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Strategic management of the agro-industrial network of first transformation in La Pampa, Argentina

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ABSTRACT

The objective of this work is to measure and analyze the management of resources and strategic capacities of the agro-industrial organizations of the first transformation of the province of La Pampa, Argentina. The strategic management of the network, measured in aggregate terms, can be classified as intermediate. The aspects most positive are the maintaining image of the company, the importance of price and the strategic value that know-how has for businesses. As factors with performance to improve, there are the lack of conventions and agreements with scientific and technical organizations that promote innovation processes and the non-use of a command board for the strategic and operational management of the business. The flour, dairy and balanced food complexes were the ones that presented the best strategic management performance. The strategic management of first transformation agro-industries is directly related to capacities (management training and seniority in the business) and resources (scale).

Keywords: competitive performance, territorial development, resources and capabilities, added value.

Introduction

The agroindustry sector is crucial for Argentine territorial development, where its main and related activities have an impact on the generation of wealth, jobs, foreign currency, food, among other aspects (National Institute of Statistics and Censuses - INDEC-, 2022). Within this sector, the first transformation agro-industrial framework is relevant due to its capacities to: a) add value to primary products, b) generate exports of products with local added value, c) generate qualified jobs, d) generate effects provincial and micro regional multipliers and e) promote territorial roots (Food and Agriculture Organization of the United Nations -FAO-, 2021; Ferro Moreno et al., 2021; Bisang et al., 2022). In this sector, the Small and Medium-sized enterprises (SMEs) are increasingly impacted by strategic factors that allow an improvement and sustained competitiveness in its sector (Cannas, 2021).

The variables and factors that are part of the competitive management of agrifood and agroindustrial organizations and their impacts on sustainable territorial development are an ongoing discussion (Peteraf and Barney, 2003). Whatever the position taken, it must necessarily be adapted to the reality and particularities of the subjects/objects under study. The management of resources and strategic and dynamic capabilities are crucial in the processes of building and sustaining competitive advantages.

The first transformation of the agro-industrial sector of La Pampa (Argentina) covers a wide spectrum of products and services, ranging from generic products to goods for final consumption. The manufacturing industry represents approximately 4% of the provincial Gross Geographic Product and 11.6% of formal private employment (INDEC, 2022). Within the industrial activities, the processing sector of agricultural products represents about 50% of formal employment and 60% of the Gross Value of Production; Of the total goods and services that La Pampa exported in 2021, 15.9% belong to the agro-industrial sector, some 133 million US dollars (INDEC, 2022).

In this framework, it is posed as a research question: how are the first transformation agro-industrial organizations of La Pampa strategically managed to improve competitiveness? The general objective of this work is to measure and analyze the management of strategic resources and capacities of the first transformation of agro-industrial organizations in the province of La Pampa. For this, first transformation agro-industries in the province of La Pampa were mapped and interviewed, in order to diagnose their management.

Resource management and strategic capabilities

Theoretically there is a debate about the incidence and preponderance of the factors that intervene in the problematic-strategic-competitive situation of an organization (Gartner et al., 2022). There are two important aspects that pose extremes to contemplate. On the one hand, the works related to the Industrial Organization Model (Porter, 1980; 1982), which suggest that the external environment is the main determinant of an organization's strategic actions; where the key lies in identifying an attractive industry and successfully competing in it (Nair and Kotha, 2001). The other strand, that of resource-based models, suggests that an organization's unique (heterogeneous) capabilities and resources are a critical link to strategic competitiveness (Sirmon and Hitt, 2003) and sustainable competitive advantage (Wernerfelt, 1984; Barney, 1986; Rumelt, 1991; Peteraf, 1993; Evers, 2011).

Strategic analysis based on exogenous factors does not explain why different organizations with the same competitive structure at the industry level obtain different results (Leitner and Güldenberg, 2009). On the other hand, the framework of resources and capabilities, widely used in different works of the discipline, does not consider aspects of how resources should be managed and controlled (Kraaijenbrink et al., 2010), and does not provide a clear explanation of how resources can contribute to the achievement of competitive advantage (Mei et al., 2021).

According to Peteraf and Barney (2003), both approaches are complementary; there is evidence that affirms that the formulation of strategies should be based on the value needs of customers and on the organization's own resources and capabilities. In this sense, strategic architecture (Hamel and Prahalad, 1995) questions crucial aspects of the relationship between competitive conditions and strategy formulation, the mobility of strategic resources and its link with sustainable competitive advantage.

