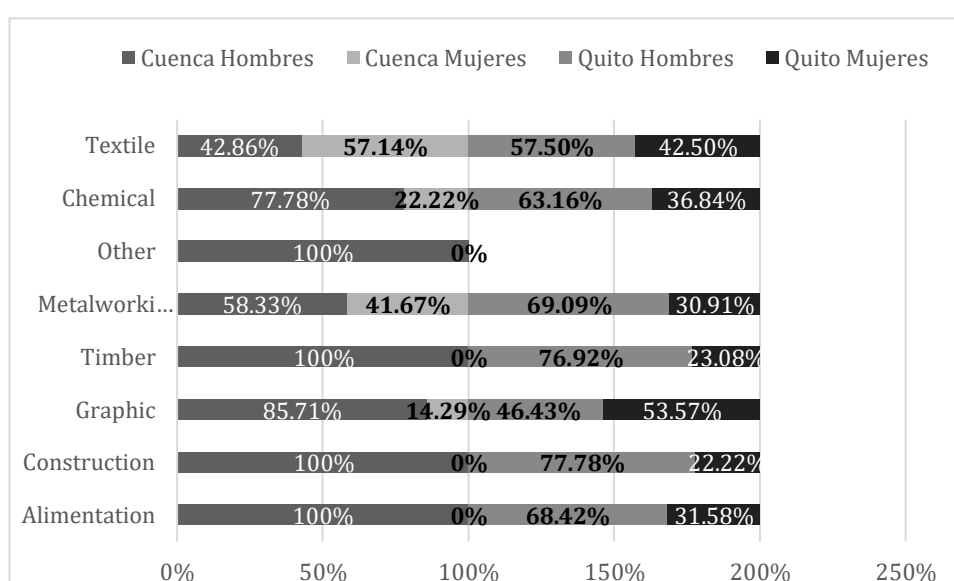
Secondly, in the textile sector of the city of Cuenca there is a greater participation of women with 57.14%; while in Quito, in this sector 57.5% correspond to male managers. In the same manner, the Figure sector presents a similar situation: in Cuenca there is a greater percentage of men in management positions with a relative weight of 85.71%; while in Quito this sector has a greater participation of women who represent 53.57% of the managers.

Thirdly, it is possible to find similarities in the data referring to the Chemical and Metal-Mechanical sectors of the two cities, since men are in charge of management positions in these sectors. In Cuenca, the percentage of men in the Chemical sector is 77.78% and, in the Metalmechanical sector 58.33%; in Quito, the Chemical sector

represents 63.16% and the Metal-Mechanical sector 59.09%. In this context, Quito has a higher participation of women than Cuenca.

Finally, this information collected and analyzed concludes that, in the city of Cuenca, men have a strong participation in the management of companies in all sectors, except in the textile sector where women represent a little more than half. On the other hand, in Quito there is greater parity in the participation of both sexes in management activities, but in all of them there is greater participation by men, with the exception of the Graphic sector.

Figure 33 Decision makers in Cuenca and Quito by gender and industry



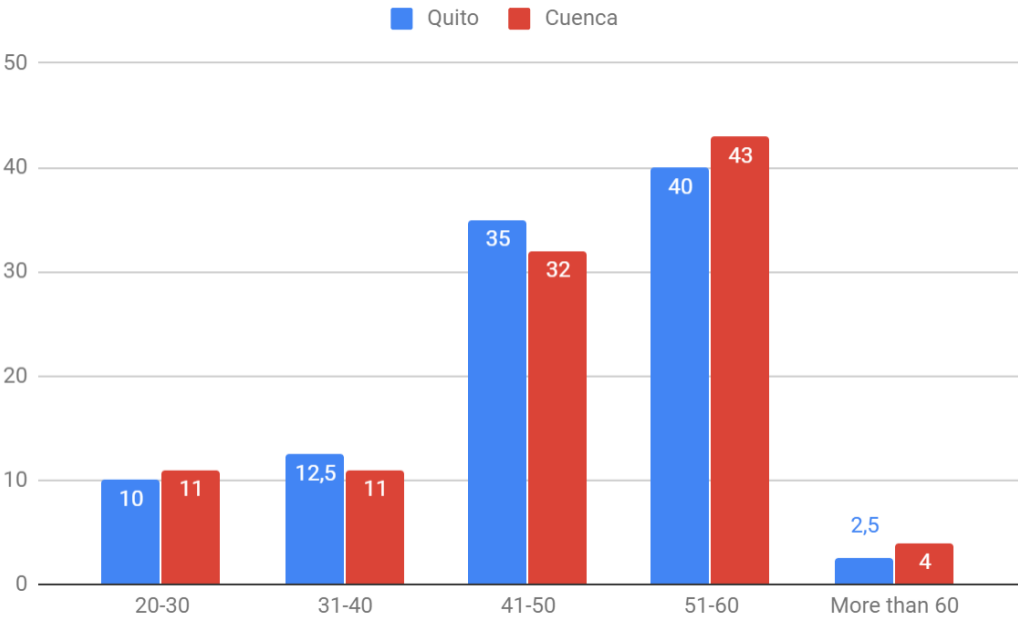
Source: Own elaboration

3.1.2 Age

In terms of the age of the interviewees, a similar trend was observed in Cuenca and Quito, most of the managers in the two cities are in the range of 41 to 60 years; the difference in results between the two cities is minimal, ranging from 1 to 3 percent. On the other hand, there is a slight management participation by people between 20 and 40 years old and a minimum participation by people over 60 years old.

Thus, it is determined that in both Cuenca and Quito the participation of young managers represents a percentage of 22% of the managers. This may be linked to the experience that will be analyzed later, because a person who is between 20 and 40 years old is assumed to have no extensive experience. Therefore, a person in Ecuador aspires to be a manager of a company at a mature age, that is from 41 years old to 60 years old and would end his management life after this age, with little probability of remaining in the management position after 60 years old.

Figure 34 Cuenca and Quito decision-makers by age



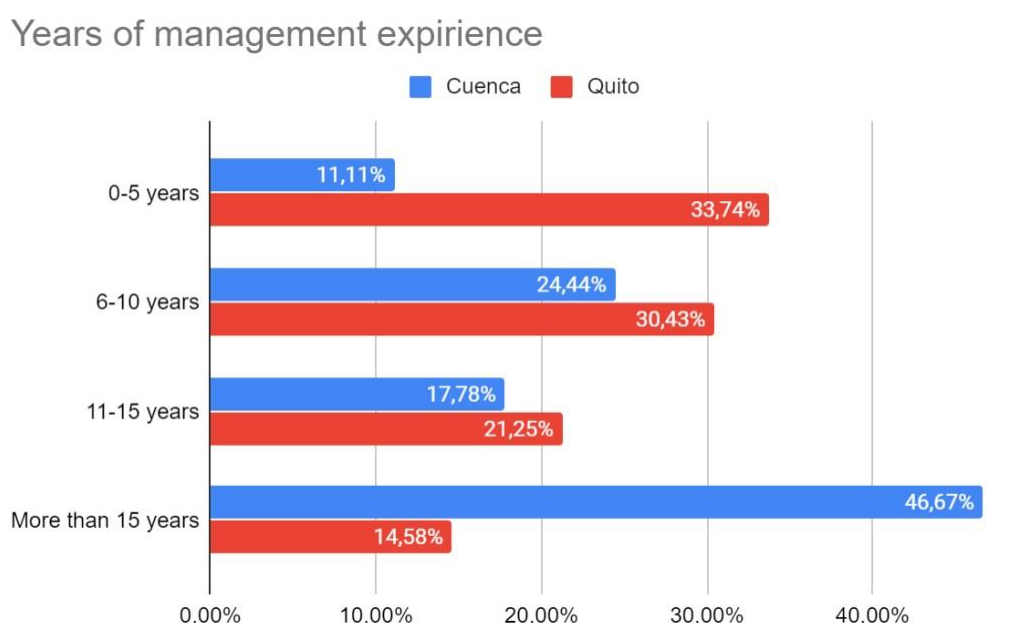
Source: Own elaboration, 2020

3.1.3 Years of management experience

Years of experience is an important indicator to consider within the analysis since experience is generally associated with the expertise that a manager possesses. From the figure below, you may find a strong divergence between the two cities. In other words, in Quito their highest concentration of management experience is in the range of 0-5 years and continues downwards, with fewer managers in the range of more years of experience.

