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SIMULAÇÃO DE CENÁRIOS EM RECURSOS HUMANOS: um estudo em

cooperativa agroindustrial

SIMULATION OF SCENARIOS IN HUMAN RESOURCES: a study in an agro-
industrial cooperative

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Dissertation presented in partial fulfilment of the requirements for the degree of **Master of Science in Administration** in the Department of Administration, Western Paraná State University. Dissertation Supervisor: Dr. Claudio Antonio Rojo

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Dissertação apresentada ao Programa de Pós-Graduação em Administração em cumprimento parcial aos requisitos para obtenção do título de Mestra em Administração, área de concentração Competitividade e Sustentabilidade, linha de pesquisa Estratégia e Competitividade, APROVADO(A) pela seguinte banca examinadora:

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DEDICATION

To my mother,

my inspiration and role model.

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First of all, to God, for life and for every day enabling me in each new challenge.
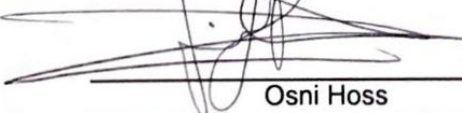
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ABSTRACT

Agroindustrial cooperatives are complex organizations that receive strong influences from national economic, political, technological, and social systems. The health crisis resulting from the new coronavirus pandemic has generated greater complexity due to the loss of employees, difficulty in new hires, and work models that had never been practiced until then, directly affecting the practices adopted by Human Resource Management (HRM) in such organizations. Planning with scenario simulation presents an efficient prevention strategy for future events, supporting decision-making and favoring assertiveness in solving problems in unexpected scenarios. This study aimed to simulate possible scenarios for the human resources area in a Brazilian agroindustrial cooperative with thousands of employees, located in the state of Paraná, operating in Mato Grosso do Sul and Santa Catarina, through the use of the Rojo Model (2005) scenario simulation. The study methodology is qualitative, exploratory, and characterized as a case study. The model has 5 strategically defined steps: application of the Delphi method, competitive intelligence, scenario simulation, strategy formulation, and action plan. As proposed by the model, we started with the Delphi method to identify critical variables, through a panel of four experts, with the application of semi-structured interviews. The critical variables identified were used as parameters for the other stages of the model. With this, three scenarios were simulated, each with possible strategies and carefully aligned goals, signaling possible actions to be carried out in scenarios of optimism, pessimism, and moderation. As proposed, the objective of this study was achieved through the simulation of scenarios specifically for the area of human resources. The results show that the applicability of the Rojo Model (2005) goes beyond its use in the strategic planning of organizations, being equally effective in planning by the department through a critical analysis that provides preparation for unexpected situations.

Keywords: Strategy, Scenarios, Cooperative, Human resources.

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LIST OF ABBREVIATIONS AND ACRONYMS

BSC: Balanced Scorecard

FJP: João Pinheiro Foundation

IBGE: Brazilian Institute of Geography and Statistics

INEP: National Institute for Educational Studies and Research Anísio Teixeira

IPEA: Institute for Applied Economic Research

MEC: Ministry of Education

UNDP: United Nations Development Program

HR: Human Resources

R&S: Recruitment and Selection

SWOT: Strengths, Weaknesses, Opportunities, and Threats

CV: Critical Variables

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1   INTRODUCTION

The uncertainty of the future impacts all organizations, regardless of their size and segment. The pandemic scenario caused by COVID-19 testified that uncertainty combined with unpreparedness could be overwhelming. In the highly competitive market in which organizations find themselves, maintaining constant preparation to face adverse situations and extracting the maximum opportunities in favorable situations is the greatest challenge. In other words, anticipating future events becomes a tactic to prevent mistakes, eliminating immediate and ill-founded decision-making.

Strategic planning by scenarios should not only be performed in a macro vision of the organizations, but their respective departments need to think ahead of any possible occurrence, considering the construction of a plan for effective performance in their area. The Human Resources (HR) department is vital in all organizations, as it works directly with the people who make the business happen; thus, thinking about planning in HR is strategic for the future.

Agribusiness cooperatives strengthen the economy of the state of Paraná, and the most prominent Brazilian cooperatives in the agribusiness sector are established in this state. In early 2021, Forbes magazine listed the 100 largest publicly traded agribusiness companies; 22 of these companies are in the state of Paraná, and 12 are cooperatives (FORBES BRASIL, 2020). However, at the same time that agribusiness cooperatives are growing, population estimates by the IBGE (Brazilian Institute of Geography and Statistics) report that the number of inhabitants in several municipalities in the state of Paraná is decreasing, according to the last census conducted in 2010 (CENSO POPULAÇÃO ESTIMADA - IBGE, 2020). This population variation affects not only the number of candidates available to companies in these regions but also reduces the percentage of qualified personnel for positions that require better qualifications.

Understanding that human capital is the most significant wealth of an organization, the degree of assertiveness in strategic planning becomes high for the human resources area because this area has the particularity of dealing not only with people but with strategies for the organization's needs (ALMEIDA, TEIXEIRA & MARTINELLI, 1993). In this sense, the simulation of scenarios is a strong ally in strategic decision-making, favoring the choice of the best strategies for each situation experienced in the HR area.

Considering the frequent changes that occur in the market, Rojo (2005) presents a scenario simulation model that is efficient for companies of different segments. The model

comprises five stages: identification of critical variables, analysis tools, scenario simulation, definition of strategies, and an action plan for each scenario. This method has already been applied in Brazil in a private higher education institution (ROJO, 2005), a public higher education institution (NOJIMA, JABOBY & ROJO, 2017), a third sector company (PRESRLAK, 2016), a supermarket (MULLER, WALDOW, HSU & ROJO, 2013), and a wholesaler (BRADALISE, ROJO, MATA & SOUZA, 2012), proving its versatility and viability. Nonetheless, the Rojo Model for simulating scenarios has not yet been used in an agro-industrial cooperative, nor has it been explicitly applied to the HR department.

1.1   RESEARCH ISSUE

In 2020 and 2021, the social distancing resulting from the COVID-19 pandemic caused HR professionals to find themselves in a situation of great complexity in the struggle to work on maintaining employee engagement, maintaining productivity, communication assertiveness, maintaining occupational health, recruiting and selecting personnel, among other measures previously performed in a physical and face-to-face manner, now performed at a distance. Forced by the situation, decisions were taken without a thorough analysis of their impact in the medium and long term, a situation which has occurred in companies of different sizes and segments.

This study sought to meet the needs of the HR area in an agro-industrial cooperative that reported experiencing the difficulties mentioned above, needing to establish a plan to assist in improvements and a basis for decision-making in different possible scenarios, especially considering the post-pandemic scenario.

Another critical factor to reflect on is the internal population migration in the state of Paraná, which presented low population numbers in several municipalities where the cooperative studied has manufacturing facilities and warehouses, considering the last census conducted by the IBGE (CENSO POPULAÇÃO ESTIMADA - IBGE, 2020).

The cooperative under study has a history of excellent financial stability and growth, expanding and operating in three Brazilian states. With thousands of employees, the cooperative has permanent, temporary, and young apprentices interns. However, an initial difficulty was encountered in hiring qualified personnel, especially in entry positions.

Thus, with the reported scenario and experiencing difficulty in attracting personnel, the cooperative presented the need to align the strategic planning in the area of HR, benefiting from the simulation of scenarios to identify the current scenario better and developing future strategies for the different possible scenarios to be experienced.

Organizations of different segments benefited from the scenario simulation method to develop possible strategies and better decision-making in different scenarios that they might experience. There are numerous benefits acquired with this method: current analysis, reflection of possible strategies, development of possible action plans, and, consequently, safety in decision making (ROJO, 2005).

Therefore, there was a need to develop a simulation of scenarios in the area of HR, with a focus on the department of recruitment and selection of personnel in an agro-industrial cooperative, since the attraction of HR is fundamental to the maintenance of the business.

1.1.1 Research Question

Based on the mentioned considerations, this work has the following question: what are the possible scenarios for an agro-industrial cooperative's HR area?

1.2 OBJECTIVES

1.2.1 General

The general objective of this study is to simulate possible scenarios for the HR area of an agro-industrial cooperative.

1.2.2 Specific

a) To identify the critical variables of the recruitment and selection department of an agro-industrial cooperative by applying the Delphi method;

b) To perform an analysis with the Balanced Scorecard and SWOT (Strengths, Weaknesses, Opportunities, and Threats) strategic tools for the study of competitive intelligence;

c) To simulate three different scenarios: pessimistic, moderate, and optimistic, based on the method developed by Rojo (2005), for the HR area, focusing on the recruitment and selection department;

d) To perform strategy formulation for each of the simulated scenarios;

e) To define actions for each previously formulated strategy.

1.3 JUSTIFICATION AND THE TECHNICAL PRODUCTION CONTRIBUTION

The largest agribusiness cooperatives in Brazil are located in the state of Paraná, according to Forbes Brasil magazine (2020), which used companies' financial statements from the Standard & Poor's agency, the Brazilian Confederation of Agriculture and Livestock (CNA), and Economatica. Thus, like all organizations worldwide, such cooperatives were not exempt from the consequences of the social distancing that occurred as a result of the COVID-19 pandemic, forcing employees from different sectors to perform their professional activities from their homes through the support of ICTs (Information and Communication Technologies).

Research conducted during the pandemic of COVID-19 reported that the way of working was impacted due to social distancing, establishing new work norms (MEISTER, 2020; FILARD *et al.*, 2020), so new and unknown challenges were generated for human resource managers. Caligiuri *et al.* (2020) present in their article different proposals for solving the challenges generated by the pandemic in the area of HR, one of them being specifically the selection of personnel, since the selection was strongly impacted and changed significantly, considering that the recruitment of personnel has overcome geographical barriers.

Social distancing has presented employees and employers with remote work possibilities, such as home office, anywhere office, hybrid work, and others. Although these work models have been around for years, they have become popular during the COVID-19 pandemic (CHOUDHURY, FOROUGHI & LARSON, 2021; FILARD *et al.*, 2020). According to studies, geographically flexible work models expand people's employability possibilities and offer a higher quality of life (GRATTON, 2021), even impacting local labor hiring for face-to-face jobs requiring greater physical strength.

In a study carried out in the IBGE *Cidades* database (2021), in the municipalities where there are warehouses of the agroindustrial cooperative studied, it was found that, in

almost 50% of the municipalities, there was a decrease in the population number due to the natural migration in the national territory. This data triggers an alert to the limitation of local labor. For Oliveira, Balemans, and Lima (2021), internal migration is related to the economic complexity of the city; besides, the authors identified that highly skilled people tended to move to more complexly developed cities.

The pandemic scenario, coupled with the state's internal migration scenario, instills an alert to the importance of strategic planning to document achievable strategies in future scenarios regarding the possibilities of recruiting and selecting personnel.

However, planning for the future is uncertain. Thus, analyzing strategic scenarios is a possible method to deal with such uncertainties. In the literature, it is possible to find different techniques for elaborating strategic scenarios, one of which is scenario simulation (BRADFIELD *et al*., 2005). For Rojo (2005), scenario simulation is defined as a cognitive tool that describes possible situations that might transform the future, directly impacting the organization from the current moment to a projected future point. Therefore, it does not refer to prospection but to constructing a possible future.

With the short and medium-term scenarios presenting such instability, the suggested study becomes relevant as a means to explore the potentialities of a consolidated method and to present action plans to the agro-industrial cooperatives, avoiding the impact of the element of surprise.

1.4 STRUCTURE OF THE REPORT

In order to meet the aim of this research, the study is structured as follows: Chapter 1, with introductory information, problem and research question, general and specific objectives, justification, and contribution; Chapter 2 presents the theoretical framework on strategy in HR, scenario simulation and agribusiness cooperatives; Chapter 3 addresses the methodology used in the study; Chapter 4 reports the context of the project; and Chapter 5 presents the intervention performed in the object of study.

2 THEORETICAL AND PRACTICAL REFERENCES

The purpose of this chapter is to present the theoretical framework used to support the study. Themes related to HR strategy, scenarios, and the Rojo Model (2005) for simulating scenarios in agribusiness cooperatives are addressed.

