▪ Advances in Scientific and Applied Accounting, ▪ ISSN 1983-8611 ▪ São Paulo ▪ v.17, n.2 ▪ p. 085-098 ▪ May / Aug. de 2024
▪ DOI: 10.14392/asaa.2024170204

Managerial Innovation Incorporated into the Management Control System: A Case Study in a Metallurgy Sector Organization

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Edited by:
Ana Paula Capuano da Cruz

Abstract

Objective: The study aims to characterize how managerial innovation was incorporated into the Management Control System (MCS) in the organization under study in an organization in the metallurgy sector.
Method: This is a qualitative, descriptive study and case study in an organization listed on B3, in the metallurgy sector. Managerial innovation emerged from the case study, being represented by a new management model. Data collection took place through interviews, documents and observation. Content analysis was used to analyze the data, with the help of Nvivo Software.
Results: It appears that the organization has focused on new control systems, accounting and management information, which allow agility and assertiveness in decision making. The managerial practice of defining and monitoring indicators and structuring internal procedures requires a management process focused on employee performance, strategic planning and budget. Information technology enables systems that facilitate operations and processes. Changes in the cost management system improved analysis and reduced costs, favoring the creation of new product lines and new markets. These actions allow external transparency, which is reflected in new partnerships and strengthening of external relations.
Contributions: The insights generated by the managerial innovation incorporated into the SCG allow companies to define and monitor performance indicators, use internal procedures, seek agility and assertiveness in decision-making, value and recognize the performance of employees, invest in strategic planning and budget, in people management, KPIs Dashboard, new partnerships and strengthening relationships with companies, customers, suppliers.

Keywords: Managerial Innovation; Dimensions of Managerial Innovation; Management Control System.

How to Cite:

Pletsch, C. S., & Silva, M. Z. (2024). Managerial Innovation Incorporated into the Management Control System: A Case Study in a Metallurgy Sector Organization.Advances in Scientific and Applied Accounting, 17(2), 070–084/085. https://doi.org/10.14392/asaa.2024170204

Submitted: 28 October 2022
Revisions required on: 26 December 2023
Accepted: 11 April 2024

Introduction

Faced with competition, technological advances and scarcity of resources, organizations need to innovate to remain in the market and grow (Damanpour & Wischnevsky, 2006). Likewise, organizations need to achieve and maintain managerial control, as any loss of control can cause damage to reputation, financial difficulties or even insolvency (Goebel & Weißenberger, 2017).

Managerial innovation, as conceptualized by Birkinshaw, Hamel and Mol (2008), is a new management practice, process, structure or technique, whose objective is to contribute to achieving organizational goals. So too, as new managerial knowledge and new processes that produce changes in the organization's strategy, structure, administrative procedures and systems (Damanpour & Aravind, 2012). Therefore, part of managerial innovation is incorporated into the Management Control System (MCS), conceptualized by Simons (1995) as routines and formal procedures used by managers in organizational activities.

Information integrated into the MCS was studied by Laguir, Gupta, Bose, Stekelorum and Laguir (2022), who verified analytical capabilities to detect emerging behaviors, new priorities and goals and/or emerging values to be incorporated into the MCS, such as mission statements, strategic plans, improve decision making and continuous improvements.

Managerial innovation is important for organizations, as in addition to introducing changes that promote the effectiveness of the organization (Damanpour & Evan, 1984, Damanpour, 1987, Damanpour & Aravind, 2012, Damanpour & Magelssen, 2015), it is a predecessor of other types of innovation, such as technical innovations (Favoreu, Maurel, Carassus, & Marin, 2018; Janka, Heinicke, & Guenther, 2019). In this sense, it is understood that if the organization does not have the flexibility to change practices, processes, structures or management techniques, for example, it will also not be able to innovate in products, production processes, technology, among others.

In view of the above, the following research question arises: how was managerial innovation incorporated into the MCS in an organization in the metallurgy sector? The study aims to characterize how managerial innovation was incorporated into the MCS in an organization in the metallurgy sector.

The motivation for carrying out this study came from existing research gaps in the literature, which emphasize the need for new studies to better understand managerial innovation. According to Damanpour and Aravind (2012), the specific conceptual and empirical aspects of managerial innovation have not been examined to the same extent as other types of innovation. It is understood that managerial innovation should be examined in the same breadth as a result of conceiving other types of innovation, such as product innovation, production process, technology, among others (Favoreu et al., 2018; Janka, Heinicke, & Guenther, 2019).

The study is also justified due to the lack of a management accounting perspective on managerial innovation. Studies have examined the relationship between MCS and the innovation process, with product and process innovation (Frezatti, Bido, Cruz & Machado, 2017; Henri & Wouters, 2020; Luiz & Beuren, 2023). Frezatti et al. (2017) examined the association between MCS and the innovation process. Henri and Wouters (2020) examined the extent to which the interdependence of management control practices that provide a combination of information for decision-making supports or impedes product innovation. Luiz and Beuren (2023) analyzed the effects of environmental uncertainty on the use of MCS and product and process innovation.

Furthermore, as suggested by Lopes, Santos, Silva and Martins (2018), qualitative studies should be carried out to deepen the understanding of the adoption of managerial innovation in organizations. In this way, the study is also justified by carrying out qualitative work, whereas in previous studies on managerial innovation, the quantitative approach predominates.

