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Fábrica de Mosaicos La Austral competitive improvement plan to reach its
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Dedication

To my family.

Fergie Tinoco Blacio

Dedication

To my family, who have supported me from Ecuador, the United States, and Portugal to
achieve my goals.

Ma. Dolores Vázquez

Acknowledgments

I thank God and my grandfather Pedro for guiding me from heaven.

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Resumen

Este trabajo es parte del proyecto “Internacionalización de las MiPymes en el Azuay” que previamente ha medido el potencial de desarrollo internacional y establecido procesos de mejora a aplicar en las empresas. En esta fase, mediante la aplicación de herramientas para evaluar la situación actual de la Fábrica de Mosaicos La Austral, se verificarán sus recursos y capacidades empresariales reales para determinar las áreas en las que se debe mejorar. Luego, se planteará un plan de mejora competitiva que la empresa deberá seguir para aumentar la eficiencia de sus departamentos y así mejorar su competitividad con el objetivo final de enfrentar una internacionalización exitosa.

Abstract

This thesis is part of the "Internationalization of MSMEs in Azuay" project, which has previously measured the MSMEs potential for expanding into international markets and has also established improvement processes that must be implemented in the companies assessed. In this phase, evaluation tools will be used to determine the current situation of Fabrica de Mosaicos La Austral. Additionally, the business capabilities will be verified to determine the departments that must be improved. Then, a competitive improvement plan will be proposed, so the company can follow the recommendations to increase the efficiency of its departments and thus enhance its competitiveness with the ultimate goal of facing a successful internationalization.

Introduction

Exports are fundamental for a country's progress because they increase productivity, generate higher foreign exchange earnings, allow financial development, diversify economic and commercial risk, and generate competitiveness. There are also invisible benefits such as the creation of quality industrial processes and products, better learning processes, and product innovation growth. Thus, small and medium Ecuadorian companies (SMEs) can take advantage of these benefits and direct their activities towards internationalization. However, this implies high costs that not all companies can afford. SMEs are a relevant component in the Ecuadorian productive sector because they represent 98.86% of the business sector, generating 51.16% of all jobs. Yet, their sales volume amount is only 17.89% (INEC, 2020). The limited resources and size of SMEs give them great sensitivity to the local market and restrict access to foreign trade and benefit from economies of scale.

Therefore, it is essential to promote and increase the competitiveness of MSMEs by giving them access to tools, processes, and methods to develop their participation in the international market and improve in the domestic market. In this investigative work, we will work with Fábrica de Moisaicos La Austral to propose tools that allow it to improve its competitiveness and start its path towards internationalization. For this, we will talk about Foreign Trade theories that support internationalization and company innovation; subsequently, we will diagnose and audit the company to know its level of development and organization. Finally, we will propose improvement plans for all the critical areas of the company so that it faces a successful introduction in international markets.

Chapter 1

Theoretical framework

The first part of this chapter presents the theories on which foreign trade and internationalization processes are founded to understand the importance of introducing national companies to foreign markets. The theory on MSMEs is also exposed. The characteristics and benefits of these companies will be detailed, and the main challenges that they face to have better participation in the market. Finally, an analysis of the mosaic industry in Cuenca is carried out to know its status in terms of legislation, participation in the national and international market, and the companies that lead this sector.

1.1. Theoretical foundations of trade

Trade between nations has been exploited since colonial times to meet the population's needs and take advantage of trade due to the irregularity in the distribution of resources between nations. That is why it is considered that international trade "emphasizes the real transactions of the international economy, that is, those transactions that involve a physical movement of goods or a tangible commitment of economic resources" (Krugman et al., 2012, p.8). In other words, international trade focuses on commercial relations, both economic and legal and financial, between agents from different countries.

At this point, we should highlight the difference between foreign and international trade because these terms are commonly confused. Although both terms refer to trade beyond the borders of nations, international trade focuses on a general conception of the activity where all economic relations, guidelines, agreements, and regulations between the entities that participate are considered. At the same time, foreign trade focuses exclusively on the economic and legal relationship that occurred in an established place and date caused by the exchange

between two entities (Huesca, 2012). Thus, international trade is a broad perspective of commercial activity between nations and is used when referring to third countries in general, without including one's own country. Still, foreign trade exclusively analyzes export and import relations between two nations or regions, where the country itself is included as a reference.

The relevance of trade between nations due to globalization and industrialization was extended and reinforced because current conditions facilitate trade and increase benefits for nations, companies, and individuals. Thus, international trade of goods went from \$58,500 million in 1948 to \$19,014,680 million in 2019, an increase of 32,404%; while international trade of services went from \$367,000 million in 1980 to \$6,228,674 million in 2019, with an increase of 1,597% (World Trade Organization, 2021). Several theories try to interpret and understand the importance of trade and offer a modern vision of why commerce between nations occurs, its objective, and how to fulfill it.

1.2. International Trade Theories

1.2.1. Absolute Advantage Theory (Adam Smith)

Adam Smith, the Scottish economist known as one of the most important exponents of Classical economics, published “The Wealth of Nations” in 1776. He formulated the theory of absolute advantage. He explained that one country would have an advantage over another when it comes to producing a good since one of the two countries will be more efficient¹ in producing that good (De la Hoz, 2014). This theory is presented with the 2x2 model -two countries and two commodities- in which each country can produce goods with less human labor than the other, and therefore production is cheaper (Schumacher, 2012). Consequently, each country

¹It will need fewer resources per unit for its production than the other country (De la Hoz, 2014).

will have the absolute advantage in producing goods, and they will trade with each other to improve profits.

According to De la Hoz (2014), this theory must apply specialization in the production of goods and the division of labor. Each country can focus on improving and increasing the production capacity of the product in which it has an absolute advantage. This practice will result in both countries exchanging their goods and getting benefits from the increased income.

1.2.2. Comparative advantage theory (David Ricardo)

During the 19th century, David Ricardo analyzed Smith's absolute advantage theory. After his research, he tried to explain what happens when a country produces in a situation of absolute advantage. Thus, in his book "Principles of Political Economy," he states that a country can obtain profits in global trade if it specializes in what it can produce efficiently. In this way, he considers that "a country has a comparative advantage in producing a good if the opportunity cost² of this product in terms of other products is lower in this country than in others" (Krugman et al., 2012, p. 27). In this way, it is affirmed that there are gains from global trade if a country dedicates itself to what it can produce efficiently and buys from others what it produces less efficiently. Then, production and consumption will increase due to a greater number of products, which leads to a more significant monetary and commercial movement in the country.

However, absolute and comparative advantage theories have several repeatedly challenged assumptions. Daniels et al. (2013) mention some of them: full employment –both approaches assume that countries dedicate all their time to the production of that good-, economic efficiency –they consider those nations are interested in maximizing their income-, a division of profits –both theories don't indicate the increased division of production-, two countries and

²The opportunity cost of a product A in terms of a product B is the number of B that could have produced with the resources used to produce a certain number of A (Krugman, Obstfeld, & Melitz, 2012).

two products -a world composed simply of two countries that produce two products-. Another essential factor is transportation costs: sometimes it costs more to transport the products than to make them. We can also mention static and dynamic: both theories assume that countries' conditions do not vary. Production networks and mobility are often discussed: the first don't consider production in different parts of the world, and the second assumes that resources can be moved from the production of one good to another. And finally, both theories don't deal with services.

1.2.3. Two countries, two products (Eli Heckscher and Bertil Ohlin)

The Heckscher and Ohlin (HO) model combines comparative advantage statements with the approach of the specialization of a country according to its factor endowment³ (Golds, 2015). According to Charles Hill (2011), Ricardo's theory of comparative advantage arises from the differences between the productivity of countries; however, for Eli Heckscher and Bertil Ohlin, comparative advantage is based on the number of factors of production -land (P), labor (L) and capital (K)- of each country. In this sense, the countries present differences in the endowment of these factors, which causes a factor of production to be cheaper if it is more abundant in a country and more expensive when the factor is scarce.

These notions described above are the basic assumptions of the HO model. However, according to Laura Oros (2015), it is also important to consider the following assumptions:

- 1) Two countries use as factors of production of goods: labor (L) and capital (K).
- 2) The technology is identical in both countries.
- 3) The intensive production of only two goods according to a given factor with different factorial intensities.
- 4) The demand for the two goods is equal in both countries.

³Quantity of productive factors available in a country.

- 5) There is no economy of scale, so there is no product diversification.

Thus, the Heckscher and Ohlin model states that in a free market economy, the self-regulatory mechanism will help countries specialize in both: the exportation of goods that need abundant factors of production and the importation of those goods whose factors of production are scarce (Hill, 2011). According to this theory, a country that is well endowed with a specific factor of production will be able to export goods that, over time, will allow the country to expand the commercial flow, which will motivate an increase in goods price and a consequent higher profit.

1.2.4. Theory of the competitive advantage of nations (Michael Porter)

In his book “Competitive Advantage,” Porter (1987) mentions that nations thrive due to their natural or acquired advantages. He also mentions that it largely depends on the ability of national industries to innovate and improve through localized processes. The author establishes that competitiveness in international markets has been strengthened, and that is why nations must build strategies to innovate and promote improvements in industrial sectors constantly. Thus, he mentions that there are four attributes -defined in Porter's diamond (see Figure 1)- to achieve a competitive advantage:

- 1) **Factor conditions** that describe companies' situations regarding their available factors of production, in which they specialize and improve continuously. In other words, it refers to all essential aspects to compete in a specific sector -that companies can exploit- through innovation and productivity.
- 2) **Demand conditions** that focus on the nature of goods and service demand in the domestic sector. It influences the advantage generation since the more demanding internal buyers exist, companies seek faster innovations and valuable advantages. Therefore,

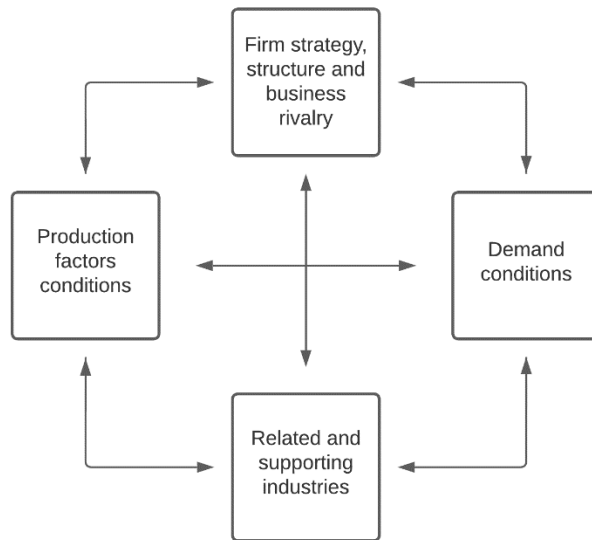
companies must know who their customers are, their needs, the problems and demands that may occur, and what innovations they will require to get customer satisfaction and loyalty. These demands are then transferred to the international market, facilitating enterprises' internationalization.

3) **Related and supporting industries** that refers to the presence or absence of suppliers - or related competitive sectors-that make up the value chain of a company. The high competitiveness of suppliers raises company standards, improves innovation, and causes a better position in terms of quality since they offer cheaper, faster, and better-quality raw materials.

4) **Firm strategy, structure, and rivalry** which are essentially the conditions in the nation that establish how companies are created, organized, and managed, as well as their inner competitive nature. Concerning strategy and structure, the success of a nation depends on the talent of the industry's workers and their commitment to business objectives since individuals forge competitive advantages. Regarding rivalry, with solid competitors, companies tend to promote product quality, improve their strategies, and constantly innovate, which leads to continually boosting and strengthening your advantage.

These dimensions establish a national environment where companies grow and learn to compete in highly competitive markets (see Figure 1). They combine necessary tools to enhance their management, such as availability of resources and skills, information forming business opportunities, directions where resources and skills are deployed, administrative objectives, and innovation pressures (Porters, 1987).

Figure 1: Porter's diamond.



1.2.5. Global competitiveness ranking

The Global Competitiveness Index (IGC) is a ranking proposed by the World Economic Forum (WEF) in 1979 to categorize countries according to their economic development. According to the organization, competitiveness is "the set of institutions, policies, and factors that determine the level of productivity" (Cann, 2016), which later translates into economic growth and social welfare. The IGC is carried out through the analysis of 3 subscripts that make up 12 pillars of nations' competitiveness (based on micro and macroeconomic fundamentals), which are:

- Basic requirements: institutions, infrastructure, macroeconomic environment, health, and primary education.
- Efficiency enhancers: higher education and training, goods market efficiency, labor market efficiency, financial market development, technology readiness, and market size.
- Innovation factors: business sophistication and commercial innovation (Cann, 2016).

To calculate it, the FEM has used 103 specific factors in recent years; 55 of them correspond to complex data obtained from countries' official sources, which represents 70% of the total in the measurement. The remaining 47 are obtained from the Perception Survey carried out among

businessmen in each country, which corresponds to 30% of the index (Del Castillo & Salazar, 2017). IGC's importance lies in the certainty it gives countries regarding economic policies and business environments, which favor firms to achieve greater competitiveness in the markets and sustained growth.

1.3. Internationalization theories

1.3.1. Gradualist theory: UPPSALA model

Created by the Swedish University of Uppsala, this model describes that companies internationalize through a gradual process in which the used resources increase as the international experience increases, which is made up of physical distance and the value chain. (Johanson & Wiedersheim-Paul, 1975). In this sense, authors define internationalization as the behavior of a company regarding foreign activities or the transfer of operations abroad and their close relationship. The theory tries to understand the internationalization of companies through knowledge of foreign markets and international operations and the increase of resources and activities in those markets.

The biggest obstacles to internationalization are the lack of knowledge and resources. Authors explain that companies first relate to nearby places with which they share the same or similar culture. In this way, companies follow a localized process based on similar steps that comprise the establishment chain, which comprises

- 1) Sporadic export activities: The company lacks market information and sales channels and does not allocate resources to it.
- 2) Exports through independent representatives (agents): The company has a channel to the market where it obtains regular information, thus implying a more outstanding commitment.

- 3) Establishment of commercial branches: The company has controlled and regular information on the market, which allows it to establish its presence and allocate resources directly.
- 4) Production in the foreign country: The company commits more resources to the market.

These stages simplify the internationalization process of companies; however, it does not mean that it is always the same process since some markets do not require so many resources. In others, a great experience is obtained due to the requirements facilitating direct establishment in other less demanding needs. Thus, there are exceptions to the theory: when companies are large or have many resources, they make more significant advances, when market conditions are stable, and information can be acquired by different means other than experience, and when companies have acquired a great experience that facilitates entry into other markets (Cardozo et al., 2013).

UPPSALA model also relies on the cultural distance to explain companies' establishment in various countries. Cultural distance is exposed as the "set of factors that prevent and hinder information flow between the firm and the market" (Johanson & Wiedersheim-Paul, 1975, p. 308), such as language, traditions, level of education, industrial development, and more. Thus, the less psychological distance between the country of origin and the destination country, the fewer obstacles there will be in the flow of information between the company and the destination market.

However, this model has various criticisms since it employs a reactive perspective of gaining experience, so it proposes obtaining knowledge based on known and traditional solutions, leaving aside the proactive nature of innovations. In addition, it encourages companies to establish their activities on experimental knowledge, reducing uncertainty and reducing incremental behavior, which motivates innovation (Hansson et al., 2004).

1.3.2. Casino Model

According to García, Ramírez & Del Cubo (2019), in the Casino Model, companies are characterized by the fact that their directors seek opportunities and economies of growth. There must be managerial skills and administrative systems to manage the outside activities. This model establishes that "in the face of uncertainty and partial ignorance about foreign markets, companies limit their exposure to negative results through international diversification" (Håkanson & Kappen, 2017). Through this behavior, the company will be able to explore, discover and act on opportunities in various markets. According to Håkanson & Kappen (2017), the Casino model shares some characteristics of the Uppsala and Born Global models, with the difference that it combines them with a separate strategic logic. For example, just like Born Global companies, the Casino model seeks to make decisions about searching for international expansion opportunities in existing markets rather than in new ones. Thus, companies will enter the markets through agents and foreign direct investment once the capacities to manage international expansion have been established (García et al., 2019).

In addition, the main force for the internationalization process is the internationalization capabilities and the decisions to enter the foreign market. Therefore, planning to enter new markets should be considered a project that is part of the internationalization process. When a company has decided to seek sales agents in foreign markets or establish wholly-owned sales subsidiaries, expansion must be carried out with simultaneous entries into several markets. By having several places abroad, the probability of identifying profitable opportunities increases, which helps diversify the risk - the impact of negative results when entering a single market-. However, access to markets could be limited by available financial and administrative resources, so companies must prioritize entry opportunities. At the same time, the Casino model suggests that market entries will often not be made based on exhaustive analysis but

rather on a trial-and-error basis, using the information and resources available at the time (Håkanson & Kappen, 2017).

In short, the Casino model and the Uppsala and Born Global models are similar. However, there is a clear difference: the Casino model is based on finding opportunities to establish itself in new markets. In the same way, directors of the companies that apply this must-have model skills to manage and enter foreign markets. One of the main characteristics of this model is the search for risk diversification through the opening of several markets to avoid the consequences of having entered a single market.

1.3.3. Hofstede's cultural dimensions theory

When internationalizing, companies face the so-called "foreign disadvantage" that is enhanced by the cultural diversity of the nations of origin and destination. This diversity forms the cultural distance that influences the company's decision-making when settling in the country. For this reason, Hofstede (2011) defined six cultural dimensions that explain the social behavior of individuals during negotiations:

1) Power Distance Index (PDI): Describes how lower-ranking members of a society accept power inequity. In societies where the distance is great, the members do not question those in higher hierarchical levels because they consider them leaders. On the other hand, in societies where the index is lower, individuals have equal power with each other and may achieve higher status through education, income, or employment status. This distinction is easily recognizable between Asia, where there is a significant power distance in most countries, and the Nordic countries –Denmark, Finland, Iceland, Norway, and Sweden– have a small power distance.

2) Uncertainty Avoidance Index (UAI): It exposes how members of a society feel when handling unknown situations, that is, how they react to difficult circumstances. There are

societies with a slight UAI that accept and manage situations of uncertainty flexibly and relaxedly because they consider them to be an inherent part of life. But, there are also those with strong UAI where people avoid risk and situations that they do not know, so they prefer predictable or controlled circumstances, which prevent stress and anxiety. Examples of countries with a high UAI include Japan and South Korea, while low UAI are China and the United States.

3) Individualism vs. collectivism (IDV): In individualistic societies, members make decisions independently, prioritizing their well-being and that of their close relatives. While in collectivist societies, individuals create strong group ties and look after the collective interests and those of the whole family (uncles, aunts, cousins, and others). Clear proof of this is China and others being collectivist, and the United Kingdom is an individualist.

4) Masculinity versus femininity (MAS): In societies where masculinity predominates, individuals are motivated by competition and results; that is why they are assertive and focused on material success, such as in the case of Mexico or Italy. On the contrary, in female societies, the creation of good relationships and the assurance of high quality of life prevail such as the cases of Denmark or Holland.

5) Long-Term Orientation vs. Short-Term Orientation (LTO): Refers to the rewards people seek in the future. Thus, those who live in societies with a long-term orientation seek to invest and save, be cautious and firm with their rewards, and maintain/respect hierarchies—examples of South Korea and Hong Kong. While short-term-oriented societies seek immediate rewards, their structures are more horizontal, and their relationships are based on interests- examples from Latin America and Australia.

6) Indulgence vs restriction (IVR): It focuses on the happiness of individuals and the control of their lives. Indulgence focuses on societies that allow gratification to fulfill personal

goals related to enjoying and living, so they are permissive regarding the satisfaction of needs. On the other hand, the restriction focuses on societies that control gratification through strict social norms prioritizing moral discipline. This differentiation is evident between the countries of America that are indulgent and those of Eastern Europe that are restrictive.

Although Hofstede describes the most used dimensions of cultural distance, different perspectives analyze other cultural aspects that define the way of doing business between nations. One of them is the GLOBE project, which examines nine cultural dimensions: assertiveness -degree of assertiveness, confrontation and aggressiveness-; collectivism I -degree of appreciation of loyalty, commitment to collective norms and activities-; collectivism II -degree of expression of pride, respect and loyalty towards specific groups-; gender equality -degree of minimization of differences in roles and status between genders-; performance orientation -degree in which excellence and improvement are supported and rewarded-; and human orientation -degree in which that encourages and rewards altruism, generosity and justice.

1.3.4. Systemic planning

Systemic planning models adopt consecutive steps for the internationalization of firms since "they are based on the assumption of perfect rationality on the part of entrepreneurs" (Cardozo et al., 2013, p.11). First of all, the central idea of these models is the feasibility of a collection and analysis of market information. Researchers such as Merton Miller (1993) affirm that systematic internationalization planning, - based on exhaustive market research, improves a company's performance internationally because managers will know the conditions to enter and stay in foreign markets, thus reducing the risk of losses. Miller (1993) also proposed a ten-step internationalization process divided into three phases: evaluation, planning, and

implementation. The first is divided into the preparation of the company to export and assessment of the company. The second consists of a domestic business plan, a global evaluation, and an international market entry plan. The third refers to selecting an international partner, compliance with standards and regulations, selection of support services, introduction to the market, and physical presence in the foreign market.

On the other hand, Root (1987) specified a systemic internationalization process based on: the evaluation of market opportunities, the establishment of objectives, the selection of entry modes, the formulation of marketing plans, and the execution of this planning. While Yip, Biscarri, & Monti (2000), based on planning, proposed the "way station model" of SME internationalization, suggesting six steps: the sequence of motivation and strategic planning, market research, market selection, entry mode selection, issue planning, and post-entry engagement.

Thus, systemic planning theory follows steps for company internationalization based on a traditional conception of the process. The taken steps depend on the author that is applied in each case; however, most of the models of this theory are similar since they all want to analyze foreign markets, and prepare for a successful introduction to them.

1.3.5. Network model

The network model includes theories that explain "the internationalization process as a logical development of companies' organizational and social networks" (Cardozo et al., 2013, p.12). This theory implies that when a company has an approach to international contact networks, it has a greater opportunity to access foreign markets. This also means that the relationships maintained by the company's executives will influence when studying possible international markets for business expansion.

Cardozo, Chavarro and Ramírez (2013) explain that factors can influence the opportunity of global networks. For example, suppose a person travels abroad regularly or has had any

experience in other countries that have allowed him to expand his network of contacts. In that case, it will become an essential tool when deciding to export your products. According to Ellis (2000), contact networks need time to develop and gain strength, so the advantages of this model increase with the personal experience of the members of the company.

According to Ellis (2000), when they do not have experience or contacts abroad, partners look for approaches with people who give them security and confidence to sell their products abroad. For this reason, when a company is starting to export, it prefers to hire an intermediary instead of a direct buyer. Similarly, the buyer will look for reliable suppliers and the means to ensure they meet the parameters for doing business. In contrast, large companies can benefit from their networks of contacts, creating expansions in larger steps because they already have customers and suppliers that help them position themselves in new markets.

One of the most representative approaches of this model is the one defended by Hood & Vahlne (1987), which explains how companies internationalize through networks. These authors consider the business networks of a company composed of customers, distributors, competitors, and the government. They explain that while companies open up to international markets, interactions with others increase. For example, companies create networks of contacts with their counterparts in the country where their product is implemented. In this approach, there is an evolution in networks of people: first, the formation of relationships with partners in new countries (international extension); increased engagement with established networks (penetration); and finally, global network integration.

To conclude, the network model explains how a company can access resources that will help it internationalize. The most convenient thing is to use the networks of contacts before starting exporting a product. However, these networks can also be built along the way and help the company to have strong ties with international partners that allow it to achieve much greater expansion.

1.3.6. Learning by exporting

Clerides, Lach and Tybout (1998) carried out an empirical study on the importance of learning during export, assuming that company's part of foreign trade become more efficient, competitive, and productive. Thus, Learning by Exporting (LBE) was later defined as a "mechanism by which a company improves its performance (productivity) after entering the export market" (De Loecker, 2013, p.1). This impact is because when companies export, they obtain gains in efficiency produced by transforming production processes. At the same time, exporters learn about consumers and foreign competition by improving the quality of products, shipping methods, investment innovation and acquisition, and reducing variable costs. In addition, there are direct consequences on business-consumer relations and indirect implications on market competitiveness that directly influence national performance and facilitate the introduction to other markets (De Loecker, 2013).

Several studies have shown that exporting companies are more efficient than non-exporting companies. However, the degree of efficiency depends on the sector to which the firm belongs since technological innovation has an influence. Thus, when a company exports, it becomes more efficient due to the low costs caused by increased production, improving the use of resources, implementing foreign requirements to the national market, and using new technology (Clerides et al., 1998). However, Hosono, Miyakawa and Takiwa (2015) mention that LBE has the precondition that firms must not have subsidiaries or affiliates abroad to enjoy the learning gains. Those with subsidiaries already learned previously due to communication with their allies. They have already developed their potential without necessarily exporting. Therefore, the effect of LBE is only evident when companies that have not had communication with the outside export to foreign markets.

1.3.7. Contingency perspective

This perspective suggests that SMEs and MSMEs' internationalization process depends on contextual factors that affect but that they ignore. Turnbull (1987), one of the authors, mentions that internationalization is determined by operational environment, business structure and marketing strategy, which means that both established internal and external factors influence the process. On the other hand, Coviello and Munro (1997) and Boter and Holmquist (1996) integrated internationalization models with the perspective of networks. They assumed that small companies established in traditional economic sectors follow sequential processes for their internationalization. In contrast, companies dedicated to technological sectors adopt a rapid entry disruptive process that does not follow predictable methods. Thus, they conclude that for MSMEs, an accelerated introduction based on the factors above is appropriate due to limited resources and many motivations for internationalization.