2.1 STRATEGY IN HUMAN RESOURCES

Over the years, administrative techniques for business strategy show growth and evolution. Due to economic, productive, and administrative changes, new approaches were presented as the needs of organizations increased. Bertero, Vasconcelos, and Binder (2003) report that the study of the strategy began in the late nineteenth century and early twentieth century, with approaches such as Business Policy at Harvard University, and Administrative Guidelines or Business Policy in Brazilian universities. The authors also report that, after the end of World War II, there was an overall growth of industries in the United States; in the 1960s and 1970s, industrial growth was witnessed in Brazil.

The expansion of the industry demanded a strategic approach. As a reference for strategy, authors who strongly influenced their time emerged and evidenced new perspectives based on their studies. One can cite Igor Ansoff, Henry Mintzberg, and Michael Porter with this panorama.

Igor Ansoff (1965) studied strategy and its relationship between the organization, products, and markets through four components that address products and markets, growth, competitive advantage, and synergy. In addition, the author understood strategy as decision-based and proposed his matrix, which classifies four strategic categories: market penetration, market development, product development, and diversification.

Michael Porter (1998) understands that strategy involves activities, offering the organization a more competitive position. Concerning competitiveness, intending to analyze the environment, in his study Porter (1970) defined five competitive forces: rivalry between competitors; suppliers' bargaining power; clients' bargaining power; the threat of the entry of new competitors; and the threat of substituted products. The author defines strategy as a long-term plan, systematically connecting objectives, goals, and actions, which in turn involve the organization as a whole.

For Mintzberg (1994; 2006), strategy can have different valid concepts; with this thought, the author proposes five formal definitions of strategy: plan, pretext, pattern, position, and perspective. The 5 Ps proposed to reinforce the idea that strategy can have different definitions that interrelate and are equally applicable (Chart 1).

Chart 1: The five definitions of strategy proposed by Henry Mintzberg

Plan	Strategy is a course of action, a conscious and intended path.
Ploy	The strategy may just be a specific, intentional maneuver.
Pattern	Strategy is a model of action performed, whether planned or unplanned.
Position	Strategy is understood from the outside, through the relationship between organization and environment, i. e., the relationship between the internal and the external context.
Perspective	In this last definition, strategy is understood through an inward look, defining culture, uniformity of thought, values, and relationships. According to the author, "strategy is to the organization what personality is to the individual." (2006, p. 23).

Source: Adapted from Mintzberg (1994; 2006).

In the same way that Mintzberg (1994) defines strategy as a perspective, it is understood that strategy is a necessary resource in HR since this area is considered an integral part of strategic management in organizations. Corroborating this idea, Almeida, Teixeira, and Martinelli (1993) argue that strategic management needs to "dwell" in the HR area, understanding that it deals with the organization's needs and, in this aspect, the organization must serve people. In continuity, the authors associate the marketing area with the HR area, reporting that, just as marketing studies the customers' needs, the HR area studies the employees' needs. Hence, it is essential to align employees' aspirations with the organization's strategies since the latter is made of people who work to meet their own needs.

The area of HR is being recognized for its impact and importance within organizations. For Caligiuri *et al*. (2020), human resource management is a factor of greater relevance since the COVID-19 pandemic highlighted how people could be fragile to organizations; thus, keeping employees healthy and productive is their greatest challenge. The authors also report a concern in human resource management regarding the global uncertainties affecting organizations of all sizes and segments, notably, in the pandemic, extraordinary vulnerability arising from global uncertainty.

With this, human resource managers can take some actions in order to strategically work on the attachment and maintenance of HR in organizations, such as employer brand and turnover (BARROW, 1996; REIS & BRAGA, 2016).

2.1.1 EMPLOYER BRANDING

Many factors impact and challenge people management in organizations. With the introduction of the Z generation in companies and the volatility of the market through globalization, it is noted that companies are increasingly studying ways to reproduce the best strategies to strengthen the employer branding and ensure a better attraction of people and reduce turnover.

Ambler and Barrow (1996) conducted pilot research with 27 companies in the United Kingdom and attested that marketing could be used in the HR area in employment situations, leading to benefits such as trust and commitment. Consequently, in 1996, the term Employer Brand originated, defined through functional, economic, and psychological benefits offered by the employer to its employees, resulting in greater involvement of the employees with the company (AMBLER & BARROW, 1996).

Figure 1: Internal and external view of the Employer Branding
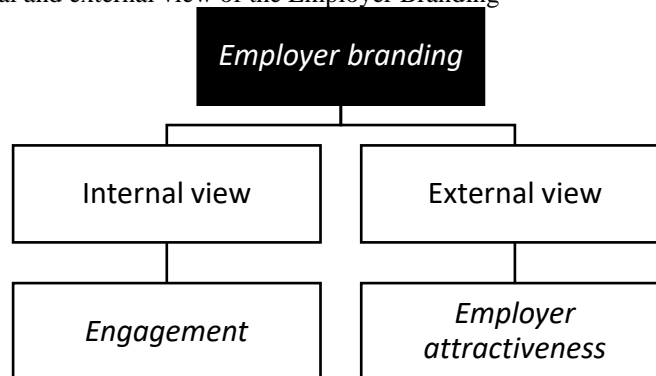
Source: Elaborated by the author (2022).

Functional benefits can be translated as the involvement and development of the employee's career during his or her professional experience in the organization. The economic benefits are related to remuneration, such as competitive salaries, bonuses, and rewards, and are considered a factor in reducing turnover. As psychological benefits, one can consider the feeling of belonging and the alignment of culture, values, and purposes of the employee and the employer (AMBLER & BARROW, 1996).

Employer Attractiveness is understood as the benefits that interested candidates see in a particular organization, comparing the image of the organization with their own needs, personalities, and values (BERTHON *et al.*, 2005; BACKHAUS & TIKOO, 2004), making the company attractive to potential candidates and resulting in a facilitation of the recruitment

process. In their research, Sivertzen *et al*. (2013) show that candidates consider innovation, psychological values, organizational environment, and the possibility of applying previous knowledge more than material aspects.

Working the employer branding impacts both internally and externally the organization (Figure 1), as it strengthens the bond between employee and employer (internal view) and attracts potential candidates (external view), improving the organization's competitiveness (REIS & BRAGA, 2016).

2.1.2 TURNOVER

Turnover is characterized by the entering and leaving of employees from a company. Keeping long-term employees in organizations is crucial since exchanging employees is synonymous with spending on termination, recruitment, reassignment of tasks, and training, among other possible expenses (ROMBAUT & GUERRY, 2018). For this reason, the high turnover rate leads to organizational losses concerning its competitiveness because the company starts to present significantly lower performances than its competitors (FELPS et al., 2009).

Involuntary turnover is when the company dismisses an employee. Voluntary turnover, on the other hand, refers to the action of the employee quitting the organization. This second can be considered the organization's most significant problem since the decision to dismiss is not under the company's control; therefore, it is necessary to investigate the intention of this dismissal (SEXTON *et al*., 2005).

According to Rombaut and Guerry (2018), demographic factors (gender, age, and marital status) and specific factors (length of service, salary, and benefits) influence voluntary turnover, having an indirect relationship. Thus, investigating the intention to quit is necessary to interpret turnover correctly. The variables job satisfaction and organizational commitment are most frequently analyzed.

2.2 SCENARIO SIMULATION

Strategic planning through scenario simulation focuses on providing a basis for better decision making, fulfilling the role of presenting possibilities of future events (OLIVEIRA, EL-AOUAR & NÓBREGA, 2017; ROJO, 2005). Amid times of uncertainty in the market,

this is a valid strategy that offers greater awareness of the outcome of decision-making. There are different concepts for scenario simulation, varying the field and methodology (OLIVEIRA, EL-AOUAR & NÓBREGA, 2017).

For Oliveira, El-Aouar, and Nóbrega (2017), scenarios help find a way to face future uncertainties. Porter (2004) portrays scenarios as a possibility of what the future may present, evaluating the planning that has been prepared. As for Rojo (2005), scenarios present possibilities of future events. The author further reports that by parameterizing the possibilities of future events, it is possible to conduct simulations, taking the current moment as a base to reach a future projection point.

In addition to the Rojo Model (2005) for simulating scenarios, the literature presents others that are also used in the strategy area, each with differentiated stages and approaches that reach remarkable results. The Rojo Model was chosen for its functionality in organizations of different segments and for containing a complex 5-level process, providing the most realistic analysis possible to assist decision-making with greater precision.

Figure 2: Scenario simulator
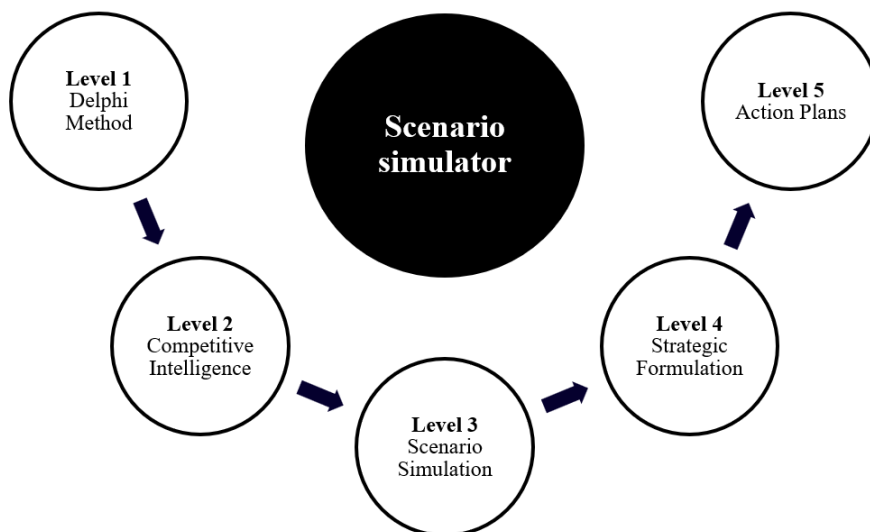
Source: Adapted from Rojo (2005).

The Rojo Model enables feedback of the stages, which favors the maintenance of the plan and the feeding of new information, strengthening the assertiveness of the actions taken by managers. The steps of the Rojo Model for the simulation of scenarios contemplate the following levels: Level 1 - Identification of critical variables employing the Delphi model;

Level 2 - Competitive Intelligence; Level 3 - Scenarios; Level 4 - Strategies; Level 5 - Action Plan (Figure 2).

The first level contemplates the application of the Delphi model, whose purpose is to optimize assertiveness in research related to predicting future events. The method is carefully organized and has already been applied in different situations and organizations, so Rojo chose it for the first stage of the scenario simulation model to offer conditions to seek a more reliable consensus of the opinions of a group of experts (ROJO, 2005).

The Delphi model begins with the definition of the problem, followed by the determination of the parameters for the selection of participants and their selection. It then proceeds to the preparation, distribution of the questionnaire, data analysis, and a consensus check. The result of the consensus defines the following stages of the Delphi model. If there is consensus on the results, the process of the scenario simulation model proposed by Rojo (2005) begins. Should there be no consensus, the questionnaire is restructured for a new checking.

The second level of the scenario simulation modeling process contemplates competitive intelligence, in which the tools for the organizational diagnosis will be identified. The definition of the tools comes from the managers since the tools they are familiar with and trust must be considered. The model does not limit the type or quantity of tools used; this decision is free and flexible. The model shows that the number of tools used will depend on the managers' assessment, the need for the study, and the objectives to be achieved.

Once the previous stage is concluded, the third level, scenario simulation, begins. According to Rojo (2005, p. 129, our translation), "each scenario corresponds to an anticipation of possible contextual alterations, or even competitor movements." With this understanding, hypothetical situations must be indicated for three types of scenarios: optimistic, moderate, and pessimistic; thus, possible future scenarios are created. The scenarios indicated should take into consideration situations that might affect organizational performance.