The study contributes by proposing a configuration of managerial innovation, which incorporates different dimensions contained in the literature. The contribution lies in understanding the dimensions of managerial innovation (management practice, management process, information technology and external relations), to be aware of internal change in terms of procedures, rules, routines, information, among others, incorporated into the MCS.

According to Sisaye and Birnberg (2010), managerial innovations are implemented to improve internal control, accounting systems, organizational structures, management processes and department coordination. In the understanding of Janka et al. (2019), managerial innovation is introduced into the organization to challenge or improve the management system. Sartori, Facco and Garrido (2022) highlight the need for a greater understanding of the management process, strategy and practices.

The insights generated by the managerial innovation incorporated into the SCG allow companies to define and monitor performance indicators, use internal procedures, seek agility and assertiveness in decision making, value and recognize the performance of employees, invest in strategic planning and budgeting, in people management, KPI Dashboard, new partnerships and strengthening relationships with companies, customers, suppliers.

2 Theoretical Reference

2.1 Managerial innovation

A managerial innovation is effectively adopted when put into practice in the organization (Damanpour & Schneider, 2008) and should result in organizational change (Damanpour & Evan, 1984). According to Damanpour (1987), managerial innovation is a means of introducing changes. Studies indicate that organizational change is driven or enabled by managerial innovation (Damanpour & Aravind, 2012).

As it involves a complex organizational environment, with different actors and relationships, managerial innovation tends to be configured according to the specificities of the organizational context (Birkinshaw & Mol, 2006, Ganter & Hecker, 2013). According to Busco, Caglio and Scapens (2015), managerial innovation translates complex issues into clear visual representations, order and knowledge, as well as different interests can be met.

Based on a conceptual review of the development, generation, adoption, antecedents and influences of managerial innovation on organizational conduct, Damanpour and Aravind (2012) highlight that there is still no established typology of managerial innovation. The studies use different concepts and measurements for managerial innovation, so different dimensions are verified in the literature, with no consensus on the topic (Damanpour, 2014).

Damanpour, Walker and Avellaneda (2009) measure managerial innovation in structure, processes, administrative systems, knowledge and managerial skills. Damanpour and Aravind (2012) propose some possibilities for dimensions of managerial innovation, dividing it into strategy and structure innovations, forms and procedures, information and administrative technology, radicality of innovation.

It is important to highlight that for managerial innovation to occur, the change must be associated with the dimensions of new practices, processes or structures (Vaccaro et al., 2012). Lopes (2017) considers managerial innovation in three distinct and interrelated dimensions: new organizational structures, new management processes and new management activities and practices. The author investigates these dimensions with the aim of observing whether human resource management practices aimed at innovation in products and processes are also related to the adoption of managerial innovations.

Favoreu et al. (2018) explored the relationships between different categories of managerial innovation in public organizations. The managerial innovation categories used were process and instrument innovation, structure innovation. They identified in the first case analyzed that a comprehensive process innovation of a technical nature (an information system) influences the adoption of a broader structural innovation. In the second case, a change in structure led to the formulation of a strategic project. In this way, the results demonstrated that managerial innovation promotes other, complementary innovations, which contribute to the implementation of the first, with a relationship of interdependence and influence occurring between them.

Damanpour (2014) highlights that there is no consensus on the dimensions. Thus, in general, Table 1 presents the dimensions mentioned and used most frequently in the studies retrieved.

Table 1
Dimensions of managerial innovation

Dimensions	Definition	Authors
Practice	Changes in what managers do as part of their day-to-day work (activities and duties), which includes the definition of new rules and associated procedures. This can also result from assigning work to someone (i.e., task) and the duty to perform that work (i.e., role) (Vaccaro et al., 2012).	Ansari, Bell and Okano (2006), Vaccaro et al. (2012), Volberda, Van den Bosch; Heij (2013), Ansari, Reinecke and Spaan (2014), Lopes (2017), Su, Chen and Wang (2018)
Process	How work is performed and include articulated changes in routines that govern people's work, as well as how reward is established. This can be illustrated by changes in management systems or changes in what is expected of people, which results and behaviors are rewarded and which are not (Vaccaro et al., 2012).	Armbruster et al. (2008), Vaccaro et al. (2012), Sisaye and Birnberg (2010), Damanpour (2010), Lopes (2017)
Information Technology	Use of new information systems to promote the efficiency of operational systems and processes (Walker et al., 2011).	Mustonen-Ollila and Lyytinen (2003), Zawawi and Hoque (2010), Walker et al. (2011), Damanpour and Aravind (2012), Wiengarten et al. (2013)
External relations	New relationships between organizations or that have undergone significant changes, such as cooperative agreements, alliances, partnerships, outsourcing or subcontracting of tasks between organizations (Hecker & Ganter, 2013).	Hecker and Ganter (2013), Nieves e Segarra-Ciprés (2015), Lopes et al. (2018), Damanpour, Sanchez-Henriquez and Chiu (2018)

Source: Prepared by the author.

Given these dimensions, according to Favoreu et al. (2018), managerial innovation can be grouped into two generic categories: (i) innovations related to changes in the organization and structure; (ii) innovations related to changes in management techniques and processes. By following the context of the second category, this study considers the dimensions of managerial innovation related to changes in (i) practice, (ii) process, (iii) information technology and (iv) external relations, which are incorporated into the SCG.