1.3.8. Schumpeter's theory of innovation

Schumpeter (1939) designed an innovation model based on the idea that companies' economic development is motivated by technological innovation since they drive dynamic changes in technology. Thus, radical innovations originate important changes, but constant innovations establish a continuous change in the processes. These may be due to the introduction of new products, new production methods, opening up to new markets, development of new sources of raw material supply, or new market structures (Olaya, 2008).

This author developed a concept of innovation, defining it as "producing other things, or the same by different methods" (Schumpeter, 1967). In addition, he pointed out five characteristics that must be taken into account to carry out innovation processes:

- a) Introducing a good that consumers are not familiar with because you can also innovate in the quality of a pre-existing good.

- b) Innovate in production methods, and look for ways to produce manufactures that have not been tested in the industry in which the company operates. It is important to emphasize that it does not have to be a costly innovation that requires scientific development. Still, it can be easy to implement improvements, such as a new way of commercially handling merchandise.
- c) Consider the opening of a new market. This implies looking for and planning the entrance to a market where the product has not been previously.
- d) Conquer different sources of supply (raw materials or manufactured goods).
- e) Create a new organization from any industry. For example, the position of a monopoly or the cancellation of an existing monopoly.

Finally, the author also considers three key elements for the development of innovation: new companies, which create new processes compared to already established companies; the flexibility of entrepreneurs to obtain the economic means necessary for production; and the company, which is understood as the "realization of new combinations."

1.3.9. Big T paradigm

Innovation is not necessarily synonymous with new technology, since the fusion of known technologies into new processes or creating a business model is also innovative. Ruelas-Gossi (2004) develops the paradigm and mentions that the real concept of innovation goes beyond gradual or radical improvements in known or new products, thus defining two concepts: the big T and the small t. Suppose the innovation focuses exclusively on the product as a competitive advantage. In that case, it is a small t innovation driven by state-of-the-art technology and patented or registered specialized knowledge, which adds value to the product. On the other hand, big T is the innovation of business models that arise from the synergy of processes and ideas from company areas -administration, finance, sales, marketing, etc.- which allows, and the consumer's follow-upes.

Thus, while the small t is a linear and centralized innovation in the product, the big T is non-linear and associated with all company areas –an innovation that implies synergy between departments-. However, the big T can affect the product in a decremental way; in other words, it can ignore product attributes -make it more general- to expand the amount of the target market and satisfy the needs of more consumers. On the other hand, both concepts have a dynamic interaction because they are strategic decisions made by companies based on the factors they have and in which they operate; thus, the company chooses which competitive advantage it wishes to develop through one of the two types of innovation proposed. In this sense, Ruelas-Gossi (2004) states that:

- The more commodity or undifferentiated the product, the larger the T ; and vice versa, the less commodity, the smaller the t .
- The faster the technological cycle of the product, the smaller the t . And the slower it is, the bigger the T .
- The big T is idea-driven while the little t is technology-driven.
- The less developed the national economy, the larger the T ; but the more developed it is, the smaller the t .

1.3.10. Hybrid model

Proposed by Li, Li and Dalgic (2004), the hybrid model complements the experiential learning perspectives with the systemic and contingency planning models. The first two -experimental learning and systemic planning- are different components (one based on experience and another in theory) but semi-sequentially interrelated. Based on the model of experimental learning and systematic planning, the hybrid model proposes three phases:

- Background: It focuses on describing the motivators of internationalization, such as the search for markets, acquisition of technology, and consumer follow-up. In addition, it

establishes that the competitiveness of companies lies in technology, innovation capabilities, international experience, and entrepreneurship.

- **Planning:** After knowing if the company will begin its internationalization, this stage describes the dynamic sequence of market research, its selection, and its entry method.
- **Execution:** The addition of the hybrid model is the decision of risk and commitment. If the company decides to enter the market with low commitment and low risk, it will focus on physically close markets through introduction modes such as export or commercial agents. But, if he decides on a greater commitment and high risk, he will focus on physically distant markets through subsidiaries or foreign production. However, there is also the option of intermediate duty and risk levels, as with joint ventures; depending on the choice, companies gradually internationalize and feed each other based on their market experience.

On the other hand, it collects from the contingency perspective the factors that affect companies in their internationalization process from the contingency perspective and highlights that they can opt for non-sequential methods, skipping phases and creating new ones. This has repercussions that the execution phase serves as feedback for the previous ones since the information collected and the experience obtained redefine the competencies and motivations of the company (Li et al., 2004).

1.3.11. Born Global Model

Knight and Cavusgil (1996), pioneers of the theory, consider Born Globals as recently created international companies whose initial activities respond to a global approach or those that internationalize in the first two years of creation. Thus, they mention that:

- Born Globals have considered the world as the target market since they are created.

- Companies start exporting one or several products after the first two years of their creation, and these exports correspond to at least a quarter of their total production.
- They are usually small businesses with average sales.
- Most of the Born Globals are made up of active entrepreneurs who undertake an innovative process.
- Companies start with cutting-edge technology by developing a disruptive idea in the market or creating a new way of doing business.
- The products offered by Born Global companies usually have a high added value compared to other products of the domestic industry.
- In general, they are usually companies in the technology or craft sectors.
- The size of the national market for products with high added value is a limitation, which is why Born Globals arise.

There are several factors that influence companies to be configured as Born Global successful in foreign markets, such as innovation, globalization of the economy, technological advances in the area of production and logistics, the use of information technologies, the increase of the markets, as well as the increase in flexibility and adaptability of companies (Leiva & Darder, 2008). Due to these factors, companies are able to easily adjust to the conditions of the market they are targeting, thus leading to rapid internationalization, compared to traditional companies.

1.4. Micro, small and medium enterprises (MSMEs)

1.4.1. Concept of MSMEs

MSMEs are defined as “independent non-subsidiary companies that employ less than a certain number of employees. This number varies between the statistical systems of each country” (Organization for Economic Cooperation and Development, 2000). The difference between

SMEs and MSMEs is based on the fact that the first term refers only to small and medium-sized enterprises, while the second term also includes micro-enterprises. Micro, small and medium enterprises represent between 60% and 70% of employment and generate a large proportion of new jobs in the world. In addition, they are dedicated, for the most part, to the wholesale and retail trade of goods, hospitality, communications, and construction (Organization for Economic Cooperation and Development, 2000). At the national level, companies in this sector with "the greatest participation are micro-enterprises with 90.78%, followed by small companies with 7.22% and medium-sized companies with 1.55%" (National Institute of Statistics and Censuses, 2017, as cited in Diario El Universo, 2019, paragraph 5).

1.4.2. Types of MSMEs

According to the Regulation of the Structure and Institutionality of Productive Development of Investment and the Mechanisms and Instruments of Productive Promotion (2017), established in the Organic Code of Production, Trade and Investment, in Ecuador MSMEs have the following characteristics:

1. Micro-enterprises: they have revenues of less than \$100,000.00, and the number of workers they have is between 1 and 9 people.
2. Small companies: they have an income between \$100,001.00 and \$1,000,000.00, and has workers between 10 and 49 people.
3. Medium-sized companies: they have an income between \$1,000,001.00 and \$5,000,000.00 and hire workers between 50 and 199 people.

1.4.3. Importance of MSMEs in the economy

MSMEs play a fundamental role in most economies, especially in developing countries. According to the World Bank, "they represent around 90% of companies and more than 50% of employment worldwide" (n.d., p.1). However, the size and importance of their sector vary

from country to country. An analysis by Ignacio Orueta (2017) on, the role of MSMEs in Ibero-American countries established that this category of companies has the highest percentage of participation in the countries' economies. "MSMEs represent, in most cases, more than 90% of the business fabric of the countries" (Orueta, 2017, p. 39). To explain this data, the following examples are provided: "MSMEs represent 90% of the Ecuadorian business fabric" (National Institute of Statistics and Census, 2010, as cited in Revista Líderes, 2018, p. 5); on the other hand, according to Orueta (2017), "in 2014, this sector contributed 25% of Ecuador non-oil GDP" (p. 45); in Bolivia, "it represented 98% of the business fabric (5% medium-sized business, 13% small business and 80% micro-business), and contributed 29% to GDP" (Orueta, 2017, p.44); and in Argentina, it represented 44% of GDP (Orueta, 2017). Still, the data presented affirm that this category of companies greatly impacts the economy of most Ibero-American countries.

One of the most important characteristics of MSMEs in the economy of countries is their role as generators of employment. Ekos Magazine (2016) maintains that in Ecuador these companies are the basis for generating new jobs, which allows the implementation of production chains and innovation processes. "Ecuadorian small and medium-sized companies are the most flexible for creating new jobs, and they are the ones that show loyalty to their workers in times of crisis" (Revista Ekos, 2016, para. 6). On the other hand, micro, medium, and small companies can boost the economy by creating new productive and competitive processes. In other words, they give way to innovation, which motivates other companies in different sectors to look for new ways to sell products or services and reach customers. According to Coba (2021), In Ecuador, by 2021, "86% of small and medium-sized companies plan to allocate resources to the acquisition of new technologies for business development" (para. 14). This shows how MSMEs are one of the sectors most interested in technological

innovation to adapt to the e-commerce market that emerged in the pandemic and meet other needs of consumers or even their employees.

1.4.4. Main challenges

According to the Economic Commission for Latin America and the Caribbean (2019), one of the challenges for MSMEs is the poor application of promotion policies. In the discussion on "Advances and challenges of policies to promote MSMEs" on April 24, 2019, the organization mentions that several Latin American countries have created institutions to support small and medium-sized enterprises; however, many of them lack resources for proper operation, adding to this the incorrect assignment of powers to staff and misinformation about the correct processes that business owners must follow.

On the other hand, according to Rodríguez and Avilés (2020), in 2017, there were three million SMEs registered at the start of their activities. Still, they emphasize that most of the ventures could not go beyond three months of operation because most of them are the result of undertaking out of necessity. They also failed to have enough motivation to innovate in their product and process or even consolidate a strong base for a company to maintain itself in the long term. Thus, the lack of motivation and the vague business structure caused less success in the constitution of this type of company.

What is described in the previous paragraph is the result of an omission of strategic planning. This means that companies do not carry out an initial market plan (they do not establish the company's role, its short and long-term objectives, its product or service differentiation, and much less calculate the time in which they will recover its capital). Usually, companies born in this way get carried away by how the market reacts to their product and run the company based on it. The negative part of this practice is that those companies that fail do not want to start up again because they have already lost their capital (Rodríguez & Avilés, 2020).

Another challenge for MSMEs is the lack of liquidity that allows them to pay their operating expenses while establishing themselves, which indicates that several companies face a shortage of financing. According to Wilmer Morales (2019), entrepreneurs need agility in the processes since their plans are repeatedly stopped due to "high-interest rates and the lack of proof of payment capacity" (para. 2). Cooperatives, banks, and other banking institutions in the country ask entrepreneurs for a series of documents that guarantee their ability to pay a loan. It is also common to prove that you have a credit record or present a guarantor. Although financial institutions established these filters to ensure that entrepreneurs can pay their debts in the long term; for MSMEs, this implies one more obstacle since the credit application can take several months to be approved, or in several cases, they are not even approved because they do not meet the minimum requirements.

In the innovation area, there are also some difficulties. Although MSMEs are willing to buy products such as technology equipment, the use of these tools is very limited. Rodríguez and Avilés (2020) refer to the publication by Arguello (2019). They argue that most SME companies in Ecuador work manually and consider that technological innovation consists of purchasing computers or installing WiFi in their office facilities. However, the cited authors do not consider options such as software payments for inventory management and data storage or training their employees to make good use of the provided technology. To these limitations, it must be added that "Ecuadorian households have an internet access in rural areas of 16.6%, while in the urban area it exceeds 46.1%" (Dávalos, 2021, par. 1, as cited in Banco Interamericano de Desarrollo, 2020, p.5). In this sense, there is still a gap in learning about using technology in a productive way. It is also worth mentioning that the Law on Electronic Commerce, Signatures, and Data Messages was updated for the last time in 2002, which is also a limitation for MSMEs since they do not have a legal registry to adhere to. to carry out your business transactions.

Finally, it should be noted that a large part of MSMEs is established between families and prefer to keep their organization small and not risk growing with external partners. This lack of openness also means that companies do not want to cooperate to form representation groups or associations to strengthen their presence in the market so that they are heard by the authorities and have more scope at the national level (Rodríguez & Avilés, 2020).

1.5. Flat Ceramic Industry Analysis

The present investigative work will focus on the study of Fábrica de Mosaicos La Austral, a Cuenca MIPYME dedicated to the production of tiles and mosaics belonging to the flat ceramic industry. This industry, also known as the ceramic wall and floor tiles sector, is considerably developed and has a large production volume due to the vast deposits of clay, feldspars, and kaolin found mainly in Azuay. The importance of this industry lies in its close relationship with the strategic construction sector, which in 2020 presented a decrease of 11.1% compared to the previous year and which in 2019 meant 8.17% of the Ecuadorian GDP, which represented \$ 5,874 million (Central Bank of Ecuador, 2021).

Although this sector has slowed down in recent years mainly due to the global health crisis caused by COVID-19, positive results are projected in the future because of the high investment of the public sector as well as private investment (including direct foreign investment) from countries such as Spain, the United States, or Panama). These countries influence the performance of the country's flat ceramic sector (Pardillos, 2020).

A relevant aspect of this sector is the large housing deficit in the country, which according to the Ministry of Urban Development and Housing (2021) until December 2020, was 2,744,125, of which 2,078,513 make up recoverable housing, and the remaining 665,612 make up the unrecoverable. One million six hundred sixty-one thousand seven hundred thirteen are in urban areas, and the other 1,082. Four hundred twelve are located in rural areas. Thus, this deficit

mainly focuses on improving the conditions of recoverable homes, primarily located in the Litoral region, followed by the Sierra (Ministry of Urban Development and Housing, 2021). This highlights that the construction sector will recover and strengthen once the global health crisis is over.

The high concentration of flat ceramic production in the country induces an oligopoly made up of four large producing companies: Ecuacerámica, Rialto, Italpisos, and Graiman, which control most of the production in the country. However, it should be noted that in Ecuador, in 2020, there were 130 importers of flat ceramics, with 3,000 direct employees and an indirect effect on another 6,000 people (Franco, 2020). They have become the main competitors for national industries, with growth between 2017 and 2019 of 263.96% (Banco Central del Ecuador, 2021). This situation had already occurred before because in 2002, the same companies, except for Italpisos, requested safeguards to protect themselves from the import of flat ceramics from the countries that make up the CAN. Resolution 168 of the COMEX in 2002 took place, and safeguards were applied for six months to imports of subheadings 6907.10.00, 6907.90.00., 6908.10.00 and 6908.90.00 from these countries and it was equivalent to the current national tariff of 15 %. Then, in January 2003, the CAN adopted Resolution 690, which authorized subheading 6908.90.00 for the next 12 months, applying it in the form of a quota of 5,796 tons for Colombia and 950 tons for Peru. If these volumes were exceeded, tariffs were applied that did not exceed the lowest tariff applied to third parties. However, the organization denied the imposition of the measure on the three remaining items (Ministry of Commerce, Industry and Tourism of Colombia, nd).

Because of imports growth in recent years, the four companies above, in November 2019, again requested the imposition of safeguards on imports of flat ceramics to protect and encourage national production. However, with the covid-19 pandemic, these products' importation was

reduced by 40% (Central Bank of Ecuador, 2021). For this reason, the Foreign Trade Committee published resolution No. 008-2020 in July 2020, which is about to file an investigation due to the economic situation. Iván Ontaneda, head of the Ministry of Production, Foreign Trade, Investments and Fisheries (MIPRO), mentioned the application of other measures such as the question of the origin of imports, the physical measurement of all imported flat ceramics and the application of the INEN RTE-033 technical regulation on quality control of ceramic tiles (official application in resolution No. MPCEIP-SC-2020-0231-R by MIPRO in September 2020) (Astudillo, 2020).

The production of flat ceramics has focused on what is known as the Austro region of Ecuador, the city of Cuenca, due to the high-quality raw material in the area. The proximity of the companies and their development in the exact location has generated great competitiveness and has also caused constant innovation in the creativity of designs and technology (Pardillos, 2020). Thus, it is essential to highlight that Graiman Cía. Ltda. started in 1994 in Cuenca; C.A. Ecuatoriana de Cerámica emerged in 1996 also in the city of Cuenca; Italpisos S.A. was born in 1979 in the same city; and Cerámicas Rialto S.A. was founded in Chaullabamba in 1982. Although all these companies work in the same sector under the same rules, their development has been independent and with no associativity, reducing their power to negotiate laws that benefit them and obtain state benefits. However, this situation could create a cluster of these four large companies and consequently benefit the entire national industry.

Despite the lack of association, the flat ceramic industry has become a fundamental part of the southern economy and a strategic sector for the high level of industrialization in the area. In addition, due to the high quality of raw material, Ecuador has positioned itself as a benchmark in the international market for flat ceramics with high added value. For this reason, exports of the products are directed to several countries with volumes that in 2019 they reached an

accumulated amount of 9,400,596.85 (Superintendency of Companies, Securities and Insurance, 2021).

1.6. Conclusion

In this chapter, the main theories of foreign trade have been explained, starting from classical theories such as the concept of absolute and comparative advantage that cite the specialization of products as a basis for exchanging goods between two countries. Then, we explain Michael Porter's competitive advantage, which focuses on improving companies to achieve national competitiveness that will allow them to break through in the international arena. In addition, internationalization theories were presented, which started from gradual processes of international markets' introduction to processes in which companies were born to sell abroad. We also analyzed cultural contexts and contact networks that improve introduction strategies in markets of other countries.

Subsequently, mini, small, and medium-sized companies were defined, and it was concluded that their participation in the countries' economy is key since they contribute to the GDP and help generate jobs. However, there are several limitations in technology, innovation, financing, and cooperation. Finally, it has been determined that the production of flat ceramics has focused on the Ecuadorian Austro, specifically in the city of Cuenca. There are four large ceramic-producing companies in this area at the national level with more than 100 tile importers. So far in 2021, there has been a recovery in this sector. However, it is expected to improve and expand. Therefore, it is a market that expects to prosper in the following years.

Chapter 2

Diagnosis and analysis of the company

In this chapter, the diagnosis of Fábrica de Mosaicos La Austral is presented as a central point to understanding the company's actual situation in terms of Administration, Finance, Production, Sales, and Marketing. To analyze the company's situation, an audit of potential exporter is carried out. This test was initially used by PROECUADOR, MIPRO and previous students of this project. It has the aim of evaluating the company and measuring its potential to internationalize. The test starts with a bank of questions by area; several interviews are conducted with company managers and workers to assign a general rating. These rates vary from 0 -when the company does not meet the parameters- to 5 -when the company successfully meets them- depending on the performance it has in various activities.

These results are summarized in a table, in which a percentage is given to each department – according to the importance they have in the internationalization processes- for later assigning an overall rating to the company. Subsequently, the traffic light tool is used to determine the degree of internationalization development, and by using the maximum score of the test, a certain range is assigned in which it is classified in one of three criteria: red (the company is not ready for the internationalization), yellow (on the way) and green (ready).

2.1. Diagnosis of Fábrica de Mosaicos La Austral

2.1.1. General information

Company name: Fábrica de Mosaicos La Austral

Denomination: Manuel Gonzalo Suárez Pinos

Legal situation of the company: Private company dedicated to manufacture mosaics, tiles, paving slabs, etc., made of non-refractory ceramics.

Logo: (see Figure 2)

Figure 2: Fábrica de Mosaicos La Austral logo.



Source: Fábrica de Mosaicos La Austral, 2021.

Manager: Luis Alfredo Suarez

Slogan: They do not have a slogan.

Location: Abelardo J. Andrade and Carlos Orellana de León (San Pedro del Cebollar sector).

The company has been operating in the city of Cuenca for approximately 73 years. Mr. Manuel Suárez and his partner founded it. They bought the machinery and started the production of mosaics and tiles in 1948.

History:

César Suárez, co-owner of the factory, was interviewed, and he told us that Mr. Manuel Suárez Baraona and an Italian friend wanted to create a company aimed at the elaboration of tiles and mosaics due to the great demand for these products in the market. This demand resulted from the lack of variety in products used for floor coverings. Stone floors were very heavy, while

plank floors lacked resistance and were not a design required by the market. Thus, by obtaining the raw material easily in Cuenca, they realized that the business idea could meet the demands in terms of European-based design (due to the European influence in the region) and the quality.

During this period, the creators began to obtain raw materials. As a result of the boom in tile production and demand, machines for production were acquired by importing them directly from Italy. For many years they dedicated themselves to the elaboration of tiles and mosaics. After 73 years in the market, the factory continues to be under the direction of the Suárez family; however, granite tile and podotactile tiles have been added to its offer. Until 2020 Luis Enrique Suarez was in charge of the management, but his sons César and Luis Suárez took over the administration due to his death. Fortunately, the company has maintained its prestige in terms of production quality and resistance.

Mosaics made by the company have been recognized throughout the country due to their excellent resistance and the possibility offered of making unique designs. These products have a well-worked aesthetic visual load that includes patterns, drawings, colors, etc. On the other hand, the traditional tile, obtained from pink marble, is produced with different sizes of marble combined with other colors, such as black, while the grain tile has a more careful process as it requires polishing. Podotactile tiles are made to special order as they are used as signaling systems for blind people, and the company sells large amounts of dotted tiles and palettes to municipalities. Finally, tiles with carving, made of paste and do not require polishing, are mostly used for rustic environments. These products and others are produced from quality raw materials and with processes that ensure their resistance and long-lasting pigmentation. These characteristics make up the main differentiation of the company.

2.1.2. Administration area

A semi-structured qualitative interview was conducted⁴ with César Suárez to develop the company diagnosis. In this interview, we discussed the development of company areas and their most urgent problems. The information will be presented in the next section.

2.1.2.1. Strategic management

The company already has significant experience in the market; however, its direction is still precarious since its organizational administration has not been established. The company's mission, vision, objectives, and even advantages and disadvantages (SWOT matrix) have not been set up. The current change in management is essential and, at the same time, necessary to create solid administrative bases that allow us to know what exactly the company is and what its creation purposes are.

However, those in charge know the company's competitive advantage since they have established their sales based on their prestige for quality. The Fábrica de Mosaicos La Austral ensures that its products are of such high quality that its floors can last more extended periods, both in design and pigmentation, compared to its competitors. They have managed to sell mosaics and tiles in large volumes and for important clients such as the Municipality of Cuenca, the Municipality of Machala, the Church of El Vecino, the Church of San Francisco, PIGGIES sausage company, Melatte cafeteria, and more.

2.1.2.2. Human Resources

Being a family business since its creation, the formal organizational structures have not been taken into account since the members of the Suárez family manage the company. In this sense,

⁴The structure of the interview is found in Appendix I.

there are pretty informal structures as the oldest employees know the whole process. They are in charge of carrying out specific processes in the Production area, depending on the area in which they work best. On the other hand, the factory has three plant employees in charge of various processes.

When the company has large orders, the factory managers collaborate in production, but they also hire temporary staff, almost tripling the plant staff, to meet promised times. When additional personnel is hired for substantial orders, plant employees are in charge of a specific process depending on what the order is, acting as section managers and ensuring that the processes meet the standards established by the company. Staff is classified depending on their knowledge. Plant employees are formally hired, they have insurance and extra payments for working more than eight hours a day (starting at 8 am and ending at 5 pm). They are also periodically trained for the development and improvement of their functions.

2.1.3. Finance Area

In the interview with César Suárez, it was learned that the Fábrica de Mosaicos La Austral currently has an accounting system managed externally. This means it hires an accountant external to the organization to keep the company's accounts. In addition, it has the RUC in the name of the current administrative manager, Luis Suárez, and is registered as a small company in the Internal Revenue System. However, the bank account that the company manages is a personal account of the manager above. The additional characteristic is that the double signature strategy is used, which requires the signature of two people to approve the check or transaction. This strategy is linked to the participation of Mrs. Jenny Marcia Enríquez, co-founder of the factory and mother of the current managers.

On the other hand, the company currently does not have bank loans or debts since its focus on production has allowed them to face the liabilities incurred. It is important to note that

management is afraid of borrowing money, especially when it is about aspects that are not strictly necessary. Before the COVID-19 pandemic, income depended on the season, since from November to March, sales were relatively low, while production was sustained in the following months. Nevertheless, during the pandemic, all production stagnated for several months. The situation worsened when the Suárez family got infected with COVID-19, and Luis Enrique Suárez's health was prioritized.

However, at this time, the company received an order at the engineer's request in charge of an urban regeneration project of the Municipality of the city of Machala for the production of 4,000 meters of tile. The company delivered one trailer per week for three consecutive months. It is getting used to wearing the mask and adopting biosecurity measures that affected employees and managers in the first instance, as they had to help in production and extend work hours. When the market opened up and the restrictions were eased, the company's activities returned to normal, but the construction sector was hit hard. Until June 2021, the company did not have contracts, for which all its actions were focused on the production of grain and other by-products. For all these reasons, the company faces a difficult economic situation. As long as the construction sector does not improve or income improves, the company will hardly obtain the expected income.