On the other hand, in the city of Cuenca, the opposite is true because the highest concentration of managers has more than 15 years of experience in the position, and the range of managers with the least experience is from 0 to 5 years with 11.11%. Therefore, it is possible to associate management age with years of experience in the case of Cuenca and to conclude that there is a predominance of managers who are adults between the ages of 41 and 60 and with a long management career of more than 15 years.

Figure 35 Years of management experience in Cuenca and Quito



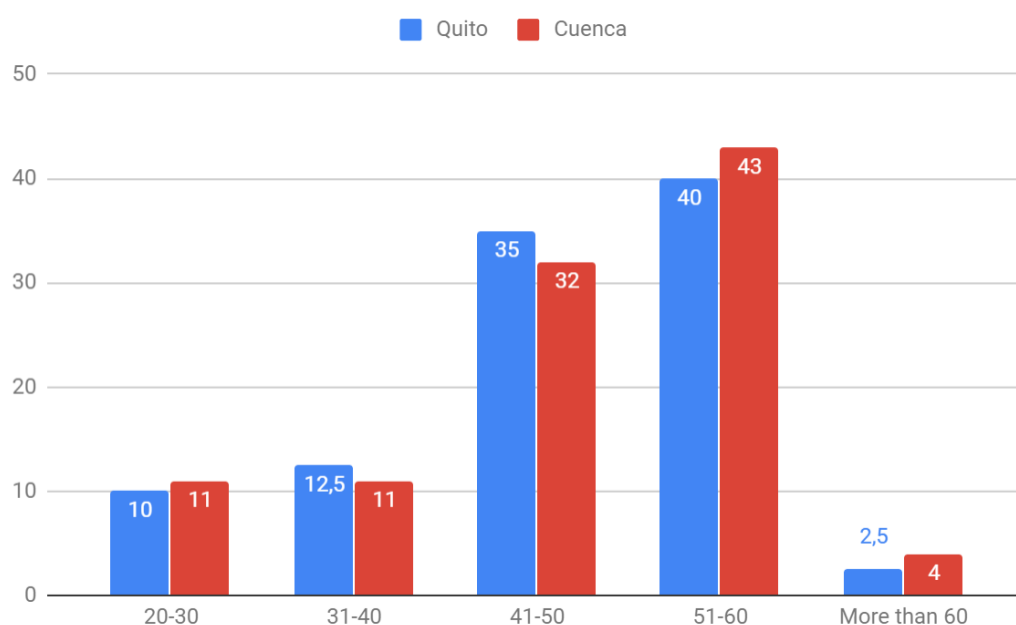
Source: Own elaboration, 2020

3.1.4 Management education

In terms of the educational background of the managers surveyed, most of the managers in the two cities have higher education, either undergraduate or graduate. However, there is a divergence between these two cities; it can be observed that in the city of Cuenca the managers have a higher educational level. In other words, in Cuenca there is a high percentage of managers who have developed their level of education to a higher and postgraduate level that represents 35%, then around 55% have a higher university education and only 10% have finished their secondary education.

On the other hand, in the city of Quito, the majority (72%) of the managers surveyed have a higher university level of education, while 14% have continued their studies with a higher postgraduate level, just 10% have a secondary education and a minimum percentage of 0.3% of those surveyed have a primary education. In this way, it can be concluded that in general the people in management positions in the city of Cuenca have a higher level of education than those in the city of Quito.

Figure 36 Management education in Cuenca and Quito



Source: Own elaboration, 2020

Concerning management education by industrial sector, certain similarities can be analyzed, for instance: the textile sector is the one with the least educational formation in both cities. This sector in the city of Cuenca is the one that has more managers who have completed their secondary education and in the case of Quito, it is the only sector that has primary education and does not have managers who have completed a higher postgraduate degree.

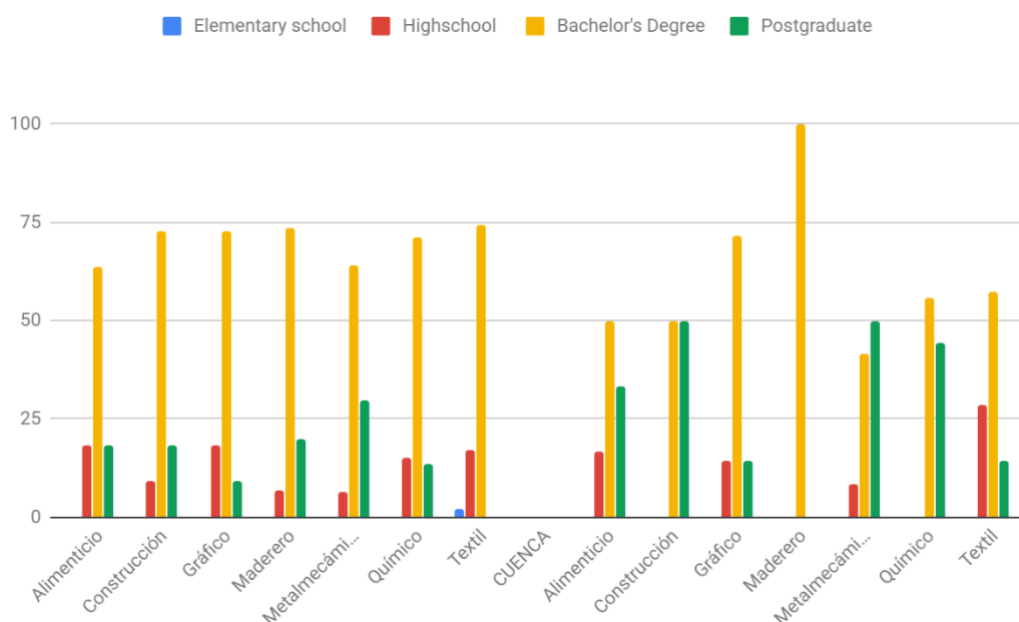
In the same way, there is another similarity between the two cities, and it refers to the metal-mechanic sector. In both cities it represents the highest level of managerial education among all the sectors, since most of the respondents have a higher post-graduate level, and it is the one with the least number of managers with higher

education. In other words, managers in the metalworking sector are professionally prepared for the job.

Moreover, there is a contrast in the information of the chemical sector between the two cities. In the city of Cuenca, this sector has managers with university and postgraduate education, representing the second most prepared sector in the city. In the city of Quito, it is the second least prepared sector, since it has a low representation of managers with higher postgraduate studies and a high number of managers with secondary education.

As for the other sectors: Food, construction, graphic and timber; there is a similar trend in the two cities. The level of managerial education in these sectors is as follows: most managers have a university degree and the remaining percentage is divided between managers with a postgraduate degree and those with a secondary education.