Starting from Nelson and Winter (1982), a dynamic vision of the search for competitive advantages is proposed, which, complemented with the focus of dynamic capabilities and the current based on knowledge (Grant, 2002; Winter, 2003; Cannas, 2021), conceive of strategy as a guiding framework for competitive development (Pazzi, 2009). Subjectivity in the interpretation of dynamic reality, framed in certain social contexts, highlights knowledge, learning and adaptation as the main drivers of the strategy (Takeruchi, 2013). Gartner et al. (2022) explore how digital technologies can help SMEs generate competitive advantages that allow for scaling.

In this framework, having a clear and concise definition of a vision and mission of the organization (van der Walt et al., 2004), as well as the ability to establish a future orientation by setting organizational objectives, are strategic resources for a current company (Taiwo et al., 2018). Strategic

planning and management are necessary to address the complexity of the business environment, from a perspective of the desired future and thus seeking to improve the direction of the organization (Saavedra and Tapia, 2011). In addition, having a command and control panel is a strategic management tool that allows monitoring the performance of organizational processes aimed at obtaining competitive advantages and creating value through differentiation and improvements in profitability (Ferro Moreno and Lasca, 2019). This tool is the basis for making efficient and effective decisions for an agro-industrial organization that seeks to improve its competitiveness (Fajardo Ardilla, 2020). In this aspect, the digital technologies can be particularly useful because they can increase competitiveness, productivity, and performance (Gartner et al., 2022).

The link and interconnectivity with other actors represents a competitive advantage, as long as it is capitalized in organizational decision-making. Business cooperation and articulation with companies in the sector is a response to the new challenges in strategic management (Mitnik, 2011). In addition, having formal agreements with research institutions facilitates and promotes the development of strategic innovation and knowledge management processes (Melo Torres et al., 2020). Mei et al (2021) hold the exploiting internal and external resources as well as their combination for product innovation strategies.

Corporate social responsibility -CSR- is another key and strategic aspect in organizations today, which allows the active and voluntary contribution towards social, economic and environmental improvement by the organization with its environment (Melo Torres et al., 2020). The organizational image is an important intangible in organizational identity and competitiveness (Mitnik, 2011; Melo Torres et al., 2020). The image and its relevance generates differentiation and leadership in the markets, trust on the part of the other actors, strengthens long-term relationships and leads to the valuation and acceptance of goods and services. The image and brand must be linked to pricing policies, oriented to the needs and particularities of the market (Castaño and Gutierrez, 2011). Having an analysis of the environment, about the competitions, the markets and the economic uncertainty cause that the price is a tactical and strategic tool for the organizations. A correct pricing scheme can generate significant determining advantages for the course of any organization, generating an immediate impact on consumers (Gonzaga Añazco et al., 2018). The smarter a company is and the more knowledge it accumulates, the greater the chances of achieving advantages over market competitors (Castaño and Gutiérrez, 2011). Cannas (2021) investigates small and medium-sized agri-food companies with a framework of dynamic capabilities and on digital transformation, concluding the importance of the sense of belonging in the competitiveness of organizations. In this frame, the know how refers to the

skills to do things, being the knowledge that is maintained within the organization (Melo Torres et al., 2020).

Materials and methods

The work is descriptive and inferential, taking as an object of study the first transformation of agro-industries of the province of La Pampa, defined as those organizations that transform products from agriculture into new products, with additional attributes and processes. 74 authorized agro-industries in the province were mapped. For the collection of primary data, a semi-structured form was devised that collects and values data, perspectives and perceptions of the actors who are in charge of the management. Descriptive questions of the organizations (size, age, products, location, training, company name, among others) and questions referring to key and strategic resources and capabilities were asked, which were the following: 1) Vision, mission and objectives; 2) Command/control board; 3) Agreement on Science and Technology agencies; 4) Part of chamber/business organization; 5) Articulation competence; 6) Environmental studies; 7) Importance of know-how; 8) Social responsibility; 9) Business image; 10) Importance of price.

Of the total mapped agro-industries, 59 actually answered (79.7% of the total), with significant percentages of coverage by complex (table 1). The responses were obtained between the end of 2020 and the beginning of 2021.

Table 1: Responses by complex and percentage of coverage.