2.2 Managerial innovation and MCS

Studies have linked innovation and MCS, such as Frezatti et al. (2017), Janka et al. (2019), Oro and Lavarda (2020), Rikhardsson et al. (2021) and Luiz and Beuren (2023). Frezatti et al. (2017) examined the association between MCS and the innovation process. They concluded that MCS are associated with innovation, depending on antecedents composed of distinct elements, such as external stimuli and innovation strategies.

Janka et al. (2019) found that managerial innovation has a positive association with management controls. The results demonstrate that management controls must be transparent, allowing information sharing and visibility. Managers can shape managerial innovation using specific management controls. The study's conclusions show that it is important to increase employees' commitment to organizations, establishing accountability mechanisms for actions; that organizations pay special attention to employee selection and placement processes; that organizational beliefs play a crucial role in introducing managerial innovation.

Oro and Lavarda (2020) investigated how the MCS is used to balance dynamic tension to implement the innovation strategy as a competitive advantage in a family business. They found situations that promote innovation in the company, such as the interaction of the SCG, adaptation of routines and agendas of managers and executives to include new meetings and appointments throughout the day; prioritize strategic changes, interactivity of the new generation (joint work) attributes new managerial concepts to the management core, stimulation for the creation of new projects with an initiative for organizational learning, creation of new performance indicators for monitoring projects and production promotes innovation in the company.

Rikhardsson et al. (2021) investigated the use of management controls when environmental uncertainty and hostility increase abruptly. They found that the use of controls performed three main functions: i) guiding and controlling behavior, ii) changing internal and external perceptions, iii) dispensing with accountability.

Luiz and Beuren (2023) analyzed the effects of environmental uncertainty on the use of MCS and product and process innovation. The results demonstrate significant positive effects of using MCS on product and process innovation, despite the environmental uncertainty that permeates innovation. The results provide evidence that the organizational practices analyzed (MCS use and innovation) are designed and implemented without considering external stimuli.

Management controls can be routines for innovation, which can help coordinate an activity and can facilitate relationships with external partners (Henri & Wouters, 2020). Ledesma-Chaves and Arenas-Gaitán (2022) highlight that the capacity for innovation is necessary to enter new markets and provide improvements in performance. For Luiz and Beuren (2023), innovative companies can align their MCS to operate better, while stimulating higher levels of innovation.

3 Methodological Procedures

This is a qualitative, descriptive research and case study. The case study is an organization listed on Brasil, Bolsa, Balcão (B3), whose main activity is metallurgy. The research case was defined based on a screening of companies from different sectors that presented innovative characteristics in managerial terms, which were identified on websites, news and published documents. With this screening, some organizations were selected to, through initial contact, verify their availability to contribute to the study. Also considering accessibility, the organization under study was defined. The organization has been operating for over 70 years and serves the national and international market. It has more than 700 employees in its workforce. It is among the largest manufacturers in Latin America and exports to more than 20 countries.

The study in the respective organization is relevant firstly because it is an innovative company and secondly, because of the sector in which it operates. The metallurgy sector is justified because it is the basis of other important activities for Brazil, such as the automobile industry, civil construction and capital goods, according to the Statistical Yearbook of the Metallurgical Sector (2019). Also due to the representativeness of this sector in the Southeast and South Regions (Casotti & Del Bel Filho, 2011), considering that the organization investigated is from the South Region.

Managerial innovation was represented by the change in the management model that emerged from the case study, which occurred from 2015 onwards, when the organization was facing several problems that led to financial difficulties, including negative Net Equity. The changes made revert the Shareholders' Equity. This information was obtained from an unstructured interview with two managers for exploratory purposes of the organization.

The name of the organization and participants are not mentioned. The research participants are called Manager 1, Manager 2, Manager 3...Manager 10, which makes up the tactical and/or strategic levels of the organization. Their functions are also not identified, in order to maintain the anonymity of participants.

The research subjects are decision-making level managers involved with managerial innovation, represented by the new management model. These were defined during the interviews through indications. The selection of interviewees occurred through the application of the snowball technique, which, according to Morgan (2008), consists of using some initial interviewees to nominate other participants, thus, the interviewee, in addition to contributing to the research topic, indicates another potential participant. According to the author, the analogy with a snowball arises from the fact that it increases in size as it rolls. Therefore, at the end of each interview the participant was asked to indicate who could contribute to the study. Manager 1 nominated Managers 2, 3, 4, 9 and 10. Manager 2 nominated Managers 5, 6 and 7 and so on, until saturation was reached, totaling 10 interviewees.

Data was collected through interviews, documents and observation. The interviews were carried out in an unstructured manner for exploratory purposes of getting to know the organization and in a semi-structured manner, following an interview guide.

The interviews took place between July 28, 2020, and October 20, 2020, which were carried out through Google Meet, due to the pandemic. Only two interviews were carried out in person, on October 20, 2020, when the visit to the organization took place. The interviews were recorded and transcribed in full. The recordings lasted an average of one hour per participant and the transcriptions totaled 127 pages. The transcripts were sent by email to each of the participants, with the opportunity to read and make changes, deletions or additions of information. However, there were no changes.

The documents consulted refer to those published by the organization, such as the management report, financial statements, the organization's website, Facebook page, YouTube, among others. Regarding the consultation of the organization's website, Facebook page and YouTube, prints of the screens containing the information used for analysis purposes were captured. The observation was characterized as non-participant. Therefore, in this study, non-participant observation took place during a visit to the organization, on October 20, 2020. Due to the COVID-19 pandemic, physical access to the field was limited.