The fourth level strongly depends on the previous step since, in this step, strategies will be formulated according to the informed scenarios. Since scenarios indicate possible problems to be experienced, strategies are indicated as possible solutions. The Rojo Model (2005) indicates the formulation of strategies aligned to the scenarios to reduce risk elements when the scenario occurs. In the model, no minimum or maximum is stipulated concerning the number of strategies formulated; the organization's possibilities must be considered and aligned with what was reported in the competitive intelligence stage.

After the strategies are defined, the fifth model level begins, which contemplates the definition of goals. Managers should consider formulating goals for each strategy suggested in the previous stage. In this way, step five is defined as the action plan. Finally, a periodic evaluation is carried out to monitor the current scenario to make adjustments if necessary.

One considers that, based on the application of the scenario simulation model, respecting each of its stages (Figure 3), the organization can avoid the element of surprise, reducing the chances of hasty actions to adapt to changes, whether due to internal or external forces. The model's proposal corresponds to anticipating possible events that may define the organization's course, thus enabling calm and conscious decision-making since managers can think about decision-making at times of less pressure.

Figure 3: Five levels of the scenario simulation model proposed by Rojo (2005).

Level 1 - Delphi
Problem Definition
Parameters and Selection of Participants
Survey preparation
Survey distribuition
Analysis of the survey answers
Was consensus reached?

| Yes | | No |

| Compiling the answers and presenting the results |

Preparation of the next survey

Production of the information and compilation of the answers

Level 2 – Competitive Intelligence

Tools: T1 T2 Tn	Critical Variable CV1
	Critical Variable CV2
	Critical Variable CVn

Level 3 – Scenario Simulation

| Scenario S1 | Scenario S2 | Scenario S3 | Scenario Sn |

Level 4 - Strategy Formulation

| Strategy SF1 | Strategy SF2 | Strategy SF3 | Strategy SFn |

Level 5 - Strategy Execution - Goals

| Goal G1 | Goal G2 | Goal G3 | Goal Gn |

Goals

Evaluation

Feedback

Source: Adapted from Rojo (2005).

2.2.1   STRATEGIC TOOLS

The strategy tools contemplate the second level of the Rojo model for scenario simulation. The choice of tools is flexible according to the needs of the study and the objectives to be achieved; in this study, the SWOT and BSC analysis tools were used to achieve the proposed objective.

2.2.1.1   SWOT

The matrix was developed to perform a complete analysis, viewing the factors that impact the organizations from a total perspective; therefore, the SWOT analysis is considered a tool endowed with effectiveness and used by organizations of different sizes and segments (SANTOS, 2020). Considering four competitive variables of an organization, the name has a meaning interconnecting these factors: Strengths, Weaknesses, Opportunities, and Threats.

Having been developed over half a century ago, the SWOT matrix portrays the organization's current situation (Figure 4) through an internal and external analysis. It can assist in positioning or identifying the position of a company in the market in which it operates. For Certo and Peter (2005), the SWOT matrix, with the analysis of internal and external factors, is a robust tool for understanding the overall situation of a given organization.

Figure 4: SWOT Matrix Representation
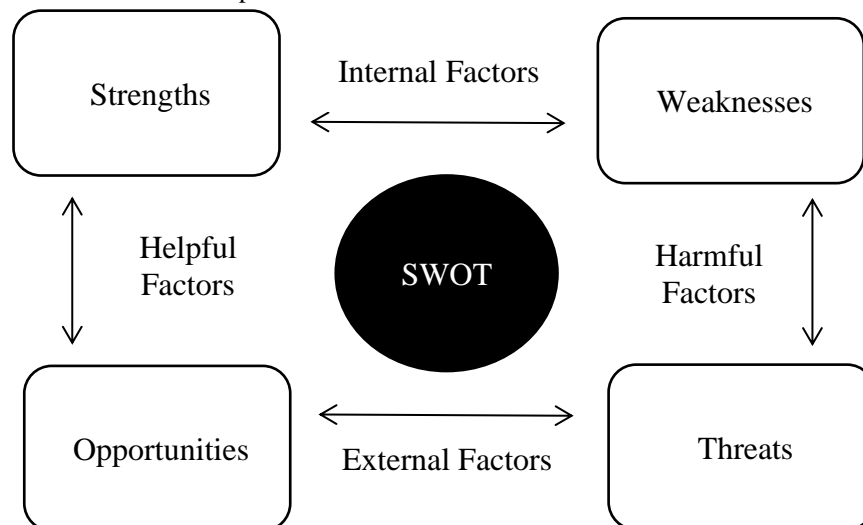
Source: Elaborated by the author (2022).

In the SWOT matrix, strengths are internal capabilities that help the organization in serving customers and achieving its goals; weaknesses are the internal limitations that interfere with the organization's performance; opportunities are favorable factors in the external environment that the organization can exploit for its benefit; finally, threats are the unfavorable factors of the external environment that present challenges to the organization's performance (KOTLER & KELLER, 2012).

2.2.1.2   Balanced Scorecard

The Balanced Scorecard (BSC) was developed to balance the short, medium, and long-term objectives with indicators using internal and external perspectives, demystifying the idea that only financial and accounting indicators should be measured.

Developed by Robert Kaplan and David Norton (1996), this strategic tool aims to "clarify and translate vision and strategy," "communicate and link strategic objectives and measures," "plan, set targets, and align strategic initiatives," and "enhance strategic feedback and learning."

Figure 5: BSC Matrix - Balanced Scorecard
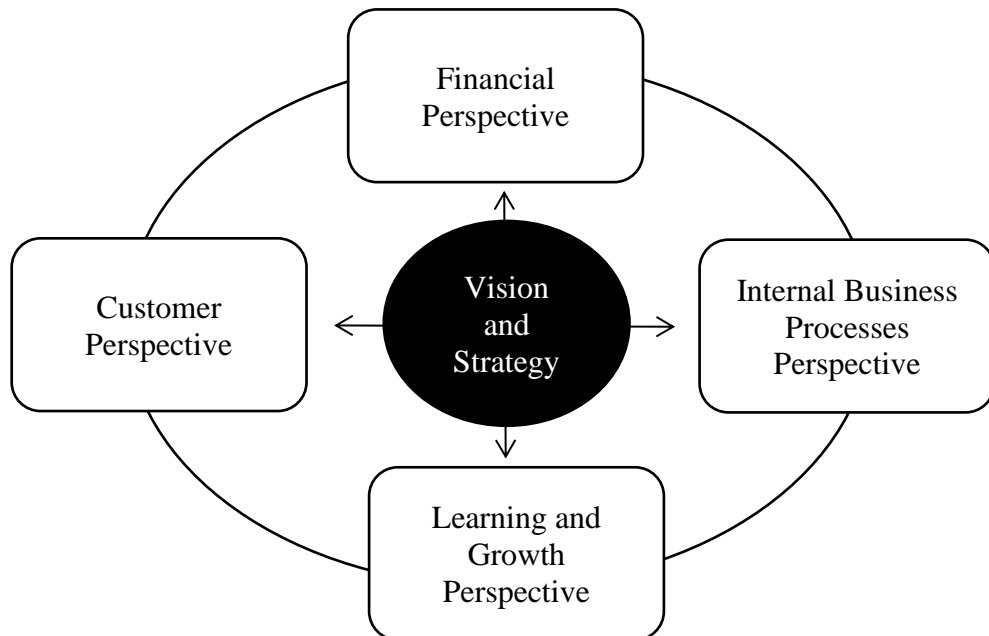
Source: The Balanced Scorecard framework adapted from Kaplan and Norton (1996).

According to the authors, organizational objectives should be related to four essential perspectives: Financial perspective, Customer perspective, Internal business processes perspective, and Learning and growth perspective (Figure 5).

2.3 AGRIBUSINESS COOPERATIVES

During the Industrial Revolution, in Rochdale, England, cooperativism arose through the grouping of weavers motivated by economic and social objectives. This initiative provided the purchase of consumer goods and food at more affordable prices, besides offering better working conditions, housing, and education (DELARMELINA & SALLES, 2016).

Consequently, the cooperative organizations aim to contribute in a socioeconomic way to their members, benefiting the economy and local development. In line with this, Lauermann *et al.* (2020) highlight the complexity of managing a cooperative considering its dual nature (the business unit and the cooperative members' businesses) through a differentiated governance structure that considers member benefits (social dimensions) and market competition (economic dimensions).

Despite the complexity of management, Brazil stands out for its cooperatives in the agribusiness sector (FORBES BRASIL, 2020). Agribusiness is where the transformation of primary products, from agriculture, livestock, etc., into byproducts for supplying the population or producing new products, many of them foodstuffs, occurs. This process applies to meat, cereals, canned goods, dairy products, fuels, and others.

The result of the agribusiness cooperatives' efforts for growth and development is perceived based on their numbers since, according to the National Supply Company (CONAB) (2020), the 2019/2020 grain harvest reached 257.8 million tons, which means a significant increase compared to previous seasons. The state of Paraná is a leader for having the largest agribusiness cooperatives in the country in its municipalities (FORBES BRASIL, 2020).

The growth analysis of agribusiness cooperatives is based on economic-financial results. According to a study by Lauermann *et al.* (2020), this result is not related to the promotion of welfare practices to members, thus presenting an imbalance between the economic-financial and socioeconomic dimensions.

Most cooperatives in Western Paraná are approximately fifty years old (PRIORI *et al.*, 2012). The longevity and growth of these organizations reflect the management practiced in

each. The growth in the number of members favors the expansion of the cooperative and better financial results.

Cooperatives, such as any other organization, face different challenges in their management. Likewise, the challenges encountered can be seen as possible opportunities or serious threats. The in-depth study about strategic planning by scenarios aims to optimize and enhance the growth of these cooperative organizations.

3 TECHNICAL PRODUCTION RESEARCH METHOD AND TECHNIQUES

The purpose of this chapter is to present the research design, the data collection procedures, the data analysis procedures, and the limitations of the research methods and techniques.

3.1 RESEARCH DESIGN

This study relied on a qualitative approach, as it seeks to deepen the facts of the phenomenon in question through the view of the subjects and focuses on deep analysis of the meaning of the phenomenon, in addition to providing an opportunity for closer contact between the researcher and the object of research (GODOY, 1995). The study was exploratory, as it sought to explore data to understand the problem involved (GODOY, 1995). The research was developed based on a case study that focuses on understanding the dynamics of the actual context of the object of study (EISENHARDT, 1989).

For the proposed objective, the Rojo Model (2005) application was selected for scenario simulation, from identifying critical variables and formulating strategies to the possible action plans, respecting the five steps proposed in the model (Figure 6).

Figure 6: Overview of the Model Rojo Scenario Simulator (2005).
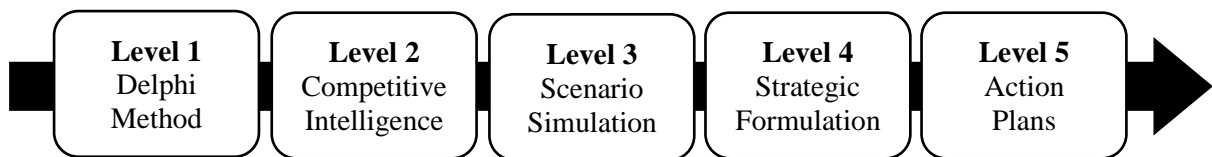
Source: Adapted from Rojo (2005).

To identify the critical variables existing in the HR area, the Delphi method proposed in Level 1 was applied. Intentionally, experts in the HR area who worked as supervisors or managers in the area were chosen, in agro-industrial cooperatives, specifically those where their headquarters were established in the state of Paraná. The identification of the cooperatives participating in the study was concealed by request for confidentiality.

The strategic tools adopted in the competitive intelligence stage, Level 2, were SWOT analysis and BSC Matrix. In addition to these tools, demographic studies (Chart 2) were carried out in all municipalities where the researched cooperative has warehouses and manufacturing facilities, covering three Brazilian states.

Chart 2: Demographic data collected by municipality.