Agro-industries	**Provincial amount**	**Number interviewed**	**% coverage**
Vegetable oilers	7	6	85,7 %
Balanced food	14	10	71,4 %
Meats	15	15	100 %
Forest	5	3	60,0 %
Wheat flour mills	4	3	75,0 %
Bovine dairy products	21	14	66,7 %
Vegetable roasters	3	3	100 %
Viticulture and wine	5	5	100 %
TOTALS	**74**	**59**	**79,7%**

Source: self made.

With the answers, an index was created that can take a value from -100 to 100 based on the results of the 10 factors measured (Ferro Moreno et al., 2021). For the valuation of the measurements of each factor, performance indicators were used, calculated based on the proportional incidence of the results of the total number of agro-industries (general or by complex).

To calculate the strategic management competitive performance index (IDCGE) of each organization, the IDC of the factors that make up the axis were averaged, assuming that the relative weight of each factor is equal. This index makes it possible to evaluate, through a traffic light board, the current status of each organization.

For each complex, the agro-industrial strategic management index (IGEAc) will be calculated, which will result from the sum of all the IDCs of the organizations that make up the production complexes.

The average performance of each complex yields the aggregate result at the provincial agro-industrial network level. In order to interpret the results in an aggregate manner, by provincial agro-industrial complex or network, a traffic light board is built that goes from dark red (IDCGE: -100) to dark green (IDCGE: 100), going through a scale of intermediate colors, that allows interpreting the current status of the index.

With the indicators and indices, a general descriptive analysis was developed, by complex and considering the variables size, educational level

of the management and location (micro-regions established by Provincial Law 23,589). The results of the index were georeferenced, and a multivariate cluster analysis was developed in order to group the organizations by strategic management performance. The results will be exposed from the general (provincial framework), going through each complex until the analysis of all the organizations.

Results

The agro-industrial network of La Pampa presents a competitive performance in intermediate strategic management; the IDCGE gave a value of 28.3 (Table 2). Of the 10 factors measured, the ones that contributed the most to performance were the importance given to the business image, the relevance of price when competing and the relevance of the know-how of each business. The factors that restrict performance are related to not having agreements with scientific and technical organizations and the little or no use of dashboards for the strategic and operational management of businesses.

Table 2: Results of the agro-industrial strategic management index.

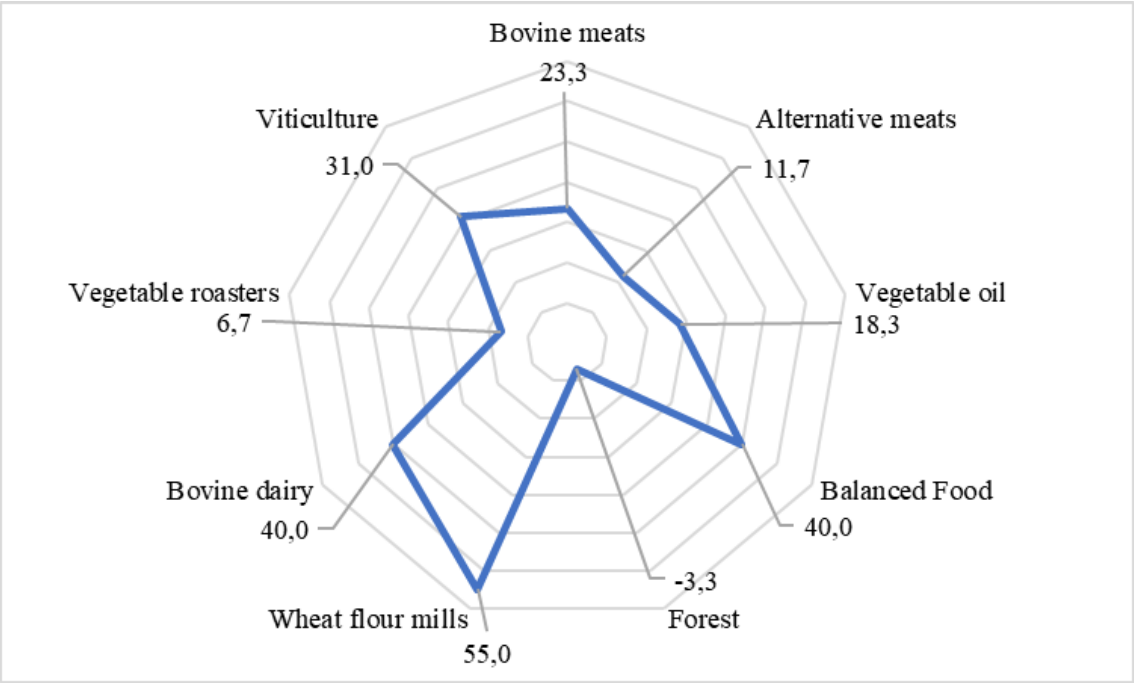
FACTOR	**IDCf**
Strategic management	28.3
Vision, mission, and objectives	0.85
Balanced scorecard	-22.8