Observations were recorded in field notes. The e-mails exchanged, Free and Informed Consent Form (TCLE), questionnaires, transcription of the interviews, response to the transcription of the interviews, field notes and documents consulted formed the digital database. The questionnaires, interviews, documents and observations allowed the information to be triangulated. According to Yin (2015), data triangulation allows you to support case study findings from multiple sources of evidence and helps reinforce construct validity. Table 2 presents the study construct.

Table 2
Study construct

Categories	Operational definition	Authors
Management practice	New/renewals to rules and procedures, changes to employee tasks and functions to optimize processes.	Vaccaro et al. (2012), Janka et al. (2019).
Management process	Changes in work routines, continuous improvements to management systems, constant improvements and adjustments to remuneration policy.	
Information Technology	Information Technology	Damanpour and Aravind (2012); Walker et al. (2011).
External relations	New relationships or changes between organizations: cooperatives, alliances, partnerships, outsourcing or subcontracting of tasks between organizations.	Armbruster et al. (2008), Hecker and Ganter (2013), Lopes (2017), Damanpour, Sanchez-Henriquez and Chiu (2018).

Source: Prepared by the author.

The interview script was structured as follows: (i) presentation of the topic to the interviewee, (ii) delivery and explanation of the Informed Consent Form, (iii) application of the interview (questions). The interview guide has six questions, in order to analyze the changes that occurred with the adoption of the management model.

To answer the questions, interviewees were instructed to consider the changes that occurred with the adoption of the new management model. The following questions were asked: (i) What rules and procedures were changed or needed to be implemented? Ex. rule: code of conduct; (ii) What were the changes in employees' tasks and functions to optimize processes? Ex: assigning tasks, creating new functions, creating new positions, eliminating positions; (iii) What were the improvements and adjustments made to the remuneration policy? (iv) Have efforts to continually improve management systems intensified after the adoption of the new management model? Explain; (v) What changes have occurred in terms of information technology to promote the efficiency of operational systems and processes? (vi) Did the new management model favor the construction of new relationships with other organizations? Has the new management model changed the relationship with other organizations? Ex: suppliers, customers, outsourcing, consultancy, universities, competitors (partnerships, inter-firm cooperation), financing institutions, government, other interested parties (stakeholders).

Content analysis was used to analyze the data. It is a systematic way to describe qualitative material and reduce the amount of data, which involves categorizing parts of the text, based on a coding framework (Schreier, 2012). Coding was carried out following the categories exposed in the construct. NVivo Software was used to assist in data analysis. After coding the text, coding reports were generated, from which tables were structured to begin describing the results. The research project was attached to Plataforma Brasil and linked to the Ethics Committee, obtaining approval.

4 Results Analysis

Managerial innovation was represented by the change in the management model that emerged from the case study, which occurred from 2015 onwards, when the organization was facing several problems that led to financial difficulties, including negative Net Equity. The changes made revert the Shareholders' Equity. The new management model is characterized in the organization by management controls that direct decision-making, promote agility in decision-making, involve employees and guarantee transparency in information. The new management model facilitated internal communication, in addition to stimulating innovative attitudes and proactivity at all organizational levels, promoting an environment in constant change. Next, the dimensions of managerial innovation are described.

4.1 Dimension: management practice

Regarding the rules and procedures that underwent changes or needed to be implemented, Manager 1 reports that there were changes in all sectors, mainly in the financial and commercial sector. In the financial sector, accounting and financial indicators began to be better analyzed, such as the Average Supplier Payment Period (PMPF), and in the commercial sector, discounts and terms granted and sales results began to be analyzed. The Average Payment Period and Average Receipt Period indicator is shown in the organization's management report, as well as the comparison with the previous year.

Managers 5 and 7 mention the Standard Operating Procedure (SOP). Manager 5 adds that these procedures make the work easier: "[...] this makes it much easier with the entry of new employees, right, or there are activities that we end up doing a little more frequently, so we have documentation". Manager 3 comments that the structuring of procedures and policies in each area allowed greater autonomy: "There was, in fact, we did it here, talking about our department, we structured procedures, policies, and we based on these decisions, it has autonomy to manage the area here". Manager 4 emphasizes that the organizational objectives and goals guide the carrying out of activities and that there is freedom in achieving them.

The organization has been working on structuring a culture code, what remains is to format it into a simpler and more didactic version, for better understanding, as explained by Manager 2: "[...] we want to create not a code of conduct, but a code of company culture, we have it written today, but it is not designed today, let's say, for better understanding by staff".

Regarding changes in employees' tasks and functions to optimize processes, Manager 2 highlights the reduction of positions. Managers' report the adaptation that was made, that positions were adapted, and work began with work groups. Manager 3 highlights that the lean organization contributes to the better functioning of the organization: "All of this has made the company much leaner, it has lost fat, it can walk better today, so our positions today are very multifunctional, people, they don't have a position, they have a responsibility." The changes in the tasks and functions of employees to optimize processes are evident in the organizational figure, in which a change occurred in the internal organization.

