

## The use of Simons' levers of control (1995) in the management of an agroindustrial cooperative

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### Article Information

Article History:

Received: July 5, 2016

Accepted: December 7, 2016

Keywords:

Levers of control.

Management control systems.

Agroindustrial cooperative.

### Abstract

This study aimed to examine how Simons' levers of control (1995) are used in the management of an Agro-industrial Cooperative. This is a case study of an Agro-industrial Cooperative, with descriptive and qualitative characteristics. Data were obtained through interviews, documents, and observation. We performed a content analysis categorized by themes, using Nvivo® software and word clouds. We observed that diagnostic systems (monitoring of activities) and interactive systems (managers' involvement, incentives to organizational learning, and the emergence of new ideas) are the most used in the organization, since these are used constantly and are integrated with the cooperative's daily activities. Beliefs are not communicated clearly and boundary systems are used only when there is a need to establish operational and behavioral limits and are not used constantly.

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### 1. INTRODUCTION

Agricultural cooperatives, which generally are responsible for the entire production chain, from the soil preparation to the industrialization and commercialization of the products, are currently the strongest economic segment of Brazilian cooperatives. The agriculture sector has also more cooperatives and co-op members than most others in Brazil (OCB, 2015).

In order to maintain this favorable situation, cooperatives need control systems that enable an effective management (ISIDORO et al., 2012), as well as adapt their controls to environmental pressures. According to Bialoskorski Neto, Nagano and Moraes (2006), cooperatives need efficient processes of control and monitoring, because they are a form of organization in which members have a share of property and decision rights. They also have an increasing importance in national and world markets (ISIDORO et al., 2012).

Controlling processes are a central characteristic of all organizations, being a fundamental part of organizational activities, which includes adapting the organization to new situations, taking into account its objectives and purposes. In this sense, control has been defined as the process to ensure that the organization is adapted to external and internal changes and is developing actions to achieve its objectives (OTLEY; BERRY, 1980).

Managerial controls can be used in different ways in organizations. According to Simons (1995), they can be used as belief, diagnostic, interactive, and boundary systems. These four levers of control, according to Nisiyama and Oyadomari (2012, p.106), "provide a better understanding of the application of managerial controls."

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According to Simons's model of levers of control (1995), belief systems are used to inspire and direct the search for opportunities. Boundary systems are used to set limits on the behavior of the organization's participants. Diagnostic control systems are used to motivate, monitor, and reward the achievement of goals. Finally, interactive control systems are used to stimulate discussion of premises and plans and promote the emergence of new ideas and strategies.

In this context, the following research problem guides the present study: How Simons' levers of control (1995) are used in the management of an Agro-industrial Cooperative? In order to answer the question, this study seeks to verify how Simons' levers of control (1995) are actually used in the management of an Agroindustrial Cooperative, given that the literature is short on evidence of its use in these organizations.

National and international studies have used Simons' levers of control (1995) to examine various organizational aspects: relations between the use of Management Control Systems (MCS) and organizational capacities (HENRI, 2006; OYADOMARI, 2008); alignment of cost controls and strategies (DIEHL, 2006); examination of the background of control systems (WIDENER, 2007); MCS contribution to the development and implementation of organizational strategies (ALVES, 2010); the interactive and diagnostic use of MCS in the different phases of the organizational life cycle (LAVARDA and PEREIRA, 2012); the balance between the traditional role of control and the innovative role of MCS (ZHENG, 2012); the relationship between leadership style, MCS use and technological innovation (CRUZ, 2014); the relationship between leadership style and MCS use (CRUZ, FREZATTI, BIDO, 2015); and the relationship between a flexible organizational culture and the levers of control (HEINICKE, GUENTER, WIDEREN, 2016).

What motivated this study is the scarcity of empirical evidence in Brazil about the use of the Management Control System (AGUIAR, FREZATTI, 2007; OYADOMARI, 2008), as well as about Simons' levers of control model (OYADOMARI, 2008). Additionally, this study differs from the others by approaching Management Control Systems within an Agro-industrial Cooperative. Studying a cooperative represents a differential because there are specificities in its controls and monitoring that may be different from those used by other business organizations.

The theoretical contribution of this study is the understanding of the use of levers of control in an Agro-industrial Cooperative possessing formalized management controls. Such understanding is important because the levers of control approach need to be used in balance, that is, promoting at the same time innovation and new ideas and the monitoring and control of activities. It contributes, practically and socially, to provide information relevant to the management process, with a view to business continuity. This study also contributes to observe the levers of control put into practice.