Agreement on science and technology organizations	-32.2
Chamber/business organization	-0.3
Competition articulation	17.8
Environment studies	26.3
Valuation of know-how	88.1
Social responsibility	11.1
Importance of business imagen	98.2
Importance of price formation	94.9

Source: self-made.

Analyzing the results by productive complex (figure 1), it can be affirmed that the flour, dairy and balanced food complexes are the ones with the highest index value. While the complexes of forest products and roasters are the ones with the lowest value.

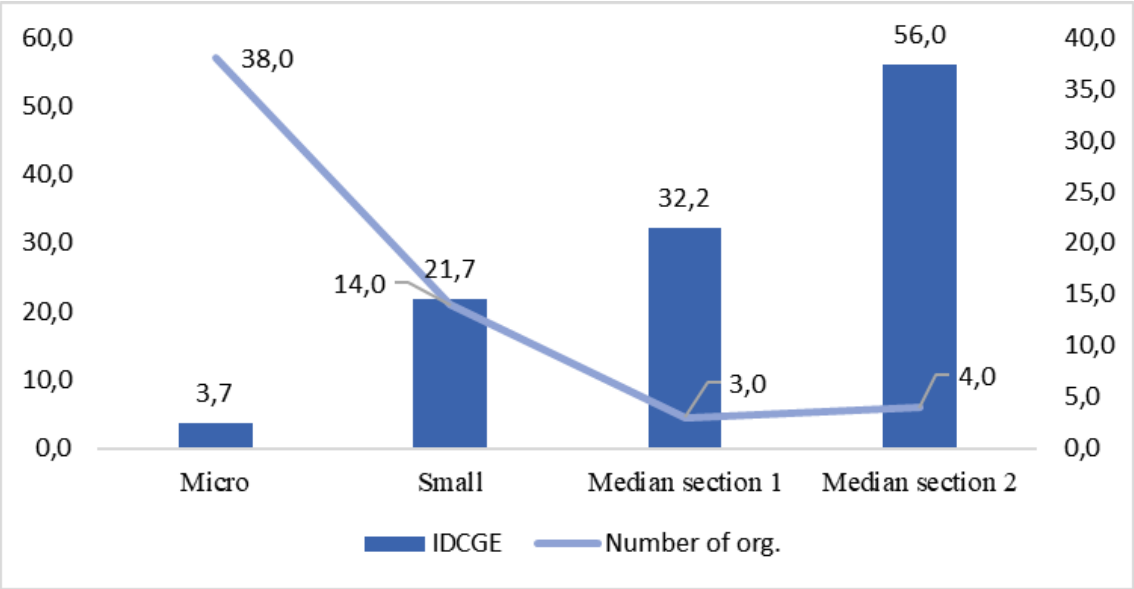
Figure 1: Strategic management by production complex.



Source: self-made.

The total number of agro-industries that make up the network are considered SMEs according to the scales of the Secretariat for Small and Medium Enterprises of 2021. When evaluating strategic management considering the organizational size based on its billing, we can find that the micro are those that show the lowest value of the strategic management index, while the medians of section 2 (larger) are the ones that show the highest strategic management (figure 2).