Database	Collected data	Purpose
IBGE - Cities	Estimated and census population number.	To understand the growth or drop in population and recruitment potential in the municipality.
PNUD / IPEA / FJP	Municipal Human Development Index (HDI-M).	To understand the regional reality and challenges, since the indicator considers longevity, education, and income.
MEC / INEP	High school enrollment.	To identify the potential for local recruitment in the young trainee programs.
MEC / INEP	Professional education enrollment.	To identify the potential for local recruitment in the trainee programs.
MEC / INEP	Enrollment in in-class higher education and distance learning.	To identify the potential and difficulties encountered in recruiting for positions requiring higher education knowledge.
IBGE - Cities	Average monthly salary of formal workers.	To verify the wage competitiveness in the region.

Source: Elaborated by the author.

Level 3, scenario simulation, is dependent on the information gathered from the previous level and is used as a parameter to carry out scenario simulation. The scenarios present hypothetical situations with an optimistic, moderate, and pessimistic vision, considering the HR area, specifically in an agro-industrial cooperative.

The scenarios built are the basis for Level 4, strategic formulation, to define strategic formulas for each simulated scenario. As the last step, Level 5 proposes action plans that establish goals for each strategy formulated at the previous level.

3.2 PROCEDURES FOR DATA COLLECTION

As the data collection procedure for this study, Level 1 and 2 stages of the Rojo Model (2005) for the simulation of scenarios were faithfully applied, as per Appendices A, B and C. Based on the Delphi Method, semi-structured interviews were conducted with the managers of agribusiness cooperatives established in the state of Paraná. For the greatest possible detailing of the procedures performed and the understanding of the external factors that impact the company and the department, that is, for the identification of the critical variables,

the interviewees were purposely selected based on the position they held within the organization, requiring direct performance in the management of the HR area. Due to the limitations and decrees imposing social distance due to the COVID-19 pandemic, semi-structured interviews were conducted via videoconference and telephone.

In all, 20 professionals from different cooperatives were contacted. Only four participated in this research, and the others chose not to participate. The reasons were related to the fact that there was no structured HR department, with only a personnel department, lack of interest in the research, or they were not authorized to disclose any information related to the cooperative that was not already public.

The cooperative's primary information data, the objective of this study, were collected in interviews recorded via videoconference in February and March 2021. For level 2, the SWOT and BSC strategic analyses were gradually developed with the interviewees, considering the videoconference contact opportunities.

Secondary data were collected from the website of the studied cooperative; demographic and census data were collected from government database platforms of the following agencies: Brazilian Institute of Geography and Statistics (IBGE), Institute for Applied Economic Research (IPEA), United Nations Development Program (UNDP), João Pinheiro Foundation (FJP), National Institute for Educational Studies and Research Anísio Teixeira (INEP), and Ministry of Education (MEC), to identify the current population, education, development, and employment scenarios for each of the municipalities where the researched cooperative has warehouses and manufacturing facilities, in the states of SC, PR, and MS. All data were collected between February 2021 and February 2022.

3.3 PROCEDURES FOR DATA ANALYSIS

The primary data collected in interviews were analyzed qualitatively in an inductive manner so that they comprise the information collected in the rounds of the Delphi Method application, as well as the information obtained in the Level 2 stage, competitive intelligence, of the Rojo Model (2005). Secondary data, collected from governmental statistical bases and the cooperative's website, the object of this research, were analyzed in an Excel spreadsheet with a dynamic table.

3.4 LIMITATIONS OF RESEARCH METHODS AND TECHNIQUES

The study was limited to research only in agro-industrial cooperatives, specifying the scope of the research of critical variables in cooperatives of the same segment only in the state of Paraná. In addition, most of the contacted cooperatives refused to participate in the research for not having a structured HR department in the organization or for other reasons.

A second limitation, regarding data collection, was the difficulty in finding schooling data per municipality on the INEP and MEC websites for the states of Santa Catarina and Mato Grosso do Sul.

4   CONTEXT OF THE PROJECT OR PROBLEM SITUATION

This chapter aims to provide a background in relation to the object of research to offer a broad view of its importance in the region and contextualize the study carried out.

4.1   AGRO-INDUSTRIAL COOPERATIVE

The state of Paraná houses many agro-industrial cooperatives in its territory, producing diversified products. Agribusiness is where the transformation of primary products, from agriculture, livestock, and other commodities into byproducts for the supply of the population or the production of new products, many of them food products, occurs. This process applies to meat, cereals, canned food, dairy products, and fuels. According to Forbes Brasil magazine (2020), the largest agro-industrial cooperatives in the country are established in this region.

Given the importance of agribusiness in the state of Paraná, the study selected as the research object an agroindustrial cooperative that produces food for food lines, in addition to producing refined soybean oil, roasted and ground coffee, margarine, wheat flour, and hydrogenated vegetable fat. The cooperative has dozens of units located in municipalities in three Brazilian states, Santa Catarina, Paraná, and Mato Grosso do Sul, with its most extensive operation in Paraná. In the municipalities where the cooperative operates, warehouses have been established to receive products from its members and manufacturing facilities.

Currently, the cooperative is growing in its collaborators and members, directly impacting thousands of people. Understanding the importance of the organization in the municipalities where it is established, the cooperative proposes human development projects for its employees, trainees, interns, and temporary workers, that is, for all employees involved in its business activities. In addition, the human development projects are also thought and offered to the cooperative's families through initiatives that impact all family members involved in the business.

Concerning employees, based on the study, it was possible to identify that the cooperative has a serious commitment to professional development and appreciation of the work done by people and the existing bond between company and worker. This friendly

relationship guarantees a long-lasting bond between the parties, resulting in a low turnover rate.

However, due to the uncertainties generated during and after the pandemic of COVID-19, the management of the HR area of the cooperative studied reported feeling forced to make immediate decisions without due analysis of the consequences and possible impact in the medium and long term. Difficulties were reported mainly in the recruitment and selection process, due to the lack of qualified labor and limitations due to the mandatory social distance.

4.2   PROBLEM SITUATION

Despite the cooperative's growth and a stable scenario until early 2020, the managers of the HR area identified a possible pessimistic scenario regarding the recruitment of personnel in less developed municipalities and, specifically, for functions that require more physical effort, besides reporting a slight loss of employees during the pandemic, caused by COVID-19, to other organizations with more flexible work models, that is, to organizations with a remote work model.

The cooperative's culture values keeping the functions of all employees in a face-to-face work model, being an essential signal regarding the retention of its employees since they may be interested in more flexible work models in other organizations.

Facing the difficulty of capturing new HR and possibly experiencing a relative loss of collaborators to other organizations with the benefit of working at a distance, the cooperative is concerned with outlining in advance all the hypothetical scenarios in order to prepare itself, eliminate the element of surprise, and act with better results.

To identify the reported problem, the researcher's full attention to the interviewees' reports was required, as well as sensitivity to the correct interpretation of the information and active dialog to enrich the semi-structured interview as much as possible. The scenario simulation proposal was understood to be adequate to help the organization in the medium and long term, and not only for immediate solutions, given that the cooperative under study is a large organization and the decisions taken impact many collaborators.

For these reasons, the project applied in the cooperative was the simulation of scenarios based on the Rojo model (2005) to help the HR department in the decision-making process regarding the attraction, maintenance, and cost reduction in recruiting and selecting personnel.

5 TYPE OF INTERVENTION AND MECHANISMS ADOPTED

This chapter presents the intervention carried out through the application of the Rojo Model (2005) of scenario simulation in the cooperative that is the object of this study, describing in detail each of the applied levels: (i) application of the Delphi method for the identification of critical variables; (ii) definition and application of strategic tools such as competitive intelligence analysis; (iii) simulation of hypothetical scenarios; (iv) strategy formulation; and (v) action plan.

5.1 LEVEL 1 – DELPHI METHOD

As proposed in the first level of the model, the Delphi method was applied to identify the critical variables (CV) that negatively impact the HR area. The method was carried out in three stages through semi-structured interviews with subject matter experts.

5.1.1 Selection of the Experts

For the study, managers who work in agro-industrial cooperatives in the HR department were selected, either generically or specifically in some sector branch. Contacts were made with several managers, four of whom agreed to participate in the study.

In order to organize the results of this step and maintain the requested confidentiality, the participating managers were named only as "experts." Thus, the panel is represented by Expert A, Expert B, Expert C, and Expert D, with their positions in the research period and length of experience (Table 1).

Table 1: Panel of Experts

Expert	Position	Length of Experience
Expert A	HR Manager	More than 20 years
Expert B	Recruitment and Selection Supervisor	Between 2 and 5 years
Expert C	People Management Supervisor	More than 5 years
Expert D	Manager Supervisor	Between 2 and 5 years

Source: Survey data (2022).

5.1.2 First Round of the Delphi Method

Once the experts were composed, the CV was identified through the first round of Delphi. The experts were interviewed via videoconference and telephone so that they were questioned about the variables in HR with the following question: Which critical variables do you consider necessary to be known for an Agroindustrial Cooperative to make scenario projections in the human resources area?

The question about CVs presented different answers in the experts' view, resulting in 10 CVs in the first round (Chart 3).

Chart 3: Result of the first round of the Delphi method

	Critical Variable (CV)
Experts' View	Specific professional demand; Career management; More competitive salaries; Learning culture; Demand of personnel for entry-level positions; Operational and technical labor; Preparing people for the labor market; Changes in the work-from-home labor market; Onboarding; Qualified personnel.

Source: Survey data (2022).

Through the result obtained in the first round of the method with 10 CV, the analysis and absorption of 3 CVs, which were similar to others, was performed. Thus, only 7 CVs were considered in the second round of Delphi.

5.1.3 Second round of the Delphi Method

The second round began with the following proposal: among all the critical variables listed below and mentioned by the experts that compose the panel of participants in this research, mark with X only 5 of the variables listed, ordering them by importance, scoring 5 for most important; 4 for important; 3 for medium importance; 2 for not very important; and 1 for least important. The others, which exceed the five most important, should not be numbered.

The analysis and qualification of the CV, according to the experts' view, was the result of the second round (Table 2).

Table 2: Result of the second round of the Delphi method

Critical Variables (CV)	Experts' Answers				Total Score
	A	B	C	D	
Specific professional demand	5	3	3	5	16
Career management	1	2			3
More competitive salaries		1	1	2	4
Demand of personnel for entry-level positions	4	5	5	4	18
Preparing people for the labor market (qualified personnel)	3	4	4	3	14
Changes in the work-from-home labor market	2		2		4
Onboarding				1	1

Source: Survey data (2022) as per Appendix B.

All CVs listed in the survey were scored, highlighting three variables that, in the experts' view, are the most critical for the HR department. Despite listed in the first round, the other variables were not identified as significant as the others in the sum of the total score.

5.1.4   Third round of the Delphi Method

As proposed by the third round of Delphi, the experts needed to analyze and report their agreement or disagreement with the result of the most relevant CV, as per the result of the previous round (Table 3). After analysis, the experts answered the following question: when viewing and analyzing the critical variables listed below, do you agree that these are the most appropriate critical variables to generate information in order to project scenarios for the human resources department?

Table 3: Result of the third round of the Delphi method

Critical Variables (CV)	Total Score
Demand of personnel for entry-level positions	18
Specific professional demand	16
Preparing people for the labor market (qualified personnel)	14

Source: Survey data (2022) as per Appendix C.

With the experts' approval, finishing applying the Delphi method and moving on to Level 2 of the scenario simulation model was possible.

5.2   LEVEL 2 – COMPETITIVE INTELLIGENCE

For the competitive intelligence analysis, only the information of the cooperative under study is evaluated. The participation of the experts is no longer required from this level

until the end of all stages of the Rojo Model (2005) scenario simulation. The other experts' participation becomes relevant for identifying the critical variables in HR.

At Level 2, the choice of strategic tools for diagnosing the organization's current reality is studied. With this, two tools were chosen to compose the competitive intelligence analysis: BSC and SWOT. The BSC was selected to present the department's strategic objectives in a balanced and grouped way. This tool was strongly recommended because the department of the research object had no formally established objectives. With the SWOT analysis, it was possible to analyze the internal and external environments that impact the department.