## 2. THEORETICAL FRAMEWORK

In this section, we present a conceptual approach of Simons' levers of control (1995) and the previous studies that help in the analysis of the data.

### 2.1. Levers of Control

Simons (1995), by analyzing several case studies, developed the levers of control model, which consists of four types of control (belief, boundary, diagnostic, and interactive).

Belief systems are a set of organizational definitions formally communicated by managers to provide basic values, purposes, and direction to the organization. Basic values, missions, and purposes relate to the company's strategy and can be considered part of a system when these are formal, information-based, and used by managers to maintain or change the organization's activity patterns (SIMONS, 1995).

Belief systems set the values of the organization in order to inspire and motivate employees to research, create, innovate, pursue opportunities (WIDENER, 2007), and can be used as a tool for changing strategies (MARGINSON, 2002).

Boundary systems consist of rules that establish limits to the behavior of members of the organization (SIMONS, 1995). Boundary systems impose organizational limits, ensuring that strategies are within the prescribed domain of organizational activities (SIMONS, 2000). They are also used to define behavioral limits in the search for opportunities and innovation (BRUNING; BONNET; WRIGHT, 2004). Boundary systems set limits through rules, codes of conduct, strategic planning systems, and guidelines, which are influenced by the risks they propose to avoid (COLLIER, 2005).

Diagnostic systems are considered feedback systems to ensure the achievement of organizational objectives. They are formal systems used by managers to monitor results and correct deviations in performance. Diagnostic control systems have the ability to measure process outputs, correct performance deviations, and compare predetermined patterns with current results (Simons, 1995). Using diagnostic controls it is possible to analyze the factors that ensure the achievement of desired strategies (HENRI, 2006).

Control systems are considered interactive when managers use them regularly and frequently for both their own and their employees' activities (SIMONS, 1991). They are subjectively and informally operated, through experiences, perceptions, discussions (DIEHL, 2006), frequent dialogues (HENRI, 2006, WIDENER, 2007), regular meetings, review of action plans (SIMONS, 1991), which stimulates organizational research and learning (LANGFIELD-SMITH, 1997; BRUNING; BONNET; WRIGHT, 2004), and the development of new ideas (LANGFIELD-SMITH, 1997; BRUNING; BONNET; WRIGHT, 2004; HENRI, 2006). Interactive control systems contribute to innovation (BISBE; OTLEY, 2004) and the search for new strategies in a dynamic market (BRUNING; BONNET; WRIGHT, 2004; WIDENER, 2007). Thus, managers ensure that the organization will respond to threats from the environment as well as seize the opportunities that will emerge (SIMONS, 1990).

Four concepts relate to the levers of control and are controlled by them: Fundamental values, risks to be avoided, critical performance variables, and strategic uncertainties. Belief systems guide the creative process and inspire the search for new opportunities, controlling fundamental values. Boundary systems, which limit the behavior of the organization's participants, control the risks to be avoided. Diagnostic control systems, which have the function of monitoring, evaluating, and rewarding achievement of objectives, control critical performance variables. Interactive control systems, which have the function of stimulating organizational learning and the process of developing new ideas and strategies, control strategic uncertainties (SIMONS, 1995).

Reviewing the literature on Simons' levers of control model (1995), we find that in a certain organization, each lever of control can be used in different ways, either specifically to control its activities or balancing dynamic tensions. Its use depends on how the organization manages its business in pursuit of its objectives. According to Kruis, Speklé, and Widener (2016), there is still a need for several additional studies to provide a conclusive understanding of the levers of control balance.

## 2.2. Previous studies

In this section, we review previous studies that used Simons' levers of control approach (1995), and which contributed to the analysis performed in our study.

Bonner, Ruekert, and Walker (2002) examined the formal and interactive control mechanisms available to managers in the control of new product development projects, as well as the relationship of these control mechanisms to performance. To carry out the study, a questionnaire was submitted to professionals working in product development, who are members of the American Marketing Association. The sample was composed of 95 questionnaires answered. The results suggest that the creative potential in product development is fully utilized when there is flexibility in the activity performed, i.e., excessive control can limit the team's creativity, interfering in the final performance.

