Universidad del Valle
Cuadernos de Administración

Journal of Management
Print ISSN: 0120-4645 / E-ISSN: 2256-5078 / Short name: cuad.adm.
Pages: e20114503 / Vol: 41 / Issue: 83 / September - December 2025
Faculty of Administration Sciences / Universidad del Valle / Cali - Colombia

The Culture of Innovation in Companies in the Agricultural Sector in Valle del Cauca – Colombia, a Look from the Foresight Approach

La Cultura de la Innovación en Empresas del Sector Agrícola en el Valle del Cauca – Colombia, una Mirada Desde el Enfoque Prospectivo

[1] ***Emilio José Corrales Castillo***
Universidad Antonio Nariño, Cali, Colombia. Email: emiliocorrales@uan.edu.co

[2] ***Josué Vladimir Ramírez Tarazona***
Universidad Antonio Nariño, Bogotá, Colombia. Email: vlaramirez@uan.edu.co

[3] ***Ronald Arana Flórez***
Universidad Antonio Nariño, Palmira, Colombia. Email: rarana@uan.edu.co

Article of Scientific and Technological Research
Submitted: 25/10/2024
Reviewed: 04/11/2024
Accepted: 13/11/2024
Published: 26/09/2025
Thematic Line: Administration and Organizations
JEL Code: L16, L23, L52, O3, O32
https://doi.org/10.25100/cdea.v41i83.14503

Abstract

This article presents the results of research focused on the culture of innovation in the agricultural sector of Valle del Cauca, Colombia, offering a review of the diverse practices within organizations regarding how innovation is implemented and whether it is being incorporated as part of organizational culture. The study applies a prospective methodology that enables the examination of future scenarios over a 20-year period. Considering that in Colombia only 3.4% of organizations report having formal innovation and research processes within their structures to drive transformation in their practices, this project introduces elements aimed at fostering sectoral transformation within the national context and with international projection. It proposes future consolidation strategies through the construction of scenarios based on the participation of expert groups, entrepreneurs, and public managers in analyzing innovative dynamics from the perspective of organizational culture.

[1] Professor and Researcher, Universidad Antonio Nariño, Cali, Colombia. Business Administrator and Master in Organizational Sciences, Universidad del Valle, Cali, Colombia.

[2] Professor and Researcher, Director of the Research Unit, Universidad Antonio Nariño, Bogotá, Colombia. PhD in Educational Sciences, Universidad Tecnológica de Pereira, Pereira, Colombia.

[3] Professor and Researcher, Universidad Antonio Nariño, Palmira, Colombia. PhD in Managerial Administration, Universidad Benito Juárez García, Puebla, México. Master in Organizational Sciences, Universidad del Valle, Cali, Colombia.

Keywords: Innovation, culture, foresight, scenarios, management.

Resumen

Este artículo presenta los resultados de la investigación enfocada en la cultura de la innovación en el sector agrícola del Valle del Cauca Colombia, dando una revisión desde las diversas prácticas en las organizaciones sobre cómo se implementa la innovación y si está siendo incorporada como parte de la cultura organizacional, esto bajo una metodología prospectiva que permita la revisión de las apuestas a futuro en un periodo de 20 años. Partiendo de que en Colombia el 3,4% de las organizaciones reflejan que en su estructura cuentan con procesos formales de innovación e investigación que permitan una transformación en sus prácticas, este proyecto presenta elementos que permitan la transformación del sector en el contexto nacional y proyección internacional, generando estrategias de consolidación a futuro, mediante la construcción de escenarios como resultado de participación de grupos de expertos, empresarios y gestores públicos sobre las dinámicas innovadoras desde la cultura organizacional.

Palabras clave: Innovación, cultura, prospectiva, escenarios, gerencia.

Introduction

Organizational culture has undergone various changes, from theoretical approaches to its conception and the type of impact on the performance of institutions, all shaped by the specific dynamics of their operating territories and the nature of each organization (Martin, 1992; Allaire & Firsirotu, 1992; Cameron & Quinn, 2006). Based on this foundation of organizational culture, an organizational practice called innovation emerges, which is embedded in aspects of products, services, or organizational processes. It presents a challenge in management elements, stemming from organizational strategies and the leadership style of each institution or entity (Méndez, 2020; Schumpeter, 1957; Drucker & Maciariello, 2008; Montoya, 2015; Ogbonna & Harris, 2000).

The culture of innovation is a relevant aspect of organizational dynamics, serving as a subject of research for the transformation of organizational processes that enable strategic consolidation in the pursuit of efficiency and improved results. According to Porter (2010), innovation is a key tool for generating competitive advantage in organizations, creating a differentiating factor in sector competitiveness.

According to Ulijn and Weggeman (2001), the culture of innovation encompasses all principles regarding how an organization operates, generating opportunities to create a profitable novelty or a difference in the way business is done. This is aimed at ensuring that innovation adds value to the organization, generating competitive factors, increased profitability, process efficiency, and the consolidation of the organization in various territories or markets.

The needs of organizations have changed in recent years, posing a challenge in organizational design elements and management aspects. A key aspect is the structural review of change, its background, challenges, configurations, and trends across the entire organization, starting with the most complex element: the human being. Without proper management, there cannot be a culture of innovation, as there would be no committed teams willing to take risks (Tartabull, 2020; Daft, 2000; Gibson et al., 1998; Robbins, 1994; Hogan & Coote, 2014).

Starting with organizational changes, challenges in management, and cultural dynamics that present challenges in organizational strategies, the aim is to assess the culture of innovation in the agricultural sector of a specific region in Colombia. Foresight tools are key in this process, as they allow for the construction of a system of variables and future scenario outcomes, enabling an understanding of how various variables from the agricultural sector and innovation practices are projected as part of organizational culture.

In Colombia, several studies with a focus on innovation, foresight, and management elements for the agricultural sector have been conducted in various regions, generating interesting results in their analysis. These studies highlight cultural challenges in including innovation as a cultural process, resistance to change, and the fear of challenges that must be faced when seeking to be a leader in innovation. Key elements of knowledge management are crucial to consolidating continuous learning processes, with the decision to innovate ideally coming from the executive

https://doi.org/10.25100/cdea.v41i83.14503

level. Otherwise, the processes will be slow and met with high resistance during implementation (Bernal, 2023; Rivera & Hoyos, 2016; Guerrero & Molina, 2012).

The strategy for developing the research begins with the selection of actors or experts in the agricultural sector, some of whom hold leadership positions. This allows for an assessment of innovative practices within organizations and whether innovation is considered embedded in the organizational culture. Based on this premise, the foresight analysis generates future scenarios for a 15-year period, allowing for an analysis extending to 2039.

Methodology

This research project is based on a methodological approach using foresight tools, which allow for long-term projections of a problem, organization, or the focus of various trends. According to the concept presented by Luke Georghiou (2009), foresight is described as "a systematic means of evaluating scientific and technological developments that could have a strong impact on industrial competitiveness, wealth creation, and quality of life." This concept strengthens the process of analyzing the culture of innovation in organizations within the agricultural sector in the department of Valle del Cauca, Colombia.

The foresight dynamics are based on various theoretical and conceptual contributions that ground the methodological approach, which is globally validated by different foresight movements, summarized in the following diagram (See Table 1).

The methodological process begins with research phases that utilize various tools, aimed at consolidating scenarios through a participatory exercise with the stakeholders of the agricultural foresight system in Valle del Cauca. This methodology has been validated in various exercises already conducted in other studies (See Figure 1).

This instrument, within the methodological approach, presents the use of tools such as the Regnier Abacus, Structural Analysis (MIC-MAC), Governance Importance, as well as Importance – Uncertainty, which facilitate the construction of scenarios through the participation of stakeholders from the agricultural sector.

Sample

This study uses **intentional or convenience sampling** for selecting participants, as it targets experts in the field of study. The selected participants include directors of sugar mills, decision-makers in agricultural companies, experts from the agricultural sector, and collaborators with over 20 years of experience in organizations within the sector. The study involves 19 participants using various foresight tools.

