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REVIEW

Strategic planning in the sugar agribusiness: the case of Ledesma

La planificación estratégica en la agroindustria azucarera: el caso Ledesma

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ABSTRACT

Introduction: the study analyzed strategic planning as an essential resource to guide the growth of organizations. It was emphasized that this process was not limited to a projection, but integrated long-term objectives with immediate decisions. In agro-industrial sectors, such as the Argentine sugar-alcohol industry, such planning acquired special relevance due to the nature of commodities, where cost leadership was essential to ensure sustainability.
Development: the context of the Ledesma company in Argentina was examined through tools such as PESTEL analysis, Porter's Five Forces model and the value chain. It was observed that the macroeconomic and political environment exerted strong pressures on competitiveness, while post-pandemic social changes generated new demands for more sustainable and digital consumption. It was also noted that technological innovation, with the incorporation of artificial intelligence, big data and precision agriculture, offered opportunities to optimize processes and respond to environmental demands. The analysis of the microenvironment showed a high level of rivalry among competitors and the growing threat of substitutes linked to healthy consumption trends. Internally, Ledesma consolidated competitive advantages thanks to its vertical integration, diversification and investment in innovation, human resources and social responsibility.
Conclusions: the paper concluded that strategic planning should be understood as a dynamic and adaptive process. In the sugar agribusiness, the key lay in articulating operational efficiency with innovation and sustainability, thus ensuring resilient and competitive companies in the face of changing environments.

Keywords: Strategic Planning; Cost Leadership; Agribusiness; Sustainability; Innovation.

RESUMEN

Introducción: el estudio analizó la planificación estratégica como un recurso esencial para guiar el crecimiento de las organizaciones. Se destacó que este proceso no se limitaba a una proyección, sino que integraba objetivos de largo plazo con decisiones inmediatas. En sectores agroindustriales, como la industria sucroalcoholera argentina, dicha planificación adquiría especial relevancia por la naturaleza de los commodities, donde el liderazgo en costos resultaba indispensable para garantizar sostenibilidad.
Desarrollo: se examinó el contexto de la empresa Ledesma en Argentina a través de herramientas como el análisis PESTEL, el modelo de las Cinco Fuerzas de Porter y la cadena de valor. Se observó que el entorno macroeconómico y político ejercía fuertes presiones sobre la competitividad, mientras que los cambios sociales posteriores a la pandemia generaban nuevas demandas de consumo más sustentable y digital. Asimismo, se destacó que la innovación tecnológica, con la incorporación de inteligencia artificial, big data y agricultura de precisión, ofrecía oportunidades para optimizar procesos y responder a exigencias ambientales. El análisis del microentorno evidenció una alta rivalidad entre competidores y la amenaza creciente de sustitutos vinculados a tendencias de consumo saludable. En el ámbito interno, Ledesma consolidaba ventajas competitivas gracias a su integración vertical, su diversificación y la inversión en innovación, recursos humanos y responsabilidad social.

Conclusiones: el trabajo concluyó que la planificación estratégica debía entenderse como un proceso dinámico y adaptativo. En la agroindustria azucarera, la clave residía en articular eficiencia operativa con innovación y sostenibilidad, garantizando así empresas resilientes y competitivas frente a entornos cambiantes.

Palabras clave: Planificación Estratégica; Liderazgo en Costos; Agroindustria; Sostenibilidad; Innovación.

INTRODUCTION

Strategic planning is currently one of the fundamental pillars for the management and sustained growth of organizations. Far from being a simple exercise in projection, it is a systematic process of reflection aimed at defining in the present what the organization aspires to be in the future, articulating long-term objectives with immediate decision-making. In this sense, the strategic plan is conceived as a tool that brings together the corporate decisions made by senior management at a specific moment in time, with the aim of guiding the company's actions towards time horizons that generally cover a period of three to five years. The significance of this instrument lies in its ability to integrate the interests of different stakeholders around a common purpose of competitiveness and sustainability.

From a theoretical perspective, business strategy has been extensively analyzed and systematized into models that offer solid interpretive frameworks for understanding the competitive dynamics of markets. Hill, Jones, and Schilling identify so-called generic business strategies as those that allow an organization to define a particular position and, from there, build a sustainable competitive advantage that gives it above-average returns for the sector. These strategies are expressed in two predominant forms: cost leadership and differentiation, which involve, respectively, the optimization of processes in order to offer lower prices without compromising profitability, and the incorporation of unique attributes in products or services that distinguish them from those of the competition.