Diehl (2006) conducted a case study of an organization providing security services, where he analyzed the alignment of cost and strategy controls using the levers of control model. He noted that strategic cost controls could support the organization's strategy, contributing to better performance and greater strategic effectiveness; the company had no formalization of beliefs; the boundary system addressed legislation issues, customer ethics, and strategic limits; the diagnostic control was the most fragile one of the company, as actions were taken reactively; and the interactive control system was well developed. He showed an imbalance in the levers of control application, in which belief system and interactive control system were more valued than the other two.

Oyadomari (2008) verified the existence, identified, and qualified the relationships between the use of MCS and the organizational capabilities. A questionnaire was submitted to 104 companies of the 1000 largest Brazilian companies listed on the Exame Magazine - Best and Greatest Edition of 2008. The results indicated that the use of diagnostic systems is important for the organization management and that comparing objectives with results achieved does not impair organizational skills; interactive controls promoted organizational competencies. Alves (2010) conducted a case study of a nonprofit higher education institution to identify the contribution of MCS to the development and implementation of the organizational strategy. Data were obtained through interviews, document analysis, and observation. The results showed that there is interdependence among the organization's different MCS, and that belief systems influence the organization's strategic climate. In addition, belief systems influenced the diagnostic, interactive, and boundary systems.

Vasconcelos (2012) studied a sample of small and medium-sized Portuguese companies in the technology sector and highlighted the roles of Management Control Systems, according to the Simons' levers of control framework (1995). The results showed that the systems of financial planning, financial evaluation, and cost control are used in a diagnostic capacity; values and mission function as belief systems; and new product development management is performed interactively. He also found that the more dynamic the environment and the more organic the structure, the more diagnostic and interactive systems are used together; and that the more tasks are uncertain and the greater the hostility of the environment, the less is the use of diagnostic control systems.

Cruz (2014), in a study of 164 companies, mostly large, investigated the relationship between leadership style, MCS, and technological innovation. He found that belief, interactive, and boundary systems had a positive influence on technological innovation. Companies that seek to innovate in products and processes should invest in communicating values and objectives related to innovation, in discussions between different areas and members, and in establishing limits for employee action, providing a focus for action development.

Cruz, Frezatti, and Bido (2015) sought to explore the leadership style as a background to the MCS operation. To do so, they conducted a survey with 164 companies. They evidenced the transformational leadership as background to the use of interactive and belief systems. Belief, interactive, and boundary systems had a positive influence on technological innovation.

Heinicke, Guenther, and Widener (2016) examined the relationship between a flexible culture and the levers of control framework. The sample comprised 267 managers of medium-sized companies. The results showed that the more companies emphasize a flexible culture, the more they emphasize the use of belief systems. In this case, belief systems represent an important control tool in organizations that focus on a flexible culture.

The aim of the study by Kruijs, Speklé, and Widener (2016) was to examine use patterns of the levers of control. Responses were obtained from 217 managers. They found a stable solution composed of four control patterns, as a manifestation of balance.

### 3. METHODS

Our research has a descriptive, case study, and qualitative approach. The object of study was an Agro-industrial Cooperative, which has several business units spread throughout Brazil and approximately 1,600 employees. More than 40 years ago, several farmers gathered to form the cooperative reacting to difficulties of storage and transportation of grains. The cooperative has since expanded its activities and currently also provides various services, such as receiving, processing, marketing, and storage of grains, transportation services, agronomic technical assistance, marketing of inputs, machines, implements, and tools. It has an industrial poultry and rations division and owns some supermarkets.

We performed a case study of this organization because it uses formal management control systems, contributing to our research by revealing its management process. Data were obtained through interviews, documents, and observation.

We used a semi-structured interview script with open questions, built from the theoretical framework and instruments already used in previous research. The research tool composed of 4 blocks and 27 questions is part of a master's thesis, and in this study, we present the results of the third block. The questions that make up the third block were adapted from the research tool of Alves (2010), which was based on the work of Simons (1995, 2000).

In order to validate the research instrument, we performed a pre-test. Initially, the interview script was submitted to a teacher and three students to check the adequacy and clarity of the questions as well as suggestions for improvements. After the suggested script changes were made, a manager of a real estate developer was interviewed. The test interview was recorded, transcribed, and analyzed to verify if the questions meet the objectives of the study.

The interviews were conducted with the Vice President, Secretary Director, Deputy Director, Technical/Industrial Manager, Administrative/Financial Manager, Commercial Manager, Operational Manager, and three Warehouse Managers, and were recorded and transcribed in full in November of 2014. The interviews were carried out in the dependencies of the organization object of the study. Two managers who work in distant warehouses were interviewed by Skype and the other interviews were conducted at the cooperative headquarters. The interviews were recorded and transcribed and had an average duration of 50 minutes.