Figure 37 Management education in Cuenca and Quito by industry sector



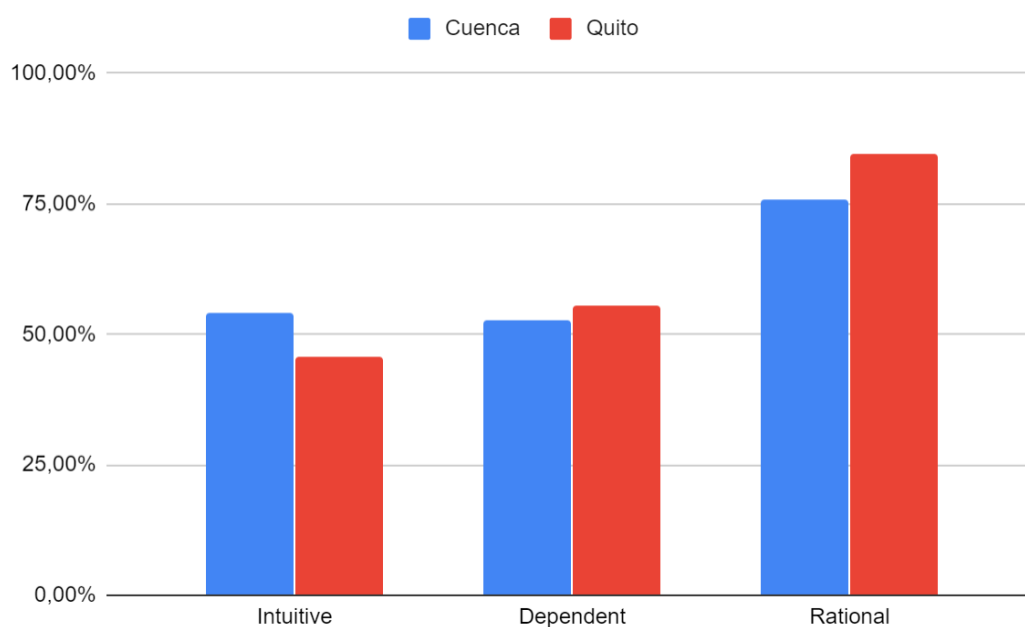
Source: Own elaboration, 2020

3.2 Comparison of the decision-making style between Cuenca and Quito

Through surveys of managers in the two cities, an extrapolation has been found of the predominant decision-making styles. In other words, managers in Quito and Cuenca generally tend to base their decisions in a rational, dependent and intuitive manner, in that order, primarily. On the other hand, spontaneous and avoidant styles are less frequent.

The results show that in the two cities managers base their decision mainly on a rational style, but the order of the decision-making style that continues differs. In the city of Cuenca, subsequent to the rational style, there is the intuitive and, finally, the dependent style. While in Quito, it is the second option in decision making, the dependent style and later the intuitive one.

Figure 38 Decision-making style comparison between Cuenca and



Source: Own elaboration, 2020

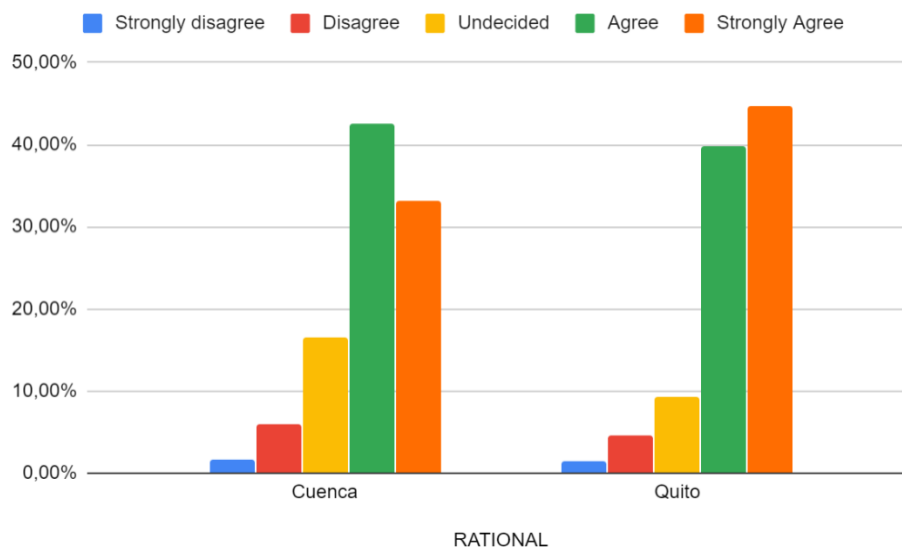
3.2.1 Comparison of Rational Style in Cuenca and Quito Managers

The first style of decision making to be analyzed is the rational style since it is the predominant in the cities of Quito and Cuenca. It can be seen that most managers in both cities have opted for affirmative responses to this style, "agree" and "strongly agree". However, the responses from the city of Quito are more consistent with this

style of decision making since they have chosen "strongly agree"; while in the city of Cuenca the "agree" response represents the most chosen by managers.

Thus, it is possible to deduce that in Quito and Cuenca, managers base their decisions on logical and systematic thinking. In other words, their management decision process presents several possibilities to be examined as important criteria in order to choose the best option. In the same way, it is possible to relate the result presented in this style of decision making to the level of education, since all the studies acquired in the process of managerial choice are put into practice.

Figure 39 Rational style of managers in Cuenca and Quito



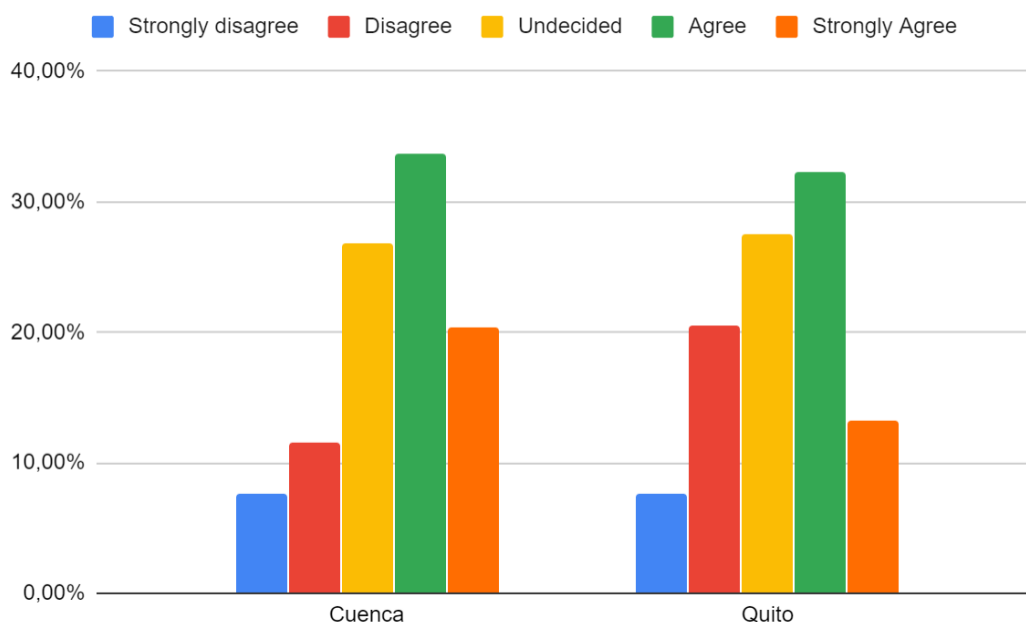
Source: Own elaboration, 2020

3.2.2 Comparison of Intuitive Style in Cuenca and Quito managers

The second decision-making style to be compared is the intuitive one since it is part of the managers of both cities at the moment of a choice. However, in the city of Cuenca it represents the second most predominant style, while in the city of Quito it is the third. On the other hand, this style shows the majority of answers "undecided" and "agree", so it is possible to deduce that its use is not very frequent at the moment of the management decision.