Some results are processed individually, such as those in the **Regnier Abacus**, which

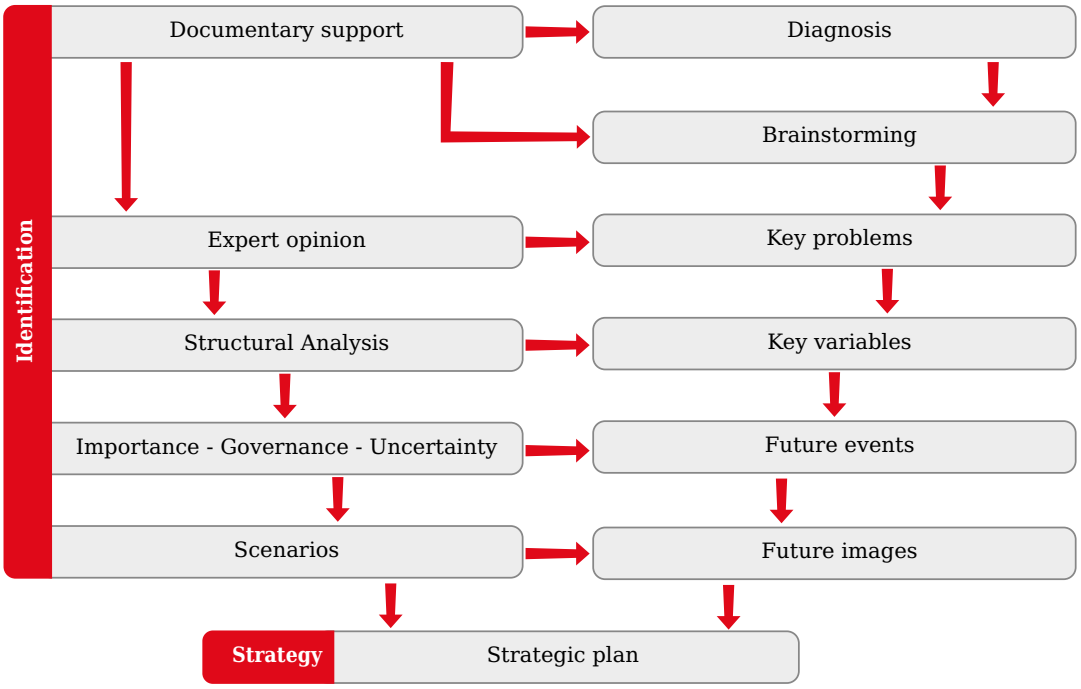
Table 1. Summary of the Main Contemporary Approaches to Future Studies

Level/Approach	Foresight	Scenario Planning	Strategic Foresight	Human and Social Forecasting
Preferred Methodologies	Delphi, paneles, escenarios	Scenarios	Toolbox	Scenarios, role-playing
Focus of Decision-Making System	New form of governance	Strategic conservation	Self-organization, collective intelligence	Process: Image_Vision_Project
Theory Base of Social Change	Innovation cycles (Schumpeter)	Organization as a living being	Complex systems	Long, medium, and short duration (Braudel)
Key Problem for Cultural Change	Social consequences of Science and Technology	Co-evolution of organizational culture and planning tools de planificación	Greek Triangle: Anticipation, approval, action	Education of Desire, pedagogy of time
Type of Image Studied	Expert Opinion	Mental Models	Stereotypes	Visions

Source: Medina & Barbieri (2001).

https://doi.org/10.25100/cdea.v41i83.14503

Figure 1. Procedure for Developing a Strategic Foresight Plan – Scenarios Method



helps identify current and future trends in the system of variables. In other tools, consensus was reached as a result of dialogues and sessions aimed at strengthening the consolidation of the research findings.

The research process is consolidated through the participation of key stakeholders, with the aim of validating the hypothesis that in agricultural organizations in Valle del Cauca, practices related to the culture of innovation are in the initial phase of implementation, mainly due to resistance from both employees and managers.

Operationalization of Variables

Foresight exercises, depending on their methodology, begin with processes of reviewing issues, needs, or organizational dynamics that require long-term analysis. Based on this premise, the exercise starts with a brainstorming session according to Osborn's model (2012), which enhances creativity by not limiting thinking systems and encouraging collective participation.

This research process was consolidated through a brainstorming session among the various participants, resulting in the identification of approximately 60 variables. These were then reviewed by the researchers, along with a literature review on trends in innovation and organizational culture (Acar & Acar, 2012; Hogan & Coote, 2014; Tribin & Forero, 2014; Sánchez et al., 2016), which led to the prioritization of 18 variables. These were selected to guide the methodological approach with the foresight instruments. The variables to be worked on in the system are presented along with their concepts, which served as the roadmap for evaluating the stakeholder

- **Technological Development in Agricultural Processes**: The ability to incorporate technological tools or equipment into agricultural processes that enhance efficiency and productivity.
- **Processes Framed in Innovation**: Organizations with formal, recognized processes aimed at seeking improvements or innovation dynamics that foster organizational transformation.
- **Budget Allocation for Innovation in Organizations**: Organizations that allocate specific funds in their annual budgets for innovative practices, the pursuit of improvements, and the

https://doi.org/10.25100/cdea.v41i83.14503

transformation of organizational processes.

- **Managerial Practices that Promote Innovation Development**: Organizations where the leadership and decision-making levels actively promote innovation processes in their strategies, discourse, and organizational practices to transform the organizational culture.
- **Commitments from the Leadership Level to Improve Processes and Innovative Practices in Agricultural Companies**: Organizations that recognize the leadership level is making commitments, starting with initiatives from the boards of directors to transform business models.
- **Acceptance by Employees of Innovative Processes**: Organizations that recognize their employees have accepted innovative processes without resistance, fear, or rejection regarding the level of change, challenges, and new organizational models.
- **Acceptance of Technological Integration in Agricultural Processes by Middle and Operational Levels**: Organizations that have had positive practices regarding the incorporation of technological tools at the grassroots level, due to adaptation and integration with new methods.
- **Guidelines Indicating Innovation as Part of Organizational Culture**: Processes established by management for incorporating innovative practices into the organizational culture, indicating a shift from traditional processes toward more flexible and change-oriented dynamics in pursuit of efficiency.
- **Innovation Evaluated as a Strategic Element for Organizations**: Organizations that include metrics or assessments to measure how innovation is evolving and generating changes within the organization.
- **Organizational Culture is Clearly Defined and Recognized by Employees**: Organizations that work to communicate the organizational culture at all levels, fostering collective efforts for transformation.
- **Knowledge Management as a Practice in Agricultural Organizations**: Organizations with formal knowledge management processes, focusing on knowledge transfer across generations, formal training programs, and the consolidation of comprehensive knowledge on organizational practices.
- Innovation into their field practices (such as preparation, planting, harvesting, etc.), where employees view it as a means to improve their processes and practices.
- **Government Incentives for the Development of Innovative Practices**: The state or government includes support for organizations in its policies or plans, encouraging innovation in their processes.
- **Innovative Processes Require Economic Capital to Generate Differentiation**: The perception of whether, in order to be innovative, organizations need to invest economic resources for implementation within the organization.
- **Innovation as a Practice of Multinational Companies**: Whether innovation is viewed in the sector as a preferred practice of large-cap organizations or those with global market reach, highlighting differences in processes and improvements for SMEs (small and medium-sized enterprises).
- **Innovation is a Distant Practice for Small Farmers**: Whether innovation is seen in the sector as an exclusive practice, limiting its access to small farmers or entrepreneurs.
- **The Importance of Developing a Culture of Innovation in the Agricultural Sector**: Experts believe that fostering a culture of innovation is crucial for the sector, enabling improvements and contributing to the sector's consolidation in the future.