The documents consulted in the study were the annual report, company website, financial statements, and explanatory notes. The observation was performed in an unstructured manner. According to Alves-Mazzotti and Gewandsznajder (1999), in unstructured observation, situations are documented without prior definition of what will be observed. Observations occurred on the two days of the interviews. The study construct is shown in Chart 1.

Categories	Sub-categories	Questions	Authors
Belief	Values	How are organizational values communicated to subordinates?	Simons (1995, 2000), Bruining, Bonnet and Wright (2004), Collier (2005), Widener (2007), Alves (2010), Oliveira (2012)
	Purposes	How are the organization's general purposes communicated to subordinates?	
Boundary	Activity limits	How are the organization's performance limits established, ensuring the strategies' conformity with organizational activities (activities, markets, risks)?	
	Behavioral limits	How are established the limits to the behavior of individuals in the organization?	
Diagnostic	Monitoring	How plans and goals are monitored?	
	Reward	How the fulfillment of plans and goals is rewarded?	
Interactive	Manager involvement	How do managers engage regularly and personally in subordinate decision-making activities?	
	Organizational learning	How organizational learning and the expression of new ideas are stimulated?	

**Chart 1.** Study construct.

Source: Collected data.

Transcripts of the interviews, documents, and observations composed a field report containing e-mails sent and received from the company, a protocol of the study signed by the interviewees, e-mails from the interviewees approving the transcribed interviews, a summary of the transcripts, documents, and observations. We used the content analysis technique, categorized according to the items presented in Table 1, with the aid of Nvivo® software and word clouds created using the Tag Crowd generator.

#### 4. DESCRIPTION AND ANALYSIS OF RESULTS

Simons' levers of control framework (1995) consist of four types of control: Belief systems, boundary systems, diagnostic systems, and interactive systems. Chart 2 shows a visualization of the respondents' comments on belief systems after being asked how the values and general purposes of the organization are communicated to subordinates.



Research Subject	Subjects' comments on belief systems
Subject 1	"Everything through the system".
Subject 2	"Today, it is not so much in evidence as in other times, but through posters, e-mail, meetings".
Subject 3	"It's the HR that also does this, mission, purposes, in this sense".
Subject 4	"We held meetings, we have made some changes in our vision, mission, values, and quality policies, adapting it to the BRC, this has to be publicized, because it is one of the points BRC itself demands, they ask individual questions to employees. So that's much publicized, [in the] internal newspaper".
Subject 5	"Everybody knows where the cooperative wants to go. In the PS itself, this is explicit. We have mission, vision, values, but I believe not everyone knows. The vast majority, I think they do not even know. In this, we are a little flawed, but we work on the activities themselves and what we pass on to employees, to managers, are the goals we want to achieve, the opportunity we have to grow".
Subject 6	"There is, there is, but I'd say that we don't waste much time in the commercial area with that, the commercial area is about buying in the best possible manner, at the right time, the best price, to have all the products that the producer needs, so you do not have to go elsewhere to get what he needs".
Subject 7	"Through meetings, through instructions, systems, [that's how] you communicate this".
Subject 8	"Through electronic mail, mainly through normative instructions. Each manager absorbs the regulations and passes on to the employees through meetings, training".
Subject 9	"Today there is a lot of training and in these training sessions there is always someone present from the company that makes the opening speech, or many training [sessions] are done by company employees who pass this to employees. And also in the warehouse, in the conversations that we have, in the meetings that we have with the employees, we pass all this".
Subject 10	"Usually we take people for training [...]". "Most people do not know it. It enters by one side [of the head] and leaves by the other, they do not assimilate much".

**Chart 2.** Synthesis of the comments on belief systems

Source: Collected data.

The cooperative has mission, vision, and values statements, which are available at the organization's website. The co-op's values and purposes are communicated to the members through meetings, training sessions, normative instructions, electronic mail, newspapers, and by the Human Resources division when they are hired. Values and purposes statements usually have greater prominence in the poultry industry, due to the food safety requirements and standards established by the British Retail Consortium (BRC).

The comments of Subjects 2, 5, and 10, presented in Table 2, show that the majority of employees are not aware of the values and purposes statements and that despite being often informed about them, they do not assimilate this information. Subject 5 reports that the cooperative is a bit flawed in this, but affirms that his own communications are restricted to the cooperative's activities, reviewing the growth opportunities, challenges, actions, and goals to be achieved.