In general, based on the interviews, rules and procedures have changed in different sectors, mainly in the financial and commercial sector with regard to the analysis of accounting and financial indicators. The sectors worked on structuring the procedures and policies for each area, in a way that makes work easier. A culture code is also being structured. There were changes in the tasks and functions of employees to optimize processes, mainly in reducing the number of directors, managers and supervisors, which facilitates internal communication, information exchange, decision making and agility in actions.

In summary, the practical management dimension in the organization studied is focused on defining and monitoring accounting and financial indicators, structuring procedures that facilitate work and an internal organization that allows agility and assertiveness in decision making. According to the definition of Vaccaro et al. (2012) that supports this study, management practice consists of changes in what managers do as part of their routine work (activities and duties), which includes the definition of new rules and associated procedures. This can also result from assigning work to someone (i.e., task) and having a duty to perform that work (i.e., role).

4.2 Dimension: management process

Regarding the improvements and adjustments made to the remuneration policy, it is clarified that the organization does not have a job and salary program, but rather, they work on "evolution paths", as explained by Manager 2: "[...] with all this change, we created paths of evolution, let's call it that, what you want to be and where you want to get [...]". He comments that this way allows employees to innovate and create different things in the organization, as well as grow professionally.

Managers 6 and 7 highlight that the remuneration policy is based on meritocracy, meaning that the employee contributes to the organization. Manager 6 mentions the term "career path" in the same sense as "evolution paths", exposed by Manager 2: "a very profound change in positions and salaries, which is what we talked about in the past, for a career path, which is what we say now, so it's what we're daring to do" (Manager 6).

Manager 8 also comments on the bonus for employees who performed satisfactorily, as well as highlighting the appreciation and recognition for the work that is carried out in the organization: "[...] it [refers to the company] really values people, values the person's work, values what the person has been developing internally [...]". He adds that "[...]. Today, there isn't much of a role, we have responsibilities. So, there are two years in a row that we earn a bonus, so to speak, at the end of the year, if you were a [company symbol], you earn a percentage sometimes higher than someone who only did, let's say, eighty percent [...] (Manager 8).

Manager 5 highlights the recognition for the work carried out: "[...] the company knows how to recognize that a certain reach, a certain result that the person generated was their merit, so there is certainly that return, right, [...], we follow, we have access to information [...]". On the organization's website, on the work with us page, there is information on valuing and recognizing the performance of each employee.

With regard to efforts to continually improve management systems intensified after the change in the management model, it is clear that there have been changes in different areas and that the organization is continually adapting to opportunities and new developments that appear in the market. From the interviews, it appears that relevant changes are occurring in management control and controllership. Manager 1 highlights: "We see these improvements in all sectors, from commercial policy, financial policy, production, purchasing, inventory and consequently controllership [...]". Based on the reports, it is possible to list a series of improvements, which are presented in Table 3, in alphabetical order.

Table 3
Improvements made in the commercial, production, financial and controlling areas

Commercial	Production
Projected profitability x realized profitability Percentage of established discounts Reformulated commercial policies* Appropriate payment terms	Analysis of positions and functions Analysis of people's development* Process development analysis* Greater profitability Greater productivity Relocation and restructuring of positions and functions
Financial	**Controllership**
Financial situation is the result of operations* Financial considered not as a primary activity, but as an end activity Changing the mentality that finance was the solution to problems	Operating system acquisition* Calculations with greater precision and agility* Evolution in processes Changing the mindset that "it's always been done this way, let's continue doing it this way"

* Improvements with greater relevance
Source: Research data.

In summary, there were improvements in processes in the Commercial and Production sectors, which resulted in better financial conditions, in line with the mentality that the financial situation is a reflection of the operations carried out. The acquisition of an operating system in the controllership contributed to having information with greater precision and agility for decision making. These changes were relevant to improving the organization's financial results.

Specifically in controllership, one of the interviewees highlights that there were many changes, mainly in management controls and process optimization: "There were many changes, several changes in controls, mainly in process optimization [...]". He explains that "[...] many controls, many management reports were generated from Excel spreadsheets, we know that Excel is a fantastic auxiliary tool, but it had many peculiarities and Excel also leaves room for you to make mistakes [...]". In this way, he reports that there have been changes in management information systems.

Next, Manager 4 comments that at the closing of accounting information, which occurs on the fifth business day of each month, management reports are sent to all managers according to the needs of each area, which is called a "notebook" in the organization. Regarding management reports, Manager 4 mentions: "There are several reports, but among them, there is the progress of the contribution margin of the items, the company's Ebitda, the company's debt for the month, non-quality costs generated by the factory [.. .]".

Regarding the cost of non-quality, Manager 4 explains the daily monitoring that is carried out: "[...] just to take advantage of this cost of non-quality, daily, from half past seven in the morning to eight in the morning, all supervisors, managers, production leaders, are looking at the scraps of parts that occurred the previous day, to see what the cause is, treat the root cause, to avoid new waste [...]". It highlights the monitoring of the production cost and the standard cost: "[...] it is even possible for us to put the actual cost of that item, unitary, and the standard cost, the projected cost of that item, so if the item should cost 10 reais and it cost 15 reais, why did it cost 15? So, there is a lot of cost analysis work [...]". In the management report, the main information is related to revenue, COGS and CNQ, especially its monitoring during the pandemic period.

Manager 5 also highlights the changes in controllership: "[...] our controllership is now responsible for budgets, we determine the cost of producing a certain part, we apply markup, and we arrive at a sales value, these are the information that comes out of the controllership today." He reflects that "if we go back two years ago, for example, we had this control in Excel, in a spreadsheet". For Manager 5, the information system "[...] significantly reduces the chance of errors, optimizes the process, makes it more agile".