The foresight system, in its results, will produce dependent and driving variables (Structural Analysis), variables with positive and negative trends in the present and future (Regnier's Abacus), and important governable uncertain variables (IGO II), which will serve as inputs for constructing future scenarios. This approach takes a methodological stance different from traditional models of variable operationalization.

https://doi.org/10.25100/cdea.v41i83.14503

Results

The results of this research stem from the individual and collective contributions made by the 19 experts, who are the participating stakeholders. These contributions were processed through various foresight tools, which analyzed the behavior of the 18 variables in the system. The results are presented in different sections, representing independent outcomes. However, for the purpose of scenario building, these results consolidate into contributions that help define the scenarios. As a result of the exercise, four scenarios emerged (positive, negative, tendential, and strategic). The "strategic" scenario is the one that, according to the participants, should be pursued to drive the transformation of the innovation culture in managerial processes, achieve changes, and foster a transformation in organizational culture.

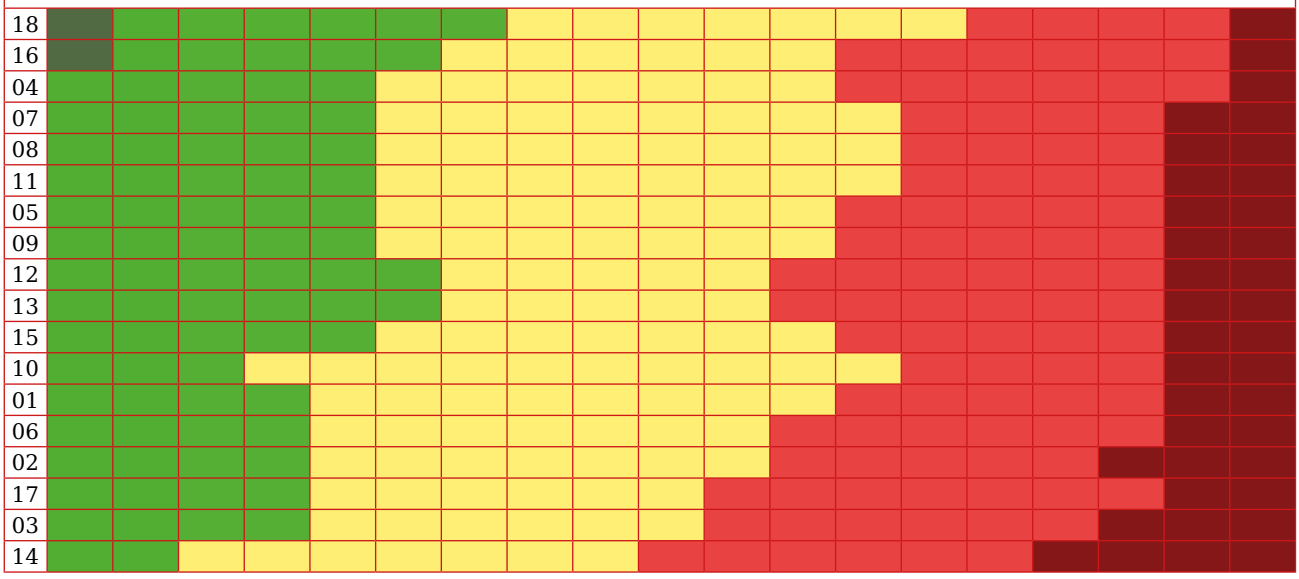
Tendential Analysis (Regnier's Abacus)

This instrument allows for the recognition of the trends of variables in the present and future based on a color scale, where green variables represent a positive perception, and red variables indicate a negative perception by the participants. It is a qualitative tool that relies on the participants' perceptions (experience, knowledge, and practices). According to Godet (2007), the Abacus is a new approach to interactive communication, using an ordinal color scale with data that can be represented in a matrix. It enables the recognition of stakeholders' perceptions, which is essential for establishing trend processes and is not exclusive to foresight studies.

In the current study, the results of the tendential analysis collect the present and future trends as perceived by the participants regarding the variable system. This provides an evaluation of the experts' perspectives on the culture of innovation in the agricultural sector. The scale used ranges from dark red (very unfavorable) to light red (unfavorable), yellow (intermediate), fluorescent green (favorable), and dark green (very favorable), resembling a traffic light system. Based on these principles, the following results for the present are obtained (See Figure 2).

The analysis of the present, based on the perceptions of the experts, reveals that the most negative variables for the culture of innovation in the agricultural sector are the existence of government incentives, processes framed within innovation, the perception that innovation is currently distant for small farmers, innovative practices in organizations within the sector, and the least unfavorable variable being the efforts of management to improve processes. This reflects that there are significant gaps in government initiatives, suggesting that innovation in 2023 is more closely related to larger agricultural

Figure 2. Abacus Present



https://doi.org/10.25100/cdea.v41i83.14503

companies. Similarly, it is recognized that innovation processes are still in a phase of transition.

On the more favorable variables in the present, according to the experts' perceptions, is the recognition of the critical importance of developing an innovation culture. While this is seen as a challenge, it is also acknowledged that innovation is primarily practiced by multinational companies. Moreover, budget allocation for innovation is recognized as a determining factor. Experts also agree that assigning budgets to encourage innovation within organizations is important and beneficial for the system. At present, it is observed that employees are accepting innovative processes, with no resistance hindering the development of an innovation culture (See Figure 3).

The trend analysis of future perceptions reveals a series of variables that align in both negative and positive aspects with those of the present, presenting a challenge for the culture of innovation. According to the experts, these variables could influence the proper transformation process for innovation culture to become a strategic element in the agricultural sector of the study area.

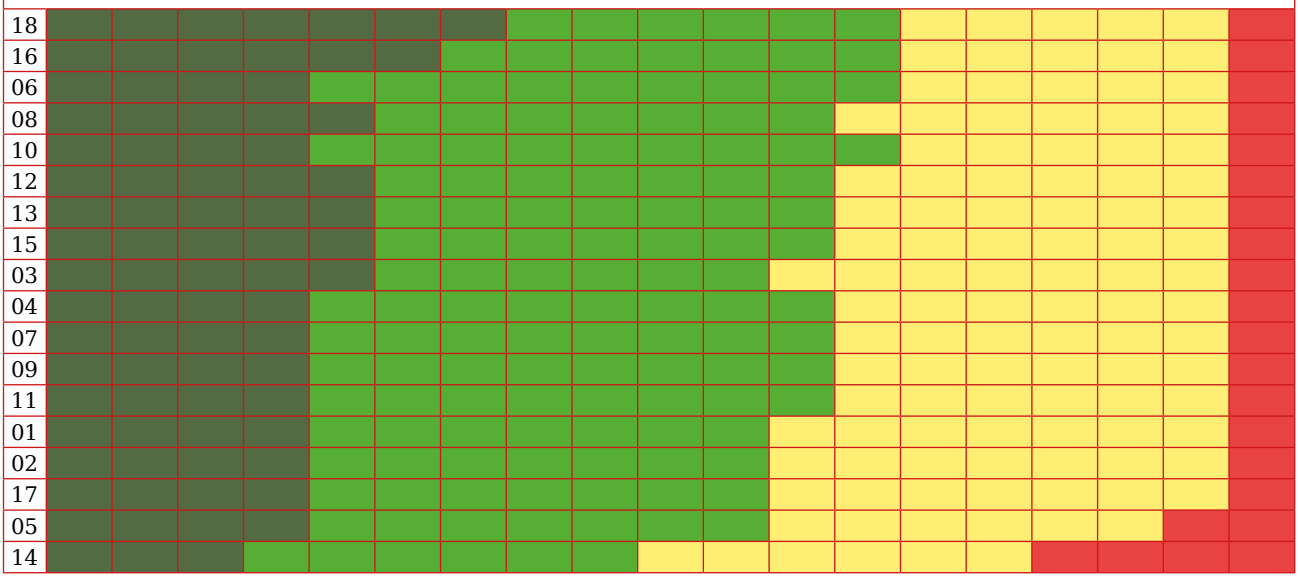
The negative variables for the future include incentives from the Colombian government, which poses a challenge for the implementation of public policies supporting the agricultural sector. Another challenge is the managerial practices that promote innovation, as many leaders are older individuals who may resist change. Innovation remains distant for small farmers, although there is some improvement in perception since the present; this aspect requires further work. The least negative aspect is the innovative practices within organizations, as they contribute to improvements and demand new techniques and analysis tools.