Porter systematized these approaches in his renowned generic strategy model, integrating cost leadership and differentiation with the focus strategy, whereby a company concentrates its resources on a specific market segment or niche. Even today, these categories constitute an essential analytical reference point, as they allow for the characterization of strategic positions at the corporate and business levels and facilitate the understanding of the offensive and defensive decisions that organizations adopt to maintain their competitiveness in complex environments.

The study of strategic planning takes on particular relevance when applied to resource-intensive economic sectors, such as agribusiness and, in particular, the sugar and alcohol industry. In this type of activity, products are commodities, which limits the possibilities for differentiation and makes cost control a sine qua non for survival and growth. Under these circumstances, logistical efficiency, optimization of production processes, and the ability to generate economies of scale become critical elements for maintaining profit margins. Likewise, the incorporation of technological innovations and adaptation to new environmental sustainability requirements are essential drivers of competitiveness.

However, macroeconomic and political conditions are putting significant pressure on the sector. Factors such as economic instability, social tensions, tax policies aimed at revenue collection, and changes in consumer habits following the COVID-19 pandemic pose additional challenges that need to be addressed from a comprehensive strategic perspective. Tools such as PESTEL analysis and Porter's Five Forces model are particularly useful for identifying and evaluating opportunities and threats in the environment, while the application of value chain analysis makes it possible to highlight internal strengths and weaknesses that can become sources of competitive advantage.

Within this framework, the purpose of this review is to critically examine the theoretical foundations of strategic planning and contrast them with an analysis of the current situation in the sugar agro-industrial sector. The aim is to bridge the gap between theory and practice, highlighting how companies, and in particular the case of Ledesma in Argentina, face the need to articulate cost leadership strategies with growing demands for innovation, sustainability, and social responsibility. This approach will not only allow us to understand the competitive dynamics of the sector, but also provide food for thought on the role of strategic planning in building resilient and future-oriented companies.

DEVELOPMENT

Situation analysis

Any company that wants to be competitive must constantly seek to lower its costs. This does not mean that it should lower the quality of its products by purchasing lower-quality raw materials, evading taxes, etc. Efficient and optimized use of resources must be one of the pillars of companies for solid and sustained growth. Within the food industry, this situation is common among companies that produce grains, sugars, flours, etc.,

which must necessarily adopt a cost leadership strategy. When marketing commodities, these are products that are difficult to differentiate, and profits are generated by sales volume. This is why costs must be carefully measured and controlled, as small deviations in them can lead to losses. Within costs, logistics costs are of great importance due to their weight in the total cost.

Macroenvironment

To analyze the macro environment, we will use the PESTEL tool.

Political Analysis: Due to the delicate economic situation the country has been experiencing for years, with high poverty and unemployment rates, debt to the International Monetary Fund, and social tensions between the government and social movements and trade unions, agro-industries are facing high production and logistics costs that they are unable to recover after implementing programs such as "price controls." On the other hand, they are one of the few sectors with a fiscal surplus in the balance of payments, which generates special interest in governments when it comes to applying policies aimed at collecting revenue from exports.

Economic Analysis: Some producing countries are experiencing some difficulties due to relative price distortions and/or macroeconomic imbalances, compounded by the loss of commercial appeal due to the price of ethanol compared to sugar. Brazil (the world's largest producer) is a decisive factor due to its scale of production.

Social Analysis: The COVID-19 pandemic has changed Argentines' habits and decisions when it comes to consuming products and services, according to a study by the consulting firm Kantar.[1] When choosing products and services, consumers indicate that, to a greater extent, they will value proximity, sustainability, health, and digital technology. In this regard, 62 % revealed that they will purchase most of these products online, and 67 % will choose those that help reduce environmental impact. In addition, they said they will pay more attention to the origin of the food they eat. When everything returns to normal, 85 % of those surveyed plan to adopt a healthier lifestyle. The report reveals that one of the main characteristics of post-COVID-19 consumption is that most purchases will be made online using digital payment methods, a phenomenon that accelerated during social isolation and lockdown across all social classes and ages. This is demonstrated by the figures: comparing July 2019 with May 2020, payments via QR code increased by more than 140 %.