The strategic tools were analyzed under the CV defined at the previous level. For the sake of organization in the presentation of the analyses, the CV will be presented with the following coding:

- Critical Variable 1 (CV1) – Professional demand, entry-level positions.
- Critical Variable 2 (CV2) – Specific professional demand.
- Critical Variable 3 (CV3) – Professional quality.

The Critical Variable 3 (CV3) refers to the "Preparing people for the labor market (qualified personnel)." As of this level, this variable will be addressed in a shortened manner, considering only "Professional quality," making it easier to fill in the other levels proposed by the model.

5.2.1   BSC – Balanced Scorecard

For the analysis of this strategic tool, the four perspectives proposed by Robert Kaplan and David Norton (1996) were considered in order to clarify the HR department strategy: Financial Perspective; Customer Perspective; Internal Business Processes Perspective; and Learning and Growth Perspective (Figure 7).

Based on interviews conducted with managers of the cooperative subject of study, it was possible to develop the BSC to analyze the strategic objectives of the HR department, which, until then, were thought of and transmitted informally to supervisors and operational staff (Figure 7). This tool was developed with the HR managers through interviews by videoconference, considering the reality of the department in the cooperative that was the object of the study.

Figure 7: Balanced Scorecard of the HR department

Learning and Growth	To invest in the study of strategic career plans.	To intensify distance training for the entire organization.	To provide educational assistance opportunities in different areas.
Internal Business Process	To make all internal processes digital.	To invest in innovation in the HR sector.	
Customer	To prioritize internal recruitment.	To provide opportunities for internal growth among units.	To encourage the continuity of the employee in the organization.
Financial	To invest in the study of strategic salary plans.	To offer benefit packages with market differentials.	To understand the HR indicators according to units, sectors, positions, periods, among others.

Source: Research data (2021).

As a result of the application of the BSC in the HR department, it was possible to evaluate that, in the learning and growth perspective, the objectives outlined strengthen the continuity of the employee in the organization (CV1 and CV2) through their internal growth (CV3), reducing employee turnover.

From the internal business process perspective, the goals are aligned to achieve greater productivity and performance (CV3), considering the collaborative work among the organization's units.

From the customer perspective, considering that these are the organization's employees, the objectives outlined value their existence through internal recruitment (CV2 and CV3), promotions (CV2), and remaining in the organization (CV3).

From the financial perspective, the goals focus on direct and indirect monetary recognition (CV1, CV2 and CV3), as well as considering the full detail of the HR indicators for the correct understanding of their results and impacts throughout the organization.

5.2.2   SWOT - Strengths, Weaknesses, Opportunities, and Threats

The second tool used in this step was the SWOT analysis, which analyzes the internal and external environments, strengths, opportunities, weaknesses, and threats. The SWOT analysis was carried out with the interviewees, focusing on the internal and external factors, positive and negative, of the HR department of the cooperative.

The strengths identified in the department (Figure 8) reinforce the organization's potential as a whole. The organization's prominence, as a reference in the environment in which it operates, and its culture of transparency in information and actions to be taken act as a natural attraction of HR, so that the maintenance of these strengths contributes to the recruitment of personnel at all levels, directly affecting CV1, CV2, and CV3.

Figure 8: SWOT analysis - strengths and weaknesses of the HR department

Strengths (S)	The organization is a reference in the sector and in the country, attracting personnel in the regions where it is established (CV1 and CV2); In the last year, several distance learning courses were conducted for maintenance and permanence of the training schedule despite the pandemic, and in-person training occurred when possible (CV3); For department management and management of recruitment and selection processes, the organization has robust software assisting in both internal and external recruitment (CV2); The culture of transparency motivates the employee, providing clarity of information (CV3).
Weaknesses (W)	Despite obtaining a low turnover rate, the organization has felt greater difficulty in finding labor for initial positions, especially for those that require greater physical effort (CV1); The salary range and the benefits attached to the position are not updated, are not strategic, and do not motivate the employee (CV2 and CV3).

Source: Research data (2021).

The current and robust software from multinational and national organizations with extensive experience in the industry enhances the search and facilitates the finding of specific labor internally and externally, impacting the variable CV2. These platforms are further enhanced when used to disseminate and offer training and distance training for employees from all locations, positively favoring variable VC3. In addition to the digital resource, the variable VC3 suffers a positive impact when training is offered digitally synchronously or in person, strengthening the link and favoring interpersonal relationships of work teams.

On the other hand, the salary range and benefits offered by the cooperative are outdated (Figure 8), which goes against the employee retention attempts, and impacts the cooperative's growth strategy. Moreover, it acts negatively on the motivation of employees,

making it even more challenging to hire specific labor and qualified personnel, which affects the variables CV1, CV2, and CV3.

Regarding opportunities (Figure 9), a factor that positively impacts the hiring of specialized and qualified personnel is the fact that there are universities, including public ones, in the municipalities where the cooperative's plants are located, affecting variables CV2 and CV3.

Figure 9: SWOT Analysis - Opportunities and threats of the HR department

Opportunities (O)	In municipalities where there is the cooperative's manufacturing facility, there are universities that can assist in the process of recruitment and selection of qualified labor (CV2 and CV3); Given the universities present in these strategic municipalities and the representativeness of the organization, the trainee processes are facilitated (CV2 and CV3).
Threats (T)	The young and technological profile of the new generations makes it difficult to find personnel interested in entry-level positions (CV1); Almost 80% of the municipalities where the cooperative has facilities in the state of Paraná, the population number is less than 25 thousand inhabitants, and, of the total number of municipalities, only 20% have universities (CV2 and CV3).

Source: Research data (2021).

Although there is an opportunity to hire university students, the young and technological profile of the new generations potentially threatens the finding of personnel interested in entry-level positions (Figure 9), which is harmful and impacts the variable CV1. Another threatening fact, which directly impacts variables CV2 and CV3, is the identification that the population number is less than 25 thousand inhabitants in almost 80% of the municipalities where the cooperative has facilities in the state of Paraná and, of the total number of municipalities, only 20% have universities.

5.2.3   Analysis of demographic and census data

To intensify the Level 2 Competitive Intelligence analysis, data collection and analysis were carried out on government statistical data platforms.

With solid performance in the states of Mato Grosso do Sul, Paraná, and Santa Catarina, a fact that requires attention is the IBGE estimation for population decrease, even if small, in a significant amount of municipalities in which the cooperative has plants or warehouses (Table 4). Regardless of why this occurs, this population decrease, or migration to more developed cities, negatively impacts the attempt to hire personnel, affecting variables CV1 and CV2 since the labor force is even more limited.

Table 4: General population data of municipalities where the cooperative operates

States where the cooperative operates	% of municipalities with estimated population growth	% of municipalities with estimated population reduction
Mato Grosso do Sul	100 %	-
Paraná	42.31%	57.69%
Santa Catarina	40%	60%

Source: IBGE (2021).

To complement the above information, a survey of the Municipal Human Development Index (HDI-M) was conducted in all municipalities where the cooperative operates. According to the UNDP (United Nations Development Program, which acts as an organ of the United Nations to promote development and eradicate poverty in the world), the HDI-M calculates three dimensions of human development: long and healthy life, access to knowledge, and standard of living, which guarantees the basic needs of health, education, and income; and ranges from 0 to 1, 1 being the maximum value of human development (Figure 10). Data from the IBGE's Demographic Census are considered the basis for calculating the dimensions that comprise the HDI-M.

Figure 10: Municipal Human Development Range
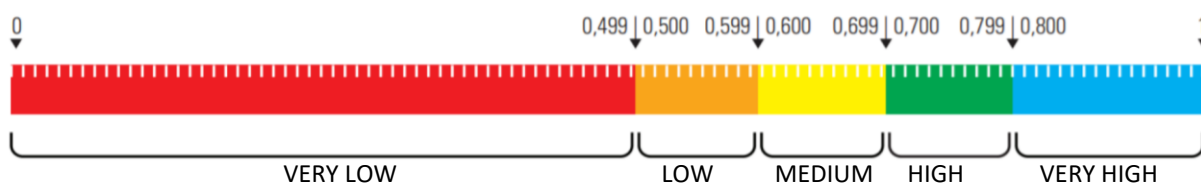
Source: UNDP.

It was found that the HDI-M has a medium value, ranging between 0.600 and 0.699 in 56.06% of the municipalities. The HDI-M is considered high in the remaining municipalities, between 0.700 and 0.799. The HDI-M data were relevant in identifying the most developed municipalities about their population and those with average development. Since the vast majority of municipalities have medium development, the importance of acting strongly with training and education arises, considering the hypothesis that there is no skilled labor in these regions, CV3.

Another informational and strategic complement was the survey of data in relation to education based on the INEP and MEC websites. Data were collected for all the municipalities concerning the number of people enrolled in primary and higher education as a way to identify the hiring potential in each region (Chart 8).

Chart 4: High school, professional, and college enrollments.

Type of education	Reason for the survey
High School Enrollment	Relevant data for hiring personnel for the *Jovem Aprendiz* program (Young Apprentice Program, our translation), both in administrative offices, factories, and warehouses. (CV1)
Professional Education Enrollment	The relevance of this data is in hiring qualified personnel and for entry-level positions. (CV1 and CV3)
Enrollment in On-Campus Higher Education	In-class higher education presents data from students residing in the municipality or nearby localities to potentialize the hiring of qualified personnel and specific labor. (CV2 and CV3)
Distance Learning Higher Education Enrollment	Distance education reveals that people attend higher education in the municipality, favoring qualified and specific labor. When there is in-class education, distance learning reinforces this hiring potential. (CV2 and CV3)

Source: Research data (2021).

Finally, data were also collected regarding the average monthly salaries of formal workers in each municipality. This data was relevant for the competitive analysis for hiring new employees and maintaining personnel in the cooperative, being a relevant factor primarily for variables CV2 and CV3.

5.3 LEVEL 3 – SCENARIO SIMULATION

For the continuity of the model, the scenario simulation corresponds to the hypothetical anticipation of possible changes in the context that involves the HR department; for this, the three previous CVs were considered with a junction between CVs 2 and 3. It was considered as "specific and qualified professional demand," understanding that these variables may occasionally be dependent.

Chart 5: Scenario simulation for the cooperative under study.

Scenario 1 (S1) - Optimistic	
Professional demand, entry-level positions: (CV1)	<u>The demand will increase</u>. According to this scenario, demand will increase since people are susceptible to the job market and willing to start from entry levels.
Specific and qualified professional demand: (CV2 e CV3)	<u>The demand will increase</u> because there will be a more significant offer of specific courses in the universities where there are cooperative's facilities, providing the labor market with trained and qualified personnel; the cooperative will also intensify internal training and trainee programs.
Scenario 2 (S2) - Moderate	
Professional demand, entry-level positions: (CV1)	<u>The demand will stabilize</u> because there will be an equilibrium in labor demand and supply.
Specific and qualified professional demand: (CV2 e CV3)	<u>The demand will stabilize</u> due to the lack of new classes and courses for local and distance higher education.
Scenario 3 (S3) - Pessimistic	

Professional demand, entry-level positions: (CV1)	<u>The demand will decrease</u> because there will be an improvement in the region's economy, increasing the supply in the labor market and generating selective behavior in the employment search.
Specific and qualified professional demand: (CV2 e CV3)	<u>The demand will decrease</u>. This scenario presents the closing of university centers, a crisis in distance higher education, and the organization's lack of incentive for the qualification of workers, causing the scenario in question.

Source: Research data (2021).

In addition to the CVs, the information collected at the competitive intelligence level will also be considered in this step and the two subsequent steps. Each of the simulated scenarios was performed in collaboration between the cooperative researched and the researcher of this study. Three different scenarios were considered: optimistic, moderate, and pessimistic (Chart 5).

For S1, an optimistic scenario was proposed in relation to the demand for labor, with growth in the demand for personnel willing to start from entry levels and an increase in the demand for university courses, making it possible to hire qualified and specific personnel. In this scenario, the intensification of corporate training is also imagined, further reinforcing personnel training.

S2 simulates a moderate scenario, understanding a moderate reality in demand for labor, balancing the supply of professionals available in the market and job openings. In relation to training and specific labor in this scenario, stagnation in the supply of new university courses is proposed, limiting the amount of specific and qualified professionals.