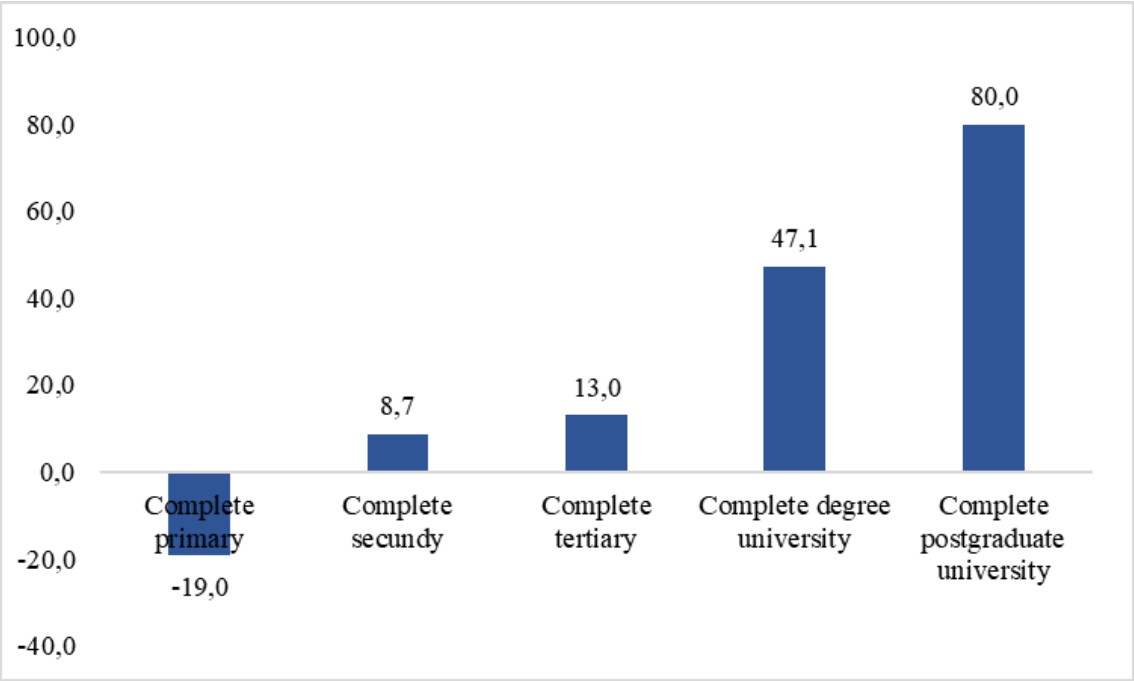
Figure 2: Strategic management by organizational size and number of organizations.



Source: self-made.

Based on business training, it was possible to reveal that the higher the level of training, the agro-industrial organization presents a higher average value of strategic management. Therefore, the complete primary level is the one with the lowest value, while the university with postgraduate level is the one with the highest value (figure 3).

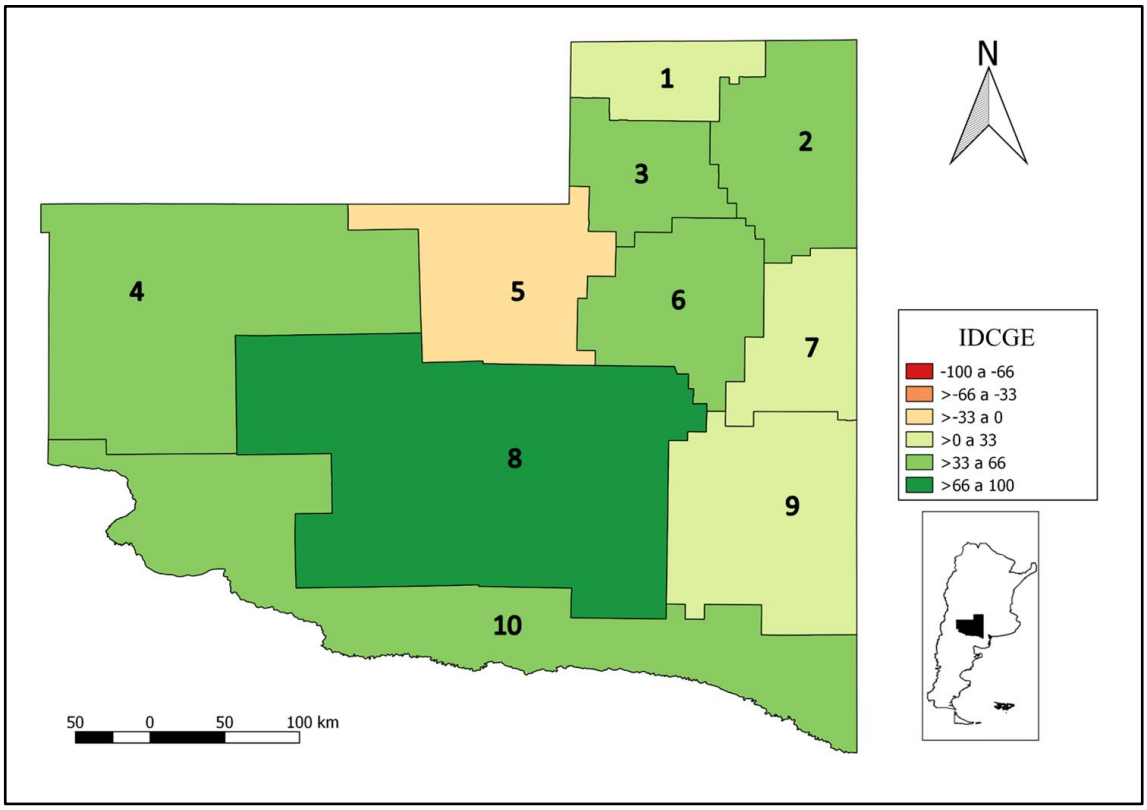
Figure 3: Strategic management by educational level reached by management.



