



Antecedents of internal and interorganizational cost management and its effects on organizational performance

Antecedentes de la gestión de costos internos e interorganizacionales y sus reflejos en el desempeño organizacional

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Abstract

Objective: To assess the antecedents of internal and interorganizational cost management and their effects on organizational performance. The antecedents considered include internal electronic integration, external electronic integration, and higher-quality information.

Originality/value: This investigation advances the literature by demonstrating that when companies extend their electronic integration to partner companies, external electronic integration improves, enabling access to higher-quality information. This study contributes a new perspective to the literature by showing that integrated systems allow companies to achieve internal controls that enable more effective internal and interorganizational cost management. However, external electronic integration alone was not sufficient to enhance interorganizational cost management.

Methodology: To measure the data in this research, the structural equation modeling technique was used with the SmartPLS 4 software. The sample comprised 107 cost managers or coordinators from Brazilian companies.

Findings: The findings of this research demonstrate that internal electronic integration allows companies to achieve more effective external electronic integration. Internal and external electronic integration, as well as access to high-quality information, positively impact internal and interorganizational cost

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management control. Furthermore, internal and interorganizational cost management, coupled with access to high-quality information, enables companies managing costs jointly to achieve better organizational performance. However, external electronic integration alone was not sufficient to improve interorganizational cost management.

JEL Code: M41; D24; D83; L23

Keywords: internal and external electronic integration; quality information; internal and interorganizational cost management; organizational performance

Resumen

Objetivo: Evaluar los antecedentes de la gestión de costos interna e interorganizacional y sus efectos en el rendimiento organizacional. Los antecedentes considerados incluyen la integración electrónica interna, la integración electrónica externa y la información de mayor calidad.

Originalidad/valor: Esta investigación avanza en la literatura al demostrar que, cuando las empresas extienden su integración electrónica a empresas socias, la integración electrónica externa mejora, permitiendo el acceso a información de mayor calidad. Este estudio aporta una nueva perspectiva a la literatura al mostrar que los sistemas integrados permiten a las empresas lograr controles internos que facilitan una gestión de costos interna e interorganizacional más efectiva. Sin embargo, la integración electrónica externa por sí sola no fue suficiente para mejorar la gestión de costos interorganizacional.

Metodología: Para medir los datos en esta investigación, se utilizó la técnica de modelado de ecuaciones estructurales con el software SmartPLS 4. La muestra estuvo compuesta por 107 gerentes o coordinadores de costos de empresas brasileñas.

Hallazgos: Los hallazgos de esta investigación demuestran que la integración electrónica interna permite a las empresas lograr una integración electrónica externa más efectiva. La integración electrónica interna y externa, así como el acceso a información de alta calidad, impactan positivamente en el control de la gestión de costos interna e interorganizacional. Además, la gestión de costos interna e interorganizacional, junto con el acceso a información de alta calidad, permite a las empresas que gestionan costos de manera conjunta lograr un mejor rendimiento organizacional. Sin embargo, la integración electrónica externa por sí sola no fue suficiente para mejorar la gestión de costos interorganizacional.

Código JEL: M41; D24; D83; L23

Palabras clave: integración electrónica interna y externa; información de calidad; gestión de costos interna e interorganizacional; rendimiento organizacional

Introduction

The constant changes in the economic market have led companies to adopt integrated systems to manage their internal controls. These systems feature both internal and external integration (Feng et al., 2021). Internal integration is a tool used to enhance companies' cost management, enabling controls (e.g., raw materials, production, inventory, and goods sold) (Fayard et al., 2012). Additionally, these systems are utilized to ensure higher quality information (Poffo et al., 2024).

Such controls can be internal or external, covering more than one company along the production chain (Fayard et al., 2012; Nazir & Pinsonneault, 2021; Mayoral et al., 2024). Internal integration provides more effective controls, thereby improving the internal performance of companies (Fayard et al., 2012; Namir & Pinsonneault, 2021). Similarly, external integration is used to monitor processes in other companies or production units (Poffo, 2023; Fayard et al., 2012; Shank & Maicol, 2009). In this context, external integration refers to the joint development of controls with other companies and the monitoring of transactions between them (Barua et al., 2004; Fayard et al., 2012; Namir & Pinsonneault, 2021).

According to the Coordination Theory, companies seek to align activities and resources to achieve common goals (Williamson, 1975). Electronic integration facilitates the exchange of relevant information, increasing the efficiency of shared cost management and improving the quality of decisions throughout the production chain (Williamson, 1975). This can lead to enhanced controls and the creation of organizational strategies (Otley, 1999). In this sense, both internal and external electronic integrations provide higher quality information for the planning of companies' production metrics (Nazir & Pinsonneault, 2021; Feng et al., 2021), enabling the development of strategies to reduce costs (Mayoral et al., 2024).

This information, characterized by being complete, accessible, easy to understand, and consistent with the company's reality, is available indefinitely (Poffo et al., 2024; Gable et al., 2008). Such information enables the company's management to make raw material acquisitions and, after production, sell goods, resulting in an analysis of productive resources and, consequently, an improvement in cost management, both internally and interorganizationally (Poffo et al., 2024; Namir & Pinsonneault, 2021).