Manager 4 explains the strategic and budgetary planning: "The company's strategic planning usually takes place at the end of November, so at the beginning of December, we already have the strategic and budgetary planning for the following year [...]". It highlights the involvement of all areas: "[...] so all areas, by department, the areas involved, end up carrying out a survey, what was accomplished, what was budgeted and accomplished in the current month and see what the your needs for the following year."

The new budget system, in the view of Manager 4, is dynamic and practical in creating scenarios. In this context, he mentions the changes that occurred in the budget with the pandemic caused by the new coronavirus, in which budget management began to be carried out monthly, with the creation of new scenarios, a new revenue perspective, and cost reduction.

Manager 7 highlights that there is an elucidated vision of the organization's objectives through strategic and budgetary planning: "[...] one thing that changed was the clarity of the company's objectives, so it is easier for us to look at the budget and knowing where the company wants to go, with the budget we have, this gave us greater clarity [...]". It highlights that strategic planning is carried out with the involvement of employees and with objectives that can be achieved.

The organization has been working on the concept of "cash management" with future perspectives regarding management information, according to what was explained by Manager 2: "[...] an improvement in this, mainly, perhaps in cash management, which would be management at a glance, we have data and information from the areas in real time so we can make decisions as soon as possible". They declare that they have been working on this project since 2019 and that they already have some televisions spread throughout the organization, with information on revenue, productivity, stock, KPIs, among others. On the day of the visit, the company was able to see that there are televisions with indicators spread throughout the administrative sector. At the time, one of the televisions displayed the stock of materials, with specifications of each item, with information on the previous and current month and the variation. The organization is also working on Big Data management, as mentioned by Manager 2: "[...] I am working this week with all managers, talking about internal Big Data management [...]".

In terms of the management process, regarding the improvements and adjustments made to the remuneration policy, it is clear that the organization does not work with a policy of positions and salaries, but rather with "evolution paths", as they call it. Each employee's performance is valued and recognized. Concerning the efforts to continually improve management systems, it appears from the interviews that there have been changes in different areas, with emphasis on management controls and instruments, in order to optimize processes and monitor information in a timely manner. for decision making. Changes in management instruments, specifically strategic planning and budgeting, as the interviewees reported, enabled dynamism and practicality.

In summary, the management process dimension, according to Vaccaro et al., (2012) consists of how the work is carried out and includes articulated changes in routines that govern people's work, as well as the way in which the reward is established. This can be illustrated by changes in management systems or changes in what is expected of people, which results and behaviors are rewarded, and which are not.

4.3 Dimension: information technology

Manager 1 reports that the organization's information technology sector was a support sector that helped other areas and, with the change in the management model, it became a strategic area of the organization: "[...] this repositioning of the sector in the company, brought them in as a strategic function and from then on the focus was not only on solving problems but on presenting solutions that were more effective, so a greater detail was made of the system we use, the acquisition of other platforms was made, from other systems in the company".

Based on the interviews, it appears that the main changes occurred in controllership. Manager 4 highlights: "We had major changes and implementations, mainly in the area of controlling". It mentions some changes, such as using ERP to set the sales price, new budgeting system, BI for factory managers to monitor their cost center.

Manager 3 adds that there have been improvements in systems to facilitate communication with employees: "[...] today we can talk better with employees because of this [referring to the system], everything today about payroll, point, [...], we centralize everything in a system, as if it were an internal intranet that the employee accesses and can view all this information".

The organization has also been investing in purchasing processes, contracts, product catalogs, according to Manager 6: "[...] we are investing a lot in this, the entire purchase order experience, catalog experience, experience, everything, thinking, automating processes, improving... everything you can imagine, we have made some type of transformation." He mentions the example of contracts: "[...] it is the management of many contracts, [...] this was all done manually in a file, it is now in the process of being managed within a contract platform, [...

] with a digital signature, so you no longer need to go via, back via, go to the post office, right". Manager 6 ends his speech: "[...] finally, in the commercial area, infinite improvements, in the purchasing part, product catalogue, the industry 4.0 part, the generation of data that the factory generates for predictive decision making [...] and we make decisions by crossing a lot of data [...]".

Manager 7 complements the changes that have occurred in terms of information technology by mentioning the use of a dashboard with performance indicators, improvements in the people management system (which allows employees access to payroll and other information), use of systems online work, which allows home office work.

In general, based on the definition of Walker et al. (2011), that information technology consists of the use of new information systems to promote the efficiency of operational systems and processes, it appears that system improvements for monitoring cost centers and formation of sales prices stand out., budgeting system, people management system and use of a dashboard with performance indicators.

4.4 Dimension: external relations

It appears that with the change in the management model, external relations were strengthened, as explained by Manager 3: "[...] all this change greatly strengthened the company's image with all these stakeholders, with all those who are at our side. surroundings, the entire community, society, unions, customers, everyone".

Manager 4 highlights: "[...] we have more partnerships today [...]". In Manager 1's view, the main increase in relationships was in the commercial area: "I would even say that our main increase in relationships was in the commercial area, we increased our scope of clients, [...] we are also diversifying into other lines, such as the railway, [...] we are expanding our operations in the export market itself too [...]". He also mentions banking relationships: "[...] on the financial side as well, banking relationships, relationships with other types of finance [...], in general we have certainly increased partnerships and increased relationships".