2.1.4. Production area

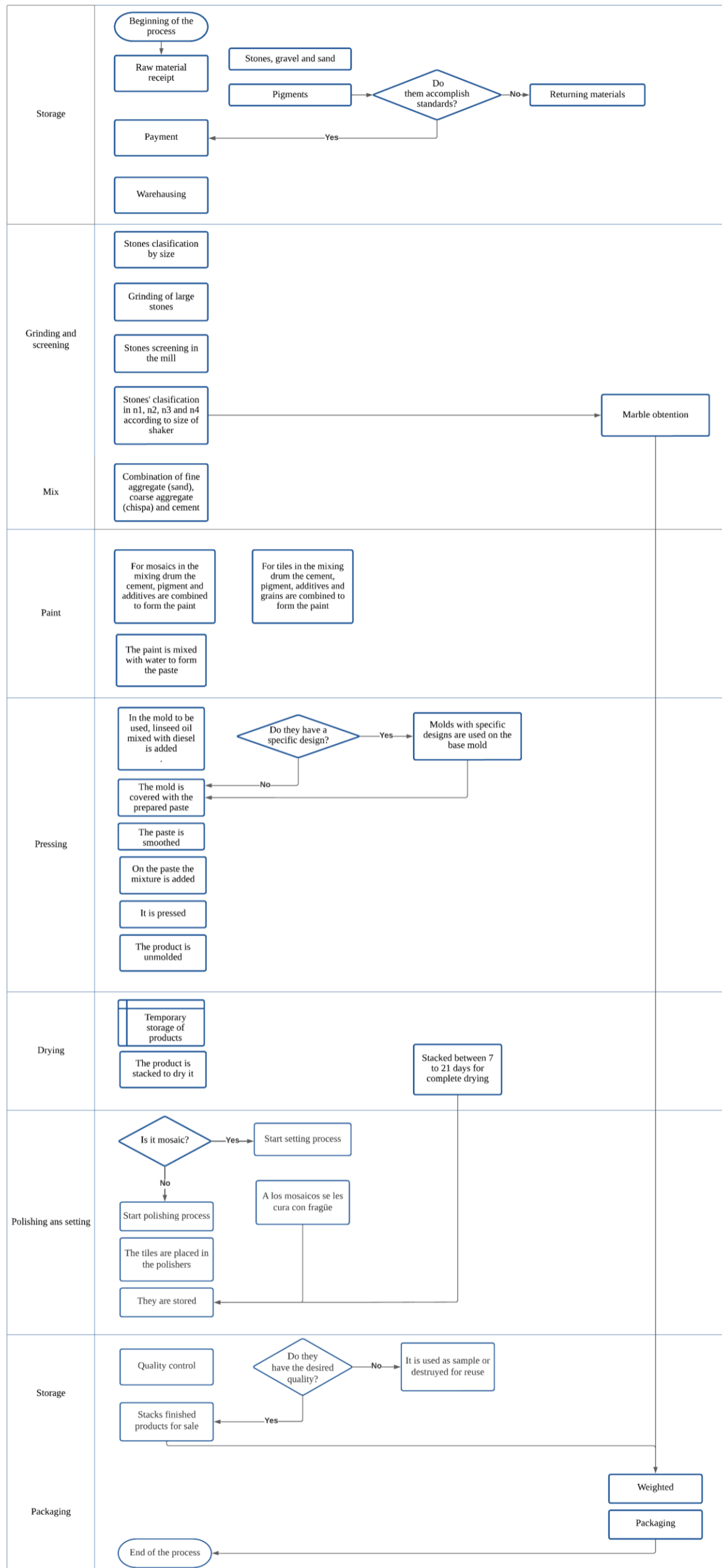
In the interview for the diagnosis of the Productive area, Cesar Suárez gave us information about the production processes carried out within the company. Thus, the information presented below is a compilation of the data provided.

2.1.4.1. Flowchart

Although the company has a flowchart, it is obsolete and does not represent the processes that are carried out in the present. For this reason, it is necessary to update the flowchart to get more detailed and renewed information, such as the one shown below (see Figure 3).

It should be noted that throughout this process there are steps that take more time and others that take more effort, which makes the production process delayed. From this, two processes determine the production capacity, called bottlenecks, such as: the crushing of large stone that is done manually with a combo and the complete drying that takes between 7 to 21 days.

Figure 3: Flowchart.



2.1.4.2. Production process

- Reception and storage of raw material

Figure 4: Raw material storage.



Description: Storage of stones and gravel.

Figure 5: Raw material storage.



Description: Storage of stones and gravel.

- Grinding and screening

Figure 6: Grinding mill.



Description: Operation of the mill to crush the stones.

Figure 7: Grinding machine



Description: Grinding of the stones in the mill.

Figure 8: Shaker.



Description: Separation of the stones by size in the shaker.

Figure 9: Marble.



Description: Marble obtention.

- Mix and Paint

Figure 10: Mixing drum.



Description: Combination of cement to prepare the mixture, and subsequently prepare the paste.

- Pressing

Figure 11: Molds.

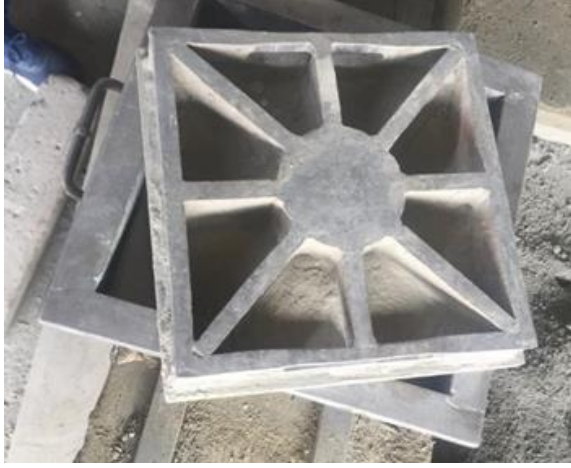


Figure 12: Mold preparation.



Description: Preparation of molds.

Description: Application of oil in molds.

Figure 13: Pressing.



Description: Pressing of tiles and mosaics.

- Drying

Figure 14: Storage for drying.



Description: Temporary storage of mosaics and tiles to dry.

- Polished

Figure 15: Polishing machine.



Description: Tile polishing process.

- Storage

Figure 16: Storage of final products.



Description: Storage of final products.

- Final products

Figure 17: Finished tile.



Description: Sample of a final product.

2.1.4.3. Production capacity and machinery

The company's maximum production capacity (with extra workers) is 8,000 meters of tiles per week; however, the company typically works to order. They only use the maximum production

capacity with large orders. On regular working days, production depends on the press operator since an experienced operator produces 100 meters of tile per day and two to three meters of mosaics. On the other hand, the production rate drops if operators are new or learning.

Regarding machinery, the company uses the following: three Italian presses, two polishers, two marble mills, one marmoline mill, marble cutters, and one mixing drum. The presses are the most used in the production process since they are used daily from 8 a.m. to 12 p.m. and from 1 p.m. to 5 p.m. The use of polishers depends on the production and the orders. They are typically used until noon. On the other hand, the use of the mills is sporadic, since it is used every one or two weeks, depending on the production rate. It should be noted that when the company is producing at its maximum capacity, most of the machines work daily.

Regarding the age of the machines, the presses were acquired between 1950 and 1960, and have not presented problems or delays for production to date. They only need oil changes from time to time. The polishers were also acquired around the same date as the presses. They are machines with an electric motor, so they are damaged due to time of use, but they are given good maintenance every few months, and thus their helpful life is quite long. The company has not bought new machinery because of the instability of the tile sector.

2.1.4.4. Product range

The company does not have technical sheets of the products. However, definitions of the products will be presented below -it should be noted that César Suárez has shared these concepts in the interview-. Additionally, photos of the types of tiles and mosaics, which can be found in the La Austral catalog, are attached (see Figures 18 to 22).

- Mosaics are cement tiles with a surface decorated in different shapes and colors. Their primary function is to generate a visual load that helps in the decorations of the facades.

They have measurements of 20 x 20 cm and 25 x 25. Prices range between \$25 and \$60, depending on the resistance, thickness, or design of the product, since these are customized depending on the needs of the client. Also, when not personalized, the average 2 x 20 x 20 cm, and 2.25 x 25 x 25 cm.

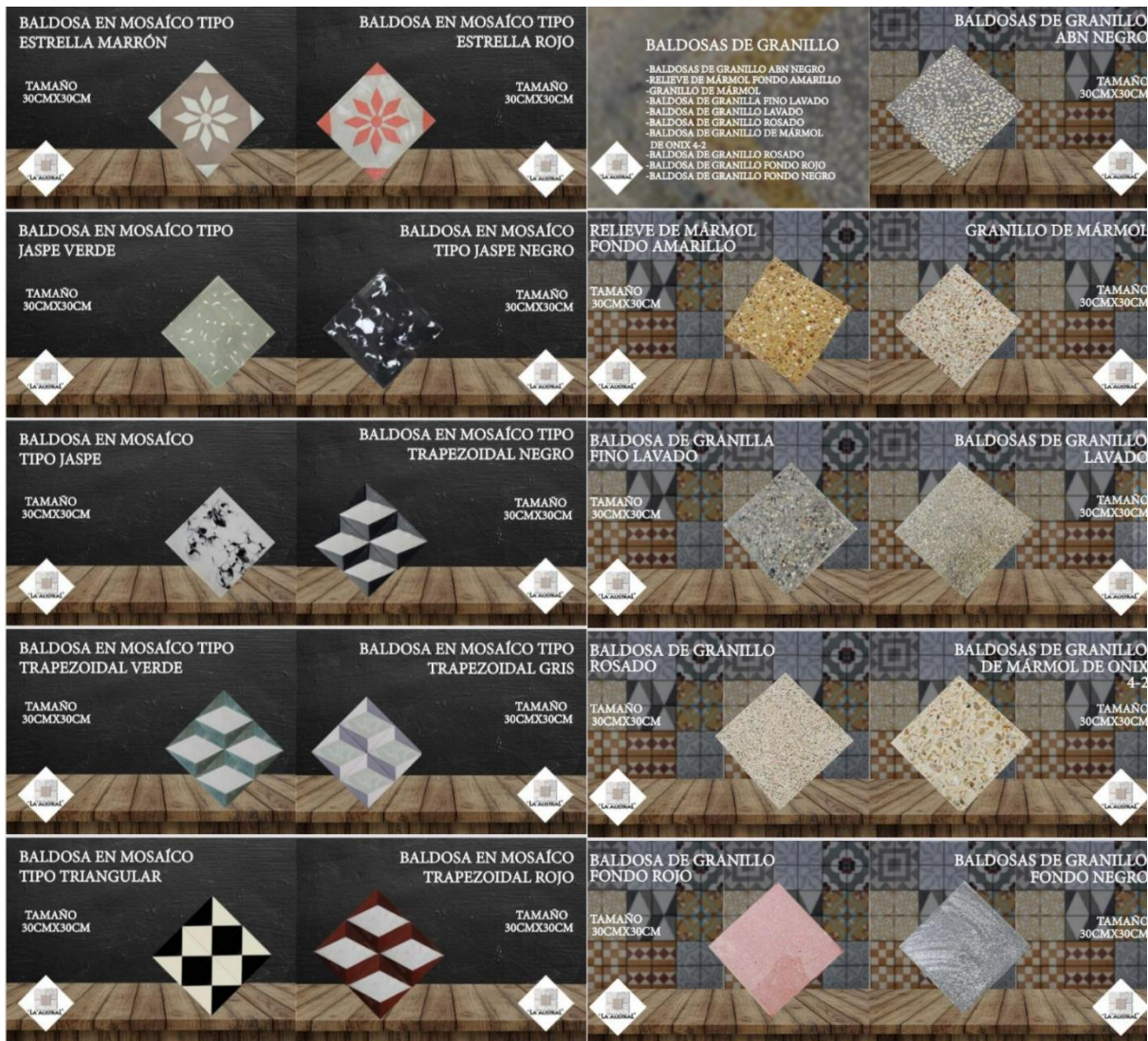
Figure 18: Mosaics catalogue.



Source: Fábrica de Mosaicos La Austral, 2021.

- Traditional tile, also known as grain tile: It is an element of cement concrete, molded and pressed, in the form of a regular board and used for covering and protecting floors (Instituto Ecuatoriano de Normalización, 1992). The main formats are 30 x 30 cm and 40 x 40 cm. Prices range from \$12.50 to \$35, depending on the product's strength, thickness, or design. Furthermore, the thickness produced is generally 2.5 x 30 x 30 cm, and 3 x 40 x 40 cm.

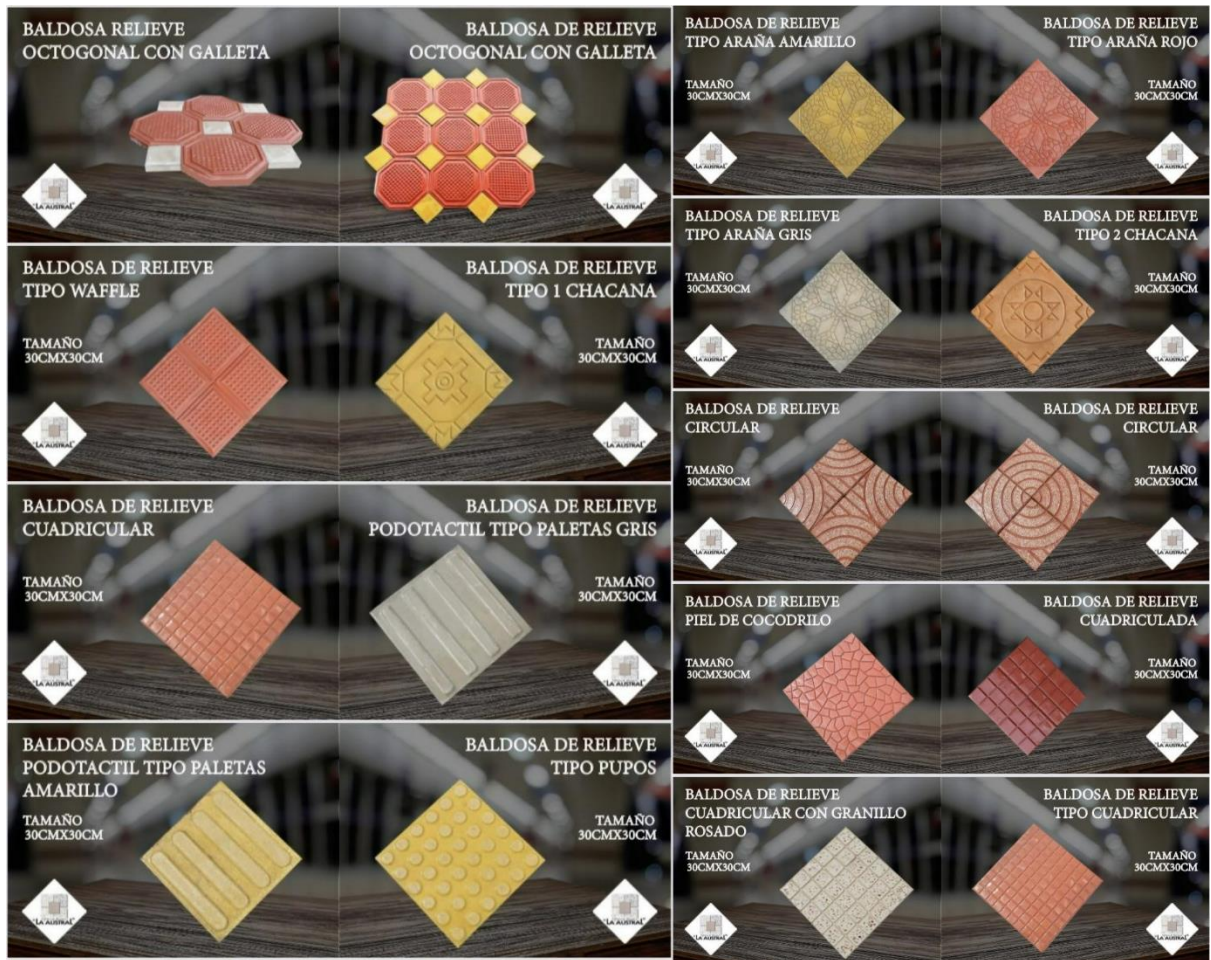
Figure 19: Traditional tiles catalogue.



Source: Fábrica de Mosaicos La Austral, 2021.

- Podotactile tile: It is a type of tile that has grooves or carvings. The company manages podotactile tiles allowed by the regulations of the City Council. The types of tiles are circle tiles and tiles with advanced lines. The formats are 30 x 30 cm. Prices range from \$12.50 to \$35, depending on the product's strength, thickness, or design.

Figure 20: Podotactile tile catalogue.



Source: Fábrica de Mosaicos La Austral, 2021.

- Construction materials:
 - Granillo: in sizes: n.1, n.2, n.3, n.4. There is no specific measurement for each grain number, but the smallest ranges from two millimeters to one centimeter thick.

Figure 21: Catalogue of construction materials.



Source: Fábrica de Mosaicos La Austral, 2021.

- Marmolina: it is a fine powder used to shape the cement and prevent it from calcining at the time of putting grain on the wall or ceiling. There are two types: the first is a fine powder, which is the by-product of grain grinding, while the second is known as calcium carbonate and is used in coastal shrimp farms.

Figure 22: Marble catalogue.



Source: *Fábrica de Mosaicos La Austral, 2021.*

2.1.4.5. Production and innovation policies

The company has policies regarding the quality of its products, and they strictly comply with them. For example, they have policies about the pigmentation of tiles and mosaics depending on the product type. In addition, there are standards regarding the thickness of the products. For concrete tiles, a resistance of 210 kg/cm³ is accepted; however, a limited number of products do not comply with this policy due to the non-existence of specialized machinery. Despite this non-compliance with the standard, a more significant amount of concrete is used in production to obtain the desired resistance. Sometimes, when the tile is fragmented, it is reused after being removed from the press by making it a powder.

On the other hand, by pressing the tile and having a pressure gauge, a difference of less than 1 mm in thickness per tile is achieved. However, this varies depending on the mold condition since only steel molds are used. Years ago, some plastic and rubber molds were used, which quickly wore off and did not offer the desired quality.

The company has been on the market for a long time, so there are no innovative policies in the production process. However, the products can be personalized, and the client has to pay for the manufacture of the mold. Subsequently, mosaics and tiles are produced according to the tastes and criteria of the buyer.

2.1.4.6. Procurement

The company raw materials' suppliers are national and international. The foreign materials that the company buys are durability and quality pigments; to obtain them it has commercial partners that are direct importers of Italian and German pigments. The prices of these products vary depending on the color and the brand, but in general the company opts for strong color pigments from brands whose prices vary between \$100 and \$200 per kilogram. However, light colors costs above \$50 on the market. The rest of the materials for production (stone, molds, cement, among others) are manufactured nationally.

Hence, there is a lack of an inventory system because all production depends on orders. Some tiles are constantly in stock, but there is no record of the quantities produced. The interviewed person commented that there are two or three paradas ⁵daily of each best-selling model (each painting parada is approximately 50 square meters of tile). On the other hand, the mosaics are only made to order, so their inventory is not planned either.

Regarding the payment term to suppliers, some give more time for payment than others. For materials such as sand and spark - which generally correspond to dump truck suppliers - the payment time is two or three weeks, depending on the terms established by each supplier. On the other hand, to buy stone, payment time depends on the supplier's disposition, generally from 1 to 3 weeks.

2.1.5. Sales and Marketing Area

In the same interview with the company representative, it was mentioned that the company final customers are construction owners. However, responsible architects or construction workers influence the final decision. They consider that their clients vary depending on the

⁵Defined as certain quantities of production that are carried out per day.

situation because, in some cases, architects or construction workers are the ones who primarily make the decision, or even between both. They have defined their sales model as business-to-consumer (B2C) and business-to-business (B2B). However, there are no customer acquisition management and loyalty plans that allow the company to keep its regular clients. Although, those clients who seek quality prefer to buy in La Austral, and the company offers discounts depending on the quantity of the order.

The company does not have a customer search manager. It only expects those who know the company to return or recommend them, nor do they send samples to distributors. On the other hand, the company does not belong to any association since when they belonged to the Chamber of Small Industry of Cuenca, they did not find any benefit. Nor has it made commercial agreements with companies in the sector because their products are usually used on a non-recurring basis and oriented towards resistance and long duration. It is necessary to highlight that the company focuses its production on the orders it has; thus, they produce certain products when they obtain contracts, while when they do not have them, they produce the best-selling products. For this reason, the company does not have defined budgets or plans.

On the other hand, the credit portfolio with customers depends on the order volume. When the company receives large orders, it usually grants flexible payment (at least 50% has to be paid initially, and the last payment is made before the last shipment). Payments also depend on the type of client since the company prefers to charge upon delivery to the public sector. However, there are flexible payments for clients from the private sector according to the amount of the order (one to two weeks for full payment). In addition, the company has various payment methods such as check, transfer, credit card, and cash; nevertheless, the most used has been the bank transfer.

La Austral has recently focused on promoting its products as high-quality tiles, with the possibility of creating personalized designs with a vintage style. Thus, they have promoted heritage tiles to build different cathedrals and churches. On the other hand, although samples were distributed in various country sectors, the company currently sells directly from the factory through a physical store and social networks (Facebook, Instagram, and Whatsapp Business). Although social networks were used before the pandemic, the company was not promoted on them. During the pandemic, the use of social networks began as a means of seeking new clients through publications. Currently, social media is the only paid advertising the company uses, and it has obtained favorable results.

The company has little experience in international sales to Perú. A few years ago, it exported tiles to a shrimp company. The main challenges encountered were using a commercial invoice for export, obtaining national permits, and importing documents in the destination country. Import processes in Peru were the responsibility of the purchasing company. In addition, since it was the first time they exported, they did not trust the business partner, so they asked for full payment before shipment of the merchandise and used the 2010 Ex-Works (EXW) incoterm in their contract.

2.2. MSME Export Potential Audit

The Export Potential Test is an instrument for analyzing the export capacity of companies. In this, the authors create a bank of questions to identify the degree of development of companies through qualifications based on management excellence. When obtaining a final percentage in each area, the companies are classified into three types: interested in exporting, exporters in process, and sustainable exporters (De La Hoz et. al., 2016). These qualifications depend on what improvements companies need to achieve competitiveness to export to various foreign markets. De La Hoz et al. (2016) mention that the main aspects are:

- Institutionalality: Compliance with mandatory requirements to operate in the market and be formally recognized as a company.
- Demand: Degree of market knowledge about demands, needs, and expectations.
- Offer: Management of product and service innovation, productivity, and inventory availability.
- Associativity: Degree of cooperation with government institutions and private companies.
- Added value: Goods or services that add value to the product and generate competitiveness, such as continuous improvement, quality, price, or innovation.
- Sales management: Create, plan and meet sales goals and objectives.
- Financial health: Financial, risk and investment management, also periodic knowledge of the financial situation.
- Other administrative, process, and market requirements.

Although the tool varies depending on the author, we proposed a test based on the models of the Export Potential Test carried out by the Ministry of Production, Foreign Trade, Investments and Fisheries (MPCEIP or MIPRO) and the adapted models by the previous researchers of the Improvement Plan for MSMEs Project. Thus, for this test, we evaluated four areas of the company: Administration, Sales, Finance, and Production. A rating of 0 was given where the necessary parameters were not met, 3 when some were met -partially-, and 5 when all the parameters were met (see Table 1).

Table 1: Audit criteria.

Audit criteria				
Areas	Management	Finance	Production	Sales and Marketing
Number of questions	34	21	36	42

Scores	5= Meets all parameters
	3= Partially meets parameters
	0= Does not meet the parameters

Once the current conditions of the company were graded, we multiplied each area rating by the maximum possible qualification of the test. Thus, we obtained the company's internal evaluation by calculating the percentage of compliance through a simple rule of three. Subsequently, the disposition of instruments, resources, and the company's total capacity was established. This information was collected through interviews to company owners.

2.2.1. Administration Area

Table 2: Export Potential Test Administration Area.

Name	Code
Administration Area	EA01-2021
Managers	Review date
Tinoco Fergie, Vazquez Dolores	2021

No.	Category	Meets all parameters (5)	Partially meets parameters (3)	Parameters are not met (0)
<i>General information</i>				
1	Does the company have a legal status?	5		
2	Does it have experience in the market?	5		
3	Does the company have returning customers?		3	
4	Does it have a defined budget for this area?			0
<i>Strategic plan</i>				

5	Does it have a complete strategic plan that includes the mission, vision, and company's values?			0
6	Does it have short, medium, and long-term objectives and strategies?			0
7	Are there organizational objectives that encourage exportation processes?			0
8	Has the strategic plan been communicated to the company departments?			0
9	Does the strategic plan consider the needs of national and international markets?			0
<i>Business model</i>				
10	Has the company defined the product it offers and the industry it operates in?	5		
11	Have company owners defined the company added value?		3	
12	Is a competitive advantage defined?		3	
13	Is a comparative advantage defined?			0
<i>Document management</i>				
14	Does the company have manuals of procedures or functions?			0
15	Have the staff participated in certification projects, quality management, or			0

	continuous improvement?			
16	Do you have company department descriptions?		3	
17	Is the information on the flat ceramic sector updated periodically?		3	
	<i>Administrative management</i>			
18	Do you have control/supervision systems for production activities?	5		
19	Do you have control/supervision systems for inventory activities?			0
20	Do you have an effective internal communication system?	5		
21	Have agreements or cooperation been established with other institutions?			0
22	Do you have plans to maintain and improve a satisfactory organizational climate?		3	
	<i>Human talent</i>			
23	What is the employment model? (formal, or informal)	5		
24	Do you have a functional organization chart?		3	
25	Do you have the necessary personnel to cover and manage all the areas that a company needs?		3	

26	Do you have trained staff for your duties?		3	
27	Do you provide regular training for employees in all company areas?	5		
<i>Export planning</i>				
28	Do you have experience in foreign trade?			0
29	Does the company consider exporting as its medium or long-term objectives?			0
30	Do you plan to develop an export plan for the future?			0
31	Do you have staff with experience in foreign trade?			0
32	Do you have staff who can communicate in multiple languages?			0
33	Is the company willing to take the risks and learn from internationalization?		3	
34	Do you have knowledge about the requirements and processes necessary for exportation processes?			0
TOTAL				65
				38.24%

Administration Area summary

Despite its formal constitution and its vast experience in the market, Fábrica de Mosaicos La Austral presents administrative problems. Its strategic organization has not been planned, implying that the company does not have clear objectives in its actions and that its production

merely goes back to an artisanal field (production based on orders). In addition, the company hasn't defined and directed its activities towards expansion and success in the national market. Although the owners exported some products to Perú, they were not able to manage the requirements to carry out organized exports. Although company processes and functions are clear and detailed in the contracts, it has not established formal and documented structures that allow future managers to know what has been done or employees to know their specific responsibilities due to the lack of an organization chart.