Positive aspects highlighted by the experts include the importance of developing an innovation culture. Innovation continues to be seen as a practice of multinational corporations, which presents a challenge regarding support for small farmers. The efforts of management to improve processes are positively perceived, indicating a favorable attitude toward change in the future. Additionally, the acceptance of technological advances by operational staff is seen as key to incorporating new technology. These results reflect the experts' feelings, based on a trend analysis, while other instruments provide different outcomes that contribute to scenario definition.

Structural Analysis (MIC - MAC)

The structural analysis or MIC-MAC is a tool that uses a matrix to quantitatively assess the motricity and dependency of the variables

Figure 3. Abacus Future



https://doi.org/10.25100/cdea.v41i83.14503

in a prospective system. This tool evaluates the variables in four quadrants of the Cartesian plane, allowing experts to recognize how the variables in the innovation culture system are interrelated.

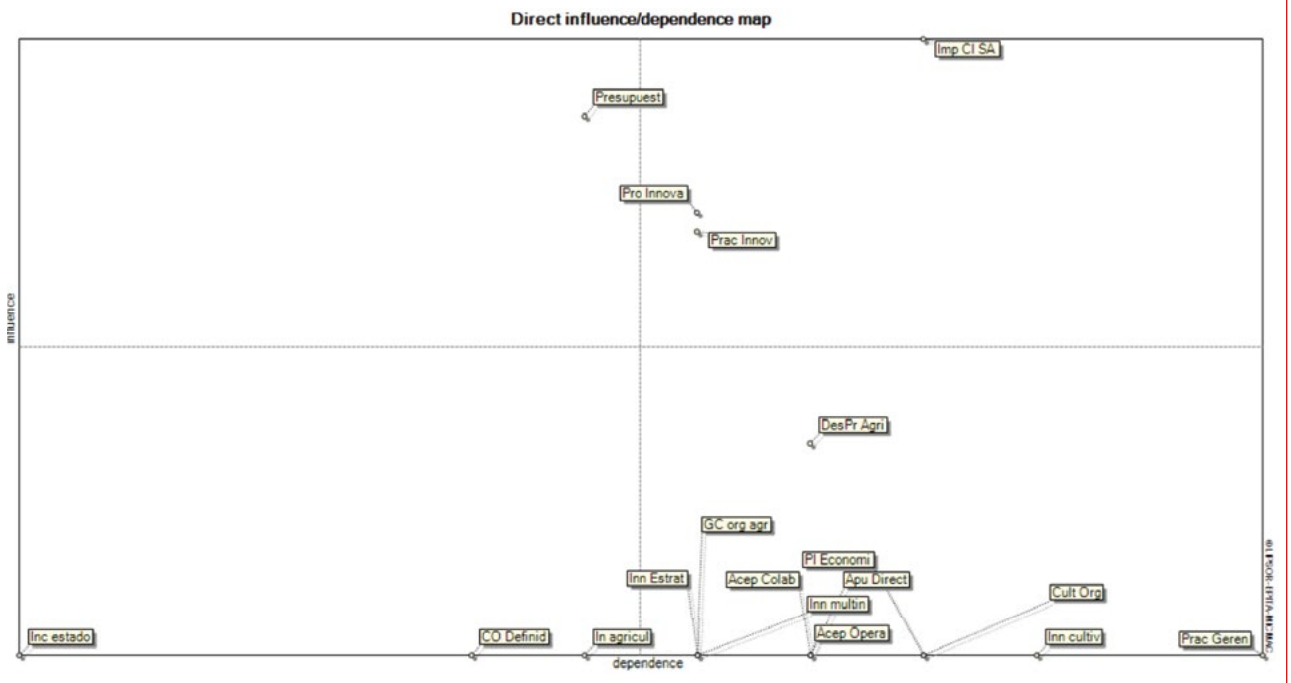
The MIC-MAC tool is part of the LIPSOR toolbox, a set of free instruments designed for prospective studies aimed at strategic consolidation, as supported by Godet (2000). The structural analysis for this study reflects various results from the consensus of the participants, generating a dynamic projection for the construction of future scenarios. The results are as follows (See Figure 4).

This map allows recognizing the relationships of motricity and dependency between the system of variables, resulting in four variables with driving and transformational roles. These include the importance of the Culture of Innovation for agricultural sector companies, the significant budget for the development of innovative processes in organizations, innovative processes in organizations, and innovative practices. This highlights the importance of innovation development for organizational improvement and positioning. It is crucial that organizations have financial resources to carry out these processes, as reflected in the fact that multinational companies are more capable of driving innovation than small farmers, due to differences in budgets. Similarly, the system indicates that government support is key, although this is not currently reflected (See Figure 5).

This figure shows the results of the variables with direct relationships, highlighting that the variable with the greatest influence is the importance of the culture of innovation in the agricultural sector. Another key variable is the budget, which is considered important according to the experts' evaluation. The budget for the development of innovation is a critical issue, as there is current resistance to viewing innovation as a process that enables improvements and eases work (See Figure 6).

The displacement map allows us to recognize that some variables are perceived as having potential impact, indicating that in the future, experts believe these variables will

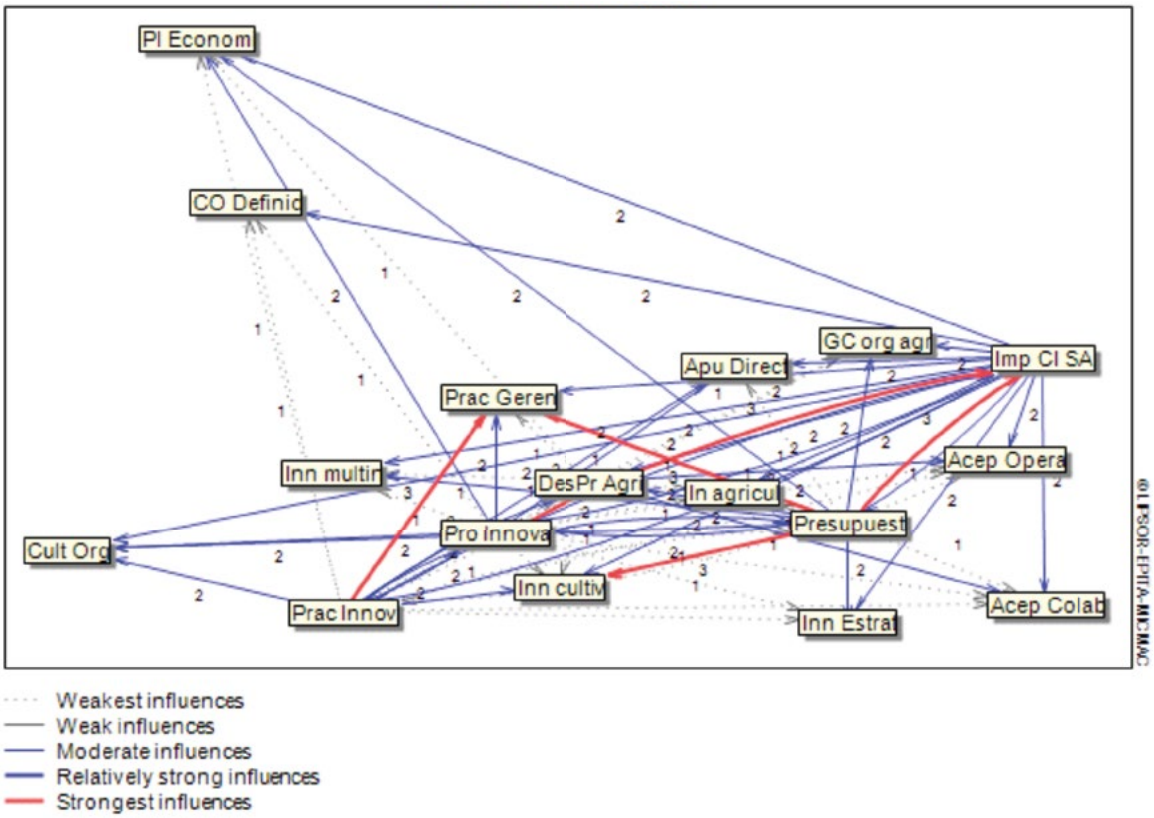
Figura 4. Direct Relationship Map



Source: Developed by the researchers, using the MIC MAC tool from LIPSOR.