Although managers make their decisions mainly on theoretical and systematic knowledge, it is not impossible for them to act according to intuition. This means that at the moment of a choice they also make an internal meditation of the situation according to their experiences, whether good or bad, trusting in what they feel and perceive that may cause such a decision.

Figure 40 Intuitive style of Cuenca and Quito managers



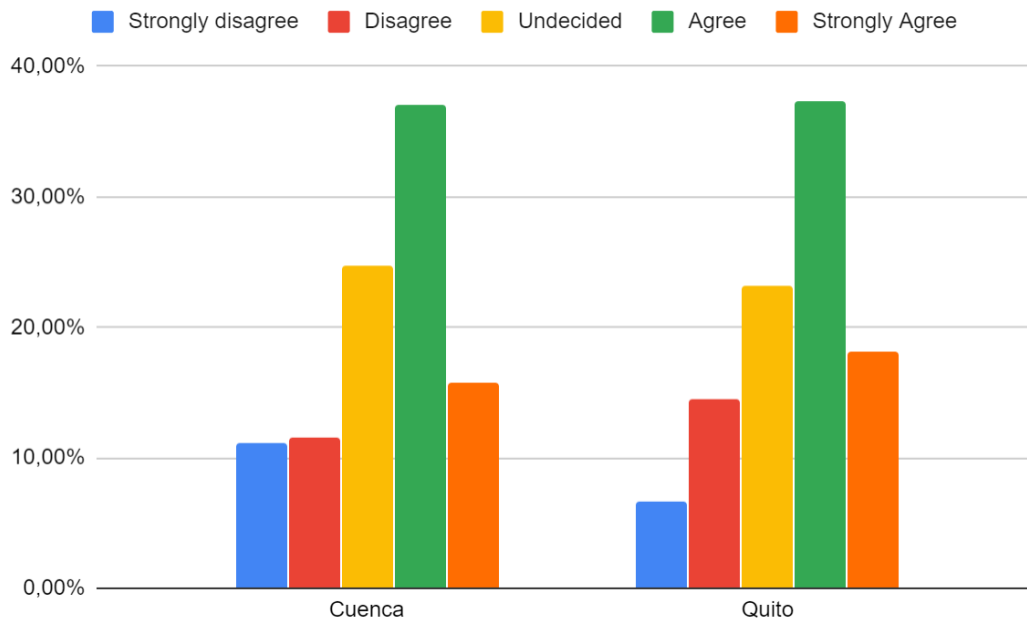
Source: Own elaboration, 2020

3.2.3 Comparison of Dependent Style in Cuenca and Quito Managers

As previously established, the dependent style is one of the three major styles for decision making by the managers of the two cities, in the case of Quito it is the second style on which they base their decision making. However, it is possible to observe in the figure that although it is within the predominant styles, it is not used very often since the concentration of responses is "Undecided" and "Agree".

Spontaneous decision-making style in Quito city managers strongly concentrates the responses of Completely in disagreement and In disagreement with a global representation of 63.16%. For this reason, it can be concluded there is no tendency to make spontaneous, impulsive decisions with no prior analysis or by means of quick decisions.

Figure 41 Dependent Style Comparison of Cuenca and Quito Managers



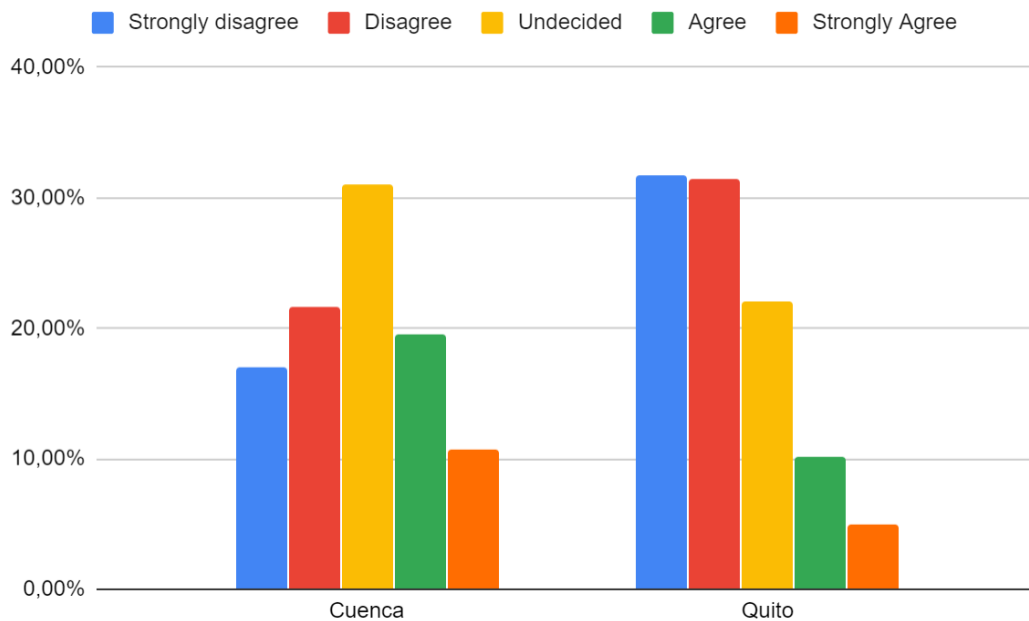
Source: Own elaboration, 2020

3.2.4 Comparison of Spontaneous Style in Cuenca and Quito Managers

In terms of the style of spontaneous decision making, this is not a style that has representative weighting for decision making of managers in Cuenca and Quito. However, there are clear differences between Quito and Cuenca, in the case of Cuenca there is a diffuse concentration of responses, presenting a greater scope of response "Undecided", while in Quito there is a concentration on the left side which represents a disapproval by managers of this style.

This style is not used in the two cities, but in the city of Cuenca it can be observed that there is a 10% tendency to make spontaneous decisions. That is, management decisions usually take time to meditate, but the minimum percentage that present the answers may be that sometimes according to the moment they need answers that are taken immediately and, in such circumstances, make use of this style of decision making.

Figure 42 Spontaneous Style Comparison of Cuenca and Quito Managers



Source: Own elaboration, 2020

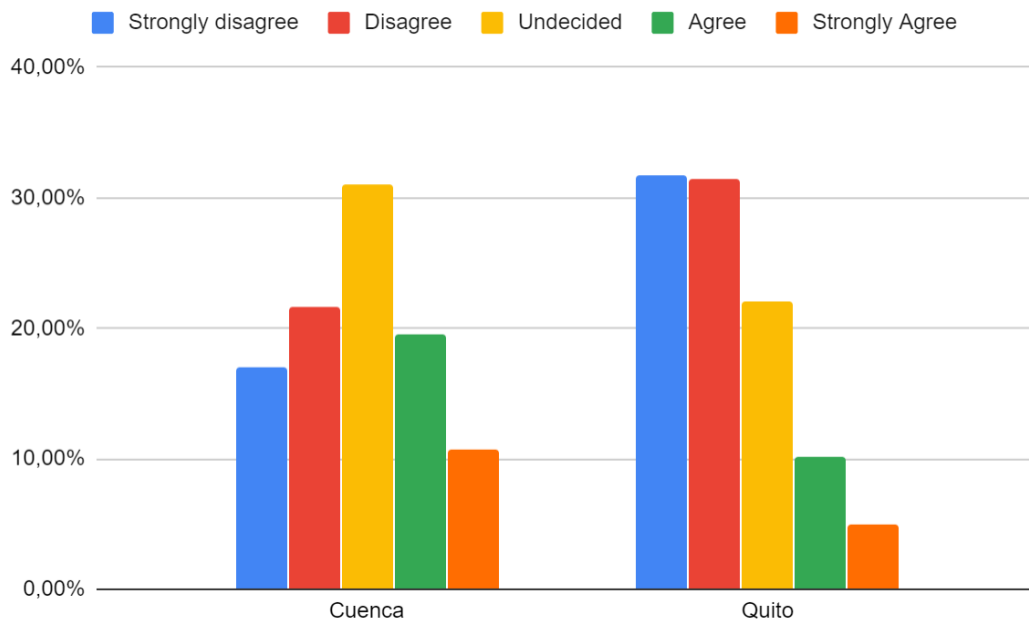
3.2.5 Comparison of Avoidance Style of Cuenca and Quito Managers

The avoidant style is not meaningfully represented in the overall analysis between Cuenca and Quito. Therefore, in this detailed scrutiny it is only based on determining differences and similarities between these cities.