On the other hand, the company knows exactly what it offers to the market since it has defined that the quality of its products -in terms of resistance- must be better than those of the competitors. The company knows its added value, but it does not know how to exploit it, which is why it has not achieved the success it should. Likewise, due to its years in the market, the factory has a formal employment model and has personnel who are constantly trained for their functions in the Administrative, Financial, and Production areas. However, it does not have specialists in the Sales area, which has stalled effective sales models; thus, configuring an obvious problem.

2.2.2. Finance Area

Table 3: Export Potential Test Finance Area.

Name	Code
Finance Area	EA02-2021
Managers	Review date
Tinoco Fergie, Vazquez Dolores	2021

No.	Category	Meets all parameters (5)	Partially meets parameters (3)	Parameters are not met (0)
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<i>General information</i>				
1	Do you have a RUC or RISE?	5		
2	Do you have enough financial capital to carry out your operations?		3	
3	Have you met all financial, personal, commercial, legal and municipal tax obligations (to date)?	5		
4	Do you have current accounting financial statements?	5		
5	Do you have a defined budget for this area?			0
<i>Company's income</i>				
6	Do you have multiple sources of income?		3	
7	Does revenue meet or exceed sales projections?			0
<i>Accounting-financial information</i>				
8	Is a general budget established for accounting periods?			0
9	Do you have updated cash flow reports?		3	
10	Do you have updated reports of the income statement and balance sheets?		3	
11	Do you have calculations of costs by-product?		3	
12	Do you have a break-even analysis?			0
13	Do you frequently analyze accounting information?		3	

<i>Investment</i>				
14	Do you have investments value registered?	5		
15	Is the company capable of making new investments if necessary?		3	
16	Does it have a profit reinvestment system?	5		
<i>Banking relations</i>				
17	Does the company have a business bank account?			0
18	Do you have various sources of financing?			0
19	Could the current financing mechanism be used to export?			0
20	Are you willing to apply for a loan to finance an export project?		3	
21	Do you have real guarantees to access new credits?	5		
TOTAL				54
				51.43%

Finance Area summary

In the first instance, it is necessary to highlight that the company does not have its own accounting department. It hires an external accountant to manage its finances. Due to its way of operating in sales, the company is unwilling to borrow or pay aspects that are not strictly mandatory since its income depends on the season and the orders they receive. This negative conception of indebtedness has stopped and spoiled the company's financial culture, and it has hindered the modernization of machinery, the development of its activities, and, consequently, the fulfillment of its objectives to survive in the market.

It should be considered that planned debt is an opportunity to grow in the market; however, company success also depends on the development of sales, exploiting the added value of its products, and effective organizational planning. In addition, the company has maintained its financial movements in the name of the Suárez family and has not created a business account, ignoring the fact that a business account facilitates the recording of accounting events and adds professional credibility.

In contrast, the company's formal structure has positively forced them to have financial obligations and updated accounting information, so they can quickly know the situation of the company and make effective decisions about their finances. In addition, the investment system managed by the company has been beneficial, since it has prevented unnecessary leverage that affects the participation of external actors. Although it is true that the company is afraid of borrowing money, it does have the necessary guarantees to face long-term debts; in this sense, the company would be willing to make loans if the result of an export project benefits it.

2.2.3. Production Area

Table 4: Export Potential Test Production Area.

Name	Code
Production Area	EA03-2021
Managers	Review date
Tinoco Fergie, Vazquez Dolores	2021

No.	Category	Meets all parameters (5)	Partially meets parameters (3)	Parameters are not met (0)
	<i>Patents, permits, and certifications</i>			
1	Have you patented your products?			0
2	Do you have operating	5		

	permits, records, etc.?			
3	Do you have ISO or INEN certifications for production?			0
4	Do products have international certifications?			0
5	Do you have a defined budget for this area?			0
<i>Quality Management</i>				
6	Do you have quality control procedures?			0
7	Has a flow chart of the production process been defined?	5		
8	Does quality control comply with all production steps?			0
9	Is there personnel who perform quality controls throughout production processes?			0
<i>Packing and packaging</i>				
10	Does the package or container have a label according to standards and regulations?			0
11	Have you hired a specialist to design your packaging or container?			0
12	Do you know the packaging processes for foreign markets?			0
<i>Suppliers/ Provisioning</i>				
13	Is there a supplier qualification record for the products required by the company?		3	

14	Do you have constant availability of suppliers?	5		
15	Do you have provisioning systems?		3	
16	Do you have plans and budgets for replenishment?			0
<i>Environment</i>				
17	Are the production processes friendly to the surrounding environment?		3	
18	Does the company meet the environmental management requirements for your industry?		3	
19	Do you have programs to reuse and reduce waste?	5		
20	Do you take advantage of the by-products of your production?	5		
<i>Inventory</i>				
21	Do you have a production plan?			0
22	Do you track and control incoming, process, and outgoing inventory?			0
<i>Technology</i>				
23	Do you have the technology to record inventory?			0
24	Have you invested in technology for machinery?			0
<i>Infrastructure and maintenance</i>				
25	Do you consider cleanliness inside the factory important?	5		
26	Do your facilities meet safety standards?	5		

27	Does the company have programs and staff for machinery maintenance?		3	
<i>Production improvement and increase</i>				
28	Do you have a high level of increased production capacity?	5		
29	Do you have a high level of production improvement capacity?		3	
30	Does the company have projects and plans for innovation and improvement?		3	
31	Does the company have the infrastructure capacity to increase production?	5		
32	Can you tailor production to customer-specific designs and potential export markets?	5		
<i>Product availability</i>				
33	Does the company have the productive capacity to cover orders from abroad without neglecting the local market?			0
34	Do you meet deadlines set for product delivery?	5		
35	Can you react to extra requests within a set time?	5		
36	Is there innovation in the product (design, use, characteristics, materials, etc.)?			0
TOTAL				81
				46.29%

Production Area summary

As a result of its financial culture, the company does not believe it is convenient to invest in what is not strictly necessary, such as patenting its products or getting international certifications. They think these processes involve money and time, and perseverance to obtain them. In addition, the company has a poorly structured quality control process for its production, which is limited to the supervision of the company owners. In addition, they lack appropriate packing and packaging since they have not established shipment models and only transport their products in trucks.

The same problem happens with production planning since by only focusing on orders, they do not have recurring plans that guide and control production for established periods of time. This, in turn, influences the lack of innovation in the product as the lack of projection causes uncertainty in production. Consequently, the company lacks effective automation because they continue to use the machinery acquired 73 years ago. They do not have technological systems for inventory registration, and all their production is handled as manufacturing. This has meant that the company is stuck in an outdated model and does not have sufficient production capacity to meet orders abroad without neglecting the local market, thus contradicting its expansion intentions.

On the other hand, the company has focused on obtaining all the permits required for its production and has kept up to date with the legal and environmental requirements that facilitate its existence. In addition, by prioritizing the quality of its products, it has established good relationships with its suppliers, so that it has the recurring availability of raw material. Although they have handled requirements for pigment suppliers depending, these qualifications and controls should be asked to all suppliers. Finally, the company has a great capacity to improve and increase its production due to the fact that it operates in a spacious environment. Its infrastructure complies with effective safety standards, and ecological standards that reduce

waste, encourage reuse and reduce pollution in the surrounding environment (this is found in the periodically updated company environmental management plan).

2.2.4. Sales and Marketing Area

Table 5: Export Potential Test Sales and Marketing Area.

Name	Code
Sales and Marketing Area	EA04-2021
Managers	Review date
Tinoco Fergie, Vazquez Dolores	2021

No.	Category	Meets all parameters (5)	Partially meets parameters (3)	Parameters are not met (0)
	Sales			
	<i>General information</i>			
1	Does the company have trained personnel who manage this area?		3	
2	Do you have a defined budget for this area?			0
3	Would you be interested in participating in international fairs?	5		
4	Do you have different payment options?	5		
5	Do you make quarterly or semi-annual sales projections?			0
6	Is the brand registered with SENADI?			0
7	Does innovation exist and is it motivated in the form of sales?			0

<i>Sales policies</i>			
8	Do the products (mosaics and tiles) have a guarantee?		0
9	Do you have a return policy?		0
10	Do you always inform your customers about the return conditions?		0
11	Do you have a credit sales option?	3	
12	Does customer credit time meet your requirements?	3	
<i>Customer service</i>			
13	Do you have a specialized customer service contact number?	3	
14	Do you have staff to handle customer service?		0
15	Has a straightforward procedure for customer service been established?		0
16	Do you use a satisfactory claims handling system?		0
<i>Market study</i>			
17	Have exploratory studies been carried out in the local market?		0
18	Have exploratory studies been carried out in foreign markets?		0
19	Are you aware of the market research tools available on the internet?		0
<i>Logistics</i>			
20	Is it easy to transport products?	3	

21	Do you have a distribution channel?	5		
22	Do you know if products require special treatment in their transportation?			0

Marketing				
<i>Price</i>				
23	Have studies been carried out to determine products' prices?			0
24	Have you established a price range that fits the consumer's needs?			0
25	Are the prices competitive?		3	
<i>Place</i>				
26	Do you have permanent physical points of sale?	5		
27	Do you have active online points of sale?		3	
<i>Product</i>				
28	Do you have a product catalog?	5		
29	Does the product meet consumers' needs?	5		
30	Do you innovate your product line annually?			0
31	Do you have the option to customize the products?	5		
32	Do you carry out studies to launch new products?			0
33	Does the product adapt to new markets easily?	5		

3.4	The functionality of the product does not require transformation abroad?		3	
<i>Promotion</i>				
35	Do you have your own website and active social networks?		3	
36	Do you have social media advertising strategies based on sales objectives?			0
37	Have you contracted advertising space on radio or television?			0
38	Have you established channels and strategies to promote your brand value?			0
39	Does the company have a slogan that differentiates its brand and product?			0
40	Does the company have a logo that differentiates its brand and product?	5		
41	Do you have a brand manual?			0
42	Have you defined a brand personality that can differentiate you from other companies in the same industry?			0
TOTAL				72
				34.29%

Sales and Marketing Area summary

In the Sales area, all the negotiations are handled by the general manager, Luis Suárez, and there is no person responsible for sales. For this reason, the company has not defined a budget that guides and motivates the search for customers and increases sales volume. In turn, this

implies the lack of periodic sales projections, effective market studies, a sales policy, guarantees, returns and claims, and specialized customer service that answers questions and attends to the after-sales needs of its customers. It is worth mentioning that the company normally waits for customers to arrive, and their employees do not seek new customers because they consider that attracting customers requires mobilizing product samples. Then the sale becomes a complicated process. In addition, and again due to its financial culture, no registered trademark positions the company- making it hard to be a recognized brand that demonstrates professionalism in the sector. Although the company considers that its products are easy to transport, since it has carried out a truck transport process to date, it did not demonstrate knowledge about the requirements and correct special treatment that the merchandise must-have when shipped to the local market.

Additionally, the company offers short credit periods to its customers since it does not have regular sources of income -it depends on its orders- and it prefers payments once the merchandise is delivered. However, the factory has various forms of payment that improve business relationships with its customers by granting them payment facilities, even if this means short payment periods. Currently, the company has an effective distribution channel that allows it to meet deadlines and deliver quality products. It should be noted that the company has experience in the logistics of its products and has handled it satisfactorily. In this sense, the company is also aware of the implications of exporting its products by maritime transport and is aware of the product adaptations it must make.

On the other hand, it was not until now that the company has ventured into the Marketing area. However, it still does not have studies or analyses that define the accurate prices that its products should have according to the market, considering the quality they offer. In turn, the

lack of these investigations has caused the non-innovation in the line of established products and the non-availability of new products that respond to the market's current needs.

In addition, the use of advertising strategies is limited to social networks with occasional publications about the available products, however, a brand manual that highlights the company's personality has not been established. The company doesn't have a slogan and the logo has not been updated and does not reflect the essence of the brand, which is quality.

Despite this, the company has focused on maintaining physical points of sale for customers who need to carry out inspections of the quality of the products and have an in-depth knowledge of the available designs; although sales through social networks have increased in the last period. As for the product, the company's advantage lies in the existence of a catalog that is available both on its social networks and in its physical store -samples-. Furthermore, it has the possibility of customizing the products according to the designs that the client prefers; thus, their products are easily adaptable to the market they are targeting. Finally, it is important to mention that the information collected in the interviews showed that the company's client portfolio is made up of old clients who know about the quality of the products or clients who have been recommended by others and who are looking for resistance during construction.

2.2.5. Diagnosis of the level of internationalization of the company

Table 6: Qualification of the Export Potential Test.

Summary table			
Areas	Percent Rating	Rating on basis	Basis per area
Management	38.24%	0.3824	1
Finance	51.43%	0.5143	1
Production	46.29%	0.6943	1.5
Sales and Marketing	34.29%	0.5143	1.5
TOTAL		2,1052	5

According to Table 6, the percentage rating has determined that the Sales and Marketing area is the one in which more work should be done as a result of the lack of specialized sales personnel and little planning in marketing. Followed by the Administration area, in which the documentation processes and procedure manuals must be reinforced, as well as the development of strategic plans. The Productive area has several strong points; however, it is necessary to think about automating processes and improving quality controls and supply processes. Finally, the Financial area has proven to be quite solid because the company has all the updated information regarding financial statements and tax obligations, which optimizes quick decision-making. This area can improve by creating a business account for the company and reinforcing the financing and reinvestment system.

In order to know the potential export capacity of Fábrica de Mosaicos La Austral, basic qualifications have been established for each area, which varies depending on the importance or impact they have when carrying out an export plan. Thus, the areas of Production and Sales, and Marketing are considered the most influential for successful internationalization, which is why they have been given a higher weight of 1.5 each. This is because a company needs to have a product-oriented to satisfy the needs of the market and exceed its expectations; In addition, this area is important because a company needs to know how to sell the product, that is, knowing how to convey it to their foreign clients the added value they offer and make them recognize it. As well as establishing relationships with foreign firms with experience in the target market so that better sales planning is carried out based on the productive capacity of the MSMEs.

Consequently, a company that wants to internationalize must have good foundations in its Production area to ensure that it offers a product of competitive quality, with regular and

continuous supply in the market. But it must also know what the requirements are to sell their products abroad so that packaging arrives without problems and is accepted. Once a company is strong enough in that area, it must work in the Sales and Marketing area, since the promotion, marketing, and recognition of the brand determines the success in sales, and as a result the stability of the company. (Osei-Bonsu, 2014).

On the other hand, although the areas of Finance and Administration are essential for the success of the companies, they influence less because they involve faster, more accessible, and less complicated improvement processes than the previous areas. Thus, a rating of 1 has been assigned to each one. In this sense, there are currently multiple credit facilities for companies to solve financial problems, and the company has guarantees to obtain financing. Likewise, there are cases in which companies have managed to internationalize without having adequate administration (Osei-Bonsu, 2014). However, this does not mean that they are not critical areas for internationalization since this process is dynamic and requires synergy in the areas. Therefore, all continue to maintain the need for continuous monitoring and improvement.

Finally, all this concludes that in terms of capacity to internationalize, the weakest area of the company is Sales and Marketing, followed by Administration, then Production and Finance. Although, it is important to note that the company as a whole has obtained a medium low rating (2.1052/5) in relation to the years and experience it has in the market.

2.2.6. Traffic Light Rating Methodology

Table 7: Ranges for the Semaphore Rating.

Range		Traffic light
0 to 266	0 to 40%	Red
267 to 466	41% to 70%	Yellow

467 to 665	71% to 100%	Green
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To qualify the company in terms of its degree of development and internationalization potential, we have assigned percentages according to the complete score of the Export Potential Test. (see Table 7). Thus, it was established that the red traffic light qualifies the company when it obtains a total equivalent to 40% of the total rating -which is 665-, the yellow traffic light to the score corresponding to 70% of the total, and finally the green traffic light is equivalent to 100 % of rating.

Table 8: Rating summary.

Parameters for the audit					
Areas	Management	Finance	Production	Sales and Marketing	Total
Score obtained	65	54	81	72	272
	38.24%	51.43%	46.29%	34.29%	42.56%

Then, applying the explained methodology, the company is at the yellow traffic light (see Table 8), which means that La Austral has the potential to start the internationalization process since it has an attractive product for the market and the capacity to produce and satisfy the needs of their customers. It should be noted that the company is at an initial level at the yellow traffic light (42.56% of up to 70%), so it must focus its efforts on development aimed at the continuous improvement that will allow a successful introduction in the future in the international market.

2.3. Conclusion

In this chapter, we used two essential tools to carry out the current diagnosis of the company, such as the interview with a representative of the company and the Export Potential audit, which was adapted from the Export Potential Test carried out by the MIPRO and the models adapted by the previous researchers of the Project Improvement Plan for MSMEs. Based on

these tools, it was learned that La Austral has shortcomings that require an immediate solution, since the administration problems have affected the performance and productivity of the company.

The areas with the greatest deficiency are Administration Marketing and Sales since they have not been oriented towards structured action and based on objectives. Therefore, foundations will be established in the next chapter for the company to guide its activities and improve its performance efficiently. However, it should be noted that although the Production and Finance areas are the ones with the best performance, they need to implement a system of sustained improvement.

Chapter 3

Preparation of improvement plan

In the previous chapter, the situation of each of the areas of Fábrica de Mosaicos La Austral was determined, which is why this chapter will focus on proposing improvements in each case. Thus, based on the data collected in the interview and the administrative audit, the most critical points that must be improved in each company's department will be chosen, starting with the establishment of theoretical aspects and then establishing their practical development. This improvement plan is based on organizational management strategies, tools for process control and quality control, financial planning, and sales and marketing plans, to provide recommendations that the company can use on a daily basis and allow it to achieve better levels of competitiveness in the national market, and later become part of the international market.

3.1. Strategic Plan for the Administration Area.

The plan for this area includes elements of strategic planning so that the company could have a solid administrative structure, in which the foundations are laid for the company to pursue clear objectives. In this way, employees can have a clear guide of their functions, responsibilities, and obligations with the company, and the administration can use this planning to make decisions.

3.1.1. Development of mission, vision, and values

3.1.1.1. Mission proposal

Produce and market handcrafted mosaics and tiles, based on the best quality and resistance standards in the national market, promoting eco-friendly production processes, and prioritizing exceeding customer expectations thanks to product customization.

3.1.1.2. Vision proposal

To be the leading company in the market for handmade mosaics and tiles, being recognized for the quality of our products, personalized designs, and competitive prices. Thus, entering the international market until 2027, and positioning ourselves for our quality and resistance in other countries.

3.1.1.3. Value proposal

- Customer orientation: Prioritize the needs of our customers by analyzing their requirements to guarantee products that exceed their expectations and offer excellent personalized attention.
- Environmental social responsibility: Promote sustainable processes that avoid negative impacts on the environment and the community.
- Trusted collaborators: Promote the participation and inclusion of collaborators who develop and strengthen their skills and technical capacities in the company's activities in order to generate synergy between them.
- Continuous improvement: Guarantee continuous improvement in the company's production processes and activities to ensure compliance with quality standards and company objectives.
- Respect: Maintain a cordial work environment between internal and external clients of the company.
- Teamwork: Promote work activities in which workers can socialize, create work teams and strong ties, where mutual respect and collaboration prevail.

3.1.2. Development of objectives

Every organization must set measurable, realistic, clear, and achievable objectives because they guide the activities and lead the administration to make decisions focused on business growth.

Thus, these objectives are modified over time as the company grows, and when it meets them, new objectives are established to encourage continuous improvement throughout the organization. Once its importance is understood, it is recommended that the company define the objectives depending on its situation and its purposes.

3.1.2.1. General objectives

Distribute customized mosaics and tiles, produced from quality raw material that guarantees high durability and resistance.

3.1.2.2. Specific objectives

- Position the brand as synonymous with quality among customers through a strategic plan aimed at the target market.
- Create sales plans based on monthly production that allow measuring the company's performance and making decisions to increase profits.
- Promote economic investments for the growth of the production plant and sales increase at the national level.
- Retain old customers and attract new customers by introducing innovative products that exceed their expectations.
- Maintain quality controls to ensure the quality and resistance of the products.
- Promote the practice of processes and activities with corporate responsibility.
- Apply programs of continuous improvement, innovation, and modernization of the factory to update knowledge and experience in the sector.
- Establish plans to generate added value such as innovation in mosaic and tile designs.

3.1.2.3. Objectives by areas and phases.

We have established three phases of improvement, which are: the construction of information, data analysis and the use of simple tools, and finally the use of complex tools. This is due to

the fact that the company must first concentrate its efforts on creating a culture of meeting objectives based on the collection of information that helps it make decisions; Thus, when it manages to complete the first phase, it will be prepared to face the analysis of that information through simple tools; and so, it will be ready to implement more complex tools.

- Objective of the Administrative area:

Table 9: Objectives of the Administrative area.

Goal	Phase I: Data Collection	Phase II: Simple Tools	Phase III: Complex tools
Increase company profits.	Collect information on costs and market share (total sales of the company in a given period and total sales of the flat ceramics industry in the same period).	Analyze market preferences and tastes by approaching customers, and then analyze which costs can be reduced.	Improve market positioning through the use of customer compliance practices (on negotiated quantities, delivery times and quality standards), improvement of promotion and advertising, and relationships with national distributors.
Generate a product catalog.	Know sales by product data and recognize the number of products offered.	Analyze data to describe the products offered and classify unprofitable products.	Carry out studies of tastes and market preferences through interest groups, and focus on improving the acceptance of star products.
Use and update strategic analysis tools.	Collect internal information on the company (processes, capacities) and on the flat ceramic sector (policies, projections, technology).	Study data to perform SWOT and PESTEL analyses.	Develop a strategic plan using tools such as Canvas CANVAS, Ansoff Matrix, and Porter's Five Competitive Forces.
Promote innovation in the company.	Identify areas or aspects that are obsolete, such as product designs, packaging, promotion strategies, and others.	Analyze data to rank them by modernization importance.	Create an innovation plan focusing on creativity in designs and control of results.
Schedule training and evaluations for staff.	Collect written data on the performance, work environment, and motivation of employees.	Analyze data through tables to verify the needs of the workers and based on this, schedule training workshops on essential topics.	Establish an improvement plan with employees based on performance tests and self-assessments, and verify compliance and results.
Establish quality standards.	Know the activities carried out to identify those that generate the greatest defects.	Study and recognize the variables that cause those problems through tools such as Pareto's Law and Ishikawa Diagram.	Implement quality improvement methods for continuous improvements, such as KAIZEN, Quality Circles, and Total Quality Management.

- Objective of the Productive area:

Table 10: Objectives of the Productive area.

Goal	Phase I: Data Collection	Phase II: Simple Tools	Phase III: Complex tools
Carry out quality controls for production processes.	Start a culture of written recording of data on production processes (data on compliance with the flowchart, production time, damaged products, destroyed products, worker performance, easier materials to work with, and machinery performance)	Generate monthly statistical graphs on the quantity produced and the failures that have occurred in the production process.	Search for solutions through quality control tools, for example, the Pareto Diagram and the Ishikawa Diagram.
Uniformly increase the rate of production.	Collect data from previous years and current data about levels and pace of production.	Make comparative charts, including changes in the production process, increase or decrease in workers, and other factors that influence the daily production of tiles and mosaics.	Evaluate expenses and production costs, as well as market studies of tiles to establish a projection of semi-annual production.
Control inventories to avoid overproduction or lack of products.	Implement simple inventory control systems for the entry and exit of products in the Microsoft Excel software.	Record data and generate reports to determine faults or problems that may exist.	Make use of quality control tools to achieve efficient inventory management, such as Check List.
Propose new product designs.	Start a written record of information on the purchasing trend of tile designs.	Identify which colors and shapes are preferred by customers, and based on this create proposals for new designs.	Conduct studies on customer perception of new designs.
Control the purchase of raw materials.	Establish a database of suppliers, and use performance evaluation indicators to obtain information on the products that are bought.	Analyze raw materials costs and their relationship with suppliers over a period of time.	Buy a specialized computer software for supplier management.
Ensure that safety regulations are met.	Generate a written record so that employees can verify the correct use of uniforms and safety equipment, as well as cleaning and maintenance of the factory.	Monitor and make decisions based on the results of the implemented registration system.	Provide training that allows workers to learn about the registration system results and the improvements that are required to have better results.

- Objective of the Financial area

Table 11: Objectives of the Financial area.

Goal	Phase I: Data Collection	Phase II: Simple Tools	Phase III: Complex tools
Manage an accounting control.	Collect data on the periodicity and relevance of the statements and balances available in writing.	Determine the frequency and information that must be submitted, and prioritize compliance with tax obligations. Also, create a business bank account to develop good financial health that differentiates the personal account of the owners.	Generate financial scenario studies by analyzing financial, sales volume, and expense ratios with DuPont analysis.
Prepare budgets for each area.	Identify the accounting information handled by each area and register it.	Analyze the most recent accounting information by area.	Define budgetary ceilings by area.
Make sales projections.	Collect data on the company's economic situation and the market based on available balances and entity financial studies.	Analyze information collected, such as expenses, income, and sales (of the company and market).	Generate projections using qualitative and quantitative tools, such as a comparison of market sales with company sales; and define quantitative sales goals.
Prepare a financial plan.	Collect accounting and financial information available to know expenses and income. Create a bank account for the company to start relationships with banks, and define specific areas that require financing.	Analyze information through its classification by period to define what expenses can be reduced and what income can be increased. Also, define the reasons for indebtedness and its advantages/disadvantages.	Prepare a controlled indebtedness plan considering the following: the convenience of indebtedness and set of funds for investment. In addition, periodically verify the debt ratio.