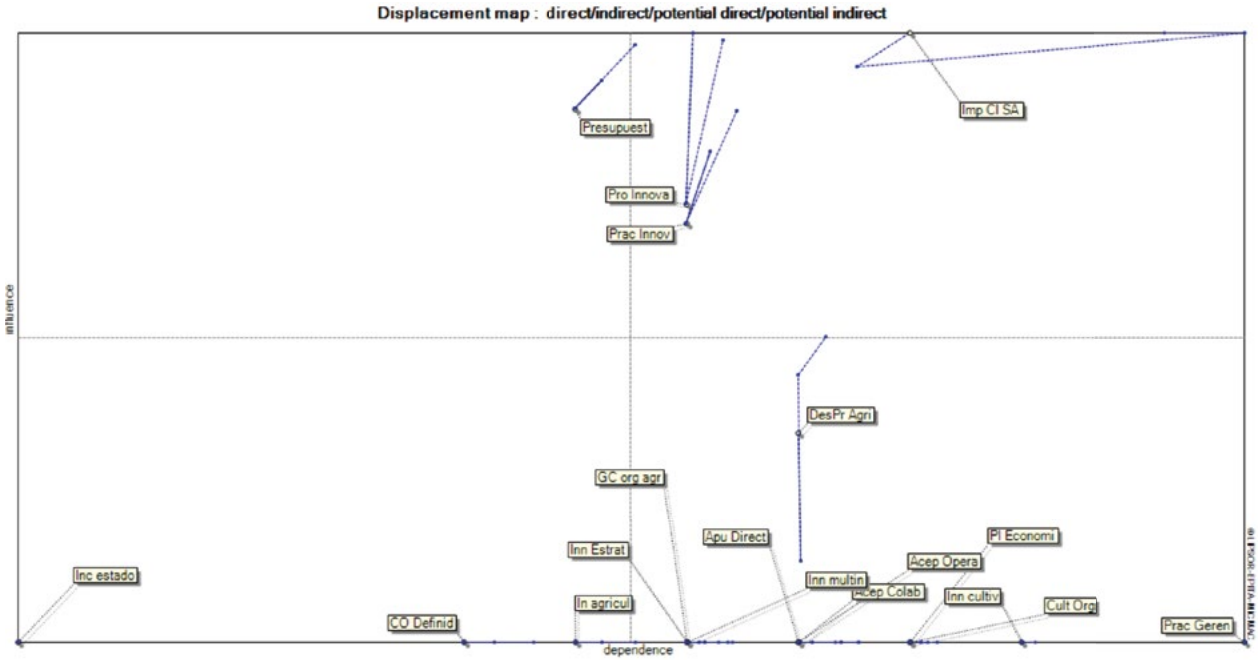
https://doi.org/10.25100/cdea.v41i83.14503

Figure 5. Direct Influence Graph



Source: Developed by the researchers, using the MIC MAC tool from LIPSOR

Figure 6. Direct - Indirect - Potential - Potential Indirect Shift Map



Source: Prepared by the researchers, using the MIC MAC tool from LIPSOR.

https://doi.org/10.25100/cdea.v41i83.14503

undergo changes in their behaviors regarding innovation in the sector. These variables include technological development in agricultural processes, the importance of the culture of innovation, innovative processes, and innovative practices. A key point in this study is that the acceptance of innovation by various groups of collaborators is not limited; they have an intermediate level of acceptance. The entire exercise stems from the initiatives of the executive teams and managerial practices that encourage innovation.

A point raised during discussions was that many collaborators have innovative practices, but in certain organizations, innovative thinking is limited, citing a lack of budget, insufficient interest, and resistance to change, primarily from the executive team.

A significant challenge presented by this tool is the management of innovation across all types of sectors, not limiting the development of innovation due to budgetary factors, which in practice restricts the potential to guarantee cycles of knowledge management.

Importance - Governability - Uncertainty (IGO - II)

The IGO method refers to the importance and governability of each variable. Importance is related to the relative weight that each variable has on the process of managing the culture of innovation. Governability refers to the level of control that the system or organizations have over the variable. Both characteristics were rated on a quantitative scale from 1 to 5, depending on their level of importance and governability, allowing for the achievement of consensus after debate and discussion among the participating groups. (Mojica, 2009)

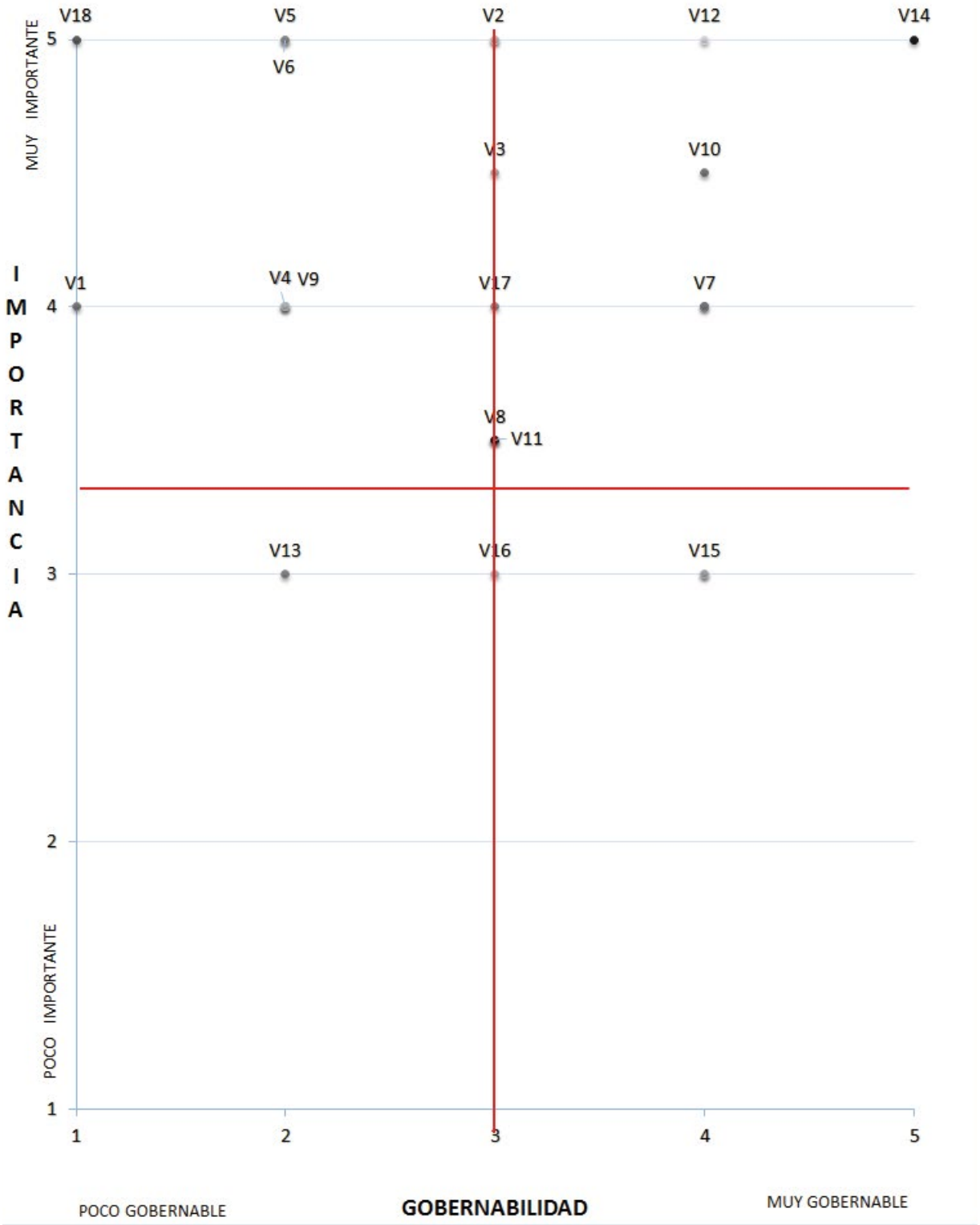
This research exercise results in various matrices that generate tools used in foresight to evaluate different factors, which allow for the definition of transformation models in the short, medium, and long term. One of these prioritization tools is the IGO, which allows for the evaluation of the importance and governability of variables, based on discussions with the expert group (See Table 2 and Figure 7).