In the annual report, the company presents the goals for the following year, from revenue goals such as from investments, acquisitions, and planned improvements to the expansion of activities, training, and courses aimed at employees and co-op members. Together with the goals, it presents the cooperative's planning, budget, income, costs, expenses, and the measurement of results, so that its objectives are achieved.

Based on the information communicated to employees about the company's activities and goals, which are included in the annual report, we can infer that these relate to the mission, vision, and values statements, which are disclosed on the company's website. These results are in line with the study by Alves (2010), which evidenced the use of controls related to the governance structure and values. Regarding the governance structure, Alves considered the meetings held to communicate values and purposes and, regarding the controls related to values, he addressed the organizational objectives, seeking to relate them to the vision, mission, and values statements. Our results also corroborate the study of Vasconcelos (2012), in which values and mission statements were analyzed as a belief system.

Some managers realize that no matter how much the organization has their beliefs evidenced, employees have no knowledge of them. On the other hand, other managers think that the co-op's beliefs are clear to all members of the organization.

Evidence suggests that beliefs are not disseminated clearly throughout the organization and that the communication needs to be improved. This suggests that new studies are required in order to understand how belief systems function in other companies, as well as to verify if they are institutionalized. Given this finding, we can infer that in this organization belief systems are less favored. This result does not corroborate the findings of Heinicke, Guenther, and Widener (2016), which showed that in some organizations belief systems are important control mechanisms.

Chart 3 presents the comments of the respondents about boundary systems when questioned about how the limits of the organization's activities are established, in order to ensure the company's strategies consistency with operational limits (activities, markets, risks), and how limits are set to guide the behavior of individuals in the organization.

Research subject	Subjects' comments on boundary systems
Subject 1	"It depends a lot on how the world market goes. Since we export a lot, the commercial area has a forecast, so sometimes we sell ahead, as I was explaining first, because you have to keep track of world's stocks, everything". "There are rules for the employee to work with the cooperative".
Subject 2	"There would be no limits on exports, whenever there are opportunities, [we are] always searching for new markets". "The limits are set by HR. Behavioral rules communicated by HR at the time of hiring".
Subject 3	"By the market. The guy has freedom as far as he can go, with company controls". "There are rules, conduct, everything within the company to present a good image of the cooperative".
Subject 4	"Look, the limit where the company can get to is always a point that does not violate its principles, that will not violate its mission, vision, and values, no action that will violate it, you have a rearguard behind it, you can't do anything that will harm your company [...]". "You have to be training them on the principles [...]".
Subject 5	"All the division's expenses must be authorized by the respective manager. Often the value is exceeded due to business urgent needs, but this, at the earliest opportunity, is communicated to the board". "We have a code of ethics".
Subject 6	"We have a price history, both in buying and selling, on which we base our decisions. When this price is favorable, we take more aggressive initiatives, when it is unfavorable we back down a little. So, based on certain parameters, people act".
Subject 7	"[...] we try hard to value the customer, the associate; this is our principle, to value our customer, both in buying and selling". "I'll cite an example. The commercial area has to be attentive to the market. Whether I'm going to risk selling soy ahead, because the soy [price] trend is downward, or I'll wait for the producer to sell the soy and then I sell. Or we will buy corn because we consume corn, or it is better to consume the corn that we have internally, or we will buy it outside". "The statute, resolutions, normative instructions, internal regulations, code of ethics, we have it all".
Subject 8	"It functions with people participating, on a committee. If this committee decides to look for something in the market or build it, its feasibility, ability to pay, what benefits this will bring are assessed, one thing is linked to another". "There is a company statute that both employees and associates must follow, and it works, and it's very enforced. There are norms for everything, which are passed on to employees. Everyone reads the normative instructions and signs them".
Subject 9	"[...] working with your feet firm on the floor, sometimes you could do some trading that could have a doubled turnover, but at the same time you can go bankrupt, because playing today with the future market is complicated, [...] to talk about what's going to happen next month, it's complicated, because you work a lot with exports [...]" "There are the rules for employees, there is a manner, a way of working, what you can and can't do, but everything within the rules [...], so today there is the HR sector, the safety sector, then everything has its limits [...]".
Subject 10	"She's very down to earth, she doesn't run high risks". "There are regulations. About the cell phone use, no smoking in the courtyard, use of protective equipment, any noncompliance may cause an admonition".

**Chart 3.** Synthesis of the comments on boundary systems

Source: Collected data.