The concentration of data for this decision-making style is essential. In Quito the trend is marked on the left side if we compare with Cuenca the answers are dispersed. For this reason, in Quito it is extremely marked that they do not use an avoidant style, while with these data it will be presumed that in Cuenca if there are many decisions it is delayed until the end or until it is inevitable not to make a decision.

In conclusion, decisions in these two cities are generally not postponed or avoided, but in some cases it is noted that there are managers in Cuenca who postpone these decisions. This style has many criticisms at the dogmatic level because it is very far from reasoning, and at the commercial level, postponing a decision could complicate the overall picture, which is why it is positive that this style is not predominant.

Figure 43 Avoidant Style Comparison of Cuenca and Quito Managers



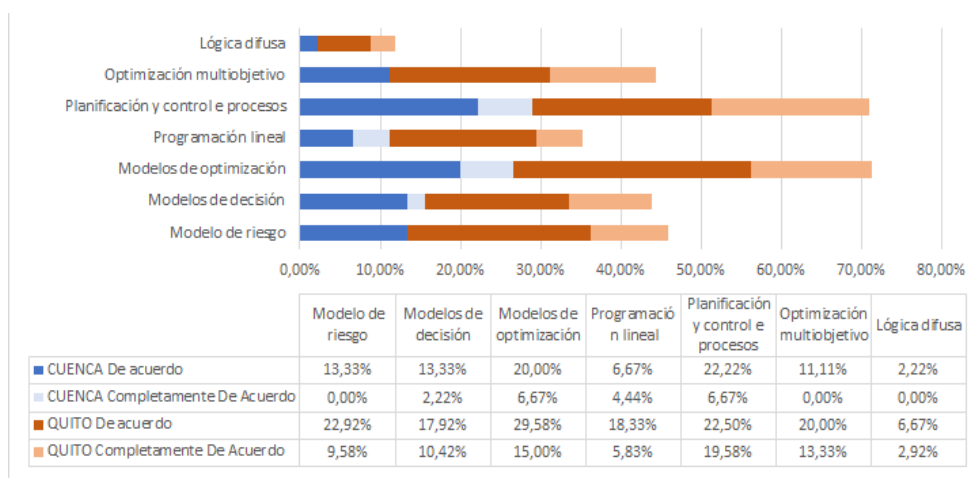
Source: Own elaboration, 2020

3.3 Comparison of the use of decision-making tools between Cuenca and Quito

The decision-making tools and their use differ between the city of Quito and Cuenca. It is determined that the three main tools used in Cuenca are firstly planning and process control, secondly optimization models and thirdly decision models. On the other hand, in Quito, the three main tools used are firstly optimization models, followed by planning and process control and finally multi objective optimization.

In accordance with the results obtained on decision making among the cities, it was determined that managers in Cuenca have a greater tendency to make intuitive decisions, which is why it is evident that the percentages confirming the use of these tools is lower than what is evident in Quito (See Graph 46). Therefore, it is asserted that in Cuenca there is no frequent use of the tools for decision making and it is maintained that this responds to their tendency to make intuitive decisions.

Figure 44 Comparison of the use of decision-making tools between Cuenca and Quito



Source: Own elaboration, 2020

3.4 Comparative analysis between Cuenca, Quito and Bogotá

This section corresponds to the specific objective of defining similarities and differences between the three cities. The objective is to analyze different demographic indicators, such as: number of companies, annual sales in millions of USD, job position and gender, in order to highlight the situation of each city.

The three cities play an important role in their country as well as at a regional level; however, it is possible to observe that there is a strong contrast between them in terms of annual sales value and number of companies. These values, are related to the size of the city and the number of inhabitants. In other words, in the case of Bogotá, it represents the most important city in Colombia and due to the factors of size and number of inhabitants, it has the highest figures in number of companies and participation in sales among the three cities.

In the same way, Bogotá has the highest indicators, even its participation in annual sales is greater than the sum of the two cities and all of Ecuador in general. On the other hand, in relation to the size and number of inhabitants that Ecuador has, Cuenca and Quito are very important cities. Quito is the capital and has the highest indicators at the country level; while Cuenca, although it does not have large indicators, is considered the third most influential city in the country.

Table 29 Analysis of comparison between Cuenca, Quito and Bogotá

	Cuenca	Quito	Bogotá
Population	636.996	2,781,641 million	11 millions
No. of companies	44,600	213,561	764,639
Participation in sales (Millions of USD)	5,33	44,49	105,000
Job positions	178,681	1,041,958	

Source: Own elaboration, 2020

3.4.1 Comparison of manager's gender in Cuenca, Quito and Bogotá

It is important to emphasize that the information for the cities of Cuenca and Quito were collected as a primary source and correspond to 280 surveys (40 and 240 SME managers, respectively); while the data for Bogotá is based on Heuristic research and individual management decision making in SMEs in Bogotá whose authors based themselves on a sample of 3,988 SME managers in Bogotá.

Male and female participation in companies worldwide is very important in terms of gender equality, an issue that has been struggled with for years. The ILO as well as the UN are institutions with greater relevance in the fight to break down stereotypes and motivate the participation of women in the industry sector with the Principles for the Empowerment of Women (WEPs) (UN WOMEN, 2019).

The data obtained reveal a similarity between Cuenca, Quito and Bogotá in terms of the sex of the managers: there is a noticeable increase in the participation of men in the three cities. In order to understand this reality, it can be analyzed from a cultural perspective and from the lags inherent in the Latin American concept; hence, senior management and executive positions at the regional level are still held by men in a marked way.

In recent years in Latin America, women's participation in the labor force and national economies has increased from 48.5% to 49.7% between 2006 and 2016, and in the same way the rate has increased worldwide. Moreover, women's participation tends to be concentrated in the informal economy¹, meaning that the management positions occupied by women in the region represent up to 30% (International Labour Organization, 2017).

As a result, women in high positions are largely absent. According to a study conducted by the ILO in 2017, in Latin America only 4.2% of positions as executive director or CEO are held by women. In turn, business boards are made up of more than half of men only, with women occupying 8.5% of the positions on these boards.

From the three cities, Bogota has a higher female participation in the management position; subsequently there is Quito and finally the city of Cuenca. In this contrast between the two capitals of Ecuador and Colombia, it can be seen that somehow the glass ceiling² is breaking, and the representation of women in management positions is growing.

As Quito and Bogotá are large cities with a high number of companies and thereby a high degree of competitiveness, the business vision changes. Companies adopt policies of diversity and inclusion, where the vision of women as well as men is fundamental for progress, achieving objectives and transcending to another management level. In this way, once women occupy management positions and generate the same profitability, the reputation or this stereotype changes and gender stops being a problem.

On the other hand, Cuenca is the city that has less women in management positions. A situation that still represents a challenge for women in high positions and the need

¹ Informal Economy: modality of carrying out economic activities in which workers are not recognized, registered, regulated or protected by labor legislation or social protection. (International Labor Organization, 2017).