Table 2. Importance-Governability Evaluation Matrix

No.	Dimension	Abrev.	Average impor.	Average gover.
1	Technological development in agricultural processes	V1	4.0	3.0
2	Innovative practices in organizations	V2	5.0	3.0
3	Processes framed within innovation	V3	4.5	3.0
4	Budget allocation in organizations that encourage innovation	V4	4.0	2.0
5	Managerial practices that promote the development of innovation	V5	5.0	4.0
6	Commitment by management to improve processes and innovative practices in agricultural companies	V6	5.0	3.0
7	Acceptance of innovative processes by employees	V7	4.0	2.0
8	Acceptance of technological linkage in agricultural processes by middle and operational levels	V8	3.5	2.0
9	Guidelines that reflect innovation as part of organizational culture	V9	4.0	4.0
10	Innovation evaluated as a strategic element for organizations	V10	4.5	2.0
11	Organizational culture is clearly defined and recognized by employees	V11	3.5	3.0
12	Knowledge management is a practice in agricultural organizations	V12	5.0	4.0
13	Innovation is seen as a transformational element for crop improvement	V13	3.0	2.0
14	State incentives are available for the development of innovative practices	V14	5.0	1.0
15	Innovative processes require financial capital to generate differentiation	V15	3.0	3.0
16	Innovation is a practice of multinational corporations	V16	3.0	3.0
17	Innovation is a distant practice for small farmers	V17	4.0	3.0
18	The development of an innovation culture in the agricultural sector is important	V18	5.0	5.0

https://doi.org/10.25100/cdea.v41i83.14503

Figure 7. Importance – Governability



Source: Developed by the researchers, using the MIC MAC tool from LIPSOR

https://doi.org/10.25100/cdea.v41i83.14503

The IGO denotes that, for the experts, all variables have significant weight in terms of importance, indicating that all variables are strategic for the transformation of innovation models based on organizational culture. This represents a challenge for management teams, as their ability to govern and manage the variables is conditioned by the power structure within the organizations. These power dynamics act as a constraint on the potential of the culture of innovation. The challenge lies in the consolidation processes within management teams or stakeholders who bet on innovation as a value element for organizational positioning. The variable with the least governability is state incentives for the development of innovation. Conclusions from the workshops suggested that sectoral tables should promote the development of government programs to transform agricultural processes for the region's and the country's competitive potential.

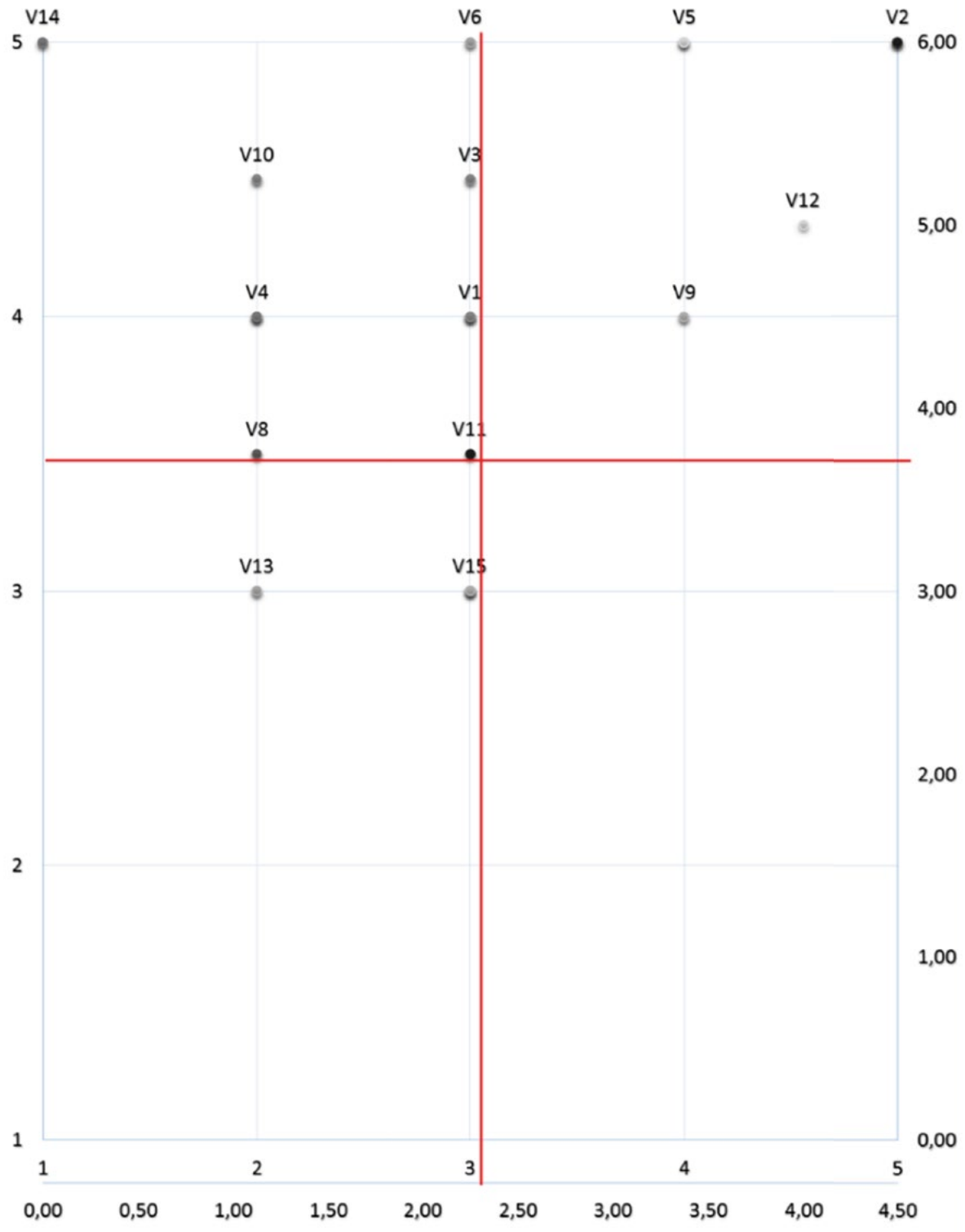
The group of experts also assessed the uncertainty of the variables, perceiving that some variables have a clear behavior according to trends, but others remain uncertain. These include government incentives, the dynamics within small agricultural processes, the evaluation and bets of boards of directors due to resistance to change, and the time it may take for generational turnover. It was noted that knowledge management is something experienced daily, but in some organizations, there are no formal processes in place that would ensure traceability of information and preserve the potential of some employees. According to current trends, many mills and companies in the sector report losing valuable knowledge due to the absence of effective personnel retention and knowledge management strategies. These results are reflected in the Table 3 and Figure 8.