Technological Analysis: Compared to its global peers, the Argentine countryside is an early adopter of technology. Despite this, digital technologies in the countryside are just beginning to take off compared to other relevant industries such as finance and services. The three specific macro trends that are transforming agribusiness on a daily basis are: environmentalization (everything we do that tends towards sustainable production), industrialization (improvement of production processes, optimization, and continuous improvement), and digital transformation (applied technologies that generate new business models, from the producer to the consumer, throughout the entire commercial, inspection, and control chain). The Internet of Things, Artificial Intelligence, and Big Data will enable us to measure much more than we do today, to evaluate many more alternatives than we currently have, to model better, to optimize, and to improve the sustainability of the production system and the ecosystem services of production sites. Technologies such as augmented reality, robotics, improvements in sensors, etc., will allow us to do more precise work and reduce negative environmental impact, greatly decrease the number of errors, and be able to adjust systems to individually manage each production factor and improve it even further. These technologies will also change commercial chains with disintermediation trends, as well as increasing the traceability and sustainability of products.[2]

Ecological Analysis: In 2021, most organizations are attempting to pursue sustainable development in which the environment is a fundamental issue. In line with the 17 sustainable development goals created at the UN General Assembly, which are set to be achieved by 2030, a large percentage of organizations have begun to design strategies to include these goals in their ecological objectives. Likewise, there are currently a large number of regulations and programs aimed at protecting the environment and natural resources of the biomes found within Argentina. There is also a modern trend toward change in the type of fertilizers used in production fields, moving away from the traditional fossil-based nitrogen fertilizer to lower-impact fertilizers, such as compost, and from the use of fossil fuels to biofuels for powering machinery. The trend toward environmental protection is showing signs of its importance in very different areas of the agricultural chain. The United States Department of Agriculture (USDA) is prioritizing sustainable agricultural intensification with a focus on regenerative agriculture, water conservation, digital and precision agriculture, and climate adaptation. On the consumer side, there is a tendency to pay more for products that provide quality and information about how natural resources are being cared for while food is being produced. A 2020 Boston Consulting Group survey of 9 000 consumers in nine countries found that the majority (86 %) want food products that are "good for the world and good for me," items labeled as organic, natural, eco-friendly, or fair trade.

Legal Analysis: There are two important factors to analyze at this point. The first is the labor emergency law, which extends the public emergency in occupational matters declared by Emergency Decree 34/2019 until June 30, 2022. In general terms, it refers to an increase in severance pay that gradually decreases until July

30, when the standard severance pay finally remains. On the other hand, the government regulated Law 27.642 on the Promotion of Healthy Eating, known as the front-of-package labeling law, which aims to warn consumers about excess fat, sodium, and sugar in products in order to help combat obesity, hypertension, and heart risks. In addition to front-of-package labeling with black diamonds and white capital letters, it establishes that these types of products cannot be advertised to children and adolescents or sold in school environments. Furthermore, items with more than one warning label may not include cartoons, characters, public figures, gifts, or elements that attract the attention of children and adolescents on their front. Large companies will have six months (from March 23, 2022) to comply with the law.

Microenvironment

To analyze the microenvironment, we will use Porter's five forces strategic tool.

Bargaining Power of Customers: The bargaining power of customers is high. Sugar is a mass-consumption product that is easy to replace and has few distinguishing characteristics. Due to the large number of suppliers, customers have the power to demand lower prices or higher quality, as it would be easy to switch to other brands.

Supplier Bargaining Power: In the case of suppliers, bargaining power is moderate. Although there are many companies in the market, these are specific products that are not mass-consumed. There is significant differentiation in terms of quality, technology, and service provided.

Threat of New Competitors: Entry into this market is limited by the large investment and extensive certifications required to be among the major producers and exporters. The sector has high barriers to entry for small shareholders, but not for large corporations or investors. In Argentina, high tax rates and political and economic instability are also factors when investing in the market. Therefore, the threat of new competitors is low.

Threat of substitute products: Recently, there has been a boom in healthier eating. People are consuming more "natural" products that are not artificially sweetened, low in calories, etc. In this context of cultural change in eating habits, the threat of substitute products is high.

Rivalry among competitors: Rivalry among competitors is high. Argentina is a medium-sized producer in the sugar and alcohol industry, with activity concentrated mainly in two regions in the northwest of the country (NOA): the province of Tucumán on the one hand, and the provinces of Salta and Jujuy on the other. Although significantly lower in volume, sugar is also produced in the provinces of Santa Fe and Misiones. Industrial activity in the NOA is carried out by 20 sugar mills with an equivalent production of 2,2 to 2,5 million tons of sugar, while domestic consumption is 1,50 to 1,40 million tons.[3]

Internal Analysis

The Value Chain strategic analysis tool will be used to perform the internal analysis.

Primary Activities

Internal Logistics: internal logistics include the transport of raw materials (sugar cane) from the fields to the milling plant and warehouses, internal processes for receiving goods, inventory control, and supplying all areas of the different plants in the process.