² Glass roof: it is a metaphor that represents the obstacles that prevent women or minorities from reaching the top.

to have implementation plans for the development of an inclusive and egalitarian business culture.

Although this research generalizes decision making to include both genders, having found information that supports a divergence in responses depending on each sex, it is relevant to note that it is under consideration by the authors to continue research on this topic but comparing management decision making developed by men and women.

In the study Gender differences in decision making (Cardona, Herrera, & Lopez, 2011), through neuroscience it is concluded that the strategy in male decision making is based on a more context-dependent performance and women, in contrast, made their decision independent of the context. In other words, men respond to the different demands of the environment based on the compilation of experiences and learning throughout their lives. On the other hand, women have the capacity to generate a specific response to an unknown situation that demands a new and creative plan from the organization.

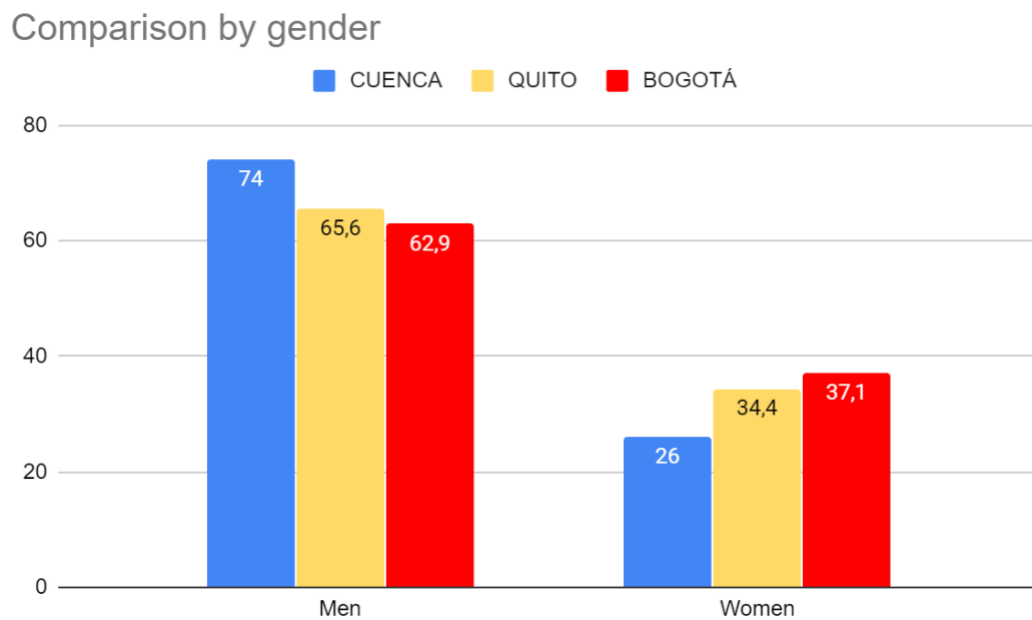
In this way, the way in which women make their decisions is innovative for companies; according to Del Brio & Del Brio (2009), a greater female presence in decision-making positions has resulted in increased competitive advantages in terms of strategy, global vision and reputation. In fact, for the authors, companies that seek a future projection, that is to say, those whose objectives include innovation and greater creativity, are more receptive to appointing a woman to their boards.

At the same time, a study carried out by Catalyst in 2011 has shown that companies with a representation of women in management positions offered their shareholders a higher total return than companies with less representation of women in such positions. Those companies had almost 16% more profitability than the rest, even obtaining a 26% higher return on invested capital compared to the others (CATALYST, 2011).

According to Gómez (2012), author of the book *Empresa internacionalizada y responsabilidad social: un matrimonio convencido*, analyzing women's leadership, based on specialized studies and several reports from large consulting firms, he

highlighted that these results are due to the fact that women in high positions are more efficient and prudent, manage risk better, follow up employees more individually, establish more direct and efficient communication channels and take more democratic decisions.

Figure 45 Sex comparison of managers in Cuenca, Quito and Bogotá



Source: Own elaboration, 2020

3.4.2 Comparison of Decision Styles in Cuenca, Quito and Bogotá

The result of the comparison of the decision making style of the three cities is based on the GDMS model applied in the cities of Cuenca and Quito, already analyzed previously, plus the analysis of the studies considered in the Bogotá research. The objective of this section is to recognize the similarities and differences among them and to offer conclusions for better management practices in the future.

In general, it is possible to conclude the way in which managers base their decisions is very similar in the three cities. One of the reasons to consider is the fact that the cities are from two neighboring countries that share a common colonial history and geopositional reality, the same one that leaves certain lags in the people's way of acting and culture. This particular case is reflected in the similarity of decision-making tendencies of those who hold high business positions such as management.

According to the study *La educación gerencial Latinoamericana: entre la desconfianza y el desafío*³, the position of a manager is associated in a paternalistic way, where the expectations of the companies are high according to their role to play. Nevertheless, the approach presented in this research based on the manager is that his or her knowledge should not be only theoretical programs based on certain techniques.

Furthermore, the research indicates the homogenization of educational institutions and business strategies due to globalization, economic openness and increased international competitiveness. Nonetheless, it does not always work the same way, since it must be based on the context, the political, economic and social reality of each country.

It refers to the creation of a new business culture, where managers not only base their decisions and actions on theoretical studies, but where there must be a global criterion where the person in charge is reflective before dominating only techniques. They also consider it fundamental that the manager be allowed to consult other people as well as himself, either based on his experience or analysis.

In this way, the research suggests that managers in Latin America tend to make their decisions in a rational style mainly based on theoretical studies that are managed at a global level. This suggests that they should rely on their experiences as well as on the knowledge of other people, which refers to intuitive and dependent decision-making styles.

The conclusion of the research on managers in Latin America reflects similarity in the results obtained about decision making in Quito, Cuenca and Bogotá. This means managers use three predominant decision-making styles in the three cities: rational, intuitive, and dependent. The rational style is the one that is mainly found within their decisions.

³ Orlando Salinas Gómez, *La educación gerencial Latinoamericana entre la desconfianza y el desafío*.

First of all, it is possible to appreciate the fact that in the three cities the rational style is the basis for their action. Managers make use of the tools based on reason that allow them to make the right decisions and at the same time generate security. In other words, managers tend to act in a technical way, applying the knowledge acquired in their educational studies.

In second place, the suggestion about the use of the intuitive style in the managers, also forms part in their decision making. In other words, when solving a management problem, the possible alternatives are born from their experiences and the way they perceive the situation. As the research points out, it is important for a manager to go beyond the technical, to have a connection with their intuition and to be able to safely solve problems that are not found in books, but in experience.

In the case of the intuitive style, in Cuenca and Bogota it is the second style that predominates within the decision making process. Consequently, these cities have a tendency for managers to develop their own way of seeing and feeling problems and thus be able to resolve conflicts by seeing them from another perspective. Furthermore, it demonstrates that they are aware of more details that are not only technical, and gives them a competitive advantage at the business level.

Thirdly, the dependent style is present at the time of decision making by managers, but less frequently than the styles mentioned above. In Quito's case it represents the second predominant style; in other words, managers in this city rely on their rational knowledge first, then they opt for someone else's opinion to make their final decision and finally their own reflection.

The dependent style, can be subjective within the management decision making, since on the one hand it allows that the decisions are worked in equipment. That is, by considering opinions and knowledge of other people there may be better alternatives for problem solving. On the other hand, it can represent a lack of confidence in your management knowledge and needs external approval.

As for the spontaneous and avoidant styles, none of the three cities tends to be part of their management decision. In the case of Quito and Cuenca the percentage is minimal,

while in Bogotá the studies do not mention the use of these styles. In other words, decisions are usually made by managers and there is no tendency to prolong them. In turn, they are meditated upon, but not by impulse.