Table 3. Importance – Uncertainty Evaluation Matrix

No.	Dimension	Abrev.	Average impor.	Average gover.
1	Technological development in agricultural processes	V1	4.0	1.0
2	Innovative practices in organizations	V2	5.0	3.0
3	Processes framed within innovation	V3	4.5	3.0
4	Budget allocation in organizations that encourage innovation	V4	4.0	2.0
5	Managerial practices that promote the development of innovation	V5	5.0	2.0
6	Commitment by management to improve processes and innovative practices in agricultural companies	V6	5.0	2.0
7	Acceptance of innovative processes by employees	V7	4.0	4.0
8	Acceptance of technological linkage in agricultural processes by middle and operational levels	V8	3.5	3.0
9	Guidelines that reflect innovation as part of organizational culture	V9	4.0	4.0
10	Innovation evaluated as a strategic element for organizations	V10	4.5	2.0
11	Organizational culture is clearly defined and recognized by employees	V11	3.5	3.0
12	Knowledge management is a practice in agricultural organizations	V12	5.0	3.0
13	Innovation is seen as a transformational element for crop improvement	V13	3.0	2.0
14	State incentives are available for the development of innovative practices	V14	5.0	5.0
15	Innovative processes require financial capital to generate differentiation	V15	3.0	4.0
16	Innovation is a practice of multinational corporations	V16	3.0	4.0
17	Innovation is a distant practice for small farmers	V17	4.0	4.0
18	The development of an innovation culture in the agricultural sector is important	V18	5.0	1.0

https://doi.org/10.25100/cdea.v41i83.14503

Figura 8. Importance – Uncertainty



Source: Developed by the researchers, using the MIC MAC tool from LIPSOR

https://doi.org/10.25100/cdea.v41i83.14503

Scenarios

Scenarios are images of the future based on a trend or issue under study, generating a projection process through the implementation of various tools that allow for consolidation. According to Masini & Medina (2000), the most common types of future scenarios that can be constructed are as follows:

Trend Scenario

This scenario seeks to show what will happen if things continue as they are. However, it is not enough to think of extrapolations of trends that may occur; it is necessary to explain the historical or new factors that influence or contribute to the expected trend being similar to the current one. In other words, it is necessary to pinpoint those factors that make the trend likely to strengthen.

Optimistic Scenario

This scenario lies between the trend scenario and the utopian or most desirable scenario. The optimistic scenario considers reasonable and positive changes that do not verge on excessive ambition, based more on desires than on the foundations that the facts and data imply. The optimistic scenario suggests desirable but plausible or feasible actions, distinguishing what can be achieved in the short, medium, and long term.

Pessimistic Scenario

The pessimistic scenario involves a deterioration of the current situation but without leading to a chaotic situation. It is the scenario that sits between the trend scenario and the catastrophic scenario, which involves a dramatic and rapid worsening of a system due to destabilizing, unexpected, and uncontrollable factors.

From this approach, several possible scenarios arise. In this article, the *Apuesta* scenario is presented, which is the one the group of experts is willing to invest in. It requires technical support for its implementation and the search for an organizational innovation system based on associations.

Betting Scenario: The Innovative Dawn of Valle del Cauca – A Challenge for the Agricultural Sector

"We are in 2040. The country has gone through various changes, and state dynamics have shifted Colombia's productive bets. By 2023, different sectors were beginning to collaborate to generate a transformation in their management models. The turning point started to unfold around 2027, when new generations of professionals merged with the great contributions of experienced teams, resulting in the consolidation of knowledge management within various organizations. Through science, technology, and innovation, these efforts began transforming Colombia's traditional sectors.

Under this premise, the agricultural sector, after many years of work, has finally achieved coordination among various actors, generating a transformation in research and development models. This transformation has led to organizational cultures based on innovation, requiring changes in management models and how boards of directors should approach production, commercial, and organizational consolidation processes. This shift involves all executive teams embracing new paradigms to ensure that the sector becomes competitive and sustainable in the long term.

From an exercise started in 2023, where a group of experts and directors from certain agricultural organizations in Valle del Cauca worked with a system of variables to construct a future for the sector, transformation strategies were developed. These strategies led to sector growth. Among the strategic variables that enabled the change for the sector were the development incentives promoted by the government. These allowed both small farmers and large organizations to become involved in innovation processes, fostering a culture of constant change—a culture of innovation that must be embedded at the executive level and replicated throughout the entire organization."

https://doi.org/10.25100/cdea.v41i83.14503

This scenario is the one that must be embraced to generate change, with the challenge being its acceptance by organizations and their executive teams. The research process, in another stage, faces the challenge of implementing these results with greater impact in other regions and replicating them nationally, leading to an overall review of the agricultural sector.

Discussion

The research provided projection criteria for the transformation of the implementation of innovative aspects that generate a cultural model in organizations, where the structural challenges stem from technical investment criteria, changes in mental frameworks, and business projections, beginning with challenges in the creation of networks and knowledge management models.

The **Abaco de Regnier** resulted in both positive and negative trends in the variables, posing a challenge because a number of variables repeat in the present and future according to the actors' perceptions. This reflects a lack of expected changes in the system due to the conservative mental models of agricultural sector managers, who are resistant to change. Part of the discussion centers around the great resistance within both management and operational teams to adopting technological tools for fieldwork, which would require changes in operations and achievement of objectives. Additionally, a significant challenge lies in the debate over government incentives, as the various national and departmental governments' efforts are considered weak in relation to the sector's needs.

The **tendential factors** highlight future changes in managerial models, innovation processes, and the great importance of a culture of innovation. This presents a challenge for the various stakeholders in the agricultural sector because programs for consolidating innovation, the participation of academia in development and research processes, and the establishment of formal knowledge management processes are essential. These factors are necessary to ensure generational knowledge transfer and sharing to create sustainable and competitive organizations.

The **structural analysis** or **MIC-MAC** tool allows us to recognize that, for the system, the development of innovation in small farmers is seen as a distant topic. Innovation is currently considered a practice that requires substantial budget allocations for consolidation processes. According to the actors, the innovation system is more manageable in multinational companies due to their structures and transformation processes. The consolidation of state incentives will allow innovation in the agricultural sector to have transformative potential across all levels of the value chain. Reducing development gaps is critical for small farmers to view innovation as a close process for transforming their models.

The **structural analysis** revealed that some system variables are considered to have potential motor power in the future, which will result in changes in variables that will connect them in innovation processes within organizations. The recognition of innovation culture will enable the transformation of managerial models, leading to organizational efficiency and impact results among collaborators. However, a key challenge in this discussion is the acceptance by the operational team, which includes people with over 20 years of service. This is a challenge because of the resistance that may arise with the introduction of new ways of doing things, incorporating technological tools, and consolidating operational models that foster constant change.

The **importance-governability tool** is a system that allows experts to identify the variables of great significance for consolidating a culture of innovation. In this case, a key challenge is incorporating innovation dynamics into the practices of small farmers, fostering transformation from the grassroots level and changing paradigms. This resistance or fear is a result of the belief that innovation is a practice specific to large companies or requires significant financial resources. This resistance prevents all system actors from embracing innovation.

The **uncertainty tool** allows us to recognize, based on the actors' perceptions, that certain variables exhibit a high level of uncertainty. This is due to changes in recent years,

https://doi.org/10.25100/cdea.v41i83.14503

where trends are known but there is resistance to implementation among territorial actors. Some of the uncertain factors include the potential impacts of invested resources. Although the development plan aims to boost agriculture, there are barriers in budget execution efficiency and in the ability to make a territorial impact, largely due to development gaps and infrastructure challenges.

The **scenario** built from the results of the various tools implemented for the study reflects a strategic approach by all actors. The central issue of the discussion is the willingness to work together and the contributions each actor will make. One limiting factor is the decision-making structure of boards of directors, the investment strategies of certain companies, and the managerial models of some individuals in the agricultural sector. The process is further hindered by the independent work culture and the lack of efforts to create associative processes. Despite the presence of organizations conducting research and inviting various actors to spaces for consolidation of new practices, models, and species according to regional conditions, the challenge lies in fostering an associative dynamic that goes beyond the competitive dynamics of the agricultural sector. As one actor described it, agricultural "cannibalism" could lead to stagnation or the disappearance of certain organizations in the Valle del Cauca sector.

Conclusions

During the research process, various decisive aspects of the innovation culture were addressed, which represented a challenge for the researchers. This exercise was directed towards the agricultural sector, which holds a significant percentage in terms of employment generation, contribution to regional development, and historical trajectory for the Valle del Cauca department. Currently, this sector faces challenges related to consumption patterns, government regulatory conditions, and global market dynamics.

With this focus, the exercise aimed to analyze, using prospective instruments, the culture of innovation within organizations in the agricultural sector. This analysis was based on the participation of a group of experts, stakeholders, and leaders from the sector, who could generate an analysis of how organizations are developing innovative practices, what the limitations are, and what factors are enhancing the sector under the innovation framework.

The analysis focused on how innovation is embedded in organizational culture, which allowed the identification of various aspects that clarify the future prospects for the agricultural sector to have a culture of innovation through the consolidation of an associative approach, positioning it regionally and serving as a model for other sectors at the national level.