In the pessimistic scenario, S3, the demand for labor will hypothetically decrease due to an economic improvement, discouraging young people from seeking entry-level positions, but rather, positions with more attractive incomes. The demand for specific positions and qualified personnel tends to decrease in this scenario due to the closing of university centers. Adding to this situation is the lack of investment in training and qualification on the part of the organization.

5.4 LEVEL 4 – STRATEGY FORMULATION

Strategies are formulated according to the hypothetical scenarios simulated at the previous level, allowing for anticipation of events and suggested strategies for each occasion. The purpose of generating strategies for the scenarios is to think in advance about possible solutions for problems that do not yet exist, focusing on the department's continuous improvement.

Each suggested strategy should be aligned to the respective simulated scenario concurrently with one of the CVs. One strategy may not impact all the CVs, but the set of strategies for the scenario should be related to all the CVs under study.

Chart 6: Strategy formulation for scenario 1.

S1 – Optimistic	SF1 – Strategies
Strategy formulation based on scenario 1 simulation	a) Local search for labor (CV1). b) Greater rigidity in the selection process with psychometric tests (CV1, CV2, and CV3). c) Partnerships with higher education institutions to select the best students (CV2 and CV3). d) Implementation of the trainee program with rotation in all sectors (CV3). e) Creating a corporate university (CV2 and CV3).

Source: Research data (2021).

For S1 (Chart 6), the strategies suggest a local search for labor since this scenario indicates a positive reality, with high demand for available personnel in the labor market. As a consequence of the increased demand, a more rigid selection process is required, as a strategy, to select the best profiles according to the open opportunities. The partnership with universities and the initiation of trainee programs suggest a strengthening in hiring qualified personnel for specific and management positions. The creation of a corporate university is suggested with a focus on the development and growth of employees to encourage internal growth and employee retention with a focus on reducing turnover.

Chart 7: Strategy formulation for scenario 2.

S2 – Moderate	SF2 – Strategies
Strategy formulation based on scenario 2 simulation	a) Investment in strengthening the employer branding (CV1, CV2, and CV3). b) Expanding the search for labor in neighboring cities (CV1 and CV2). c) Prioritizing internal promotion, considering relocation aid if necessary (CV2 and CV3). d) Adding educational aid to the benefits package (CV3). e) Partnerships with higher education institutions to select the best students (CV2 and CV3). f) Implementation of the trainee program with rotation in all sectors (CV3). g) Creating a corporate university (CV2 and CV3).

Source: Research data (2021).

S2 (Chart 7) is represented by stability in the labor market. Stability suggests more significant action by the organization to promote itself internally to its employees, and externally, it seeks to generate public interest in being part of the organization, being an employer branding action. By offering functional, economic, and psychological benefits, this strategy aims to improve people's attraction and reduce turnover.

Considering the unpromising and limiting scenario in relation to the local search for personnel, recruitment should be extended to neighboring municipalities, and internal promotion should be prioritized, both for higher positions and changing areas, according to the results of internal tests and the employee's interest.

The increase in educational benefits boosts the employee's qualification and enhances his growth in the organization, besides serving as a motivational factor. Strategies "e", "f", and "g" are repeated about S1 since it is understood that they are equally relevant in this scenario.

Chart 8: Strategy formulation for scenario 3.

S3 – Pessimistic	SF3 – Strategies
Strategy formulation based on scenario 3 simulation	a) Investment in strengthening the employer branding (CV1, CV2, and CV3). b) Expanding the search for labor to other states by taking advantage of professional social networks (CV1 and CV2). c) Applying assessment tests for mapping skills and competency gaps in the internal workforce (CV3). d) Providing remote work opportunities for office workers (CV2). e) Prioritizing internal promotion, considering relocation aid if necessary (CV2 and CV3). f) Adding educational aid to the benefits package (CV3). g) Implementation of the trainee program with rotation in all sectors (CV3). h) Creating a corporate university (CV2 and CV3).

Source: Research data (2021).

In the pessimistic scenario (Chart 8), possible difficulty in recruiting new employees is considered, in addition to the hypothesis of a lack of qualified personnel due to the limitations of education in the region. Thus, the strategies are related to employer branding, training, and capacity building, in addition to prioritizing internal promotion.

The search for labor in other states expands the recruitment potential by removing the geographical limitations. Following this idea, the strategy is offering the opportunity of remote work to the office employees initially, i.e., those who work solely in networked systems since they depend solely on ICTs (Information and Communication Technology) to perform their activities.

The internal promotion with relocation aid suggests a transfer of jobs to strengthen facilities that, due to their location, have the search for qualified and specific personnel more limiting. The trainee programs broadly view the employee and suggest hiring in areas of the organization that demand hiring managers.

Finally, one strategy that is linked to training and the creation of a corporate university is the mapping of skills and competency gaps in the internal workforce. Identifying gaps directs the offering of courses focused exclusively on organizational needs.

5.5   LEVEL 5 – ACTION PLANS

As the last level proposed in the Rojo Model (2005) of scenario simulation, alignment between strategies and stipulated targets was conducted. In each of the strategies suggested at the previous level, an action plan was listed for immediate implementation if necessary (Charts 9, 10, and 11).

Chart 9: Action plan for S1

SF1 formulated for S1	G1 – Goals
a) Local search for labor (CV1).	a) To make vacancies available on the company's website and contact local agencies. (permanent)
b) Greater rigidity in the selection process with psychometric tests (CV1, CV2, and CV3).	b) To implement new psychological tests for selection in order to align the personal profile to the company's culture (process start in June 2021)
c) Partnerships with higher education institutions to select the best students (CV2 and CV3).	c) To analyze on e-MEC the higher education institutions with the highest institutional concept and undergraduate course index for closing partnerships with a focus on rigorous selection. (as needed)
d) Implementation of the trainee program with rotation in all sectors (CV3).	d) To establish partnerships with local universities according to the institutional concept. (process start in June 2021)
e) Creating a corporate university (CV2 and CV3).	e) To conduct project for financial feasibility study, verify partnerships with local universities for certifications, and assemble a team internally. (start in July 2021)

Source: Research data (2021).

For the optimistic scenario (S1), improvement and maintenance actions were considered, such as the selection of personnel, which properly aligns the candidate's profile to the organizational culture, focusing on the maintenance and permanence of this employee. Furthermore, partnership actions are carried out with higher education institutions according to the institutional concept and the evaluation of their courses, aiming at selecting the best students. Finally, there is also the carrying out of a feasibility study for the creation of the corporate university and the issuing of certificates with partner universities, in addition to structuring an exclusive team for the activities of creation, offering of courses, and management of the corporate university (Chart 9).

In the moderate scenario (S2), the actions aim to develop and improve the department by strengthening the employer branding with internal satisfaction surveys. The association

with professional social network platforms, such as LinkedIn, aims to expand the search for labor in other locations; however, as a priority in this scenario, internal selection actions are carried out beforehand utilizing soft skills (behavioral characteristics and skills) and hard skills (technical knowledge and skills) analysis.

Chart 10: Action plan for S2

SF2 formulated for S2	G2 – Goals
a) Investment in strengthening the employer branding (CV1, CV2, and CV3). b) Expanding the search for labor in neighboring cities (CV1 and CV2). c) Prioritizing internal promotion, considering relocation aid if necessary (CV2 and CV3). d) Adding educational aid to the benefits package (CV3). e) Partnerships with higher education institutions to select the best students (CV2 and CV3). f) Implementation of the trainee program with rotation in all sectors (CV3). g) Creating a corporate university (CV2 and CV3).	a) To carry out an internal survey to identify dissatisfactions and work on the necessary adjustments. (start in June 2021) b) To make vacancies available on the company's website and LinkedIn social network. (permanent) c) To perform an internal selection process based on soft and hard skills. (permanent) d) To establish a maximum quota and maximum benefit value for offering educational assistance at undergraduate and graduate levels. (starting June 2021) e, f) To establish partnerships with local universities according to the institutional concept. (process start in June 2021) g) To conduct a project for financial feasibility study, verify partnerships with local universities for certifications, and assemble a team internally. (start in July 2021)

Source: Research data (2021).

In addition to the other benefits, variable and non-variable, that the cooperative already offers, as an action to the strategy of offering educational assistance, a quota and value will be established for assistance in undergraduate and graduate courses. With a focus on development, this scenario continues with the proposal to conduct a feasibility study for the creation of the corporate university and the issuing of certificates with partner universities, in addition to structuring an exclusive team for the activities of creating and offering courses, as well as managing the corporate university (Chart 10).

Considering the pessimistic scenario (S3), the proposed actions aim at the business's survival since people are an organization's greatest asset. With this thought, the actions are related to the proposals suggested for scenario S2 by adding proposals aimed at breaking geographical barriers, intensifying qualifications, and improving internal promotion. The breaking of geographic barriers in hiring enables an expansion in the search for specific personnel for specific areas, as well as the finding of already qualified personnel for the demanding activities in the organization. With this, adopting telecommuting is considered through developing organizational policies and benefits exclusive to this modality.

Chart 11: Action plan for S3

SF3 formulated for S3	G3 – Goals
a) Investment in strengthening the employer branding (CV1, CV2, and CV3). b) Expanding the search for labor to other states by taking advantage of professional social networks (CV1 and CV2). c) Applying assessment tests for mapping skills and competency gaps in the internal workforce (CV3). d) Providing remote work opportunities for office workers (CV2). e) Prioritizing internal promotion, considering relocation aid if necessary (CV2 and CV3). f) Adding educational aid to the benefits package (CV3). g) Implementation of the trainee program with rotation in all sectors (CV3). h) Creating a corporate university (CV2 and CV3).	a) To carry out an internal survey to identify dissatisfactions and work on the necessary adjustments. (start in June 2021) b) To make vacancies available on the company's website and LinkedIn social network. (permanent) c) To verify and implement the best tests currently used for this purpose. (start in June 2021) d) To make telecommuting contract, create policies, offer laptops and ergonomic chairs, and reanalyze the benefits package to include internet and telephony expenses. (start in August 2021) e) To perform internal recruitment and selection process. (permanent) f) To establish a maximum quota and maximum benefit value for offering educational assistance at undergraduate and graduate levels. (start in June 2021) g) To establish partnerships with local universities according to the institutional concept. (process start in June 2021) h) To conduct a project for financial feasibility study, verify partnerships with local universities for certifications, and assemble a team internally. (start in July 2021)

Source: Research data (2021).

In the proposal for strengthening the internal selection and qualification of employees, the actions suggest a critical analysis of competence gaps to offer courses aligned to the organization's needs and staff training for the development of the position's activities, as well as provide opportunities for new knowledge for internal growth (Chart 11).