GENERAL CONCLUSIONS

Management decision making is a significant aspect of business development. In this way, the manager carries a high responsibility in leading the organizations and being in a constant choice of the best alternative for his company. For this reason, it is of great importance to recognize methods, tools or bases that permit them to achieve the objectives, as well as the existing styles that influence the decision making process.

The present research provides information about the management decision making style in industrial SMEs in Quito, Cuenca and Bogotá, considering the importance and representativeness of these cities in the economy. In particular, the analysis is propitious due to the role played by SMEs, as 80% of the companies in the economy are those that offer several jobs.

Ecuador has a significant contribution of SMEs in the economy as a result there are regulations in existence, as well as institutions created to strengthen and support them. In 2018, microenterprises represented 90.8% of Ecuador's total industry, SMEs represented 8.72%, while large companies only represented 0.47%. At the same time, it is important to emphasize that 35.9% of jobs in Ecuador are offered by these organizations.

The information collected and analyzed determines the predominant decision making in SMEs in Quito and Cuenca is based on styles: rational, intuitive and dependent. In both cities these styles are predominant with the only difference that in the city of Quito there is less tendency to the intuitive style than in its counterpart. It is also important to emphasize that in Cuenca there is less tendency to the dependent style than in Quito.

It is important to point out the models that managers apply change according to the circumstances, context or information that is presented to them. In this way, the five styles of decision making proposed by Scott and Bruce (1995) will be visible according to the reaction they have when facing or solving the different problems within management action.

The current situation of the companies in Bogotá is similar to the Ecuadorian reality. Of the total number of companies in 2018 (1,620,000 companies), the minority (1.23%) are large companies, small and medium sized companies represent 16.09% and finally 82.3% are micro companies. In addition, the SMEs are regulated by organic laws in force and throughout these decades institutions have been created to support them.

It is essential to highlight that 50% of SMEs in Colombia are concentrated in Bogotá, so it is important to analyze this city in order to have a general understanding of the management behavior of this country. The predominant decision-making styles in Bogotá have been influenced by rational, intuitive and dependent styles.

The analysis of the three cities found strong similarity in the results and can be compared with a supporting study that holds the same ideas. This homogeneity is anchored to the fact that they are neighboring countries that share a common history and therefore cultural lags. Beginning with the sex of the managers, men predominate within the upper ranks; however, the two capitals (Quito and Bogotá) are breaking through this glass ceiling, with the increase of women in management positions.

According to the GDMS style, they also present a similarity in the information obtained since there is a combination of three management decision making styles that prevail in the industrial SMEs the three cities, which are: rational, intuitive and dependent style. In Quito, Cuenca and Bogotá, the main tendency is to find solutions to management problems through rational tools based on statistics and theoretical data, from the perspective of the rational style.

In accordance with experts from the traditional administrative branch, rational decisions are those that lead to better results. This is due to the fact that it is understood that an analysis process has been generated before determining or choosing a solution. Therefore, it is considered the most desirable style of decision making, since it is understood that it provides an objective view before choosing an option.

Similarly, despite the fact that they are not frequently used, intuitive and dependent styles are part of the predominant styles within management decisions. In the case of Cuenca and Bogotá, the intuitive style is the second predominant style, that is, managers analyze the variables according to their experience and what they feel and perceive. In Quito, the dependent style is the second predominant style; in other words, a second opinion is needed to make decisions, either for approval or support.

Finally, based on the tools used by the managers, it is possible to determine that in Cuenca and Quito different tools are used to choose their alternatives and that they are used for decision making. Although they share similarities that have been exposed throughout the research, it is clear that there are several differences between these cities. In Quito, optimization models are used first, while in Cuenca, planning and process control are used more frequently.

RECOMMENDATIONS

1. Government support to SMEs in Ecuador.

It is recommended that more government policies be created for the development of SMEs and micro-SMEs in Ecuador, since this research has shown the importance and weight of these in the country's economy.

2. Comparative research on gender in management decision-making

While this was not the focus of this research, information has been collected from both primary and secondary sources to support the gender bias in management decision making. That said, it is recommended to continue research on this topic. Likewise, we recommend that people who carry out future research related to this topic use the present information and continue with the study.

3. Women's presence in management decision-making

Having analyzed the way a woman represents this position, all of the capacity and the way she manages, it is recommended that efforts be concentrated with a focus on the active participation of women, through educational programs, hiring and promotion policies, which break the stereotype of a male manager and provide women with opportunities to be in management and leadership positions.

4. Use of this research in entities

Likewise, it is recommended that entities of the city of Cuenca, such as the Chamber of Small Industry of Azuay (CAPIA), Chamber of Commerce, Chamber of Industries use this research on decision styles to work in workshops, trainings or projects focused on the managers of the companies with the objective of identifying the reasons and particularities of the sectors, to improve both management practices and the use of rational, dependent and intuitive styles, as well as to emphasize the use of tools for decision making..

5. Comparison with other research in other cities based on the GDMS model

It is recommended that more research be done on management decision making in more cities based on the model carried out in this research: GDMS. With the objective of being able to have a more accurate analysis and comparison; in the same way, having studies based on the same model, it is possible to deepen in other aspects such as the influence and result that the use of a management style has had in each city.

6. New studies from the pandemic

The global reality is different, sudden changes in strategies have occurred and will continue to occur until the pandemic is over. Finally, continued research is recommended on management styles worldwide based on the GDMS model, as the business and temporal context in which this research was conducted differs from the current reality and the future of post-pandemic business. Through the exchange of information between countries on management decision styles and successful decisions used in countries or cities that have made progress, it would represent a transcendental contribution to decision making in countries with developing or recessionary economies

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ANNEXES

Estilos de Toma de Decisión en Pequeñas y Medianas Empresas

El grupo de investigación de estudios organizacionales conformado por docentes de la Universidad del Azuay y la Escuela Politécnica Nacional se encuentra desarrollando una investigación referente a la tipología de estilos de toma de decisiones en las pequeñas y medianas empresas de Pichincha y Azuay. Para ello, nuestro grupo de investigadores junior trabajará con usted para levantar información por medio de un conjunto de preguntas que determinará como usted, en el rol de gerente, orienta su estilo de toma de decisiones.

Es importante indicarle que al ser éste un trabajo de investigación académica la información recabada será completamente anónima y su uso será meramente académico.

De antemano, agradecemos por su colaboración.

***Required**

1. Email address *

Información General

2. Sexo *

Mark only one oval.

- ☐ Mujer
- ☐ Hombre
- ☐ Prefiero no decirlo

3. Edad

Mark only one oval.

- ☐ Entre 20 a 30 años
- ☐

Entre 31 a 40 años

☐ Entre 41 a 50 años

☐ Entre 51 a 60 años

☐ Más de 60 años

4. Provincia *

Mark only one oval.

☐ Azuay

☐ Pichincha

5. Sector PyME * Mark only one oval.

☐ Alimenticio

☐ Figure

☐ Maderero

☐ Construcción

☐ Metalmecánico

☐ Químico

☐ Textil

**6. Indique el
número de
empleados que
tiene su
organización ***

**7. Años
de
experi
encia
como
gerent
e ***

*Check
all that
apply.*

☐ 0 a 5 años

☐ 6 a 10 años

- ☐ 11 a 15 años
- ☐ 15 en adelante

8. Nivel de formación académica

- ☐ Educación primaria
- ☐ Educación secundaria
- ☐ Educación Superior Universitaria (Licenciatura, Ingeniería)
- ☐ Educación Superior Posgrado (Maestría, Doctorado, Especialización)

Preguntas GDMS

A continuación encontrará un conjunto de preguntas orientadas a determinar su estilo de toma de decisiones como director/gerente de su organización.