The organization's operational limits are established according to the market (product price), exports, principles, mission, vision, values, authorization of expenses, history of product prices, feasibility, and ability to pay. By referring to the statements of principles, mission, vision, values, market, and exports, this result is in line with Alves (2010), who identified that the organization's operational limits, in its activities and markets, are defined by its strategic planning and the vision and mission statements.

In order to establish limits of authorization of expenditures, product price history, feasibility, and ability to pay, the organization relies on financial planning, budget, costs, and cash flow, as our interviews, documents, and observations showed.

Behavioral boundaries are established through norms, rules, and principles, which are communicated by the code of ethics, statute, normative instructions, and internal regulations. At the time of hiring, the Human Resources sector reviews the behavioral rules for the employee. HR also issues the rules regarding worker protection through its work safety division.

Our findings related to the boundary system corroborate Diehl's (2006), who found that ethical considerations regarding clients and strategic limits relate to the boundary system, and Cruz's study (2014), which verified that the boundary system, by limiting employee action, directs them to action.

Evidence suggests that boundary systems – both by limiting activities and markets and by limiting behaviors through norms, rules, and principles – depend on belief systems. Even if belief systems are not disseminated throughout the organization, they relate to the day-to-day activities of the company. Moreover, boundary systems are only used when it is necessary to establish performance and behavioral limits, and are not used constantly because, after established, the limits become rules, which encourage the realization of further studies.

The respondents' comments on diagnostic systems, when asked about how the plans and goals are monitored and rewarded, are presented in Chart 4.

The organization monitors the compliance with plans and goals by evaluating costs, production volume, planning, budget, sales, grain reception, collections, and defaults.

Research Subject	Subjects' comments on diagnostic systems
Subject 1	"It participates, now, in order to participate, it needs to fulfill some goals in here. So at the end of the year, when we make the projection of income, we set all the goals, the amount the unit needs to receive in order to be viable [...]"
Subject 2	"Each sector has its own goal in order to participate in profit sharing".
Subject 3	"Based on volume, costs. All these things have to be involved, for example, the platform has a goal per day, and it has to deliver so many chickens with a certain weight [...]" "There are programs of profit and result sharing".
Subject 4	"So you create individual goals for this sector, the sector that cuts the breast, that they have to do 8 breast fillets a minute. You have the boning sector, which has to do a certain number of pieces per minute". "They receive the regular paycheck and if they have accomplished the goal they receive an extra".
Subject 5	"We do the planning and budgeting". "It's because of PS, because of the goals achieved and the result achieved".
Subject 6	"In the input division, we have to sell during the year so many thousand tons, so that's the goal. As to the grain, we have to receive so many thousand tons. So we have goals, but not for individuals, we have goals by sector". "We get a share of the annual result".
Subject 7	"Within the PS, the goals are stipulated at the beginning of the year, goals for income and such". "There are general goals and some goals and bonuses for something specific".
Subject 8	"[...] I gather the employees and I set goals for the technical area, a certain amount of sales, I establish for the financial area collection and delinquency goals". "Through the annual profit sharing".
Subject 9	"We control, there is the issue of sales, receipts [...]". "We get a share of the results".
Subject 10	"For example, grain receiving goals [...]". "[...] sale of inputs". "A share of the results, both for the associate and for the collaborator".

**Chart 4.** Synthesis of the comments on diagnostic systems

Source: Collected data.



Employees who fulfill plans and goals are rewarded through a Profit Sharing (PS) program. In addition to PS, the company has specific goals, according to Subject 2: “It also has a reward for attendance; at the end of the month [the employee] is rewarded with a basic food basket”. See also the comments of Subjects 4 and 7:

You receive a salary and the fundamental activities [have] bottlenecks, as we call it. If this activity does not take place, there will be a multitude of idle people, if the chest is not cut, there will be a multitude of idle people, because they will not be salting, processing this product to export. So these people in the key activities, they receive a variable pay (Subject 4).

The technical department itself has goals set by multinationals. Because it has multinationals' goals to sell inputs, then if the goal is fulfilled, awards are given to the people, which is an incentive, of course, always sharing it. There are general goals and some goals and bonuses for something specific (Subject 7).

Alves (2010) found that the control of goals, budgets, financial controls, and non-financial measures were the main controls used diagnostically, and Vasconcelos (2012) identified financial planning, financial evaluation, and cost control systems as diagnostic tools, which is in line with the present study. In contrast to the study by Diehl (2006), our study showed no fragility of diagnostic control in the company, and actions are not pursued in a reactive way, as evidenced in interviews, documents, and observations.