Operations: The main operations are sugarcane harvesting, milling, decanting, cooking, crystallization, refining, drying, and packaging. In the first stage, raw sugar is produced, from which bagasse (the fiber that emerges when the cane is compressed to extract sugary juice) and molasses (honey that appears at the end of the process, when the cooked mass is centrifuged) are obtained as by-products. Raw sugar can be refined or sent for export. At the refinery, the raw sugar is diluted in water and then filtered, evaporated, and centrifuged again. The resulting product is white sugar. The white sugar is dried and packaged (50 kg bags, 1 kg packages, or sachets). The processed sugar is destined for: end consumers; manufacturers of products with high sugar content (soft drinks and sweets); products where sugar is not a major ingredient (pastries). Molasses is used to extract ethyl alcohol and as a supplement in animal feed. Ethyl alcohol is dehydrated to obtain bioethanol. Bagasse is used to generate electricity for the sugar industry. Bagasse is also used as a raw material for paper production.[3] This represents a competitive advantage, as Ledesma is an integrated company and has the entire process distributed across different business units.

External Logistics: External logistics are carried out, on the one hand, directly to industrial customers at the different production plants in the country, so that these serve as raw materials for the companies they supply and/or the different plants that produce by-products derived from sugarcane. On the mass consumption side, distribution is carried out to wholesale customers, distributors, supermarket chains, and retail customers. The distribution of products abroad, both to industrial and wholesale customers, must also be taken into account. Currently, companies and customers want to feel that the services and products they consume are not commodities. In other words, generic products that are impossible to distinguish from those offered by the

competition. To generate a bond and real satisfaction, it is necessary for the customer to clearly and tangibly perceive the additional value that their supplier is generating. To this end, logistics has two axes through which it creates this competitive advantage. The value axis (personalized services, reliability, and responsiveness) and the cost advantage axis (synchronized supplies, optimization of resource utilization, etc.).

Marketing and sales: Ledesma seeks to communicate with each of its stakeholders (employees, customers, suppliers, community) and Argentine society as a whole through different channels. Ledesma's website has a special section for the sugar business (https://www.azucarledesma.com/), in addition to the institutional site, with all relevant information on product presentations, properties, applications, etc. It also includes information on carbohydrates and the quality management system. Most of the products are leaders in their categories and reach mass consumer markets through an extensive sales and distribution network. Innovation is another key aspect at Ledesma in order to respond to consumer needs and boost the company's competitiveness. The business has a dynamic structure that resolves commercial issues in the short term, allowing customers to access technical assistance and consult their concerns on an ongoing basis. For this reason, Ledesma provides its customers with telephone contact with an assigned commercial operator, who has the necessary information about the customer to formalize transactions. Contact with customers is constant and proactive. The Ledesma team has 25 people with long careers at the company; they maintain contact with customers who have had a relationship with the company for several years. Thus, the relationship with customers is the result of years of work and building a bond of trust that improves day by day.[4]

Services: Ledesma has different channels of communication with its value chain, including personal meetings and customer satisfaction surveys. Ledesma staff regularly visit current and potential customers to obtain the information necessary about their operations for the smooth running of the business throughout the value chain. Ledesma has a complaint and claim management system to ensure that customers receive an immediate solution to any issues that arise with the product or service offered. Each call is recorded in the system so that all areas are aware of the complaint or claim and to periodically monitor the efficiency of the quality system. This customer service allows us to receive customer inquiries and listen to their concerns. The information is used to produce weekly and quarterly reports with statistics and analysis of the complaints and claims received. Every 15 to 18 months, Ledesma conducts a satisfaction survey of its key customers. To carry out the surveys, the technical and commercial areas of the customers are contacted personally to obtain accurate results on the quality of Ledesma's product and service. The methodology used assesses customer satisfaction based on the gap between their perception and expectations.[4]

Support Activities

Organizational Infrastructure: Ledesma owns more than 157 000 hectares in Jujuy, distributed among 40 000 hectares of sugarcane, 19 000 hectares of industrial facilities and infrastructure, 2 000 hectares of citrus fruits, and 96 000 hectares of protected reserves. On average, it harvests

3 100 000 tons of its own cane and 600 000 tons from independent cane growers. In terms of facilities, it has sugar, alcohol, bioethanol, cellulose, and paper factories, a fruit packing plant, a concentrated juice plant, an essential oils plant, a commercial stationery production plant, and its own electricity generation plant. In addition, it has storage ponds, water intakes, 1 400 km of canals, 700 km of internal roads, experimental fields, and nurseries.[4,5]