9. 1. **¿Cuándo usted toma decisiones, tiende a confiar en su intuición? (Intuición: Habilidad para conocer, comprender algo de manera clara e inmediata, sin intervención de la razón) * Mark only one oval.**

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

10.2. **Rara vez toma decisiones importantes sin consultar a otras personas * Mark only one oval.**

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

11.3. **¿Cuándo toma decisiones, es más importante para usted sentir que la decisión es correcta más que tener una razón racional para tomarla? * Mark only one oval.**

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

12.4. Usted revisa dos veces las fuentes de información para estar seguro de que posee información real antes de tomar una decisión *
Mark only one oval.

	1	2	3	4	5	
Poco frecuente / nunca	☐	☐	☐	☐	☐	Muy frecuente / siempre

13.5. Usted usa el consejo de otras personas para tomar decisiones importantes *
Mark only one oval.

	1	2	3	4	5	
Poco frecuente / nunca	☐	☐	☐	☐	☐	Muy frecuente / siempre

14.6. Usted pospone tomar decisiones porque pensar en ellas le hace sentir incómodo *
Mark only one oval.

	1	2	3	4	5	
Poco frecuente / nunca	☐	☐	☐	☐	☐	Muy frecuente / siempre

15.7. Usted toma decisiones de una forma lógica y sistemática *
Mark only one oval.

	1	2	3	4	5	
Poco frecuente / nunca	☐	☐	☐	☐	☐	Muy frecuente / siempre

16.8. ¿Cuándo Usted toma decisiones hace de forma intuitiva? Tal y cómo lo siente en ese momento? *
Mark only one oval.

	1	2	3	4	5	
Poco frecuente / nunca	☐	☐	☐	☐	☐	Muy frecuente / siempre

17.9. Usted generalmente toma decisiones sin pensar/sin analizar * *Mark only one oval.*

1 2 3 4 5
Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

18.10. A usted le gusta que alguien lo guíe en la dirección correcta cuando se enfrenta a decisiones importantes * *Mark only one oval.*

1 2 3 4 5
Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

19.11. Su proceso de toma de decisiones requiere de una cuidadosa reflexión * *Mark only one oval.*

1 2 3 4 5
Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

20.12. ¿Cuándo toma decisiones, Usted confía en sus sentimientos y reacciones internas? * *Mark only one oval.*

1 2 3 4 5
Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

21.13. ¿Cuándo toma una decisión, Usted considera varias opciones en términos de un objetivo específico? * *Mark only one oval.*

1 2 3 4 5
Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

22.14. Usted evita tomar decisiones importantes hasta que existe presión sobre una decisión

*

Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

23.15. Usted
usualmente toma
decisiones
impulsivas * *Mark
only one oval.*

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

24.16. ¿Cuándo toma decisiones, confía en su instinto?
(Instinto: Impulso natural, interior e irracional que
provoca una acción. Comportamiento innato, que no
está basado en experiencia previa) *

Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

25.17. Generalmente usted toma decisiones
con las que se siente cómodo * *Mark only
one oval.*

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente /
siempre

26.18. Usualmente usted necesita la asistencia de otras
personas para tomar decisiones importantes *
Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

27.19. Siempre que sea posible, Usted procura pospone una decisión *
Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

28.20. Usted con frecuencia toma decisiones en el calor del momento *
Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

29.21. Usualmente, usted posterga tomar decisiones importantes *
Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

30.22. Si tiene el apoyo de otras personas, es más fácil para usted el tomar decisiones importantes *
Mark only one oval.

1 2 3 4 5

Poco frecuente / nunca ☐ ☐ ☐ ☐ ☐ Muy frecuente / siempre

31.23. Generalmente usted toma decisiones importantes en el último minuto *
Mark only one oval.

	1	2	3	4	5
Poco frecuente / nunca	☐	☐	☐	☐	☐
Muy frecuente / siempre					

34.24 Usted toma decisiones rápidas * *Mark only one oval.*

	1	2	3	4	5
Poco frecuente / nunca	☐	☐	☐	☐	☐
Muy frecuente / siempre					

33.25. You usually have a rational basis for decision-making * *Mark only one oval.*

	1	2	3	4	5
Poco frecuente / nunca	☐	☐	☐	☐	☐
Muy frecuente / siempre					

Skip to question 33.

Prácticas organizacionales

En esta sección queremos conocer qué prácticas organizacionales usa al momento de tomar decisiones

34. Qué herramientas utiliza para la toma de decisiones en su empresa? De una breve descripción *
Mark only one oval.

- ☐ Opción 1:
- ☐ Opción 2:
- ☐ Opción 3:
- ☐ No utiliza

35. De las herramientas listadas a continuación señale con que frecuencia las utiliza en el proceso de toma de decisiones *
Mark only one oval per row.

Poco frecuente / nunca	En algunas ocasiones	Medianamente	Bastante frecuente	Muy frecuente / siempre
☐	☐	☐	☐	☐

Consulta de expertos en el sector	☐	☐	☐	☐	☐
Modelos de riesgo	☐	☐	☐	☐	☐
Modelos de decisión (maximax , maximin)	☐	☐	☐	☐	☐
Modelos de optimización	☐	☐	☐	☐	☐
Programación lineal	☐	☐	☐	☐	☐
Planificación y control de procesos (método PERT, diagrama de red)	☐	☐	☐	☐	☐
Optimización multiobjetivo (método de análisis jerárquico)	☐	☐	☐	☐	☐
Lógica difusa	☐	☐	☐	☐	☐

Riesgo e Incertidumbre

Esta sección tiene como finalidad determinar su propensión y percepción respecto del riesgo en la toma de decisiones en negocios

36. Dentro del contexto empresarial ecuatoriano, ¿cómo la incertidumbre afecta a la toma de decisiones?. Califique de 0•9, donde 0 no afecta y 9 afecta totalmente

*

Mark only one oval.

0	1	2	3	4	5	6	7	8	9	
No										
afecta	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Afecta totalmente

37. ¿Cómo calificaría su propia tendencia a tomar riesgos, comparado con la tendencia de otros individuos? *

Mark only one oval.

0	1	2	3	4	5	6	7	8	9	
Menos										
riesgos que otros	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Mas riesgos que otros

38. Como administrador su tendencia a elegir alternativas más o menos riesgosas basadas en la evaluación de otros, en quienes usted más confía? *

Mark only one oval.

0		1	2	3	4	5	6	7	8	9	
Poco											Muy
frecuente/ nunca	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	frecuente/ siempre

39. Como administrador su tendencia a elegir alternativas más o menos riesgosas que se basan en análisis de alta complejidad técnica? *

Mark only one oval.

0		1	2	3	4	5	6	7	8	9	
Poco											M
frecuente/ nunca	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	fre / si

40. Como administrador su tendencia a elegir alternativas más o menos riesgosas que pueden tener un alto impacto en la dirección estratégica de su organización? *

Mark only one oval.

0		1	2	3	4	5	6	7	8	9	
Poco											Muy
frecuente/ nunca	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	frecuente/ siempre

41. Como administrador su tendencia a iniciar una acción corporativa estratégica que tiene el potencial de ser contraproducente? *

Mark only one oval.

0		1	2	3	4	5	6	7	8	9	
Poco											Muy
frecuente/ nunca	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	frecuente/ siempre

42. Como administrador su tendencia a soportar una decisión cuando está consciente que análisis relevante fue realizado, sin considerar información faltante? *

Mark only one oval.

0	1	2	3	4	5	6	7	8	9		
Poco frecuente/nunca		☐	☐	☐	☐	☐	☐	☐	☐	☐	Muy frecuente siempre