- Objective of the Sales and Marketing area:

Table 12: Objectives of the Sales and Marketing area.

Goal	Phase I: Data Collection	Phase II: Simple Tools	Phase III: Complex tools
Meet sales targets.	Collect information about the sales of the available periods.	Analyze past sales to set achievable sales goals.	Establish concrete actions with the use of Hoshin Kanri for the fulfillment of objectives.
Search and prospect potential clients.	Set a minimum number of new clients to contact per week.	Identify potential customers.	Create loyalty strategies through special promotions or memberships.
Evaluate the performance of sales executives.	Create a system for evaluating employee performance.	Generate monthly performance reports.	Propose improvements for customer service, ways to sell, etc.
Apply advertising strategies.	Establish a target audience and advertising strategies' objectives.	Define the timing of advertising, communication channels, and budgets.	Assign a person in charge to carry out the advertising and weekly evaluate the results according to the initial objective.
Increase sales levels.	Evaluate sales in previous years and in the current time.	Identify trends through internal and external information (market perception).	Select sales strategies such as modifying or innovating sales channels, increasing advertising, improving sales and after-sales service, etc.

The concepts of the tools mentioned in Table 9 are the following:

- DuPont Analysis: It is a method to analyze the economic profitability of companies through the relationship of the return on assets formula -ROA- (net income / own assets) and return on capital -ROE- (net income / net worth), as well as relates these financial ratios to operating margin (earnings before interest and taxes/sales). Thus, it provides an idea of business evolution over time and allows the repercussions of decisions to be simulated (Bernal, 2010). Also, constantly reconcile accounts.
- Porter's Five Competitive Forces: It is a tool to determine the profitability of an industry, anticipate competition, and its influence in the long term. There are five forces that compose it: the bargaining power of suppliers, the threat of new entrants, the threat of substitute products or services, the bargaining power of buyers, and rivalry (Porter, 2008).
- Check List: checklists are "a list of questions, in the form of a questionnaire that helps to verify the degree of activities compliance for a specific purpose" (Cardona & Restrepo, n.d., p. 2).
- Quality circles: They are also known as control circles. They are groups of four to ten people who work in the same area of a company, and who meet voluntarily during working hours to identify and solve problems in the organization, and establish solutions to them in the long term (Gutierrez, 2005).
- Ishikawa Diagram: This diagram is also known as a fishbone or cause and effect diagram. It is performed with the aim of detecting the causes that are influencing a problem. The problem that needs to be solved is defined and the sets of causes are established, which are normally: machine, raw material, work method, labor, and environment. Then, a brainstorming session is carried out among the members of the

group, the repeated ideas are eliminated, and they are classified into sets of causes (Ruiz-Falcó, 2009).

- **SWOT:** It is the acronym for Strengths, Weaknesses, Opportunities, and Threats. It is a planning and decision-making tool that allows a subjective evaluation of data to understand internal factors of the company (strengths and weaknesses) and external factors that affect it (opportunities and threats). Thus, it serves to visually evaluate the situation in which the company operates (Fernández, 2007).
- **Hoshin Kanri:** It is a simple method of continuous improvement used by companies. It seeks to establish goals to create plans and guidelines, which are dynamic and clear, as well as periodically evaluated and controlled (Yacuzzi, 2005, p. 2). Thus, it is considered a management style that coordinates the activities of all the members of an organization to achieve the planned objectives. It integrates strategic management with operational management, and it is configured as an administration by objectives (APO), both annual -called Hoshin- and secondary (Yacuzzi et. al., 2011, p. 2).
- **KAIZEN:** It is a continuous improvement method that helps to meet objectives and maintain excellence. It is based on four principles: optimization of current resources, fast implementation of solutions, low or zero cost criteria, and active participation of the operator at all stages. Principles used through the 5S are Seiri (sorting and discarding), Seiton (organization), Seiso (cleanliness), Seiketsu (hygiene and visualization), and Shitsuke (discipline and commitment) (Imai, 2001).
- **Pareto's Law:** This law is based on the 80/20 rule, which indicates that when there is a problem with several causes, "20% of the causes solve 80% of the problem and 80% of the causes only solve 20% of the problem" (Sales, 2013, p. 2). This diagram helps to focus on the most compelling reasons that are causing a company's performance to stall.

This tool can be used to establish problems and prioritize solutions, look for opportunities for improvement, and evaluate results (Sales, 2013).

- **CANVAS:** It is a method for business model innovation that helps to generate an easy and simple definition of the value proposition of a company. It is divided into nine modules that are: market segments -served-, value proposition -a problem that is solved or satisfied-, channels -of communication, distribution, and sale-, relations with clients, sources of income -when clients acquire the value proposals-, key resources -necessary assets-, key activities, key associations -of those outsourced activities-, and cost structure -elements of the business model- (Osterwalder & Pigneur, 2011).
- **Ansoff Matrix:** It is a tool designed for decision-making regarding the growth of companies through product networks and market extension. It is applied by creating a matrix divided into possibilities of two axes (products and markets) with two values (existing and new), in this way the final matrix has four options: market penetration, market development, new product launches and product diversification (Armijos et al., 2019).
- **PESTEL:** It is made up of the initials of Political, Economic, Social, Ecological, and Legal factors. It is a tool for measuring and describing the context in which a company operates. That is an analysis of the factors that form it and that allows knowing the potential and the situation of market growth and decline, business potential, etc. (Fernández, 2007).
- **Total Quality Management:** The Total Quality approach is the management of a company, which has a customer focus and involves all employees in continuous improvement processes (Montoya, n.d.). This approach focuses on the following principles: customer focus, total employee involvement, leadership, process-based

approach, continuous improvement, relationship management, and creation of an integrated system (Montoya, n.d.).

3.1.3. Preparation of a functional organization chart and functions

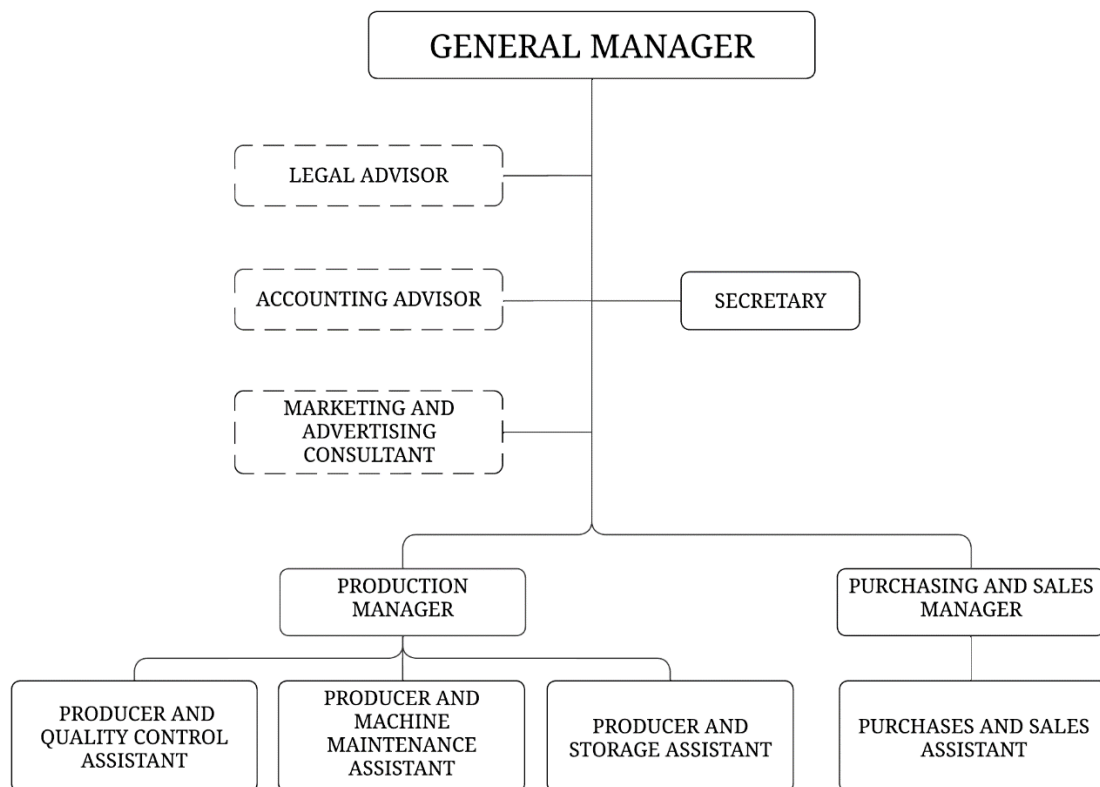
3.1.3.1. Organization chart proposal

The company lacks a fully organized structure; however, it has been managed by an informal system that has worked eventually since its inception. However, to expand its activities and consolidate itself in the market, it must establish a defined organizational structure that allows differentiating the positions and functions of each worker. A proposed organizational chart is proposed in Figure 23, and designed around the company's resources and the most relevant positions considering its business size.

Figure 23: Organization chart proposal.

Fábrica de Mosaicos La Austral

Organization chart



3.1.3.2. Proposal of functions

It is proposed that all workers fulfill specific functions to establish a defined organizational structure, generate better clarity in the collaborators' work positions, and be consistent with the objectives. After analyzing the labor market in the city of Cuenca, and defining the most important functions for each critical area of the company, the following has been determined:

a) Administrative area

General manager: The person who serves as head of the organization and is responsible for:

- Strategic management of the organization, that is, being the external spokesperson for the company and being its internal leader.
- Plan, organize and supervise the activities of the company.
- Manage company resources.
- Make decisions on critical or relevant issues for the organization.
- Develop plans and objectives of the organization regularly with the area managers.
- Coordinate decisions between departments.
- Motivate, supervise and mediate between employees.
- Review the profiles and hire the necessary personnel for the company's development.

Secretary: The person who serves as head of administrative functions in the office and must:

- Prepare background and necessary documentation for work meetings.
- Attend to external and internal clients that require a conversation with the manager.
- Redact memorandums, circulars, and other documents.
- Receive, and deliver correspondence from Management.
- Organize the agenda according to priorities, and confirm and coordinate interviews.
- Answer phone calls from management.
- Keep the historical file of the company up to date.

Legal adviser: It is a person external to the company that offers its services to resolve legal issues and problems.

- Prepare contracts, regulations, agreements, and resolutions.
- Organize and deliver the documents required for the institutional processes necessary to the company.
- Collect information for legal processes related to the company's activities.
- Keep the manager up to date on new resolutions or changes in regulations for small and medium-sized companies.

b) Financial area

Accounting advisor: Person external to the organization who is in charge of keeping the company's accounts.

- Classify, organize and record all business operations to keep track of income flow and expenses.
- Ensure that documentation and files comply with legal regulations, policies, and procedures established by the company and government authorities.
- Prepare periodic reconciliations of financial accounts.
- Issue information for the generation of financial statements and reports for Management and control entities.
- Generate income tax and VAT receipts following current legal regulations.

c) Productive area

Production manager: Person in charge of coordinating and supervising production processes.

- Plan product demand projections that allow the development of a monthly production plan, which must be communicated to all company areas for decision making.
- Perform environmental and quality management.

- Supervise the fulfillment of area objectives and the daily fulfillment of employees' functions.
- Review the projects carried out by the organization.
- Verify the existence of materials necessary for production and notify the person in charge of purchasing so that he supplies raw materials when they reach the minimum permissible.
- Prepare proposals for new product designs through quality circles.

Producer and quality control assistant: The person is a plant worker in the production process who is also in charge of quality control.

- Comply with all the processes described in the production flowchart.
- Perform quality controls according to what was agreed with the production manager.
- Use tools to ensure that quality controls are carried out correctly.
- Collect information on quality controls.

Producer and machine maintenance assistant: The person is a plant worker in the production process who is also in charge of machine maintenance.

- Comply with all the processes described in the production flowchart.
- Carry out systematic planning for the maintenance of the machines.
- Inform the production manager about any alteration in the machinery that requires contacting an external maintenance specialist.

Producer and storage assistant: The person is a plant worker in the production process who is also in charge of product storage.

- Comply with all the processes described in the production flowchart.
- Store the finished product in the warehouse.

d) Sales area

Sales manager: The person in charge of supervising the work of the sales team.

- Plan sales budgets in confluence with Management.
- Find new market niches and potential customers.
- Receive sales reports from sales managers.
- Control the activities so that they are within the assigned budget.
- Develop a sales plan and sales strategy to achieve the objectives set.
- Monitor compliance with the company's credit policy.
- Train the team in sales and collection management.
- Supervise the correct fulfillment of inventory replenishment.
- Control merchandise status and its proper registration in the system.

Buyer-Seller: The person is in charge of functions for purchasing raw materials and sales of products.

- Search and negotiate quotes with suppliers to report to the Sales area manager.
- Receive invoices from suppliers and verify that they comply with legal requirements and those established by the company.
- Provide information on market behavior to make sales budgets.
- Meet monthly sales budgets.
- Perform control of raw material inventories handled by the company.
- Register the portfolio of suppliers and customers of the company.
- Receive customer calls for purchases, claims, or returns.
- Properly advise customers and prepare quotes for them.

Marketing and advertising consultant: The person is a person external to the company in charge of managing marketing, social networks, and advertising on the company's networks.

- Define the advertising strategy of the company.
- Plan and organize launch events, product promotions, local fairs, and others.
- Prepare the design of advertising material (brochures, arts, POP material, etc.).

- Collect, organize and supervise the information to be published on the company's social networks.

3.1.4. Policy proposal for the Administrative Area

The audit results show that the company has not updated its internal policies to regulate the processes in its different departments. Thus, policies are proposed in each section of the Administrative, Financial, Productive, and Sales areas.

a) Organizational structure

1. Organic structure policy: The Administration must redesign and maintain the organic structure of the company, always customer-oriented -both internal and external-to satisfy their needs, exceed their expectations, adapt to the market, and constantly innovate.
2. Policy on plans and programs: The Administration, together with the department managers, will be in charge of presenting the Strategic Plan, including the development of new products and services for the organization, innovation, and quality. Subsequently, reports will be submitted every six months to determine compliance with the plan.

b) Human Resources

1. Training Policy: The secretary will be in charge of researching and constantly updating the professional training topics that are most convenient for the company. Every six months, the general manager will be responsible for choosing one or more training and scheduling them with the workers.
2. Salary policy: The Administration will be responsible for creating an orderly and equitable remuneration system and motivating productive work and objectives and goals fulfillment. This system will obey internationally accepted models, and the company will prioritize its variability so that it adapts to its

objectives. In addition, the company will ensure compliance with the salary established by the Ministry of Labor and the agreed working hours. The payment of overtime and extra hours will also be ensured.

3. Recruitment policy: The process will begin with publishing and disseminating the job position and its functions. Afterward, interviews will be held, and the general manager will decide. However, internal competition among the company's workers will be prioritized to fill the vacancy.

c) Public relations

1. Policy on public relations: The general manager will investigate possible approaches with other companies and organizations that benefit the business to expand its activities and improve its position in the sector by connecting with society. The secretary must deliver a list of social organizations with which the company can create an activity plan or an aid budget.

3.2. Strategic Plan for the Financial Area.

The proposed plan for this area aims to generate the main foundations to improve financial health by establishing policies that guide the activities and using financial tools that allow modernizing the current ones.

3.2.1. Policy proposal of the Financial Area

For this area, several policies are proposed to allow the company to manage the financial department efficiently since the general, accounting, budget, and purchasing bases are determined.

a) General financial policies

1. Central financial policy: The Administration will prioritize and ensure financial solvency to guarantee business sustainability and development based on the organizational strategy.
2. Policy on financial structure: The organization will create and maintain a company account and optimize the structure to be compatible with the bank credit rating. In addition, the company will ensure coherence and reasonableness of contract commitments, regardless of their nature. Its ultimate goal is to maintain a financial and tax health policy that allows personal and business accounts to be diversified and improve the company's financial structure.

b) Accounting policies

1. Costs policy: The general manager and the accounting consultant will plan, manage, and control the cost structure. They will prioritize the achievement of greater efficiencies and high levels of productivity. They will periodically review the costs of the company and will try to maintain those that are most necessary and reduce others. However, this will not mean that the quality of the raw material is changed and affects the final product.
2. Policy on accounting information: The accounting advisor must offer precise and veridic accounting information periodically so that the administration knows the financial situation and makes decisions efficiently. In addition, the person will ensure that the company complies with tax obligations on time and maintains activities under national accounting standards. In the same way, the person will present ratios and financial statements to know the level of indebtedness, leverage, and economic solvency. Likewise, financial risks will

be identified within permissible limits and managed jointly with the administration.

3. Policy on compliance programs: The company will establish compliance programs to inform its employees about the policies, requirements, and regulations. In addition, these programs will allow compliance with the standards defined by the control entities since the financial situation and risks that affect the company will be reported in a transparent, clear, and precise way to the competent bodies and the Administration.
4. Treasury policy: All operations related to purchases and sales (subject to invoicing) must be justified by supporting documents approved by a competent institution. For the payment of invoices, the company will use the most convenient method, such as electronic transfer, check, debit or credit card, and interbank transfer. At the same time, small-value payments may be made with petty cash. Regarding disbursements, the responsible person must approve these payments and justify them with formal documents.

c) Planning policy

1. Policy on planning: The Administration, in collaboration with the accounting advisor, will review and analyze the current economic situation of the company. They will aim to develop financial planning oriented towards results and objectives achievement. Regarding projects and investments, the organization will evaluate its financial profitability and then develop it.
2. Policy on projections: The general manager and the accounting consultant will jointly make sales and financial statement projections. These projections will serve as a goal or measure for the activities to be developed throughout an established period.

3. Budget policy: The general manager will be responsible for preparing the company's global budgets in coordination with the accounting advisor's financial analyses. For this budget, sales projections or past sales reports will be considered first, and then the production of the company and the expenses for purchases will be taken into account. In addition, in a meeting with the department heads, the needs of each department will be analyzed, and based on this, they will define a budget that meets the main requirements of each area. In this way, all financial needs will be planned to guarantee the availability of necessary funds and maintain the optimal level of liquid resources.

d) Policy on purchases, payments, and portfolio

1. Purchasing policy: Department heads will inform the purchasing and sales manager about materials and raw materials required by each department when there is a minimum stock. In no case will the order be made when the material is found to be at the minimum acceptable since it means the risk of stopping production. The department heads will contact the suppliers and negotiate to send the proforma invoice to the manager. Then, he will proceed with the purchasing process, and the process will be complete when the general manager confirms the purchase and payment of the invoice.
2. Means of payment policy: The company will accept payments in cash, credits, transfers, and credit and debit cards.
3. Charges policy: The sales manager will be responsible for generating the contract and specifying the payment times for each order depending on its value and required quantity. In large orders, the payment dates will be established according to the client and the number of meters requested. Sales executives must prioritize an advanced payment that allows the preparation of the order.

Later, when the entire order is produced, the customer must pay the remaining payment according to the contract terms. For short orders that are available in stock, the client and the sales executive will determine the most convenient means of payment among those accepted by the company.

4. Portfolio policy: The company will develop and disseminate the mechanism that helps recover the portfolio, segmenting it according to its validity and value. This portfolio collection will be up to 15 days after delivering the full load. The person in charge of purchases and sales will be responsible for keeping accounts up to date and contacting the client for payment before the scheduled date.

3.2.2. Financial strategies

For its survival in the market, every company requires good financial health to face expenses, investments, and projects. La Austral Mosaic Factory has a low sales volume for 2020 and 2021. In addition, the lack of sales and production planning has affected the company's financial status since it has caused no establishment of economic growth goals or the use of financial indicators. Also, the culture of not investing and not making loans for the company's benefit has affected its economic development. Based on the current situation, several strategies are proposed to improve the company's financial well-being.

1. Restructure and organize the company's accounting books: Notably, having an external advisor is advantageous for the company. However, accounting books must constantly be updated so that Management can make decisions and react at the correct times. That is why we propose to restructure and keep up accounting books.
2. Seek financing and investments: The fear of indebtedness has caused the company to stagnate in using its financial resources. Although it is not a harmful strategy, the company has used it without clear objectives. Thus, turning it into a restriction for development and innovation. Being aware of this situation, planning a controlled debt

destined to specific objectives, or in the best of cases, the search for investors who contribute not only capital but also know-how is raised. In this way, a controlled indebtedness would allow the company to achieve sustainable growth-oriented towards the fulfillment of specific goals and objectives -a system that has been proposed-which will improve sales and participation in the national market and a possible projection to the international market. However, for the indebtedness to be feasible and well-executed, the company must generate its account, as it will improve the differentiation of business and personal resources.

3. Prepare a budget and financial projections: The existence of objectives and goals brings with it the need to establish budgets both for the organization and each area. Every company must measure its resources to be used in each fiscal period and adequately manage its income and expenses. The goals and objectives are met satisfactorily and adjusted to each future situation in the company. In addition, after 73 years of existence in the market, the Administration should think about the company's future and its expansion. For this, it is necessary to know the level of sales and production through the accounting entries that it handles. These documents and statistics will allow the company to project its finances, have an idea of where they are going and how to expand, and meet its objectives and organizational goals.
4. Invest to improve the plant's infrastructure, machinery, and technology: Currently, the company has been committed to generating and buying products with added value or tactical differentiation. However, this is a result of technological innovation and productivity improvement. For this reason, buying new machinery, technology, and expanding infrastructure is seen as an investment with significant benefits in the medium and long term. This is no different for MSMEs, which can achieve high productivity and promote sustained growth even with a small budget.

3.3. Strategic Plan for the Production Area.

The production area is one of the strongest within the company. However, it is necessary to implement systems so that the products can be easily recognized by customers and sellers. It is also necessary to implement inventory controls so that the administration knows the levels of production and sale of tiles and mosaics, and record purchases of raw materials from their respective suppliers.

3.3.1. Policy proposal for the Productive Area

Several policies are proposed for this area and they are related to production processes, safety, inventories, purchases, and the environment. Together, these policies will guide the area's activities and allow them to be organized in a way that makes them more efficient and productive.

a) Production processes

1. Production capacity policy: The production department will define the hourly capacity, depending on the sales projections. With this information, this department will also define policies to react to unexpected orders or increases in product demand. Also, it will set the technology with which they work so that decisions are made based on the real capacities of machinery and workers.
2. Preventive maintenance policy: The company will establish a budget for the preventive maintenance of the machinery and the factory. Also, it will indicate the period of time in which this maintenance will be made depending on each machine's technical characteristics and the carried-out production.
3. Quality Policy: The Administration and the Production Department will define quality criteria and minimum margins of failure in the production of tiles and mosaics; adapting the culture established in the Just-In-Time system. This will

allow workers to have standards to follow, and customers to have a quality guarantee.

b) Security

1. Safety regulations: To comply with occupational safety and health regulations, MIPYMES will create safety policies within the facilities and in the development of operations. These must be made known to the employees and must be compulsorily complied with. Thus, the safety policies for the company will include plant safety and maintenance, machinery maintenance, training, occupational health evaluations, providing uniforms, defining personal items that cannot be used at work because they present risks, and taking corrective action.
2. Clothing policy: The company must establish in the contracts the specifications on the appropriate uniforms that meet safety characteristics. This will include protections for the face and body.

c) Inventories

1. Maintain finished goods inventory in stock: Management will inform employees that a certain amount of finished goods inventory must be maintained, and that they should not wait until products run out before starting to produce new ones. In this way, all the departments will be in charge of maintaining inventories so that products are not lacking through personalized and appropriate inventory systems. In this way, it is necessary to establish the bases to create a warehouse buffer that allows having an exclusive minimum inventory for frequent customers and letting customers know about the stock; thus, solving their requirements immediately without the need for the client to place orders.

2. Minimum purchase inventory policy: The Purchasing and Sales manager should not wait for the stock to run out to place a new order. Instead, the production department should set quantities to be reached, that is, a reorder point. In this way, when the minimum inventory is reached, the purchase is immediately requested from the person in charge. To do this, this person must know the budget assigned for purchases, as well as the necessary time in advance to buy and the number of materials to place the orders.

d) Shopping

1. Supplier selection policy: The assigned person must negotiate with the suppliers under the following criteria: payment times, acceptable errors in product deliveries, returns, guarantees, confidence, and time they have been in the market. These activities will be supervised by the production manager.

e) Environment

1. Environmental policy: The company will use production models that include technologies to reduce consumption and waste. In the same way, it will seek to reduce the impact on the surrounding environments, nature, and the citizens who live in the surroundings of the factory. Thus, generating a commitment to establish corporate social responsibility plans.

3.3.2. Technical specifications of the products

Technical sheets are documents in which the technical specifications of each product are exposed, by providing objective, technical and verifiable information, since they are supported by tests and trials that verify what is exposed (Mondragón, n.d.). These technical sheets are essential for a company to improve its competitiveness in the current market, since by verifying the quality of the products, it not only obtains greater market credibility but also obtains greater

profitability, strengthens its brand, facilitates its expansion to others markets and increase their market share.

Thus, with the use of technical sheets, companies begin their projection to internationalize, since it facilitates obtaining certifications, which are essential for this process. It should be noted that La Austral has been persistent in seeking quality as an essential characteristic of its products. For these reasons, the use of these cards will allow the company to achieve its objective and demonstrate its quality commitment to its customers.

On the other hand, at the beginning of 2022, fourteen technical regulations with INEN quality standards were eliminated, among which are those for flat ceramics, which facilitates the import of products such as tiles and mosaics. Although it is not necessary to comply with technical standards in the national market, the quality parameters established by the competent institution improve the credibility of product resistance and durability. This is an added value that must be taken into account, especially if the company wants to internationalize.