According to the methodological approach, the study concludes that, in the agricultural sector, innovation aspects are considered essential processes and practices for sector transformation. However, the conditions of the environment and the organizations themselves limit the implementation of innovation. For small farmers, developing innovation is a challenge due to budget constraints, with large national organizations or multinational companies being recognized as leaders in innovation.

The biggest challenge for innovation processes is for the management team, which, according to theoretical approaches, is where organizational culture originates, to recognize innovation as a practice for improvement. This, as a strategic approach, allows organizations to achieve structural improvements and transformation in the models and mental frameworks of employees. It is crucial for decision-making groups to view innovation as a supportive element that can improve ways of doing things, making them more practical and efficient for competitive success.

Based on the diverse debates, the experts conclude that, to create an innovative system that permeates all types of organizations in the agricultural sector, an associative model must be pursued. This ensures that innovation is not an independent exercise, but one articulated among all stakeholders. This highlights the need for contributions from universities, as research processes are developed that remain in university libraries but are not creating an impactful exercise

https://doi.org/10.25100/cdea.v41i83.14503

with the stakeholders who are the main actors and beneficiaries of the research efforts.

From the results of this project, the research group considers that it opens up a challenge as a research process: the search for transformation in organizational culture towards a culture of innovation. This transformation must start from the management team, be accepted, incorporated, and socialized among all employees, leading to daily practices and decisions that aim to improve organizational performance. The goal is to create a commitment to having formal knowledge management processes as a collaborative exercise across the sector.

The researchers believe that the agricultural sector has great potential for growth and transformation to achieve competitiveness and sustainability in the global market. The challenge lies in facing and utilizing the right mechanisms for government entities to recognize the sector's contribution to the region and the country. This recognition should incentivize consolidation through transformation programs that ensure long-term sustainability as a model for other sectors, which do not identify innovation as a strategic element for consolidating organizational models.

The "betting scenario" presents challenges in building networks, transforming from the territories, and consolidating academic models that promote growth in various business systems.

Conflict of Interest

The authors declare no conflict of interest.

Financial Resources

Project funded by Universidad Antonio Nariño with internal code 2017213.

References

Acar, Z., & Acar, P. (2012). The effects of organizational culture and innovativeness on business performance in the healthcare industry. *Procedia - Social and Behavioral Sciences, 58*, 683–692. https://doi.org/10.1016/j.sbspro.2012.09.1046

Allaire, Y., & Firsirotu, M. E. (1992). Teorías sobre la cultura organizacional. En *Cultura organizacional: Aspectos teóricos, prácticos y metodológicos* (1ª ed., pp. 3–37). Legis Editores S.A.

Bernal Sánchez, L. C. (2023). Estrategias de adaptación al cambio climático en el sector agrícola colombiano. *Revista Cubana de Meteorología, 29*(3).

Cameron, K. S., & Quinn, R. E. (2006). *Diagnosing and changing organizational culture: Based on the competing values framework*. Jossey-Bass.

Daft, R. L. (2000). *Teoría y diseño organizacional* (6ª ed.). International Thomson Editores.

Drucker, P. F., & Maciariello, J. A. (2008). Introduction: Management and managers defined. In *Management* (2nd ed., pp. 1–17). Collins Business.

Georghiou, L. (2009). *A handbook of technology foresight: Concepts and practice*. Edward Elgar. https://doi.org/10.4337/9781781008768

Gibson, J. L., Ivancevich, J. M., & Donnelly, J. H., Jr. (1998). *Las organizaciones* (8ª ed.). McGraw-Hill.

Godet, M. (2000). La caja de herramientas de la prospectiva estratégica. Alfaomega.

Godet, M. (2007). *Prospectiva estratégica: Problemas y métodos* (Cuadernos de LIPSOR, Instituto Europeo de Prospectiva y Estrategia).

Guerrero, J., & Molina, Ó. (2012). Las prácticas de innovación en las pymes boyacenses. *Apuntes del CENES, 31*(54), 161–192. https://doi.org/10.19053/22565779.18

Hogan, S. J., & Coote, L. V. (2014). Organizational culture, innovation, and performance: A test of Schein's model. *Journal of Business Research, 67*(8), 1609–1621. https://doi.org/10.1016/j.jbusres.2013.09.007

Martin, J. (1992). Cultures in organization (1st ed.). Oxford University Press. https://doi.org/10.1093/oso/9780195071634.001.0001

Masini, E., & Medina, J. (2000). Scenarios as seen from a human and social perspective. *Technological Forecasting and Social Change, 65*(1), 49–66. Elsevier. https://doi.org/10.1016/S0040-1625(99)00127-4

Medina, V. J. E., & Barbieri, M. E. (2001). *La imagen y la visión de futuro en los estudios del futuro*. Pontificia Universitas Gregoriana.

Méndez Álvarez, C. E. (2020). *Innovación organizacional: Cultura, condición para la estrategia*. Editorial Universidad del Rosario. https://doi.org/10.12804/ta9789587844443

Mojica, F. J. (2009). *Forecasting y prospectiva: Dos alternativas complementarias para adelantarnos al futuro*. Bogotá: Universidad Externado de Colombia.

Montoya Ramírez, M. F. (2015). *Gestión de la innovación: Efectos del clima de innovación de las empresas en el desempeño y compromiso de los trabajadores* [Tesis doctoral, UPC, Departament d'Organització d'Empreses]. http://hdl.handle.net/2117/95977

Ogbonna, E., & Harris, L. C. (2000). Leadership style, organizational culture and performance: Empirical evidence from UK companies. *The International Journal of Human Resource Management, 11*(4), 766–788. https://doi.org/10.1080/09585190050075114

Osborn, A. F. (2012). *Brainstorming: The dynamic way to create ideas*. Martino Fine Books

Porter, M. E. (2010). *Ventaja competitiva: Creación y sostenibilidad de un rendimiento superior*. Pirámide

https://doi.org/10.25100/cdea.v41i83.14503

Rivera, W. F., & Hoyos Concha, J. L. (2016). Business model for initiatives in science, technology and innovation: An application for the fish agroindustry of Cauca. *VITAE*, *23*, S410–S414.

Robbins, S. P. (1994). *Comportamiento organizacional: Conceptos, controversias y aplicaciones* (6ª ed.). Prentice Hall Hispanoamericana.

Sánchez, O. M., Cervantes, A., & Peralta, M. P. (2016). Gestión de la innovación en pequeñas y medianas empresas de Barranquilla – Colombia. *Revista de Ciencias Sociales*, *XXII*(2).

Schumpeter, J. (1957). El fenómeno fundamental del desenvolvimiento económico. En *Teoría del desenvolvimiento económico: Una investigación sobre ganancias, capital, crédito, interés y ciclo económico* (2ª ed., pp. 68–103). Fondo de Cultura Económica.

Tartabull Contreras, Y. (2020). *Visión prospectiva de la ciencia, la tecnología y la innovación*. Editorial Universo Sur. https://public.ebookcentral.proquest.com/choice/PublicFullRecord.aspx?p=6776074

Tribin, J. P., & Forero, C. (2014). Prospectiva de la cadena productiva de mango bajo el enfoque dinámico: Prospectiva da cadeia de produção de manga no âmbito do enfoque dinâmico. *Entramado*, *10*(1), 56–81.

Ulijn, J., & Weggeman, M. (2001). Towards an innovation culture: What are its national, corporate, marketing and engineering aspects, some experimental evidence. En C. L. Cooper, S. Cartwright, & C. Earley (Eds.), *The international handbook of organizational culture and climate* (1st ed., pp. 487–517). John Wiley & Sons Ltd.

How to cite this paper?

Corrales Castillo, E. J., Ramírez Tarazona, J. V., & Arana Flórez, R. (2025). The culture of innovation in companies in the agricultural sector in Valle del Cauca – Colombia, a look from the foresight approach. *Cuadernos de Administración*, *41*(83), e20114503. https://doi.org/10.25100/cdea.v41i83.14503

https://doi.org/10.25100/cdea.v41i83.14503