Human Resources: Ledesma has a Human Resources Committee, made up of members of the Board of Directors and company executives. It is the advisory body to the general manager on issues of pay equity and other human resources policies. It meets on demand, approximately every two months. Since its inception, Ledesma's growth has been due to the work and quality of performance of its workforce. Its human capital is characterized by a diversity of styles that enrich the company's management and help it adapt more easily to changes and new challenges. The company values each of its employees and encourages them to grow alongside the company, providing them with career opportunities, training, internal development, and rewards for good results. Ledesma conducts a variety of training courses, addressing the specific needs of each business, with top-level professionals and academics. To continue on the path of continuous improvement and enable the constant advancement of its employees, Ledesma conducts performance evaluations of non-unionized personnel. This allows for an analysis of each person's development potential and its relationship to the future requirements of the business, in order to work on improvement actions and clarify expectations. Evaluations are conducted once a year. Each manager evaluates their direct reports and then validates the evaluation with their immediate superior. Once the evaluation has been validated, a feedback interview is conducted in which the employee is informed of the results and their comments are incorporated. All Ledesma employees earn a salary above the minimum wage (SMVM). The constant updates to collective agreements and the renewal of union delegates and committee members are evidence of the freedom the company grants to the functioning of trade unions.[4]

Technology Development and Innovation: This is part of the company's strategic orientation. Ledesma

constantly invests in new technologies to increase its production capacity year after year and offer its customers the highest quality products and services. This year, Ledesma will invest US$10 million in the investment plan it is carrying out as part of its Genesis XXI program to increase competitiveness and boost the company's growth and innovation. In addition, it has research and development areas with nine experimental fields where new varieties of sugarcane are evaluated and field trials are conducted. These include the Santa Rosa Experimental Agricultural Farm, a research center dedicated to sugarcane, where the aim is to obtain disease-resistant varieties or varieties with attributes that improve the plant, it also has laboratories that research best practices for soil conservation, fertilization, pest and disease control, and quality control and assurance of raw materials, both in the field and in the industrial process. The goal is to continuously improve water and soil use to ensure improvements in productivity and the preservation of natural environments. It also participates in the " Argentina Innovadora Plan 2020" program created by the Ministry of Science, Technology, and Productive Innovation, which has several initiatives that seek increasingly technology-intensive regional development and the generation of social welfare.[4]

Purchasing: The procurement areas of the company's various businesses aim to ensure the continuous supply of raw materials, inputs, and services with quality levels that meet the stipulated requirements, at appropriate prices and in compliance with company guidelines. Ledesma applies procedures for purchasing, selecting, evaluating, and rating suppliers and verifying supplies under ISO 9001:2000.[4]

CONCLUSIONS

The analysis carried out on strategic planning and its application in the Argentine sugar and alcohol industry, with special emphasis on the case of Ledesma, reaffirms that business strategy is an essential resource for dealing with the complexity of today's environments. Firstly, it is evident that in agro-industrial sectors, where production is focused on commodities with low differentiation, cost leadership is an unavoidable condition for ensuring business sustainability. However, such leadership should not be interpreted solely as an exercise in cost reduction, but rather as a permanent search for efficiency and optimization throughout the value chain, integrating production, logistics, and management processes.

In this context, the incorporation of technological innovation and digital transformation stand out as critical factors for expanding profit margins and improving competitiveness. Technologies such as artificial intelligence, big data, and automation, together with precision agriculture practices, not only strengthen productivity but also enable greater traceability, transparency, and sustainability, responding to new social and regulatory demands. Added to this is the need to adopt an environmentally responsible approach, aligned with the Sustainable Development Goals, which positions companies in front of consumers who are increasingly demanding with regard to the ecological impact of their purchasing decisions.

PESTEL analysis and Porter's Five Forces model show that the sector faces significant external pressures, from macroeconomic and political instability to the growing threat of substitutes resulting from cultural changes in consumer habits. In this scenario, organizations must articulate strategies capable of responding to both short-term factors and long-term structural challenges. The case of Ledesma reflects how a company with strong vertical integration and product diversification can consolidate competitive advantages, provided that it is accompanied by sustained policies of investment in technology, human resources, and social responsibility.

In short, strategic planning in the sugar agroindustry cannot be limited to a technical forecasting exercise, but must be a dynamic and adaptive process that combines operational efficiency, constant innovation, and a commitment to sustainability. Only through this comprehensive coordination is it possible to build resilient companies capable of maintaining cost leadership without losing sight of the demands of differentiation, social legitimacy, and adaptation to change. This reaffirms that strategy is not an end in itself, but rather a means to ensure the viability and growth of organizations in an increasingly uncertain and competitive future.

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