The organization has become collaborative with other companies, according to the perception of Manager 7: "I think we have become much more collaborative, [...] we see that this is important, these are strategic partnerships [...]". Next, he mentions a project that the organization has been doing for two years in partnership with other companies: "[...] we do workshops all over Brazil with this influencer, with four, five, six other brands, depending on the year, [...], of course, they are not competing product brands, but they are other market brands [...]". He also reports that they have already participated in fairs sharing the same stand with other companies: "[...] we even held a fair together with these other brands, which was also an unthinkable thing: no, I need to have my own stand, my local. We created a community location, everyone generally serves the same customer, why not reduce costs? Improve the environment? [...]". After the reports, Manager 7 concludes: "[...] this made [company name] friendlier and more collaborative, strategic supplier partners, strategic partners for new businesses, new customers that we have been working hard on, [...] we are much more open to partnerships [...]".

In the view of Managers 5 and 6, when the company changed its management model and began to recover financially, new partners emerged and large companies, such as banks and suppliers, approached. Manager 6 highlights that the fact of becoming an innovative organization attracted new partners: "[...] when we actually started to be more innovative, we started to attract many partners, customers, right, who were buying from us only what is necessary, sometimes out of fear that the company would collapse [...]". He adds that the company has grown and as a result new opportunities have emerged: "[...] then partners appear from all sides, [...] there are people who follow this and want to be close to a success story, with great humility, but it rained banks to serve us, it rained Big Data suppliers and we saw that in the lean times it wasn't like that" (Manager 6).

In this aspect of building new relationships with other organizations, it is evident in the interviews that when the company changed its management model and began to recover financially, new partners emerged, and large companies approached. External relations were strengthened, the company became collaborative, increased the scope of customers, partnerships with suppliers and banking relationships. In summary, the external relations dimension, according to Hecker and Ganter (2013), consists of new relationships between organizations or those that have undergone significant changes, such as cooperative agreements, alliances, partnerships, outsourcing or subcontracting of tasks between organizations.

5 Discussion of Results

It appears that based on the various problems that triggered the organization's financial difficulties and with the new management model, the organization has focused on new control systems, accounting and management information, which allow for agility and assertiveness in decision making. In this aspect, it is noteworthy that the new control system centralized information and made the organization less dependent on electronic spreadsheets, which, in addition to being highly prone to errors, had, according to reports, low reliability in the information generated.

These results are in line with Busco, Caglio and Scapens

(2015), that managerial innovation translates complex issues into clear visual representations, order and knowledge, as well as different interests can be met. They also corroborate Sartori, Facco and Garrido (2022), that the need for adaptations based on adopted practices that result in process innovations corresponds to relevant learning about the structuring of the management model. Furthermore, according to Frezatti et al. (2017), as the association of innovation with the MCS is noted.

The managerial innovations incorporated into the MCS are in line with the results found by Janka et al. (2019), who demonstrated that managers could shape managerial innovation using specific management controls, such as increasing employee commitment to organizations, paying attention to employee selection processes, and the role of organizational beliefs in introducing managerial innovation.

The result is in line with Oro and Lavarda (2020), that SCG interaction promotes company innovation. It corroborates the understanding of Luiz and Beuren (2023), that innovative companies can align their MCS to operate better, while stimulating higher levels of innovation. Although controls have previously existed, perhaps the problem was the lack of attention to monitoring them, in the way it is currently carried out. When making a parallel with Langfield-Smith (1997) that the most visible and objective components of the MCS are formal controls, which include rules, standard operating procedures and budgetary systems, one can see in the organization under study an emphasis on the budget control and strategic planning.

It appears that managerial innovation, represented by the management model, led to improvements in the management system, which is in line with Janka et al. (2019), when they show that managerial innovation is introduced into the organization to challenge or improve the management system, which expands beyond the perspective of management control. The results found support the statements by Jarrar and Smith (2013), that innovation provides meaning for the use of management controls (participatory budgeting, BSC, TQM and JIT) in entrepreneurial organizations. They also agree with Rikhardsson et al. (2021), that the use of management controls guides and controls behavior, changes internal and external perceptions, and eliminates accountability. Likewise, the use of control during a crisis evolves as individual managers design and implement controls.
Based on the results presented regarding the dimensions of managerial innovation, there is also an interrelationship between management practice, the management process, information technology and external relations, incorporated into the MCS, as demonstrated in Figure 2.

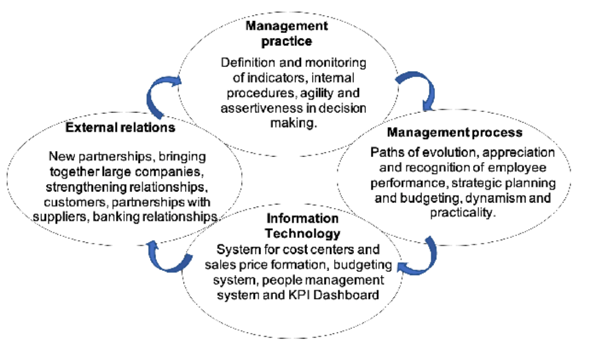

Figure 2. Interrelationship between the dimensions of managerial innovation incorporated into the MCS
Source: Research data.