Chart 12: Rojo Model (2005) application summary table

Level 1	Level 2	Level 3	Level 4	Level 5
Definition of the critical variable CV	Competitive Intelligence T	Simulated Scenarios S	Strategy Formulation S -> SF	Alignment with the goals S -> SF -> G
CV1 Professional demand, entry-level positions.	Tools T1 BSC, T2 SWOT Analysis and Demographic and census data collection.	S1 Demand will increase	SF1 a) Local search for labor (CV1). b) Greater rigidity in the selection process with psychometric tests (CV1, CV2, and CV3). c) Partnerships with higher education institutions to select the best students (CV2 and CV3). d) Implementation of the trainee program with rotation in all sectors (CV3). e) Creating a corporate university (CV2 and CV3).	G1 a) To make vacancies available on the company's website and contact local agencies. (permanent) b) To implement new psychological tests for selection in order to align the personal profile to the company's culture (process start in June 2021) c) To analyze on e-MEC the higher education institutions with the highest institutional concept and undergraduate course index for closing partnerships with a focus on rigorous selection. (as needed) d) To establish partnerships with local universities according to the institutional concept. (process start in June 2021) e) To conduct project for financial feasibility study, verify partnerships with local universities for certifications, and assemble a team internally. (start in July 2021)
CV2 Specific professional demand.		S2 Demand will stabilize	SF2 a) Investment in strengthening the employer branding (CV1, CV2, and CV3). b) Expanding the search for labor in neighboring cities (CV1 and CV2). c) Prioritizing internal promotion, considering relocation aid if necessary (CV2 and CV3). d) Adding educational aid to the benefits package (CV3). e) Partnerships with higher education institutions to select the best students (CV2 and CV3). f) Implementation of the trainee program with rotation in all sectors (CV3). g) Creating a corporate university (CV2 and CV3).	G2 a) To carry out an internal survey to identify dissatisfactions and work on the necessary adjustments. (start in June 2021) b) To make vacancies available on the company's website and LinkedIn social network. (permanent) c) To perform an internal selection process based on soft and hard skills. (permanent) d) To establish a maximum quota and maximum benefit value for offering educational assistance at undergraduate and graduate levels. (starting June 2021) e, f) To establish partnerships with local universities according to the institutional concept. (process start in June 2021) g) To conduct project for financial feasibility study, verify partnerships with local universities for certifications, and assemble a team internally. (start in July 2021)
CV3 Professional quality.		S3 Demand will decrease	SF3 a) Investment in strengthening the employer branding (CV1, CV2, and CV3). b) Expanding the search for labor to other states by taking advantage of professional social networks (CV1 and CV2).	G3 a) To carry out an internal survey to identify dissatisfactions and work on the necessary adjustments. (start in June 2021) b) To make vacancies available on the company's website and LinkedIn social network. (permanent) c) To verify the best tests currently used for this purpose and implement

| | | | c) Applying assessment tests for mapping skills and competency gaps in the internal workforce (CV3).
d) Providing remote work opportunities for office workers (CV2).
e) Prioritizing internal promotion, considering relocation aid if necessary (CV2 and CV3).
f) Adding educational aid to the benefits package (CV3).
g) Implementation of the trainee program with rotation in all sectors (CV3).
h) Creating a corporate university (CV2 and CV3). | them. (start in June 2021)
d) To make telecommuting contract, create policies, offer laptops and ergonomic chairs, and reanalyze the benefits package to include internet and telephony expenses. (start in August 2021)
e) To perform internal recruitment and selection process. (permanent)
f) To establish a maximum quota and maximum benefit value for offering educational assistance at undergraduate and graduate levels. (start in June 2021)
g) To establish partnerships with local universities according to the institutional concept. (process start in June 2021)
h) To conduct a project for financial feasibility study, verify partnerships with local universities for certifications, and assemble a team internally. (start in July 2021) |

Source: Research data (2021).

At the end of the preparation of all stages, the Rojo Model (2005) for the simulation of scenarios proposes feedback on the model for maintenance and long-term use. Consequently, a continuous evaluation process is indicated by means of updating the information recorded in Levels 3 to 5.

Figure 11: Feedback on the Rojo Model
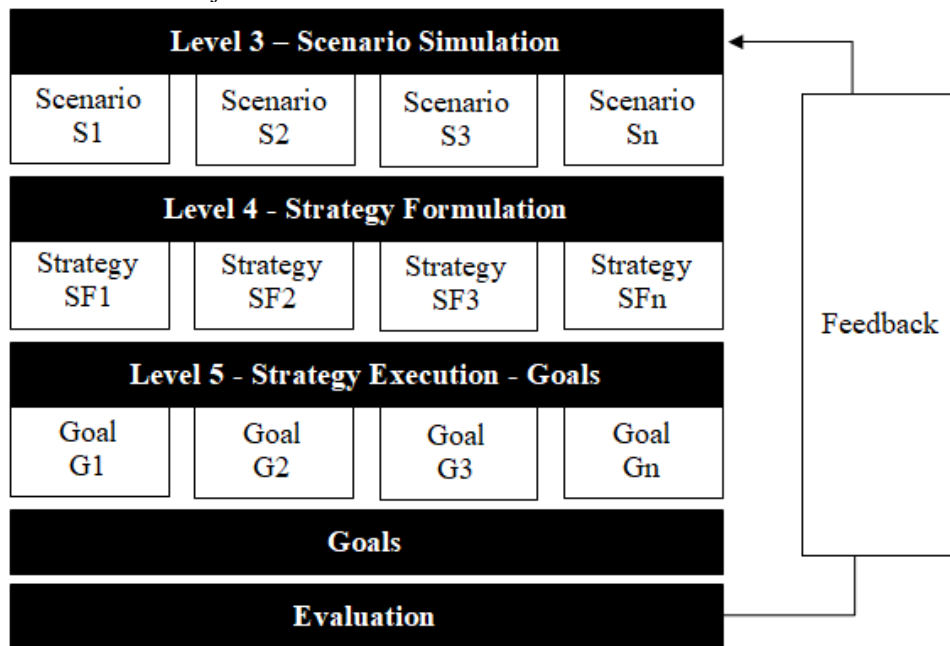
Source: Adapted from Rojo (2005).

As a proposal, an annual evaluation of the competitive intelligence tools is suggested in order to verify the economic scenario and the organization's positioning, in addition to the specific analysis of the HR department by identifying the factors of opportunities and threats, strengths, and weaknesses, as well as the definition of the department's objectives. A quarterly evaluation of the scenario simulation, the formulated strategies, and the established goals are also proposed.

6 ANALYSIS AND INTERPRETATION OF RESULTS

The simulation of scenarios according to the model proposed by Rojo (2005) enabled a complete and faithful analysis of the current scenario experienced by the cooperative's HR department, which was the study's object. The correct understanding of the current scenario enabled the definition of future hypotheses through scenario simulation, the formulation of strategies, and the definition of actions.

The unique vision of the four experts at the first level proposed by the model resulted in the identification of CVs that, in turn, indicate a difficulty faced by managers. Based on the application of the Delphi method, the variables were identified and related to the demand for labor for entry-level positions (CV1), specific professional demand (CV2), and professional quality (CV3), which refers to personnel already trained in the market. Corroborating the CVs identified, Caligiuri *et al.* (2020) identified that the recruitment and selection of personnel suffered severe impacts after the crisis of the new Coronavirus since this process has changed significantly and has already crossed geographical barriers.

It is understood that the variables are all related exclusively to the recruitment and selection of personnel. This result is related to the new employee profile that is described through the characteristics of generation Z, being more technological and volatile, so they prefer the work model aligned to their profile. After the pandemic, several companies started to adopt remote work models, such as work-from-home, work-from-anywhere, and hybrid (CHOUDHURY, FOROUGHI & LARSON, 2021; FILARD *et al.*, 2020), becoming the preference of workers.

The cooperative researched has a strong culture of valuing interpersonal relationships, performing face-to-face actions of socialization among its employees with sports activities, games, and awards, among many others. This culture is positive for the robust organizational environment; however, it presents itself as a cultural barrier to the total adoption of more flexible and geographically distant work models.

In the competitive intelligence stage, the real importance of the diagnosis of the department through the BSC and SWOT tools could be seen, in addition to data from the municipalities, and it was also a surprise factor for the cooperative managers. Much was known about the organization and the department, but the formalization of the information and visualization, based on matrices and tables, broadened the managers' vision. Thus, as Certo and Peter (2005) state regarding the SWOT matrix, this tool enhances the understanding of the global situation of the organization or the department, in this case. The BSC was used

to organize the department's objectives, which were not formalized, and the data survey of the municipalities to present the reality that impacts each of the cooperative's facilities.

The competitive intelligence analysis identified other biases that were unknown to the managers were identified. The survey of data from the municipalities allowed an understanding of the local reality and justified many of the difficulties encountered and reported in interviews regarding recruitment in certain municipalities. The correct diagnosis of the factors that impact the actions of the HR department enables more assertive decision-making.

As a result of the BSC application, it was identified that, in the learning and growth perspective, all CVs are impacted because, in this perspective, the objectives are related to the employee continuity in the organization and their professional growth. From the business process perspective, the CV3 variable strongly impacts the objectives related to technology and innovation. From the customer perspective, understanding that the customers are the cooperative's employees, the impact occurred in the variables CV2 and CV3 because it is about career promotions. As for the financial perspective, all variables are impacted; this occurs because the objectives focus on monetary recognition and understanding of the department's indicators, which indirectly impact the entire organization.

In the SWOT Matrix analysis, it was observed that the variables CV2 and CV3 are impacted in all quadrants of the matrix, while the variable CV1 is impacted in the quadrants of "strengths," "weaknesses," and "threats." The data survey of the municipalities was carried out to intensify the BSC and SWOT analyses carried out previously and presented unknown data. With the analysis, it was possible to identify an estimate of population reduction in approximately 60% of the municipalities where the cooperative has facilities, a fact that signals a possible difficulty in recruiting personnel due to lack of demand.

Another critical piece of data is the HDI-M indexes, which reveal an average development concerning longevity, work, and education in the municipalities where the cooperative operates. Identifying the less developed municipalities makes it possible to take specific actions according to the local scenario. The collection related to enrollment in primary and higher education proved to be adequate in certain municipalities; in others, it was possible to see it as one of the difficulties of local hiring. The average monthly salary values were collected to analyze the competitiveness of the cooperative in each of the municipalities. The cooperative was already conducting a study for generating more competitive positions and salary projects.

With the analyses conducted, it was possible to simulate scenarios respecting the three scenarios proposed in the model (optimistic, moderate, and pessimistic), presenting possibilities of future events (ROJO, 2005). The formulation of strategies for the proposed scenarios respected the alignment between the scenario and the CVs. As proposed by the model, all strategies considered the three CVs in each scenario.

The actions and targets were defined in the last stage, Level 5, making it possible to develop an action plan for each scenario. It is understood that the model was applied exclusively to one department, perfectly fulfilling its proposal, considering internal and external elements that impact the decisions and actions taken by managers.

Rojo (2005), author of the model, proposes flexibility to apply scenario simulation at different organizations, irrespective of segment and size. This study confirmed the possibility of using it in a specific department. The application of the model favored a broad and focused vision on the CVs that destabilized the department, enabled planning through scenario simulation as a factor to reduce the element of surprise, and presented possibilities of action for assertive and safe decision making. Such results corroborate what is expected from strategic planning by scenario simulation and planning in the area of HR (OLIVEIRA, EL-AOUAR & NÓBREGA, 2017; ROJO, 2005; ALMEIDA, TEIXEIRA, and MARTINELLI, 1993).

7   PRACTICAL CONTRIBUITIONS

The objective of this study was to simulate possible scenarios for the HR area of an agro-industrial cooperative based on the Rojo Model (2005). As proposed, the objective was satisfactorily met, being possible to perform all five steps suggested in the model.

The application of the model in departments was innovative, being the first time used for this purpose. The only difficulty in applying the method was in identifying the CVs through Delphi since a significant portion of experts were unable to participate in the study. Otherwise, the researcher encountered no technical difficulties in any of the steps suggested in the model.

As a result, the model fulfilled its purpose of simulating scenarios and outlining action plans, performed entirely in the HR department in an agro-industrial cooperative. Given the proven flexibility in the application of the model, used in several other organizations (NOJIMA, JABOBY & ROJO, 2017; PRESRLAK, 2016; MULLER, WALDOW, HSU & ROJO, 2013; BRADALISE, ROJO, MATA & SOUZA, 2012), it is believed to be possible its application in HR, regardless of the segment and size of the organization.

Strategic planning can be defined as a perspective to look inside the company (MINTZBERG, 2006) and, therefore, needs to inhabit even the HR area (ALMEIDA, TEIXEIRA & MARTINELLI, 1993). The simulation of scenarios favors strategic planning that considers conditions of uncertainty and significant vulnerability, such as those experienced nowadays. The Rojo (2005) model was used and fully completed, presenting a satisfactory and enriching result for decision-making in different scenarios to be faced.

In summary, the model is indicated for organizations and HR department managers who want to simulate future scenarios in order to remain strategically competitive through prior analysis of their decision-making possibilities.

8   FINAL CONSIDERATIONS

By applying all five steps for scenario simulation proposed by Rojo (2005), it was possible to achieve the objective of this study, thus simulating possible scenarios for the HR area of an agro-industrial cooperative. The model was tested for the first time in a department, proving to be effective and flexible for such an application.