3.3.2.1. Tiles

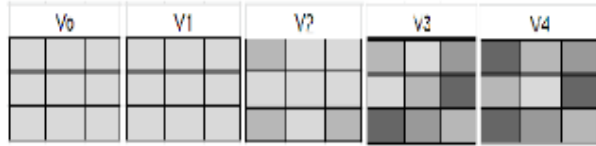
Table 13 represents a technical file for the company to start with the practices of maintaining high-quality standards and begin to transcribe data on the production of tiles. Which, in the future, will facilitate the implementation of tools to improve product quality.

Table 13: Proposal tile technical sheet.





LOGO		TILES TECHNICAL DATA SHEET (Dimensions)	
1. PRODUCT INFORMATION			
(Tile name)		(PRODUCT PHOTO)	
Nominal format:	(Dimensions)		
Use:	(Specify surface to adhere)		
Colour:	(Specify tile color)		

Date:	(Date of sheet publication)		
2. TECHNICAL CHARACTERISTICS OF THE PRODUCT			
Quality and Dimension		Test standard	Central tendency
Quality	Surface quality	ISO-10545-2	(Dimensions and the most accepted tolerance measure)
Dimensions and Flatness	Longitudinal measurement	ISO-10545-2	(Dimensions and the most accepted tolerance measure)
	Thickness	ISO-10545-2	(Thickness and the most accepted tolerance measure)
	Straightness of sides	ISO-10545-2	(Dimensions and the most accepted tolerance measure)
* Other necessary features			
Chemical and Physical		Test standard	ISO 13006 standard values⁶
Total absorption (%)		ISO-10545-3	(Accepted measure)
Flexural strength (Kg/cm ²)		ISO-10545-4	(Accepted measure)
Breaking load (MPa)		ISO-10545-5	(Accepted measure)
Abrasion resistance (PEI)		ISO-10545-7	(Accepted measure)
Thermal shock resistance		ISO-10545-9	(Accepted measure)
Moisture expansion resistance (mm)		ISO-10545-10	(Accepted measure)
Crack resistance		ISO-10545-11	(Accepted measure)
Chemical resistance at low concentration (L)		ISO-10545-13	(Accepted measure)
Chemical resistance at high concentration (H)		ISO-10545-13	(Accepted measure)
Stain resistance		ISO-10545-14	(Accepted measure)
* ISO 13006 regulates the characteristics of tiles.			
Glide		Test standard	The product is manufactured according to ISO 13006
Static Coefficient of Friction (SCOF)		ISO10545-17	(accepted measure)
Dynamic Coefficient of Friction (DCOF)		ISO10545-17	(accepted measure)
Degradation Degree			(Select from the following)

⁶ Review Appedix II.



3. WEAR RESISTANCE DEGREE (Write the grade between PEI 1 and 5)
PEI 1: Very light traffic
PEI 2: Light traffic
PEI 3: Medium traffic
PEI 4: High traffic
PEI 5: Very high traffic

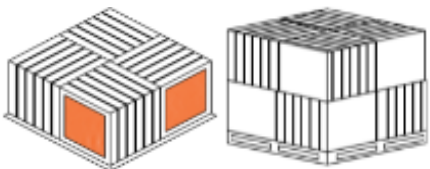
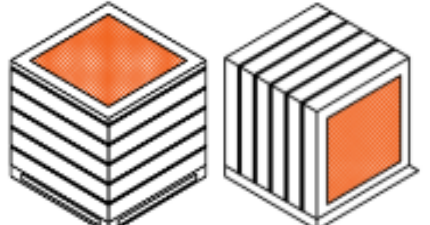
4. PACKAGING	Worth
Weight per box (kg)	(Write the value)
Nominal area (m2/box)	(Write the value)
No. of pieces per box	(Write the value)
N. of boxes per pallet	(Write the value)
M2. per pallet	(Write the value)
Weight (kg) per m2	(Write the value)
  Stacked storage	Individual storage  

3.3.2.2. Mosaics

Table 14 is a technical sheet proposed for mosaics and contains the main characteristics that allow demonstrating the quality of the products, as well as keeping a record of their properties. This technical sheet will facilitate entry into the international market as it will generate greater confidence in customers by using known standards.

Table 14: Proposal mosaic technical sheet.

LOGO		MOSAICS TECHNICAL DATA SHEET (Dimensions)	
1. PRODUCT INFORMATION			
(Tile Name)		(PRODUCT PHOTO)	
Nominal format:	(Dimensions)		
Use:	(Specify surface to adhere)		
Colour:	(Specify tile color)		
Shape:	(Specify mosaic shape)		
Finish:	(Specify the type of mosaic finish)		
Design:	(Specify the type of mosaic design)		
Date:	(Exact date of sheet publication)		
2. TECHNICAL CHARACTERISTICS OF THE PRODUCT			
Quality and Dimension		Test standard	Central tendency
Quality	Surface quality	ISO-10545-2	(Dimensions and the most accepted tolerance measure)
Dimensions and Flatness	Longitudinal measurement		(Dimensions and the most accepted tolerance measure)
	Thickness		(Thickness and the most accepted tolerance measure)
	Weight		(Weight and the most accepted tolerance measure)
* Other necessary features			
Chemical and Physical		Test standard	Values
Total absorption (%)		ISO-10545-3	(accepted measure)
Breaking load (MPa)		ISO-10545-5	(accepted measure)
Thermal shock resistance		ISO-10545-9	(accepted measure)
Moisture expansion resistance (mm)		ISO-10545-10	(accepted measure)
Crack resistance		ISO-10545-11	(accepted measure)
Chemical resistance		ISO-10545-13	(accepted measure)

Glide		Test standard	ISO 13006 standard values	
Coefficient of Friction (COF)		ISO10545-17	(accepted measure)	
3. Wear resistance grade: (Write the grade between PEI 1 to 5)			4. Packaging	Worth
PEI 1: Very light traffic			Weight per box (kg)	(Write the value)
PEI 3: Medium traffic			Nominal area (m ² /box)	(Write the value)
PEI 5: High traffic			No. of pieces per box	(Write the value)
			N. of boxes per pallet	(Write the value)
5. Product layout		Stacked storage		
DIAGRAM PHOTO (In the case of mosaics with shapes)				
		Individual storage		
				
<p>Note: The technical data sheet for mosaics consists of test methods established for tiles. Therefore, they are not necessary for mosaics but are recommended to demonstrate product quality.</p>				

3.3.3. Purchasing management

As La Austral offers products of quality, resistance and durability over time, it is a requirement to use high-quality materials, which are available when required. For this reason, a supplier

checklist and evaluation format are proposed to ensure that purchases are made in the most effective way and guarantee material quality for its products.

3.3.3.1. Checklist

To maintain efficient purchasing management and promptly update the situation of the Sales area and the inventory. Table 15 shows a proposed checklist to provide basic information so the company can react quickly to orders.

Table 15: Purchase checklist proposal.

LOGO		Purchase checklist		
Date:				
Person in charge:				
Supplier:				
No.	Materials list	Received amount	According	Not compliant (Observations)
1	Material to receive			
2	Material to receive			
3	Material to receive			
4	Material to receive			
5	Material to receive			
6	Material to receive			
7	Material to receive			

 Manager signature - La Austral

 Manager signature- Provider

3.3.3.2. Supplier performance evaluations

This type of evaluation provides the company with more information about its relationships with suppliers, guaranteeing compliance with legal requirements, the creation of long-term transparent relationships, improved coordination, cost reduction, and even risk mitigation. In

addition, it is necessary to have a list of potential suppliers to evaluate them under the same standards so that the company has a database when needed. This evaluation (see Table 16) must be made annually for current suppliers –or a period that the company considers necessary- or when it is necessary to evaluate a new supplier.

Table 16: Proposal for an evaluation sheet for suppliers.

LOGO	Supplier evaluation sheet		
Evaluation period:		Assessment number:	
Supplier:		Evaluated product:	
Supplier address:		Supplier phone:	
Criteria	Score		
	1	3	5
	Excellent performance	Good performance	Failed performance
Quality of supplies			
Delivery conditions			
Full supplies amount			
Reliability of delivery time			
Price competitiveness			
Provider flexibility			
Information reliability			
Communication efficiency			
Payment deadline			
Credit rate			
Quality management			
Warranty			
TOTAL			

Signature of the person in charge

3.3.4. Inventory control

An inventory control is a mechanism for controlling the movement and storage of goods. It is based on knowing what materials are available in the warehouse, where they are located in the warehouse, and when stocks enter or leave. Good inventory management allows to improve production times, reduce costs, avoid delays in orders and control raw materials, which leads to knowing the economic situation frequently for decision making and improving customer service (Osorio, 2008). In companies, there are three types of inventory according to their form: input, work-in-progress, and output. Thus, to control the incoming raw material inventories, Management must take into consideration three essential indicators:

1. **Maximum stocks:** Maximum quantity that needs to be kept in the warehouse according to cost or time of sale. It considers high stocks for products with high turnover, low storage costs, long arrival times, or constantly high prices.
2. **Minimum stocks:** Minimum quantity that must be kept in the warehouse; especially for immediate delivery products, high costs storage, with little sales movement, or when low future prices are speculated.
3. **Reorder point:** Level of stock in the warehouse at which an order must be placed to guarantee its availability in the production process, taking into account the response time of suppliers and product transportation (Carro & González, 2013).

To carry out inventory controls, the company can choose between three modes: use paper, in which operators have a catalog of products and go through the warehouse recording the quantity of each material; use Excel macro, where item lists are generated and bar reader data is collected manually; and use management systems, which are product input and output control software. The first two are done manually, involving a certain level of error, while the last one is a complete and safe control because it is systematized. For La Austral, the input inventory must be carried out with one of the first two modes because both are achievable due

to the minimum stock levels and rotation. Inventory periodicity must be monthly, however, for large quantity production projects, an inventory will be made at the time of accepting the order to determine the additional units needed. The use of an Excel spreadsheet (see Table 17) is proposed to make control more agile, however, until a culture is created, the most necessary criteria will be used.

Table 17: Proposal for input inventory control.

LOGO		Inbound Inventory Management							
Control date:		Responsible:							
						Is it necessary to highlight the items that are going to be reordered?		Yes	
To place a new order	Inventory ID	Name	Supplier	Price by unit	Quantity in stock	Inventory value	Reorder point	New order time (in days)	New Order Quantity
	IN0001	Article 1	Provider 1						
	IN0002	Article 2	Provider 2						
	IN0003	Article 3	Provider 3						
	IN0004	Article 4	Provider 4						
	IN0005	Article 5	Provider 5						
	IN0006	Article 6	Provider 6						
	IN0007	Article 7	Provider 7						
	IN0008	Article 8	Provider 8						
	IN0009	Article 9	Provider 9						

With this proposal, it is planned that the storage assistant orders the products in the warehouse by drawers or sections (inventory ID), knowing the item and supplier, the unit and total prices, the reorder point, the time it takes for the ordered quantity and if it is still manufactured. Thus, at the time of starting use, total control of the warehouse must be carried out to register the products and verify the existence of the materials that have been acquired. To know the output of the materials, the person in charge must simultaneously update the matrix when delivering the product.

Also, the person in charge should constantly check when the reorder point is reached by checking the first column of the matrix, which will be flagged. If the use of the method is effective, a culture of input inventory control will be achieved, and it will be time for Management to evaluate if it is necessary to use software systems that offer greater security and less error. For example, they may consider the use of the MONICA accounting-financial management computer system, an instrument with great acceptance in the Ecuadorian market (Vasconez et al., 2020).

On the other hand, it is proposed that the company use an inventory for finished products available in stock in order to know the quantity in stock, allocate them quickly for sale or distribution, speed up the dispatch process and improve inventory rotation (Cart & Gonzalez, 2013). For this, follow a proposed Excel spreadsheet (see Table 18) must be carried out by the production manager and distributed to the sellers by shared document, with the aim that each seller has the real information on the stock.

Table 18: Output inventory control proposal.

LOGO		Outbound Inventory Management			
Control date:			Responsible:		
Product code	Product	Initial stocks	Inbound production	Outbound production	Stock

M001	Product 1				
M002	Product 2				
M003	Product 3				
M004	Product 4				
B001	Product 5				
B002	Product 6				
B003	Product 7				
B004	Product 8				

The matrix shown in Table 18 presents the basic points to know the existence of the products, and for their correct use. Codes must be established for the products, in this case the tiles, and mosaics must be identified by their models. For example, a tile type will be M001 and a tile type B001. In this way, the production manager must register daily the stocks that already exist, and the entries of the day and the sellers must register their exits by adding the value sold to the established value, verifying that the operation is correct. Through this system, at the end of the day, it will be known how many products are left in stock to be registered again. Finally, it is recommended that Management evaluate the system to verify its effectiveness and establish a minimum inventory for sale in order to improve dispatch and be prepared to face short orders.,

3.4. Strategic Plan for the Marketing and Sales area.

After the diagnosis, it has been found that the area that needs to improve the most is Marketing and Sales. That is why it is necessary to establish a sales and marketing plan, in which a sales target audience is established, as well as the appropriate price for this segment, and the means of distribution and promotion that can be used. so that the product reaches more customers.

3.4.1. Policy proposal for the Sales and Marketing Area

For the Sales area, policies are proposed that allow having a roadmap for the activities, thus establishing standards for employees, customers, promotions, forms of sales, shipments, guarantees, and others. While for Marketing, general and advertising policies are proposed.

3.4.1.1. Sales Policies

a) For employees

1. Monthly sales policies: Each member of the sales team will have a monthly goal that they must meet or exceed. The company will set a base salary plus a percentage of commissions for each sale charged beyond the established goal.

b) For customers

1. Pricing policy:
 - The company will have prices for final consumers, wholesalers, and retailers. These prices will be announced on social networks, on the company's website, and will be constantly updated.
 - Employees will have a price list, which can be checked in the databases and inventories.
 - Cost quotations will have a validity period of 20 days from the date of issue. After this period, customers must request a new quote. Exceptions are contemplated only in case of having received management approval to maintain the price for a longer time.
2. Offers and promotions policy: The company will establish offers and promotions for wholesale and retail customers depending on the volume that is being purchased. These offers will be previously evaluated by the Sales department, the Management, and the financial advisor, and will later be approved by the Management.
3. Sales options policy: The sales options will be at the company facilities or on social networks. In the first case, customers will go to the factory and place their

orders. In case the order is part of the catalog, it will be dispatched immediately. On the other hand, if they are personalized products or products that are no longer produced, the customer will be informed of the production time and price, including additional costs.

For online sales, customers will contact through social networks (Facebook, Whatsapp, Instagram) and will request the products in a message. A sales advisor will contact them and coordinate the purchase. The same conditions apply if the requested product is in stock or if it is a personalized product.

4. Shipping policy: The company will make shipments for an additional cost to the product's final price. This additional price will depend on the location where the products will arrive.

A carrier, assigned by the company, will contact the client in advance to check the time and day of delivery, as well as the shipping address. At the time of receiving the merchandise, the client must present their identity card, review the products and sign the reception of the product in perfect conditions. In case someone other than the customer receives the order must be previously communicated.

5. Delivery time policy:
 - a. Products that are not in stock: When the product is not in stock, or when it is a large volume of tiles and mosaics, the delivery time will be agreed upon with the sales consultant. This time will depend on the factory production rate and previous orders that are about to be delivered.
 - b. Products in stock: Sales executives will ask the client if the products will be delivered at the moment or if they need to be delivered on a specific

date. If the customer prefers a date other than the day of purchase, the maximum time that he can choose for delivery will be two weeks.

6. Invoicing policy: Sales executives must issue a physical invoice for each purchase and will verify that the customer's data is correct before generating the receipt. Customers must notify in case there is a change in any of the data included in the invoice. In addition, a cross-check of information will be maintained between the invoice and the registration sheet of each client. In this policy, it should be considered that in the future the company will plan to implement an electronic invoicing system.
7. Warranty policy: The company will technically determine the warranty time for tiles and mosaics, depending on the model, resistance, and use. In the time indicated by the company, the customer may go to the company facilities with the product(s) that have faults. These products will be examined by the production team, and the product will be replaced with a new one. In case the product is not in stock, the customer will be informed of the waiting time to receive it. The company will not assume economic responsibility beyond the price of the tile or mosaic that presents manufacturing defects. The guarantee will not include transport damage or cracks caused by incorrect installation.
8. Return Policy: The customer may return the merchandise and his money will be returned, in the following case:
 - a. Return for factory damage: The customer may request a return if, at the time of receipt of the products, a damaged item is detected, with cuts, bumps or scratches, which are considered factory damage. The situation will be notified to the carrier and products will be returned to the factory.

The customer will be responsible for reviewing the products at the time of delivery and for signing in the "Received in accordance" section.

3.4.1.2. Marketing and Advertising Policies:

1. Marketing Policies: The company's marketing will be based on: adding value to products through product designs, packaging, website, and social networks; looking for the best options to expand the commercialization of the product in the country; establishing strategies for advertising; and helping in the investigation of the market target to establish prices and changes in the products.
2. Advertising Policies:
 - a. The company's advertising will seek to highlight the values and image of the brand to the public. Misleading or disloyal advertising will not be accepted, nor will advertising that discriminates based on sex, race, religion, or sexual orientation.
 - b. Advertising will be controlled by current legislation in the country.
 - c. Advertising will be carried out through different channels: social networks, television, radio, and billboards.

3.4.2. Client segmentation

It is necessary to establish that La Austral is in the business of selling materials for construction and industrial companies, focusing on the customization of thickness in mosaics and handcrafted tiles since it seeks to offer the best products in terms of resistance and durability, maintaining the characteristic traditional design. Once this is understood, the market segmentation process necessary for making decisions about the product, price, place, and promotion is facilitated. Market segmentation has the objective of dividing and identifying the total market for a product or a category of products offered by a company into homogeneous

segments in hobbies, tastes, needs, or preferences (Feijoo et al., 2018). For La Austral, Table 19 qualitative segmentation variables are considered:

Table 19: Segmentation variables.

Segmentation variables				
Geographic	Demographic	Psychographic	Behavioral	
Region	Economic segment	Values	Purchase occasion	Wanted Benefits
Azuay Province	Medium-high and high	Product trust, and security	Construction sector needs	Quality, strength, custom thickness, durability.

- Geographical segmentation: This refers to the environmental variables that originate differences in the personality of communities due to their geographic structure (Fernández, 2009, p. 11). Although the company is located in the city of Cuenca, province of Azuay, and can make shipments nationwide, it has prioritized improving its participation in the local market. In this way, it can face a competitive market at the national level and facilitate its introduction to the international market.
- Demographic segmentation: These variables use information about the population to build the consumer profile (Fernández, 2009). The company's prices are higher than the average due to the use of quality raw material and traditional processes that involve more time. In addition, imported ceramics and tiles whose prices are cheaper. For this reason, it has been defined that the economic segment that will be able to easily access the products offered by the company is the upper middle class.
- Psychographic segmentation: "Psychographic variables serve to describe the customs, habits, lifestyle, and preferences of people based on an analysis of their behavior from the point of view of social psychology" (Fernández, 2009, p. 44). In this case, among

the psychographic variables, the values sought by the consumer are evaluated, and it is established that La Austral clients tend to look for a brand that gives them confidence and security in construction products. This means that it is part of the culture of customers to look for safe, resistant, and reliable products, and they do not consider buying brands that do not guarantee their quality.

- Behavioral variables: According to Fernández (2009) these variables correspond to the way that people perceive the products and that guide their purchase intention. Considering the reason why customers buy tiles and mosaics, it has been defined that their purchase will be made when customers are constructing (thus implying redesigns, modernizations, and others). Likewise, another aspect to take into consideration is the benefits that customers expect with the purchase, such as the quality of the products in terms of resistance, also durability, and personalized thickness.

To define the segment, it is necessary to highlight that the factory must focus its efforts on convincing both the customers who have the decision to buy and those who are going to consume the final product. In this sense, those who have the purchase decision would be the architects or builders of a house, since they contact the company and see the products they wish to buy. While those who are going to consume the final product are the direct beneficiaries, in this example the owners of the house where the mosaics or tiles are going to be installed. That is why, since there is this close relationship between companies/builders and final consumers of the products, the factory must consider both perspectives to dedicate itself to the segment (Osterwalder & Pigneur, 2011). Thus, the company should focus its efforts on establishing strategies to reach both clients: the intermediaries (who are the ones that buy) and the final consumers (who are the ones who benefit from the product).

In this way, it is established that La Austral Mosaic Factory should focus on a market niche made up of builders and industrial companies from the province of Azuay that belong to the

medium-high and high economic segment, whose values are trust and security towards the brand. Also, this market niche must be looking for quality mosaics and tiles, with durability, resistance, and the possibility of customizing the thickness and color of the pigment of the products for their constructions. However, it should be noted that the company has other types of clients, for example, construction owners and people looking for products with personalized designs. However, this type of client is not the most profitable since larger orders are received from customers looking for resistance. This does not mean that the company ignores the need to establish exclusive and adaptable designs to the required needs, but instead that the company's current priority is to create resistant products. Therefore, it is considered that the types of clients that the company should focus its efforts on are: a. construction companies, b. industrial companies, and c. people looking for restructuring.

3.4.3. Marketing mix

The marketing mix is the set of tools and techniques used by those in charge of marketing a company to meet customers' needs and meet the organization's sales objectives (Peñaloza, 2005). Thus, the variables used in this mix are price, product, place, and promotion, also known as the 4Ps of marketing.

3.4.3.1. Product analysis

According to Marlene Peñaloza (2005), the product is everything that is "made up of a set of tangible and intangible elements, such as the product itself, the brand, the packaging, the label, the quality, and the support services" (p. 75). La Austral offers a physical asset that, together with the elements mentioned above, contributes to satisfying the needs and experiences of customers. In this way, two essential aspects are proposed to improve the company's product.

A) Value proposal

a. Problem

- Currently, the Ecuadorian tile market is saturated with low-quality imported products, whose pigmentation and resistance force them to be changed after a short period.
- The traditional mosaic market for old and vintage constructions is back.
- Long-lasting and hygienic materials are desired for large constructions, buildings, or churches.
- The tile and mosaic industry has ignored the growing trend toward product customization and has not been exploited by builders.
- Restructuring in urban and rural areas requires mosaics that are podotactile, with durable and resistant pigmentation.

b. Benefits

- Personalization of tiles and mosaics both in design and colors.
- High-quality products, resistance (to weight and chemicals), pigmentation durability, and easy cleaning.
- Traditional products are made with exclusive and personalized designs.
- Products that adapt to old, heritage, and vintage constructions.
- Products with versatility and decorative adaptability.

c. Value proposal

La Austral seeks to prioritize the client's participation in the creation of the products they wish to acquire. For this reason, it is allowed to choose the thickness and pigmentation of the required tiles and mosaics. Thus, the company offers handcrafted products with quality, durability, and resistance so that the constructions have floors that guarantee durability for an extended period.

B) Brand

a. Logo

A logo is essential for any company because it is the first impression offered to customers. A well-designed logo can attract the public's attention and catch their curiosity to learn about the brand and acquire or use it. This impression must reflect what is being sold and to whom it is being sold. It must also reflect the story that the company wants to tell its customers in order to be a memorable, different brand and generate trust and loyalty. For these reasons, we have requested the collaboration of the graphic designer Yanira Apolo to evaluate the current logo that La Austral has. She has highlighted the following aspects:

Figure 24: Fábrica de Mosaicos La Austral.



Source: Fábrica de Mosaicos La Austral 2021.

- The shades of brown used are unclear, so they are not attractive and reduce the public's attention. Likewise, the white outline overlaps the mosaics, and this irregularity breaks the logo balance. In the same way, some details stand out from this white outline, and it seems to have been modified many times.
- While this logo represents the products the company sells, it is not distinctive or memorable.

- It is presented as an extremely complex logo as it is made up of various types of mosaics. Each box has a highly thick shadow that only hardens the profile and makes the figure more complex.
- It is minimally versatile and difficult to reproduce due to its inflexible and rigid form. It can not be used in uniforms and corporate paper, and it can not be used without the symbol.
- Its esthetic shows little professionalism and has few variants, which diminishes the ability to transmit the company's message.
- The combination of letter types denotes poor graphic consistency. La Austral has very little tracking space, and in certain areas, this is greater than in others. For example, in "AU," the space can be perceived, while in "TR," there is no space.

For these reasons, the company needs to modernize its logo to be attractive in the market and transmit the company's essence. Thus, with the help of Jessica Gavalo, graphic designer, a new logo for the company is proposed, which can be seen in Figure 25 and Figure 26:

Figure 25: Proposal 1 Fábrica de Mosaicos La Austral.



Source: Designed by Jéssica Gavalo, 2021.

Figure 26: Proposal 2 Fábrica de Mosaicos La Austral.



Source: Designed by Jéssica Gavalo, 2021.

For Jessica, the logo proposed on Figures 25 and 26 expresses the company's evolution from 1948 to the present. The square shape of the previous logo is maintained because it is the identity of the mosaics; however, it has been added a 3D perspective that seeks to generate confidence and modernity in the brand. In addition, the square figure contains all the letters of "La Austral" and represents mosaic floors. Thus, the semicircle between the figure is remarkable. On the other hand, she proposes that the commercial name be La Austral to maintain a simple concept that clients quickly recognize. It can be used in profiles, business cards, or covers; however, the full name may be kept for special occasions. On the other hand, two colors are presented: the mahogany color is used to demonstrate a classic and serious brand. Additionally, this color is related to the land and identifies the mosaic (floor-related) industry. While the color blue is used to demonstrate the modernization of the company and its adaptability to time, symbolizing professionalism, security, and loyalty.