Source: self-made.

By grouping the indices of the organizations based on their location in micro-regions of the province of La Pampa, without discriminating the complex to which they belong, it can be seen that there are three large groups (figure 4). Microregion 8 is the one with the best performance, followed by a group made up of 2, 3, 4, 6 and 10. Microregions 1, 5, 7 and 9 were the ones with the lowest strategic management performance.

Figure 4: Georeferencing of the IDCGE by micro-regions.



Source: self-made.

If we carry out a cluster analysis based on the strategic management of organizations, 3 types of groups can be obtained. The first group is made up of 5 agro-industries with an average value of the index of -46, 8 employees on average and year of creation on average of 2008. The second group is made up of 22 organizations, with an average strategic management value of 0.3 , an average size of 28 employees and the year of creation of 2004. Finally, the third group formed 32 agro-industries, with an average index of 59.7, the average size of 71 employees and the year of creation of 1990.

Conclusions

First transformation agro-industries play fundamental roles in territorial development and in the competitiveness of provincial value chains. His most relevant contribution is related to the processes of adding local value. Strategic management, within the framework of the search to build and maintain competitive advantages, is crucial for organizations. Organizational resources and capacities are enhanced or restricted by their strategic management; as well as the possibilities of facing challenges or taking advantage of current and future business opportunities.

The agro-industrial network of La Pampa is made up of 9 productive complexes, which due to their nature and particularities, present disparate performances. The strategic management of the network, measured in aggregate terms, can be classified as intermediate. The aspects that influence the most in a positive way are the preponderance of maintaining and increasing the positive image of the company, the importance of price as an indicator of competitive management and the strategic value that know-how has for businesses. As factors with performance to improve, there are the lack of conventions and agreements with scientific and technical organizations that promote innovation processes and the non-use of a command board for the strategic and operational management of the business.

The complexes that had the best performance were the flour, dairy and balanced food complexes. All three showed results above the average for the provincial framework. At the other extreme, the forestry complex and the roasters presented performances below the provincial average and well below the indices of the three complexes with the highest performance.

The resources and capacities, associated with the scale and educational level of management, seem to be determining factors in the strategic management of first transformation agro-industries. The medium-sized companies in section two, the largest in the network, are the ones that performed best, with averages well above the provincial average. Companies led by people with a university degree have a higher performance than all the others; They are followed by those that are managed by people with a full university degree, who have less performance than postgraduates, but much better than the rest of the agro-industries.

If we take into account all the companies analyzed, regardless of the complex to which they belong, three different groups can be established according to their competitive performance in strategic management. Larger size (measured in directly hired employees) and seniority in the business (years since creation) are elements that are positively correlated with strategic management. The greater the scale and accumulated learning, the greater the

competitive performance of the strategic management of the first transformation agro-industries of La Pampa.

The proposed methodology allows synthesizing 10 key factors that make the strategic management of agro-industrial organizations (and other sectors of the economy) in indices that facilitate the comparison and aggregation of results. The interpretation of these calculations must be accompanied by a breakdown of the aggregate information that contributes to positioning the analyst in the corresponding factors, organizations and complexes. With these measurements, benchmarking practices can be carried out and, by organization, complex and micro-region, agendas for competitive improvement based on strategic business management can be developed.

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