All the steps were carried out as proposed in the model. At Level 2, in addition to the strategic tools, an additional analysis was performed in relation to data collected from the websites of IBGE, INEP, MEC, UNDP, IPEA, and FJP. This analysis enriched the study with information unknown to the cooperative's managers and made it possible to obtain a more assertive view concerning all the Brazilian municipalities where the organization operates. This analysis's execution aligns with Rojo's (2005) thoughts when considering that external factors cause alterations in scenarios.

The scenario simulation proposed action plans for each of the possible scenarios. Strategies and actions were thought out in advance, without the pressure naturally exerted by external factors. Hence, it is possible to take quick and assertive future decisions, maintaining the company's competitiveness, since the researched area directly impacts all the others.

As a result, one concludes that the Rojo Model (2005) for the simulation of scenarios is effective for strategic planning in the HR department, allowing the manager a broader view of the department and safety in decision making. As for the maintenance of the planning performed, a periodic review of Levels 3, 4, and 5 is suggested, as well as an annual review of Level 2.

This study considered no internal salary analyses, satisfaction survey results, or HR indicator data. Better results are supposed to be obtained by considering a complete diagnosis of all facets of the department. Therefore, it is suggested to add to the diagnosis analysis of (i) job and salary plans, (ii) career and succession programs, (iii) satisfaction surveys, (iv) culture diagnosis, and (v) departmental indicator results.

Regarding the application of the model, given its flexibility of application in the HR department of an agro-industrial cooperative, it is suggested that the model be applied in organizations of different segments and sizes in their HR departments. It is also suggested that the model be applied to other departments.

REFERENCES

Almeida, M. I. R., Teixeira, M. L. M., & Martinelli D. P. (1993). Por que administrar estrategicamente recursos humanos? *Revista de Administração de Empresas,* 33(2), 12-24.

Ambler, T.; Barrow, S., (1996). The Employer Brand. *The Journal of Brand Management*, vol. 4, n°3, pp.185-206.

Ansoff, H. I. (1965). *Corporate strategy*. New York: McGraw-Hill.

Backhaus, K. and Tikoo, S. (2004). Conceptualizing and researching employer branding. *Career Development International*, v. 9, n. 5, 501-517.

Berthon, P., Ewing, M. and Hah, L.L. (2005). Captivating company: dimensions of attractiveness in employer branding. *International Journal of Advertising*, v. 24, n. 2, 151-172.

Bertero, C. O., Vasconcelos, F. C. & Binder, M. P. (2003). Estratégia empresarial: a produção científica brasileira entre 1991 e 2002. *RAE - Revista de Administração de Empresas*, 43(4), 48-62.

Brandalise, L. T., Rojo, C. A., Mata, D. M., & Sousa, A. F. (2012). Simulação de cenários e formulação de estratégias competitivas: o caso do atacado liderança. *Revista Gestão & Tecnologia*, 12(3), 223-257.

Bradfield, R. et al. (2005). The origins and evolution of scenario techniques in long range business planning. *Futures*, v. 37, 795-812.

Caligiuri, P., Minbaeva, D., Verbeke, A., Zimmermann, A. (2020). International HRM insights for navigating the COVID-19 pandemic: implications for future research and practice. *Journal of International Business Studies*, 51(5), 697–713.

Certo, S. C., Peter, J. P. (2005). *Administração Estratégica*: planejamento e implementação da estratégia. São Paulo. Pearson Prentice Hall, p. 304.

Choudhury, P., Foroughi, C., Larson, B. (2021). Work-From-Anywhere: The Productivity Effects of Geographic Flexibility. *Strategic Management Journal*, v. 42, n. 4, 655–683.

Conab, Companhia Nacional de Abastecimento (2020). Último levantamento consolida safra recorde de grãos em 257,8 milhões de toneladas. Disponível em: <https://www.conab.gov.br/ultimas-noticias/3608-ultimo-levantamento-consolida-safra-recorde-de-graos-em-257-8-milhoes-de-toneladas>. Acesso em: 18 de abr. 2021.

Delarmelina, N.; Salles, A. O. T. (2016) Um estudo sobre a comercialização da produção de cooperativas agropecuárias sob a ótica da Teoria dos Custos de Transação. Custos e agronegócio on line, v. 12, n. 4, p. 34

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *The Academy of Management Review*, v. 14, n. 4, 532-550.

Felps, W., Mitchell, T. R., Hekman, D. R., Lee, T. W., Holtom, B. C. & Harman, W. S. (2009). Turnover contagion: how coworkers job embeddedness and job search behaviors influenciar quitting. *Academy of Management Journal*, v. 52, n.3, 545-561.

Filardi, F.; Castro, R.; Mercedes P.; Zanini, M. T. F. (2020). Vantagens e desvantagens do teletrabalho na administração pública: análise das experiências do Serpro e da Receita Federal. *Cadernos EBAPE.BR*, v. 18, n. 1, 28-46.

Godoy, A. S. (1995). Introdução a pesquisa qualitativa e suas possibilidades. *Revista de Administração de Empresas*. São Paulo, v. 35, n. 2, 57-63.

Gratton, L. (2021). How to do hybrid right. *Harvard Business Review*, may-jun.

IBGE – Instituto Brasileiro de Geografia e Estatística. Censo demográfico (2020). Disponível em: <https://cidades.ibge.gov.br/brasil/pr>. Acesso em: 12 de mar. 2021.

Kaplan, R. S.; Norton, D. P. (1997). *A estratégia em ação: balanced scorecard*. 20 ed. Rio de Janeiro: Campus.

Kotler, P.; Keller, K. L. (2012). *Administração de Marketing*. 14ª ed. São Paulo: Pearson Education do Brasil.

Lauermann, G. J.; Moreira, V. R.; Souza, A.; Piccoli, P. G. R. (2020). Do Cooperatives with Better Economic–Financial Indicators also have Better Socioeconomic Performance?. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, v. 31, 1282–1293.

Meister, J. (2020). The impact of the coronavirus on HR and the new normal of work. Forbes. Disponível em <https://www.forbes.com/sites/jeannemeister/2020/03/31/the-impact-of-the-coronavirus-on-hr-and-the-new-normal-of-work/#24d292322b60>. Acesso em: 07 de nov. 2021.

Mintzberg, H. (1994). *The rise and fall os strategic planning*. New York: The Free Press.

Mintzber, H.; Lampel, J.; Quinn, J. B.; Ghoshal, S. (2006). *O processo da estratégia*: conceitos, contextos e casos selecionados. Tradução Luciana de Oliveira da Rocha. 4ª ed. Porto Alegre: Bookman.

Müller, A. C. M., Waldow, G. C., Hsu, P. L., & Rojo, C. A. (2013). Projeto de planejamento estratégico a partir da simulação de cenários: o caso de um supermercado do Paraná. *Revista Inovação, Projetos e Tecnologias*, 1(1), 56-69.

Nojima, R. G., Jacoby, C. E., & Rojo, C. A. (2017). Simulação de Cenários na Pró-Reitoria de Gestão de Pessoas de uma Instituição de Educação Superior Pública do Oeste do Paraná. *Revista Ibero-Americana de Estratégia*, 16(3), 130-142.

Oliveira, H. C.; Balemans, T. H.; Lima, A. C. C. (2021). Internal migration in Brazil: exploring migration of high-skilled workers towards economic complex locations. *Revista Econômica do Nordeste,* Fortaleza, v. 52, n. 3, p. 171-194.

Oliveira, W. F. M., El-Aouar, W. A., Nóbrega, K. C. (2017). A elaboração de cenários estratégicos como vantagem competitiva. *Revista Raunp*, v.10, n.1, 41-58.

Persrlak, M. I. (2016). *Simulação de cenários no terceiro setor: uma aplicação em uma fundação de apoio à instituição de ensino superior.* Dissertação de Mestrado, Universidade Estadual do Oeste do Paraná, Cascavel, PR, Brasil.

Programa das Nações Unidas para o Desenvolvimento (PNUD). Disponível em: <https://www.br.undp.org/content/brazil/pt/home/idh0/conceitos/o-que-e-o-idhm.html#:~:text=O%20%C3%8Dndice%20de%20Desenvolvimento%20Humano,1%2C%20maior%20o%20desenvolvimento%20humano.>. Acesso em: 08/03/2021.

Porter, M. E. (1998). *Competitive strategy*: techniques for analyzing industries and competitors, New York: The Free Press.

Porter, M. E. (2004). *Estratégia competitiva: técnicas para análise de indústrias e da concorrência*. 2. ed. Rio de Janeiro: Elsevier.

Priori, A.; Pomari, L. R.; Amâncio, S. M.; Ipólito, V. K. (2012). *História do Paraná*: séculos XIX e XX. Maringá: Eduem.

Redação (2021). As 100 maiores empresas do agronegócio brasileiro em 2020. *Revista Forbes Brasil.* Disponível em <https://forbes.com.br/forbesagro/2021/03/as-100-maiores-empresas-do-agronegocio-brasileiro-em-2020/>. Acesso em: 18 de abr. 2021.

Reis, G. G., & Braga, B. M. (2016). Employer attractiveness from a generational perspective: Implications for employer branding. *RAUSP Management Journal*, v.51, n.1, 103-116.

Rombaut, E. & Guerry, M. A. (2018). Predicting voluntary turnover through human resources database analysis. *Management Research Review*, v. 41 n. 1, 96-112.

Rojo, A. C. (2005). *Modelo para a simulação de cenários: uma aplicação em instituição de ensino superior privada.* Tese de Doutorado, Universidade Federal de Santa Catarina, Florianópolis, PR, Brasil.

Santos, F. A. (2020). Estudo de caso: Matriz SWOT do BTS. *Simbiótica*, v. 7, nr. 2.

Sexton, R. S., McMurtrey, S., Michalopoulos, J. O. & Smith, A. M. (2005). Employee turnover: a neural network solution. *Computers & Operations Research*, v. 32, n 10, 2635-2651.

Sivertzen, A., Nilsen, E. R., & Olafsen, A. H. (2013). Employer branding: employer attractiveness and the use of social media. *Journal of Product & Brand Management,* v. 22, n. 7, 473 –483.

APPENDIX A – INTERVIEW: FIRST ROUND OF DELPHI

Data Collection Instrument - Expert Panel: HR Managers

1. Organization:

1.2. Year founded:

1.3. Total number of employees:

2. Age of respondent:

2.1. Gender:

2.2. Position:

2.3. Length of experience in current position:

Please answer:

- Which critical variables do you consider necessary to be known for an Agroindustrial Cooperative to make scenario projections in the human resources area?

APPENDIX B – SURVEY: SECOND ROUND OF DELPHI

Data Collection Instrument - Expert Panel: HR Managers

1. Organization:

Please answer:

The list below represents the variables cited by the experts in the first round. Among all the critical variables listed below and mentioned by the experts that compose the panel of participants in this research, mark with X only 5 of the variables listed, ordering them by importance, scoring 5 for most important; 4 for important; 3 for medium importance; 2 for not very important; and 1 for least important. The others, which exceed the five most important, should not be numbered.

Critical Variables	Degree of importance				
	1	2	3	4	5

APPENDIX C – SURVEY: THIRD ROUND OF DELPHI

Data Collection Instrument - Expert Panel: HR Managers

1. Organization:

The summary tables below are the result of the two previous rounds.

Chart A presents a matrix composed of the most frequently mentioned critical variables and ranked in order of importance by the managers of private higher education institutions that comprise the panel of experts.

Chart B, on the next page, isolates the main critical variables to project scenarios, according to the panel of specialists.

Chart x – General table of critical variables, pointed out and evaluated for scenario projection

Critical Variables (CV)	Answers from Second Round				Total Score
	A	B	C	D	

Chart y – Main critical variables identified to feed the scenario simulation model for the HR department

Critical Variables (CV)	Total Score

Please answer:

When viewing and analyzing the critical variables listed below, do you agree that these are the most appropriate critical variables to generate information in order to project scenarios for the human resources department?

(   ) Yes   (   ) No