It is inferred from Figure 2 that management practicedirects to the management process and the management process to information technology. Therefore, the management practice of defining and monitoring indicators and structuring internal procedures requires a management process focused on employee performance, strategic planning and budgeting and information technology allows systems that facilitate operations and processes. Changes in the cost management system improved analyzes and provided cost reductions, favoring the creation of new product lines and new markets. Thus, management practice, management process and information technology with the aforementioned characteristics allow external transparency, which generates new partnerships and strengthens external relations.

Regarding strategic planning and budgeting, the results found corroborate Oro and Lavarda (2020), that budget control and budget deviations are the artifacts most used to adapt to the environment and strategic planning to implement the strategy. In this sense, in the company studied, the use of the budget system was verified in light of the changes that occurred with the managerial innovation incorporated into the MCS.

The result supports the statement of Wiengarten et al. (2013), that organizations can improve their performance when IT is aligned, integrated or linked to organizational processes. The interrelationship between the dimensions of managerial innovation is in line with the result of Favoreu et al. (2018), who concluded that an innovation creates conditions for the emergence of other innovations, as it generates an incentive for innovation and change and influences the ability to innovate. In the same way, it is in line with Favoreu et al. (2018), Janka, Heinicke and Guenther (2019), that managerial innovation conceives other types of innovation, such as product innovation, production process, technology, among others.

Regarding new partnerships and strengthening external relations, the results found suggest that, like Sartori, Facco and Garrido (2022), process innovations correspond to relevant learning about the structuring of the management model applied to partnerships, mainly between companies with different sizes, structures and organizational cultures. This is in line with Henri and Wouters (2020), who found that management controls can be routines for innovation and can facilitate relationships with external partners. As with Ledesma-Chaves and Arenas-Gaitán (2022), the capacity for innovation is necessary to enter new markets and provide improvements in export performance.

The results presented support Damanpour and Aravind (2012), that organizational change is driven or enabled by managerial innovation. Finally, the effectiveness of managerial innovation is important for processes and organizational competitiveness.

6 Final Considerations

The objective of characterizing how managerial innovation was incorporated into the MCS in the organization under study was achieved. It appears that the path taken by managers to support the strategic posture and overcome the challenges of the internal environment was supported by the new management model initiated with the arrival of the new Chief Executive Officer (CEO). Since then, the organization has focused on new control systems, accounting and management information, which allow agility and assertiveness in decision making. Therefore, the management practice of defining and monitoring indicators and structuring internal procedures requires a management process focused on employee performance, strategic planning and budgeting. Information technology enables systems that facilitate operations and processes. Changes in the cost management system improved analyzes and provided cost reductions, favoring the creation of new product lines and new markets. These actions allow for external transparency, which is reflected in new partnerships and strengthening of external relations.

In general, managerial innovation, represented by the new management model, is characterized by cost reduction, cost analysis, new product lines and new markets, focus on the same objective, new control systems, accounting and management information, which allow agility and assertiveness in decision making, employee engagement, purposes and guiding principles, simplicity and search for innovation. The new management model facilitated internal communication, in addition to stimulating innovative attitudes and proactivity at all organizational levels, promoting an environment in constant change.

Managerial innovation, represented by the new management model, brought changes in the company's way of acting, with repercussions on the SCG, through the implementation of management instruments, KPIs, cash management, budget software.

The work contributes from the perspective of describing managerial innovation and the changes that occurred, incorporated into the MCS. In this way, the new management model and the changes that occurred in management practice, management process, information technology and external relations are characterized. The evidence presented in this study can help other companies with information to overcome the challenges of the internal environment, new control systems, accounting and management information, which allow agility and assertiveness in decision making.

Another contribution lies in the fact of working on managerial innovation in management accounting, as studies in this area have more frequently examined product and process innovations.

Understanding the managerial innovation incorporated into the SCG allows companies to invest in strategic planning and budgeting, in people management, in KPI Dashboards, in new partnerships and strengthening relationships with companies, customers, suppliers and seek agility and assertiveness in decision making. of decision.

The case study, in a context of changes that occurred when the organization faced several problems that led to financial difficulties, provides information on the actions taken to reverse the situation. This information can be useful for other companies regarding the MCS and management and behavioral changes.

The case study provides evidence in a specific context. Based on this evidence, questionnaires can be designed to verify, through quantitative study, the characteristics of managerial innovation incorporated into the MCS of other organizations. The results found contribute to the understanding of innovative management dimensions (management practice, management process, information technology and external relations) incorporated into the MCS. And yet, in this context, they drive new innovations, such as product innovation.

Regarding limitations, specifically regarding the dimensions of managerial innovation, there may be other understandings, as there is no consensus in the literature. The COVID-19 pandemic was a relevant limitation, which made it impossible to capture information from the observation technique in a more expressive way and could have provided a different interaction between researcher and interviewees.

This study generates continuity to studies on MCS, such as Simons (1995), Malmi and Brown (2008), Busco et al. (2015), Chiwamit, Modell and Scapens (2017), Janka et al. (2019). Based on the results established here, it is possible to identify the possibility of future studies investigating the contribution of managerial innovation strictly to the MCS, using Simons' Levers of Control model (1995) or the concept of MCS as packages by Malmi and Brown (2008).

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Acknowledgments:

Acknowledgement to the Secretariat of Education of the State of Santa Catarina, UNIEDU/FUMDES Graduate Program.