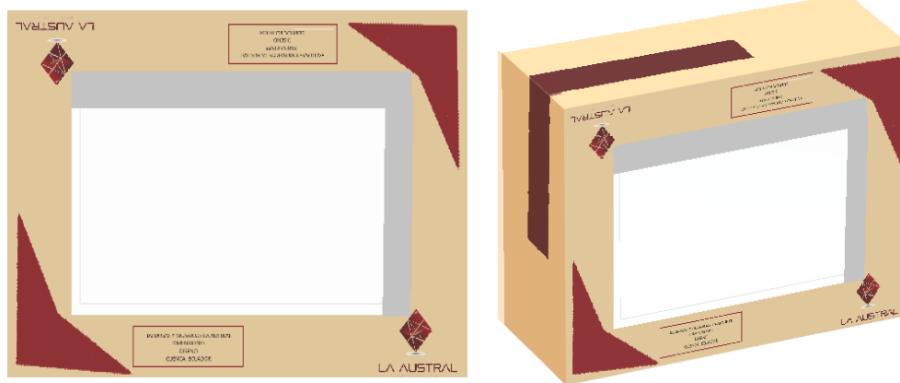
To maintain La Austral's corporate identity for a long time and adapt it to the company areas, Jessica proposed a brand manual that brings together all the guidelines that the company must

follow to maintain a coherent image and express uniformly the corporate identity of both the brand and the company. This manual is detailed in Appendix III.

b. Packaging design

To improve the company's market share and be attractive to customers, it must improve the presentation of its products and ensure that its packaging ensures product safety while being transported. Thus, it is proposed that the company implements a sales package (Figure 27):

Figure 27: Packaging proposal.



This packaging must be made of corrugated cardboard that is resistant to product transportation. It must also have reinforced cardboard corners that avoid breakage in the box corners and maintain its rigidity. The measurements for the mosaics packaging will be 21 x 21 cm and 26 x 26 cm, for the tiles 31 x 31 cm and 41 x 41 cm; that is, one centimeter apart from the dimensions of the products in order to compress the product as much as possible and prevent its movement. The weight will be taken into account:

- 30 x 30 x 2.5 cm weight 2.25 kg per unit. It is proposed to sell 1 m² per box, corresponding to 11 tiles with 24.75 kg per box.
- 40 x 40 x 3 cm tiles weight 4.80 kg per unit. It is proposed to sell 1 m² per box, six tiles are offered at 28.80 kg.
- 20 x 20 x 2 cm mosaics weight 0.80 kg per unit. It is proposed to sell a ½ square meter per box, corresponding to 12 tiles and 9.60 kg.

- 25 x 25 x 2.25 cm mosaics weight 1.41 kg per unit. It is proposed to sell a ½ square meter box corresponding to 8 tiles weighing 11.25 kg.

However, it should be noted that the weights correspond to the average thickness of the products, which means that the weights vary for products with custom thickness or dimensions. For the form of the packaging, the company logo and an information box are used, where it is detailed: company name, product-specific name, product quantity, product dimensions, product weight, certified technical standards, company address, handle with care symbols, and social network symbols. However, this packaging will be helpful and necessary if the company manages to exceed its production by orders and focuses on permanently available production.

3.4.3.2. Price analysis

The price refers to the amount of money consumers are willing to pay to acquire La Austral tiles and mosaics. That is why, up to now, the company has experienced various difficulties with the established prices since it has not been able to communicate its value proposition correctly. Currently, companies are developing in a highly competitive market where consumers are intelligent and comparative since they can easily find out the advantages, prices, and differences between various companies. For this reason, it is necessary to consider the prices of the company and those of the competition.

A) Company price

Because La Austral has focused on customizing the tiles and mosaics it produces. There is no fixed price for all products. Prices depend on the complexity of the product, its design, its resistance, the type of grain, and the thickness that consumers request. In the case of mosaics, prices depend on the used pigment and quantity of color. Thus, tiles' price ranges from USD 12.50 to USD 35 per square meter, and that of the mosaics between USD 25 and USD 60. This notable difference lies in the resistance of the products since La Austral can make tiles and

mosaics used in freezers constantly exposed to cleaning chemicals and can last for a much longer period than ceramics.

The company considers raw material costs and the desired profit to determine prices. The main costs that the company considers to establish its price are those of its raw material, such as cement and pigment -high price because it is imported-marble, marble grain, additive, and labor. Additionally, the company has decided that the profit percentage per product is 30%, due to the time dedicated to producing each product and its complexity.

Although the company has established its prices according to the quality it offers, it is necessary to carry out a price-quality perception study in Cuenca so that the company gets to know the appreciation of its products in the market. Then, based on this, the company can design a pricing strategy that adjusts to consumers' demands and adapt to the profit percentage desired. It is essential that the company fully understand the market segment -both national and international- since it must offer products that meet their requirements and demonstrate that its products meet the proposed quality standards. In addition, the company must take into account the creation of a price list classified according to its resistance,

B) Competition price

Knowing the competition's price is necessary for the factory because it operates in a highly competitive market where the companies in the sector have firmly positioned themselves in the city, and some have internationalized. Due to these conditions, La Austral should analyze a strategy that allows it to be among the prices that the competition has when the qualities of the products are similar. Some of the company's competitors are:

- Minesa Sangurima Tile Factory

It is a Cuenca company that produces high-traffic tiles, high-relief tiles, decorative pavers, granules, marble, calcium carbonate, and natural and processed fachaleta stones. The prices of the tiles go from USD 12 and increase per square meter depending on the desired model. Thus,

prices established by La Austral are maintained. It should be noted that the only option that the factory chooses is the customization of the design.

- San Pedro tiles.

It is a Cuenca factory dedicated to the production of tiles and coatings and granites, decorative stones, aggregates, and marble. San Pedro Tiles offers tiles with prices starting at USD 10 per square meter, depending on the chosen model. It offers customers the option of choosing only the design to buy.

- Analysis of tiles and mosaics vs. ceramics

Ceramics is a product that closely competes with tiles and mosaics and has gained a larger market due to relatively lower prices. The prices of most companies in this sector, such as Graiman, Itaipisos, Rialto, Ecuacerámica and others, range between \$8 USD and \$11 USD per square meter. This variation in prices depends on tiles' designs and brand; thus, the highest prices belong to Corona and the lowest to Rialto. The other companies have intermediate prices.

- Analysis of tiles and mosaics versus porcelain tile

Another of the flat ceramic products on the market is porcelain tile, which is more resistant and durable than ceramics because it is made up of quartz, clay, and other materials that follow a drying process and treatment at high temperatures. Companies that offer ceramics usually also sell this product, so there are Graiman, Rialto, Itaipisos, and others in the national market. Porcelain tile prices vary depending on the design they have. However, they have an approximate price of USD 11.90 to USD 50. Although the highest prices correspond to porcelain tiles imported from Spain, the national brand that sells its products at a higher price is Graiman, while the other brands offer lower prices.

3.4.3.3. Place analysis

The market includes the activities, companies, and people involved in the distribution channels so that the products or services reach the consumers (Peñaloza, 2005). La Austral has worked through a direct sales channel in recent years, which means that the manufacturer has been the distributor of the products. It is better to continue working in this way until the company is ready to be a national distributor. However, the company needs to improve its performance, and for this, it must define the following points:

1. Objectives of the direct channel:

- To satisfy customers so that they have easy access to factory products and the purchasing process is fast and of quality.
- To increase sales through specialized attention at points of sale.
- To promote the entire range of La Austral products.
- To facilitate sales in physical spaces and online.

2. Organization of the direct channel.

For the organization of the channel, two types of stores are proposed:

- Physical store: In recent years, La Austral has dedicated itself to selling at the factory located on Carlos Orellana Leon and Av. Abelardo J. Andrade streets. However, an analysis of the profitability and convenience of establishing a physical location in a commercial area related to the sale of products for construction and remodeling of houses is necessary. Exhibitors and stands with the factory's products could be included in a warehouse. In addition, samples of how the tiles and mosaics look could be included in dedicated sections. It is expected that with a physical location established in a well-known area of the city, customers will have easy access, not only to find the store and check the materials of the products and have direct contact with the store sales executives. It is important to mention that sales executives would help clients resolve doubts about prices, designs, quotes, payment methods, etc. Even in the event of claims

or returns, a physical store implies a better communication channel. Despite these benefits, it is necessary to carry out studies on the feasibility of opening a store, taking into account: the target audience, the number of products that would be sold, repeat purchase rate, how payments are made, the costs that the company would assume, etc.

- Online-store: It is also necessary to analyze its profitability, taking into account the same criteria used to analyze the profitability of a physical store. However, the main elements that could be taken into account to strengthen the company's virtual sales will be discussed below. As a result of the pandemic, online sales have become more popular, and for this reason, La Austral has tried to follow this trend by using social media as an effective sales channel. Although it has started its online presence, the company must strengthen its sales channel so that customers can access online shopping dynamically. One of the ways to do this is to define strategies to respond to and retain customers through social media, for example, defining automatic responses on Facebook, Instagram, and WhatsApp, in which all the clients' doubts may be solved, and then a sales advisor can contact them as soon as possible. In addition, it is important to constantly update the product catalogs so that customers notice the company's dynamism. If the company has not launched new designs, a monthly catalog can be issued with the star products or products with the month's promotion, and employees can send them to a pre-established list of clients. Shortly, the factory can think of designing a web page where customers can view the technical datasheets of the products, information about the company, contacts, company policies, and sale points. It is necessary to think about the customer's comfort in making their purchases, even virtually. Therefore, responses to messages on social networks must be prioritized and followed up on people interested in the purchase, thus, achieving a practical omnichannel approach.

3. Distribution and transport for direct channels

The company already uses transport to load tiles and mosaics. However, including packaging and a correct way to lay the tiles and mosaics should be considered to avoid damage. These strategies have been mentioned before, yet, it must be remembered that it is important to consider them in distribution channels.

Likewise, La Austral can use cooperative distribution alternatives, which "are alliances between the producer and merchants to install a sales space for the brand in a larger commercial space" (Burin, 2017, p. 5). An example of them is fairs, exhibitions, and displays at points of sale. The company can participate in fairs at the national level, in which it will exhibit its products in several cities. On the other hand, the company can also negotiate with other companies to display products in other stores. Finally, the company can assign sales agents to contact potential customers in Cuenca and the rest of the country through social networks and schedule visits. La Austral takes samples and lets those potential clients know about the available mosaics and tiles. Subsequently, these clients should be followed up to achieve long-term business relationships.

3.4.3.4. Promotion analysis

Promotion is the communication process by which a company transmits information about the product, value proposition, company location, and other variables that influence the purchase. The objective of promotion is to influence through this communication process so that the target audience acquires the product or service (Peñaloza, 2005). La Austral has used some advertising strategies. However, this area can be reinforced to obtain more sales. For this reason, the following variables are proposed to be included in this phase of the marketing mix:

A) Advertising

Advertising is defined as "communication paid by the company to inform, persuade and remind about its products, price structure, distribution points or any other aspect of interest to the

market" (Peñaloza, 2005, p. 78). Currently, the most used means of advertising are social media. However, radio, billboards, and brochures can also be considered.

To have a successful advertising strategy, the company must consider the objectives, the budget, the message, and the means to be used and carry out a periodic evaluation. The points mentioned above are developed below, with examples of a strategy that La Austral could use.

- Goals:

The objectives depend on the market target and the company's plans. However, they usually focus on: increasing sales in a given period, retaining customers, publicizing new products, and generating a brand memory in the customers.

- Budget:

This point is about how much a company is willing to spend on advertising. A company can choose to carry out advertising directly, that is, manage advertising on social networks and contact other communication and dissemination media directly, or hire a company that carries out advertising and designs a complete strategy adjusted to company needs.

- Message adoption:

La Austral must decide what to communicate to the target audience. In the case of La Austral, elements such as quality, resistance, or how the tiles and mosaics would help in the decoration of the spaces could be chosen. It is always important to reach people's emotions and not just limited to talking about the characteristics of a product. The key in advertising is to find a message and express it to entertain people, evoke emotions, and motivate them to buy products.

- Means of communication

To choose the medium of communication, the company must establish the scope and frequency and define the impact they want the advertising to have on customers.

- Evaluation

Once the advertising strategies have been applied, evaluations are carried out to check if the applied strategy has fulfilled the objective.

B) Sales Promotion or Merchandising

Sales promotion is "a set of incentives designed by the company to achieve an immediate purchase response" (Peñaloza, 2005, p. 78). The main merchandising applications that La Austral could apply are product exhibition fairs, raffles, promotions at points of sale, and promotional packages.

C) Direct marketing

Direct marketing "implies knowing the company's customers and those who are not, and communicating effectively with them to increase the satisfaction derived from the purchase" (Mendoza, 2004, p. 14). The same author refers to this type of marketing as a way of doing mass marketing but knowing specifically the preferences of customers (Mendoza, 2004). The channels used for this type of marketing are:

- E-mail: a database is established with the company's clients, and mass mailings are sent with catalogs and special offers periodically.
- Telemarketing: sales agents call customers to tell them about products and invite them to visit the physical or virtual store.
- Sales through the internet: create a web platform to carry out purchases or design a strategy to facilitate sales processes on social networks with automatic response messages, and assign one person per week from the sales area to be in charge of answering messages on social networks quickly.

D) Public relations

Public relations are "activities carried out by the company to establish relationships with different audiences and, at the same time, strengthen the company's image" (Peñaloza, 2005, p. 78). At this point, two options are suggested to strengthen the company's public relations:

corporate social responsibility and acting as sponsors. In the first point, La Austral could participate in community outreach events and have collaborations with other companies in the same sector to have a social return and the well-being of society -without the need to be recognized-. On the other hand, acting as a sponsor in cultural and sporting events in Cuenca could be carried out, so citizens know the company.

3.5. Conclusion

In this chapter, competitive improvement plans have been developed, including policies and actions, for all the company's areas. However, several practical tools for the Administration, Marketing, and Sales areas have been exhaustively detailed because they presented the most significant deficiency in the diagnosis made in the previous chapter. In this way, strategic planning tools were proposed for the Administration area so that the Management is oriented towards the fulfillment of objectives and formal and efficient structuring. For the Marketing and Sales area, market segmentation was proposed so that the company fully knows which potential customers it should target.

On the other hand, regarding the two areas with the highest performance in the diagnosis, tools have been suggested to position the company in the market. Thus, in the Financial area, the use of five tools that improve the company's economic performance and guide the provision of timely information is encouraged. While in the Production area, different strategies are proposed to demonstrate and position the quality of products, such as technical sheets, innovation and quality control tools, and other mechanisms that improve the company's market share.

Conclusions

The present work determines the concepts related to Foreign Trade and the importance of MSMEs in Ecuador. The authors diagnosed and audited Fábrica de Mosaicos La Austral Mosaic Factory to create a competitive improvement plan for the company. Thus, throughout this community connection project, the following conclusions have been reached:

- MSMEs make up 90% of Ecuador's business sector, reflecting their importance in the national economy and job creation. For this reason, supporting these companies to adapt to the market and improve their competitiveness is an opportunity to increase national competitiveness and support the local industry.
- The flat ceramic industry in the province of Azuay has stood out at the national level for its quality and design. In this way, it has made its way internationally, being recognized as having innovative products. Several companies from the Austro have taken advantage of this recognition to achieve a unique position in the market. In this context, La Austral should take advantage of this sector's positioning.
- MSMEs could achieve a position in the global market through their internationalization, and it is necessary to improve their competitiveness. Internal factors such as creating strategic plans based on their reality and goals, innovating products or services, and searching for financing to modernize the machinery are important for this process. Although, external factors such as protection laws, promotion laws, and tax laws are also necessary.
- It was possible to demonstrate the company's current situation through interviews with a representative of the company and the application of the Export Potential. Results showed various company shortcomings that affect its performance in the market.
 - In the Administrative area, we detected little organizational culture and a lack of strategic plans due to poor planning. In addition, the company has turned to

production by order, ignoring its possibilities for expansion. Similarly, it does not have formal and documented administrative processes and employee function structures.

- In the Finance area, we defined a lack of solid financial plans, lack of accounting analysis, fear of getting into debt, and resistance to expanding their activities.
- In the Production area, insufficient tools for quality control and increased productivity and innovation were found; as well as the absence of permits or certifications that generate added value. In addition, the use of packaging that includes their logo has been ignored, and they have a simple and ineffective supply system.
- In the Marketing and Sales area, the lack of a Sales department was detected, and therefore there are no customer service managers either. In addition, a defined budget has not been established, which implies that there are no periodic sales projections. In the Marketing area, the company does not have studies that define the target audience that the company addresses; thus, non-innovation in the product line. Advertising strategies are limited to social networks, and no updated logo reflects the brand essence.

Recommendations

During this investigative work, we proposed a series of recommendations based on innovative strategies to modernize the company's activities and adapt it to the national market to increase its competitiveness and project to the international market. Thus, if the company decides to implement the improvement plan, it is suggested:

- The Management must commit to implementing the improvements in all departments so that the company achieves synergistic and sustainable results in the long term.
- Update and comply with the permits and studies required by the company for its operation.
- Motivate a culture of certification in the company so that certifications can be obtained from public and private entities and international certifications.
- Create and maintain records on activities fulfillment and objectives achievement so that the impact of these tools is known and continuous improvement is applied.
- Take advantage of available facilities to increase its productivity and ability to serve the market.
- Collaborate with students from the University of Azuay in careers such as Accounting and Auditing, Industrial Engineering, Marketing Engineering, Business Administration, and others to expand their knowledge about management and carry out studies that allow them to improve their activities.
- Reduce resistance to change, implementing current strategic administrative tools to improve competitiveness and achieve greater participation in the market. In the second phase, the company will generate a culture of innovation in products and activities.
- To achieve competitive improvement in the Administration area, we recommended maintaining the policy of preparing and developing strategic plans based on the definition of the mission, vision, objectives, policies and organization chart. This will

help guide the company activities, establish structured foundations for growth, and be clear about the business main objective and purpose.

- For the Finance area, a change in the financial culture of the company has been proposed through the updating of accounting books, search for financing, generation of budgets, preparation of projections, and investment in assets. The objective is to establish a solid financial base that allows the company to make decisions and react as required, and promote a sustainable financial culture.
- In the Production area, we propose implementing quality-oriented tools that facilitate the registration of products and production activities to improve business productivity. To this end, we propose the use of technical datasheets for mosaics and tiles, purchasing management sheets and performance evaluation of suppliers, inventory input and output control systems, and quality control tools. All of this aims to generate a database that facilitates obtaining national and international certifications.
- The improvement plan is based on the market segmentation proposal in the Sales and Marketing area. The target market is construction companies, industrial companies, and people looking for reconstruction materials. In addition, various strategies are proposed in the marketing mix. For the product section, the value proposition and a redesign of the logo are proposed; for the price, perspective studies and analysis of competitors are recommended; for the market, sales channels are proposed; and finally, for the promotion section, advertising, marketing, and public relations strategies are suggested.

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Appendix

Appendix I

Interview to diagnose Fábrica de Mosaicos “La Austral” Mosaic Factory

Objective: To diagnose the company to understand its operation, and subsequently build an internal audit of the company's areas for its internalization.

Questions:

a. General information about the company

- i) Name of the company
- ii) Manager
- iii) Logo and slogan
- iv) Location
- v) Time of existence

b. Administrative Business

- i) Business model
 - 1) How this business idea was created?
 - 2) Business idea (what it does, sector, type of mosaics, what is the material, added value, or differentiation from the competition)
 - 3) Positioning and differentiation of the company with respect to its competitors
- ii) Human Resources
 - 1) Organizational chart
- iii) Strategic administration
 - 1) Mission
 - 2) Vision
 - 3) Objectives

4) SWOT

iv) Policies

- 1) What are the existing policies?
- 2) How were they created?
- 3) Results.

v) Finance

1) RUC

(a) Do you make a financial declaration to the Superintendency of Companies?

- 2) Accounting method (internal or external).
- 3) Do you have business accounts in financial institutions?
- 4) Do you have current credits?
- 5) Differences in income before and during the pandemic

c. Productive

i) Product

- 1) Range of products
- 2) Descriptions

ii) Production process

- 1) Production capacity
- 2) Machinery (type and time of use)

iii) Suppliers

- 1) National or foreign purchases. Reasons.
- 2) Inventory management (incoming, in-process, and outgoing).
- 3) Credit portfolio management with suppliers (credit time they receive).

- iv) Innovation policies (Do they exist in processes, products, and administration?
If applicable, how are they managed)

d. Sales

- i) Market studies
- ii) Target market
 - 1) What is the target market for the company?
 - 2) Is the target market related to the established price?
 - 3) Relations with the market (associations, agreements with other companies or government institutions) and clients' loyalty.
- iii) Management of credit portfolio with clients (time of credit to clients).
- iv) Sales model (B2C, B2B).
- v) Place/Channel of distribution.
- vi) Promotion.
- vii) International sales.
 - 1) Experience.
 - 2) Difficulties.

e. Expectations of the company about the results that will be achieved with the thesis project.

NORMAS

Revestimientos cerámicos

Definición, Clasificación y Características - Normas ISO 13006/10545

Sinopsis de la Charla dada por Gregorio Domato en ATAC, Asociación Técnica Argentina de Cerámica, el 18 de agosto del 2005

INTRODUCCIÓN

- Caso 1: Trascendencia de una mala experiencia: (¿La cerámica para el piso no sirve!).
- Caso 2: Desconocimiento del producto que se vende: (¿Esmalte vítreo o pintura sintética?).
- Responsabilidades: Productor, vendedor, arquitecto, empresa constructora, colocador, etc.
- Objetivo de esta charla: Mejorar el conocimiento del producto para optimizar el desarrollo futuro del negocio.
- Futuras charlas a desarrollar: Propuestas.
- Objetivo estratégico: Incrementar el relativo bajo consumo de revestimientos cerámicos en la Argentina:

Brasil: 2,5 m²/hab/año. (PBI aprox: 3.000 u\$/hab/año)

México: 1,6 m²/hab/año. (PBI aprox: 5.500 u\$/hab/año)

Argentina: 1,4 m²/hab/año. (PBI aprox: 4.300 u\$/hab/año)

ELEMENTOS CONSTITUYENTES Y TIPO DE CERAMICAS

- Arcillas: Silicatos de aluminio hidratados.
- Acción del fuego sobre las arcillas.
- Vidrios: Formadores y modificadores
- Tipos de cerámicas según la temperatura y composición:
 - Terracota: Arcilla cocida a baja temperatura -Loza (feldespática y calcárea): Arcillas más otro elemento para brindarle resistencia mecánica a baja temperatura - Gres: Arcillas más un formador de vidrio de alta temperatura sin requerimiento de color ni opacidad. - Porcelana: Similar al gres, pero de color blanco y transparente.

TIPOS DE SOPORTES EN LOS REVESTIMIENTOS CERAMICOS

- Según la composición:
 - 100% Arcillosos - Calcáreos - Feldespáticos.
- Según la molienda:
 - Molienda en seco, Molienda en húmedo (y luego secado).

COCCIÓN

- Cocción tradicional
 - Hornos túneles con soportes refractarios. - Posición estática de las piezas - Ciclos de 12 a 96 hs.
- Cocción rápida
 - Hornos a rodillos sin soportes refractarios - Posición dinámica de las piezas - Ciclos de 2hs a 15 min.
- Bicocción (Biscocho)
- Monococción.

ESMALTES VÍTREOS DE COBERTURA

- Están compuestos por vidrios fundidos especialmente para este fin, denominados "fritas".
- Estos vidrios se muelen muy finos (de 50 a 40 micrones) en agua con agentes suspensivos, pigmentos y otros minerales que modifican sus características.
- El esmalte una vez molido y en suspensión se aplica sobre el soporte (crudo o cocido) y luego, en la cocción se vuelven a fundir, formando una capa homogénea, impermeable, incombustible y muy resistente a los agentes abrasivos, químicos, atmosféricos, bacteriológicos, etc.
- El esmalte es la cara visible de un revestimiento cerámico y el responsable de muchas de sus propiedades de uso.

NORMATIVA ISO

ISO (The International Organization for Standardization) es la Federación Internacional que reúne a las distintas entidades de estandarización nacionales que la integran como miembros.

En la estandarización de revestimientos cerámicos, así como en tantos otros, las normativas de casi todo el mundo tienden a asimilarse a las normas ISO. En el caso concreto de los revestimientos cerámicos la norma es la ISO 10545.

La norma europea actual se denomina EN-ISO 10545

La norma italiana UNI (Ente Nazionale Italiano di Unificazione), para su

rubro "Piastrelle di ceramica: Campionamento e criteri de accettazione", adopta esta normativa y la denomina: UNI EN ISO 10545. En Italia esta norma sustituye la anterior: UNI EN 163.

ESTANDARES EUROPEOS VS. ESTÁNDAR DE EEUU

La Estandarización de los revestimientos cerámicos en EEUU se rige por la normativa ANSI A 137.1 y tiene algunas diferencias importantes con las normas ISO, como así también puntos comunes. Ambas normativas tienen una sistematización general común:

- 1) Los revestimientos cerámicos están subdivididos o clasificados según ciertas características particulares.
- 2) Están fijados los procedimientos y métodos de testeo.
- 3) Están establecidos los criterios de muestreo y las bases de aceptación.

La diferencia fundamental radica en que las normas europeas ponen el acento en las características mensurables del producto, mientras que las estadounidenses priorizan la intención o fin de uso. El foco parece estar puesto en el interés del consumidor.

CLASIFICACIÓN EUROPEA VS. CLASIFICACIÓN DE EEUU

La norma ISO 13006 (EN 87) clasifica según el método de manufactura y la absorción de agua, mientras la ANSI A 137.1 articula la clasificación según la naturaleza de la superficie (esmalada o no) y referencias a los usos específicos.

La norma europea es más simple pues está basada en parámetros de las piezas y permite una calificación cabal de los distintos tipos de productos según la performance requerida al revestimiento.