The evidence suggests that the diagnostic controls are in constant use in the organization, as part of the daily activities, because the company needs to monitor its activities and results to achieve the desired objectives. Thus, it adopts mechanisms that encourage members of the organization to become actively involved.

We present in Table 5 the research subjects' comments on interactive systems when questioned how managers regularly and personally engage in subordinate decision-making activities and how organizational learning and the expression of new ideas are stimulated.

Chart 5 shows that cooperative managers engage regularly and personally in the subordinate's decision-making activities through meetings held every Tuesday with executive directors and division managers, when each manager presents the contributions of his sector employees. Quarterly meetings are held with warehouse managers. Each manager receives reports from a sector-specific leader and presents them to executive officers and division managers at the quarterly meetings. In addition, each employee receives individual attention.

The cooperative invests in courses, training, post-graduations, and encourages the employees to study, ensuring that the knowledge acquired is beneficial to the company's activities, besides contributing to the employee reach better positions in the organization. The annual report describes the activities designed to promote organizational learning.

The cooperative has, according to an explanatory note, a reserve fund for technical, educational, and social assistance, which is intended to cover expenses with technical, educational, and social assistance to members, their families, and employees. In addition, incentives for organizational learning are based on financial planning and budgeting.

Research Subject	Subjects' comments on interactive systems
Subject 1	"So every Tuesday we meet, the 4 executive directors, the 4 division managers, who compose the credit committee, which we call in to make the decisions, analyze the week, and make new decisions." "[...] we like very much to hear from our employees [...]."
Subject 2	"We do not get directly involved, it's more the responsibility of division managers." "Through meetings, conversations, training, courses, post-graduation within the cooperative with a group of employees."
Subject 3	"There are those in charge, we are not always there, we talk with the person in charge of the sector [...]. We try to talk to him [...]. "You give them the freedom to study, to seek more knowledge, on top of that, they will study, obtain more knowledge, which directly helps the company and also themselves to grow within the company."
Subject 4	"[...] we work at a collegiate level, let's call it that, you consult your sector colleagues, there are the division managers, below me, there are department managers, which are three, each department manager has its various supervisors." "One Wednesday a month, I hold a meeting with my staff and I recognize the people who make a difference, people from the inside who have an innovative idea, who are special, dedicated people who are looking to do something."
Subject 5	"In all these areas, I have a department manager [...]. "In addition, there is the individual assistance, because the situations differ from one department to another." "We have an in-house post-graduate course in the company [...]. "Well, we have constant training sessions, and new ideas are presented in the meetings that every department manager hold with his employees."
Subject 6	"[...] we work together [...]. "Everyone has the opportunity to take the courses and every time we attend an external lecture, we open them to employee participation." "We need to ensure that employees get involved, state their opinions, so that he is not just an employee who just receives information."
Subject 7	"[...] in the cooperative's operational division, which involves warehouses, I relate to warehouse managers and also to maintenance managers, transportation manager, electrical sector manager." "We have an employee attending a postgraduate course today [...]. "Operational training, the cooperative brings in the instructor [...]. "We stimulate, get ideas through meetings."
Subject 8	"We have an assistant in each unit [...]. "During the week, I have a scheduled day to go to these units, so I'll check the problems, write down, schedule it and in the appointed day we go there and solve them." "We fill a room with people and everyone gives an idea, suggests plans." "There are campaigns and the best ideas are evaluated."
Subject 9	"In the warehouses I manage, I always try to work with the whole group, always talking [...]. " [...] all ideas that come are welcome and, today, the situation in the board is also the same [...]."
Subject 10	"I like to hear the opinion of the co-op member and of the collaborator [...]. "The cooperative invests in learning, [...] we have a partnership, there are universities in the region that give a discount to the cooperative's employees, there is an allowance, and it encourages qualification."

**Chart 5.** Synthesis of the comments on interactive systems

Source: Collected data.

We found that employees are free to put forward their ideas and are encouraged to do so. The organization conducts campaigns asking for new ideas, and the best ideas are rewarded. According to Subject 4, the industrial division implemented the "people who make a difference" project, which recognizes the people who excel at their work. We collected the emails confirming the meeting at which the best employees are recognized.

These results corroborate the study by Henri (2006), which demonstrated that MCSs contribute to the process of knowledge generation and collaboration. According to Diehl (2006), the interactive control system was well developed, which is also evident in our study.