La norma ANSI A 137.1 parece más amplia, pero puede resultar equívoca (lo relacionado con el uso "normal") y ocasionar confusión al no definir ciertas características esenciales y sus parámetros, por ej: Expansión. Ni térmica ni por humedad - Dureza superficial. Ni esmalada, ni sin esmalte - Resistencia al hielo - Resistencia a los agentes químicos.

ISO 13006

1) ALCANCE DE LA NORMA

La normativa más amplia que reúne y rige las definiciones, clasificaciones, características y marcas de los revestimientos cerámicos es la ISO 13006 preparada por el Comité Técnico ISO/TC 189: "Ceramic Tile".

La norma ISO 10545, se ubica dentro de las ISO 13006 y describe específicamente los procedimientos de control y ensayos para determinar las características requeridas por los productos comerciales entendidos como de 1ra. calidad comercial.

También incluye las normas ISO 1006 (Building construction), pero se refieren solo a la instalación, la coordinación modular y los módulos básicos.

ISO 13006

Tabla 1: Clasificación.

Sistema de molienda	Grupo I E < 3%	Grupo II a 3% < E < 6%	Grupo II b 6% < E < 10%	Grupo II E > 10%
A Esmalte	Grupo A I (Anexo A)	Grupo A II a-1 (Anexo B) (*)	Grupo A II b-1 (Anexo D) (*)	Grupo A III (Anexo F)
		Grupo A II a-2 (Anexo C) (*)	Grupo A II b-2 (Anexo E) (*)	
B Procedido en seco	Grupo B I a E < 0,6% (Anexo G)	Grupo B II a (Anexo J)	Grupo B II b (Anexo K)	Grupo B III (Anexo L) (**)
	Grupo B I b 0,6% < E < 3% (Anexo H)			
C Otras procesas	Grupo C I (***)	Grupo C II a (***)	Grupo C II b (***)	Grupo C II (***)

(*) Los grupos II a y II b están subdivididos en dos subgrupos con distintas especificaciones

(**) Cubre solo piezas esmaladas.

(***) Para las fajas de producto no están cubiertas por este estándar internacional.

ISO 13006 - Anexo M - Símbolos para expresar la intención de uso



Indicado para su uso como revestimiento de pisos.



Indicado para su uso como revestimiento de pared.



Indicación de la resistencia a la abrasión según ISO 10545-7 (ver Anexo N).



Indicación de la resistencia al hielo.

2) REFERENCIAS DE LA NORMA

- ISO 1006: Colocación en obra. Módulos básicos y coordinación.
- ISO 10545-1: Muestreo y principios de aceptación
- ISO 10545-2: Determinación de las dimensiones y calidad superficial.
- ISO 10545-3: Determinación de la absorción de agua, densidad, densidad aparente, densidad aparente relativa.(*)
- ISO 10545-4: Determinación del módulo de rotura y resistencia a la flexión. (*)
- ISO 10545-5: Determinación de la resistencia al impacto según el coeficiente de restitución.
- ISO 10545-6: Resistencia a la abrasión profunda (sólo para revestimientos no esmaltados)
- ISO 10545-7: Resistencia a la abrasión superficial (sólo para revestimientos esmaltados).(*)
- ISO 10545-8: Determinación de la expansión térmica lineal.(*)
- ISO 10545-9: Determinación de la resistencia al shock térmico.
- ISO 10545-10: Determinación de la expansión por humedad.(*)
- ISO 10545-11: Determinación de la resistencia al cuarteo (sólo esmaltados)(*)
- ISO 10545-12: Determinación de la resistencia al hielo.
- ISO 10545-13: Determinación de la resistencia a los agentes químicos.(*)
- ISO 10545-14: Determinación de la resistencia a los agentes manchantes.(*)
- ISO 10545-15: Determinación de la cesión de Pb y Cd (sólo esmaltados)
- ISO 10545-16: Determinación de pequeñas diferencias de color.
- ISO 10545-17: Determinación del coeficiente de fricción.

3) DEFINICIONES

A los fines de este estándar se dan una serie de definiciones de las cuales destacamos las siguientes:

- 3-1) Revestimiento Cerámico (ceramic tile):** Placa fina hecha de arcillas y/o otros materiales inorgánicos calcinados a temperatura suficiente como para desarrollar las propiedades requeridas. Se forman por extrusión (A), por prensado (B) o por otros métodos (C) y se usan generalmente como recubrimiento de pisos y paredes. Pueden ser esmaltados (GL) o sin esmaltar (UGL), son incombustibles y no los afecta la luz.
- 3-2) Superficie esmaltada:** Cubierta superficial vitrificada e impermeable
- 3-3) Superficie engobada:** Cubierta superficial de base arcillosa con terminación mate que puede ser permeable o impermeable. Nota: A las piezas de superficie engobada se las considera no esmaltadas.
- 3-4) Superficie pulida:** Superficie brillante de una pieza no esmaltada, dada por un proceso mecánico de pulido al final del proceso de manufactura.
- 3-5) Baldosas extruidas (Designadas como A):** Piezas cuyo cuerpo ha sido formado en estado plástico por una extrusora. La barra arcillosa se corta a medidas predeterminadas al emerger de la extrusora.
Nota 1: ISO subclasifica estas piezas como de "precisión" o "naturales".
Nota 2: Términos tradicionales para estos productos son el extruido doble (split tile) o "klinker" (quarry tile), esta última con absorción de agua menor a 6%.
- 3-6) Baldosas prensadas en seco (Designadas como B):** Piezas formadas por una mezcla de materias primas molida muy fina y luego prensada con muy baja humedad y a alta presión.
- 3-7) Baldosas hechas por otros procesos (Designadas como C):** Piezas formadas por otros procesos distintos a los mencionados anteriormente.
Nota: Este tipo de revestimientos no son cubiertos por las ISO.

Continúan las definiciones sobre cuestiones de colocación, formatos, coordinación, módulos, etc.

4) CLASIFICACIÓN

4-1) Criterios de clasificación: Los revestimientos cerámicos se dividen en grupos de acuerdo con los métodos de fabricación y su capacidad de absorción de agua. Esta clasificación no presupone criterios de uso de los productos.

4-2) Grupos según métodos de manufactura: Especificados en 3-5), 3-6) y 3-7).

4-3) Grupos según absorción de agua (E): Se definen tres grupos:

- a) Baldosas de baja absorción (Grupo I), $E < 3\%$.
Este grupo se divide luego en dos subgrupos para las baldosas prensadas en seco:
a-1) $E < 0,5\%$ (Grupo BI_a). (También llamado "gres porcelánico")
a-2) $0,5 < E < 3\%$ (Grupo BI_b). (Comúnmente llamado "gres").
- b) Baldosas de absorción media (Grupo II), $3\% < E < 10\%$.
Este grupo se divide luego en dos subgrupos para las baldosas extruidas:
b-1) $3\% < E < 6\%$ (Grupo BII_a, parte 1 y 2)
b-2) $0,5 < E < 3\%$ (Grupo BII_b, parte 1 y 2).
- c) Baldosas de alta absorción (Grupo III), $E > 10\%$.

5) CARACTERÍSTICAS

Resume las características exigidas según las diferentes aplicaciones de los revestimientos cerámicos.

Divide los revestimientos en los destinados al piso y la pared y a su vez en uso interior o exterior y refiere el ensayo ISO 10545 correspondiente que debe cumplirse.

Todos ellos están especificados en la Tabla 2.

6) MUESTREO Y CONDICIONES DE ACEPTACIÓN

Son todas aquellas que se hayan especificadas en la ISO 10545-1.

7) REQUERIMIENTOS

Los requerimientos dimensionales, de calidad superficial, así como el de las propiedades físicas y químicas están dadas en los anexos específicos (desde el A hasta la L) para cada clase de revestimiento cerámico según la clasificación que hemos visto en el punto 4.

Los anexos con las especificaciones correspondientes, se listan aparte.

8) ROTULOS Y ESPECIFICACIONES

Las piezas o sus cajas deben llevar los siguientes rótulos:

8-1): ROTULOS: Deben figurar por lo menos 5:

- a) Marca y país de origen.
- b) Nivel de calidad.
- c) Tipo de pieza o referencia al anexo apropiado según ISO.
- d) Dimensiones nominales y de trabajo.
- e) Naturaleza de la superficie (esmaltada o no esmaltada).

8-2): INFORMACION: Cuando se trata de pavimentos, las cajas deben informar:

- a) Resultados obtenidos según ISO 10545-17 sobre coeficiente de fricción.
- b) Clase correspondiente según la resistencia a la abrasión.

8-3) ESPECIFICACIONES: Las cajas deben señalar las siguientes especificaciones:

- a) Método de formado.
- b) El anexo ISO señalando la clase específica de revestimiento.
- c) Dimensiones nominal y de trabajo, así como la modular (M) y no modular.
- d) Tipo de superficie: esmaltada (GL) o no esmaltada (UGL).

9) ORDEN DE COMPRA

Items que se deben acordar entre las partes y figurar en la orden de compra.

ISO 10545-1

MUESTREOS Y CONDICIONES DE ACEPTACIÓN DE UN DESPACHO DE REVESTIMIENTOS CERÁMICOS.

La norma incluye los siguientes items:

- 1) Alcance de la norma: Especifica las normas que definen los lotes, el muestreo, la inspección y finalmente la aceptación o rechazo de los revestimientos cerámicos.
- 2) Definiciones: Lote mínimo por proveedor. Criterio de homogeneidad. Número de muestras para cada ensayo en particular. Conformidades.
- 3) Principios: Por atributos, según valores individuales y promedios.
- 4) Constitución de lotes de inspección: Criterios de homogeneidad.
- 5) Amplitud de la inspección: Acuerdos proveedor - cliente.
- 6) Muestreo.
- 7) Inspección.

- 8) Determinación de aceptabilidad o rechazo de los lotes inspeccionados.
- 9) Informe o reporte de aceptación (o rechazo).

ISO 10545-2

DETERMINACIÓN DE LAS DIMENSIONES Y CALIDAD SUPERFICIAL.

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Especifica métodos para determinar las características dimensionales. Instrumentos utilizados, procedimientos y expresión de resultados.
- 2) Ancho y largo.
- 2) Espesor.
- 3) Rectitud de los lados.
- 4) Rectangularidad de la pieza.
- 5) Planalidad superficial: Curvatura y alabeo.
- 6) Calidad superficial: Define los defectos (no intencionales) como fracturas, cuarteo de esmaltes, burbujas, pinchazos, cachados, etc.

ISO 10545-3 (*)

DETERMINACIÓN DE LA ABSORCIÓN DE AGUA, POROSIDAD APARENTE, DENSIDAD APARENTE Y DENSIDAD APARENTE RELATIVA.

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 3) Definiciones: Impregnación en agua de la porosidad abierta de piezas y relación con la masa seca correspondiente.
- 3) Equipos empleados.
- 6) Muestras testeadas.
- 7) Procedimientos: Se definen dos: Impregnación en agua hirviendo y al vacío.
- 8) Expresión de los resultados.
- 9) Informe.

ISO 10545-4

DETERMINACIÓN DEL MÓDULO DE ROTURA Y RESISTENCIA A LA FLEXIÓN

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Referencias normativas: Provisionales y sujetas a revisión
- 3) Definiciones: Carga de rotura: Fuerza necesaria para la rotura (en N). Fuerza de rotura (Carga de rotura en relación con el ancho de la pieza y la distancia entre soportes) y módulo de rotura (Fuerza de rotura/espesor, en N/mm²).
- 4) Principios.
- 5) Equipos y aparatos utilizados.
- 6) Muestras testeadas.
- 7) Procedimientos
- 8) Expresión de los resultados.
- 9) Informe.

ISO 10545-5

DETERMINACIÓN DE LA RESISTENCIA AL IMPACTO POR LA MEDIDA DEL COEFICIENTE DE RESTITUCIÓN

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Definición: Relación entre las velocidades de aproximación y despeque en el impacto de dos cuerpos.
- 3) Principios básicos.
- 4) Equipos.
- 5) Muestras a testear y acondicionamiento de las mismas.
- 6) Procedimiento.
- 7) Expresión de los resultados.
- 8) Calibración.
- 9) Informe.

ISO 10545-6

DETERMINACIÓN DE LA RESISTENCIA A LA ABRASIÓN PROFUNDA PARA PIEZAS NO ESMALTADAS

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo y las áreas de competencia (sólo pavimento no esmaltado).
- 2) Referencias normativas: Provisionales y sujetas a revisión.
- 3) Principios básicos: Medición del largo del surco producido en la superficie de la pieza por medio de un disco rotativo de acero y material abrasivo.
- 4) Equipos.
- 5) Muestras a testear y acondicionamiento de las mismas.

- 6) Procedimiento.
- 7) Expresión de los resultados: Volumen del material removido de la pieza.
- 8) Informe.

ISO 10545-7

DETERMINACIÓN DE LA RESISTENCIA A LA ABRASIÓN SUPERFICIAL EN LAS PIEZAS ESMALTADAS

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo y las áreas de competencia (solo pavimento esmaltado).
- 2) Referencias normativas: Provisionales y sujetas a revisión.
- 3) Principios básicos.
- 4) Composición de la carga abrasiva.
- 5) Equipos.
- 6) Muestras a testear y número de especímenes.
- 7) Procedimiento y criterios de observación. Otros acuerdos.
- 8) Expresión de los resultados: 100:0, 150:1, 600:2, 1500:3, 12.000:4, >12.000 más resistencia a las manchas:5
- 9) Informe.
- 10) Fotos de ejemplos

ISO 13006 – Anexo N

CLASIFICACIÓN DE LOS REVESTIMIENTOS ESMALTADOS SEGÚN SU RESISTENCIA A LA ABRASIÓN

Esta clasificación es dada sólo como una gula aproximada. No se debería tomar como una especificación exacta de productos para requerimientos específicos.

CLASE 0 Las piezas esmaltadas de esta clase no son recomendadas para su uso en pisos.

CLASE 1 Revestimientos de pisos en áreas transitadas sin calzado o aquellos de suela blanda que no lleven polvo. Por ejemplo: baños residenciales o dormitorios que no tengan accesos directos del exterior.

CLASE 2 Revestimientos de pisos transitados con calzado blando o sea suela normal y que ocasionalmente puedan arrastrar algo de polvo. Por ejemplo: ambientes del hogar a excepción de cocina, entradas y otros de mucho tránsito. No son aptos para transitar con calzados anormales como botas con tachuelas.

CLASE 3 Pavimentos para los ambientes más transitados del hogar como cocinas residenciales, halls, corredores, balcones, galerías, etc. Siempre internos y que pueden eventualmente tener algo de polvo abrasivo.

CLASE 4 Pavimentos cerámicos para ambientes con tránsito regular y con mayor presencia de polvos abrasivos, de manera que las condiciones a las que se someterá son más severas que los de la clase 3. Por ejemplo entradas, cocinas comerciales, hoteles y salones de exhibición y ventas.

CLASE 5 Pavimentos para cubrir áreas sometidas a tránsito intenso por periodos de tiempo más amplios que los anteriores y que puede traer consigo polvo abrasivo. Las condiciones son las más severas a las cuales un piso cerámico se pueda ver sometido. Por ejemplo áreas públicas como shopping centers, salas de aeropuertos, veredas, etc.

Esta clasificación es válida para pavimentos sometidos a condiciones de uso "normal". Con tipo de tránsito y calzado adecuado.

También supone cuidados en la limpieza y medidas de protección contra el polvo como la presencia de elementos para la limpieza del calzado en los accesos del exterior.

En casos de tránsito extremadamente pesado o con presencia de gran cantidad de polvo abrasivo, se debería considerar un revestimiento no esmaltado del Grupo I.

ISO 10545-8

DETERMINACIÓN DEL COEFICIENTE DE DILATACIÓN TÉRMICO LINEAL

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Principios básicos: Determinación del c.d.t.l. Entre 20 y 100 °C.
- 3) Equipos.

- 4) Muestras a testear y número de especímenes.
- 5) Procedimiento: Determinar el cambio dimensional de una probeta de ensayo entre temperatura ambiente y 100°C con una velocidad de calentamiento de 5°C/min.
- 6) Expresión de los resultados: Como un factor por 10-6 °C-1.
- 7) Informe.
- 8) Ver dilatograma.

ISO 10545-9**DETERMINACIÓN DE LA RESISTENCIA AL CHOQUE TERMICO**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Referencias normativas: Provisionales y sujetas a revisión.
- 3) Principios básicos:
- 4) Equipos.
- 5) Muestras a testear y número de especímenes.
- 6) Procedimiento: Someter 10 veces una pieza, a cambios bruscos de temperatura entre 15°C y 145°C. Según la porosidad de la pieza será bajo inmersión de agua (<10%) o no (>10%).
- 7) Expresión de los resultados: Defectos observados.

ISO 10545-10**DETERMINACIÓN DE LA EXPANSIÓN POR HUMEDAD**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Definición: Expansión dimensional que sufre una pieza cerámica cuando se la somete a hidratación en agua hirviendo.
- 3) Principios básicos.
- 4) Equipos empleados.
- 5) Muestras a testear y número de especímenes.
- 6) Procedimiento:
- 7) Expresión de los resultados: Se expresa la expansión en mm/m lineal o porcentualmente en mm/100mm.
- 8) Informe.

La norma incluye un anexo A con observaciones que dice:

*La mayoría de los revestimientos cerámicos poseen una expansión por humedad insignificante que no provoca problemas cuando las piezas están correctamente colocadas. Sin embargo cuando la fijación al sustrato no es satisfactoria, o cuando las bases de concreto son viejas y en ciertas condiciones climáticas la expansión por humedad puede provocar serios problemas. En estos casos se recomienda como límite: **0.06%**

ISO 10545-11**DETERMINACIÓN DE LA RESISTENCIA AL CUARTEO EN LOS REVESTIMIENTOS CERAMICOS ESMALTADOS**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo
- 2) Definición: Finas líneas de cuarteo que se limitan a la superficie esmaltada.
- 3) Principios básicos: Piezas sometidas a alta presión en autoclave.
- 4) Equipos empleados.
- 5) Muestras a testear y número de especímenes.
- 6) Procedimiento: Se somete una pieza durante 2 hs. a una presión de vapor de agua de 500 kPa y se observa la aparición de cuarteo.
- 7) Expresión de los resultados: Se describe el cuarteo observado, en el caso en que exista.
- 8) Agregar Fotos

ISO 10545-12**DETERMINACIÓN DE LA RESISTENCIA AL CONGELAMIENTO**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo
- 2) Principios básicos: Piezas impregnadas en agua y sometidas a temperaturas entre 5°C y -5°C.
- 3) Equipos empleados.
- 4) Muestras a testear y preparación.
- 5) Impregnación con agua al vacío.
- 6) Procedimiento.
- 7) Informe de los resultados: Número de piezas dañadas luego de 100 ciclos.

ISO 10545-13**DETERMINACIÓN DE LA RESISTENCIA AL ATAQUE DE AGENTES QUÍMICOS**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Referencias normativas: Provisionales y sujetas a revisión
- 3) Principios básicos: Piezas atacadas con distintas soluciones acuosas a temperatura ambiente.
- 4) Soluciones acuosas empleadas: cloruro de amonio, lavandina, ácido clorhídrico al 3% y 18%, ácido cítrico, ácido láctico e hidróxido de potasio al 3% y al 13%.
- 5) Equipos empleados.
- 6) Muestras a testear y preparación.
- 7) Procedimiento para piezas no esmaltadas.
- 8) Procedimiento para piezas esmaltadas.
- 9) Informe de los resultados.

ISO 10545-14**DETERMINACIÓN DE LA RESISTENCIA A LOS AGENTES MANCHANTES**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo
- 2) Referencias normativas: Provisionales y sujetas a revisión
- 3) Principios básicos: Mantener en contacto durante 24 hs la superficie de las piezas con distintas agentes manchantes.
- 4) Agentes manchantes:
 - 4-1) Óxidos manchantes: -40% de óxido de cromo o hierro en glicerina.
 - 4-2) Manchantes con acción quimicooxidantes: Solución alcohólica de Iodo.
 - 4-3) Manchantes que forman película: Aceite de oliva.
- 5) Limpieza: Se usan sucesivamente como agentes de limpieza: agua, detergente neutro, agentes limpiantes abrasivos, ácido clorhídrico, hidróxido de potasio y acetona. Finalmente se lava bien la pieza y se seca.
- 6) Muestras a testear y preparación.
- 7) Procedimiento.
- 8) Clasificación de los resultados.
- 9) Informe final.

ISO 10545-15**DETERMINACIÓN DE LA CESIÓN DE PLOMO Y CADMIO EN LOS REVESTIMIENTOS ESMALTADOS**

La norma incluye los siguientes ítems:

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Referencias normativas: Provisionales y sujetas a revisión
- 3) Principios básicos: Se expone la superficie esmaltada de la pieza a un agente de ataque y se determina la cantidad de Pb o Cs cedida.
- 4) Agente de ataque: Solución de ácido acético 4% (v/v).
- 5) Equipos y materiales.
- 6) Muestras a testear y preparación.
- 7) Procedimiento.
- 8) Expresión de los resultados.
- 9) Informe.

ISO 10545-17 (Prenorma)**DETERMINACIÓN DEL COEFICIENTE DE FRICCIÓN**

La norma aún no es definitiva. Está en estudio y se han presentado cuatro métodos para determinar esta propiedad tanto dinámica como estática.

- 1) Alcance de la norma: Define el objetivo del ensayo.
- 2) Definiciones: Define el coeficiente de fricción estático y dinámico.
- 3) Principios básicos: Describe los principios en que se basa cada método.
- 4) Métodos de ensayo: Todos se realizan sobre piezas húmedas y secas.
 - 4-1) Método A: Deslizador dinámico: Determina la fuerza necesaria para mover un deslizador de goma sobre la superficie de la baldosa a velocidad constante.
 - 4-2) Método B: Deslizador estático: Determina la fuerza necesaria para iniciar el movimiento de un deslizador de goma sobre la superficie de la pieza.
 - 4-3) Método C: Plataforma inclinada: Determina el ángulo de un panel de 1m por 0,5m revestido en cerámica al cual una persona muestra signos de inseguridad al caminar. Este test se realiza con el panel y los zapatos mojados en aceite lubricante.
 - 4-4) Método D: Péndulo: Determina la energía absorbida cuando un péndulo con un zapato en su extremo roza contra la cerámica en estudio.
- 5) Preparación de las muestras.
- 6) Informe de resultados.

Appendix III

Corporate identity manual



LA AUSTRAL
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PALETA DE COLORES



#5d1617



#8c1e25



#74191d

FUENTE TIPO DE LETRA

Pirulen

Montserrat

LA AUSTRAL

FÁBRICA DE MOSAICOS

ÁREA

DE SEGURIDAD

Para asegurar la óptima aplicación y percepción del logotipo en todos los soportes y formatos, se ha determinado un área de seguridad que establece una distancia mínima de 2x respecto a los textos y elementos gráficos. El tamaño mínimo al que el logotipo puede ser reproducido es a 10 mm de ancho.

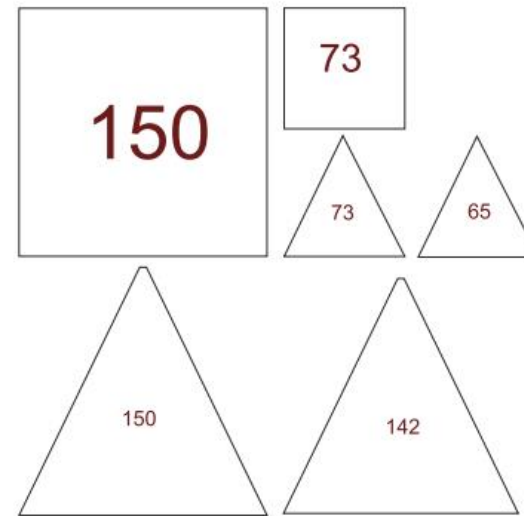
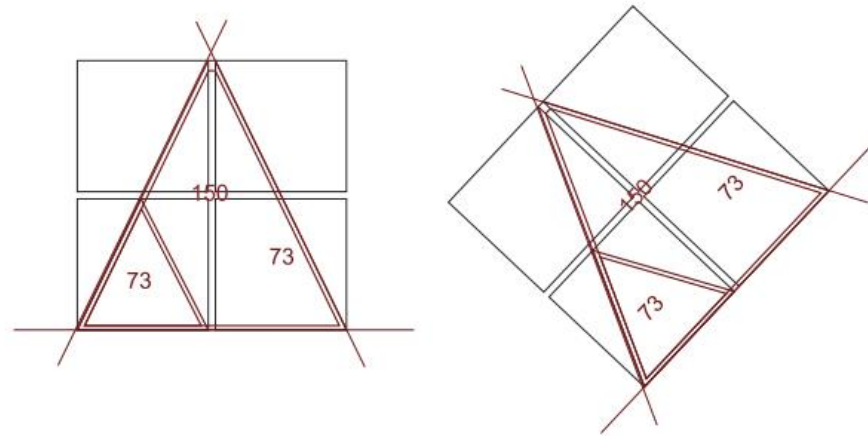


VERSIÓN HORIZONTAL



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CONSTRUCCIÓN LOGO





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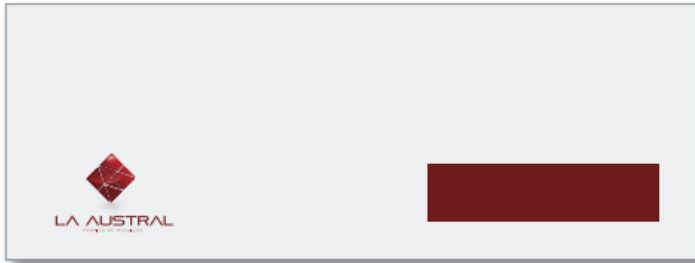
VERSIÓN MONOCROMÁTICO

APLICACIONES
INCORRECTAS



PAPELERÍA CORPORATIVA







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