The use of the interactive controls verified in the interviews, documents, and observations are in agreement with the study by Bonner, Ruckert, and Walker (2002), who demonstrated that creativity is greater when there is flexibility to perform activities, which was also evidenced in our study as we observed the interactive systems stimulating the emergence of new ideas. Cruz (2014) found that companies seeking to innovate need the engagement of all the members of the organization, which is also evident in the results presented.

Given these results, we infer that just as diagnostic systems are part of the organization's daily activities, interactive systems are also constantly used in the organization under study.

Managers are involved daily with employees and organizational learning and the emergence of new ideas are encouraged. This makes the employees contribute to the management of the company, staying focused on fulfilling its objectives. Figure 1 presents the word cloud of the belief, boundary, diagnostic, and interactive systems.



**Figure 1.** Levers of control word cloud

Source: Collected data.

The words mentioned most frequently in the interview regarding control systems were goals, employees, cooperative, meetings, sector, participation, ideas, training, result, market, unit, warehouses, and division. These words emphasize the diagnostic control systems (goals, result, unit, warehouses, division, and sector) and the interactive control systems (participation, ideas, employees, meetings, and training).

These results corroborate the study by Oyadomari (2008), which identified that interactive tools use is related to organizational learning, innovation, and market orientation, and that the diagnostic system is important for company management and does not discourage organizational learning, innovation, and market orientation.

The results presented suggest that diagnostic systems and interactive systems are the most used in the organization, since these are in constant use and are part of the day-to-day activities of the organization. Belief systems, however closely associated with organizational activities, are not disseminated throughout the organization, and boundary systems are contingently used when there is a need to establish performance and behavioral boundaries. Once the limits have been set, they become institutionalized rules. For these reasons, the belief and boundaries systems were not apparent. Although some systems have been more evident than others have, we can observe that there is an arrangement of the four levers of control, which is in line with the results of Kruis, Speklé, and Widener (2016), who observed in the organizations studied the existence of a stable solution composed of four control systems.

## 5. FINAL CONSIDERATIONS

The objective of this study was to examine how Simons' levers of control (1995) are used in the management of an Agro-industrial Cooperative. For that, we performed a descriptive, case study, and qualitative research. We collected data through interviews, documents, and observation. Evidence suggests that beliefs are not disseminated clearly in the organization studied and need to be better communicated. This suggests the development of new studies, in order to understand how other companies use belief control systems, as well as to identify these systems' degree of institutionalization. Given our findings, we infer that in this organization belief systems are less favored.

The results showed that boundary systems – when limiting activities, markets, and setting behavioral boundaries through norms, rules, and principles – are based on and guided by belief systems. Even if belief systems are not disseminated throughout the organization, they relate to the daily activities of the cooperative. Moreover, boundary systems are used solely when there is a need to set performance and behavioral limits; they are not used constantly because once the limits have been established they become rules. These findings suggest the need for further studies on this matter.

The evidence suggests that the diagnostic controls are used constantly in the organization because the company needs to monitor its daily activities and results to achieve the desired objectives. Thus, it adopts mechanisms that encourage the organization members to become more involved. We observed that in the same way that diagnostic systems are part of the daily routine of the organization, interactive systems are also used constantly. Managers are involved daily with employees and organizational learning and the emergence of new ideas are encouraged. This makes the employees contribute to the management of the company and to the fulfillment of the organization objectives.

Our results show that diagnostic and interactive systems are the most used in the organization, given that they function constantly and are part of the organization's daily activities. Belief systems, however closely associated with organizational activities, are not disseminated throughout the organization, and boundary systems are contingently used when there is a need to establish performance and behavioral boundaries. Once the limits have been set, they become institutionalized rules. For these reasons, the belief and boundaries systems were not apparent. The cooperative invests in the monitoring of activities and encourages the involvement of its members, being less evident the dissemination of the beliefs, values, and controls that restrict activities.

These results also suggest that the use of levers of control can differ between cooperatives and other organizations. Cooperatives, because they are non-profit entities, pursue different objectives. While they need to be profitable, their main purpose is the social progress of its members. Thus, we can understand the more frequent use of interactive and diagnostic controls.

Although these results cannot be generalized, they provide important evidence to stimulate further studies, because there is little information on the use of MCS in cooperatives. We suggest the development of further research on the use of Management Control Systems in cooperatives and in other companies, considering the scarcity of information on this theme in Brazil.

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