Thus, internal cost management involves information from various controls (e.g., purchasing products, raw material consumption, and production) (Poffo et al., 2024; Kurisu et al., 2022; Fayard et al., 2012). In this context, the Coordination Theory emphasizes the need for companies to align their processes to execute activities efficiently (Williamson, 1975). Furthermore, when managing costs interorganizationally, companies must establish standards that ensure accounting practices comply with organizational guidelines, avoiding legal issues and ensuring the efficiency of the production chain.

Interorganizational cost management leads companies to expand their controls to other companies within the production chain (Fayard et al., 2012; DhaifAllah et al., 2016). From this perspective, companies that jointly manage their costs focus on improving their organizational performance, benefiting from Coordination Theory to achieve greater efficiency. Companies cooperating in cost management can purchase raw materials in larger quantities, allowing them to negotiate better prices and longer payment terms (Fayard et al., 2012; Castanha & Gasparetto, 2022).

Dekker and Van Goor (2000) highlight that organizational performance is influenced by companies' ability to generate profits and grow, even amidst market uncertainties. Similarly, Wijethilake

et al. (2018) state that organizational performance is measured by comparing desired goals and objectives with the actual growth achieved by the company. Previous research has explored how system capabilities can lead to performance improvements (Kefe & Tanış, 2023).

Studies have investigated, for example, the use of cost management tools in retail companies (Da Silva et al., 2023), the impact of quality information and internal electronic interconnections on cost management (Poffo et al., 2024), the exchange of information in the cost management of transport companies (Castanha & Gasparetto, 2022), the relationship between electronic integration and internal and interorganizational cost management (Fayard et al., 2012), and the relationship between cost management and information sharing (Poffo & Lunardi, 2024).

Furthermore, the magazine *Tiinside* (2023) reported a survey by Ernst Young Auditors, indicating that 46% of Brazilian executives cite integrated cost management measurement as their main challenge, a rate higher than the 35% reported by executives in Latin America. This highlights that, although the literature encompasses various studies on the presented constructs, many overlook organizational performance, given that the increase in performance is the reason companies engage in interorganizational cost relationships.

Thus, this study aims to evaluate the antecedents of internal and interorganizational cost management and their impacts on organizational performance. Among the antecedents considered are internal electronic integration, external electronic integration, and quality information. This research offers various theoretical, practical, and social contributions. Theoretically, it advances the findings of Poffo et al. (2024), demonstrating that, in addition to internal electronic integration, external integration also enables companies to obtain quality information, thereby enhancing interorganizational cost management.

This improvement, in turn, contributes to the maximization of companies' performance (Poffo et al., 2024). The results reinforce the Coordination Theory, as systems facilitate the flow of information, allowing both companies involved to access crucial data for decision-making. The coordination of activities in an integrated manner and the use of this information aid in improving performance management, aligning departments with the companies' objectives and goals.

The findings provide valuable theoretical insights for professionals working in cost management and coordination in Brazilian companies. According to Fayard et al. (2012) and Poffo et al. (2024), it is essential to consult professionals with knowledge in cost departments to ensure that the findings are relevant. Practically, this study offers strategic support for managers, presenting cost management practices that positively impact companies' performance. Finally, the results also contribute to the understanding of the importance of both internal and external electronic integration, highlighting how they influence the quality of information available to the company.

Thus, the information generated by the integrations is essential for planning cost management, allowing for a more accurate analysis of incurred costs and, consequently, greater performance. Furthermore, this research brings societal benefits, as cost reduction can lead to lower final product prices, stimulating consumption. Ultimately, this study may motivate students and professionals to deepen their understanding of the subject.

Theoretical foundation development of hypotheses

Internal and external electronic integration

The Theory of Cooperation suggests that different units and departments within an organization need to collaborate to achieve common goals, which involves connecting these departments. This facilitates better coordination, problem-solving, and decision-making. Thus, internal electronic integration represents a system that allows a company to integrate data (information) from various departments (e.g., industrialization, purchasing, sales) (Poffo et al., 2024; Fayard et al., 2012; Ward & Zhou, 2006).

Additionally, the integration involves activities related to cost management with other companies (Lee et al., 2006). As companies grow, they tend to expand their internal electronic integration, applying it to their partner companies as well (Fayard et al., 2012; Lee et al., 2006). Cooperation between companies facilitates the flow of information and transparency among the company and its partners, suppliers, and customers. When internal electronic integration is extended to other companies (external electronic integration), there is greater flexibility in data processing (Nazir & Pinsonneault, 2021).

As presented in Figure 1, external electronic integration involves the use of electronic systems to facilitate cooperation with external parties. This can include real-time information flow, automation of transactional processes, and collaboration in supply chains. Thus, electronic integration enables information to be shared in the form of reports, resulting in better resource planning for the company, aimed at controlling and coordinating internal and external production, purchasing of goods, and measuring organizational inventories (Nazir & Pinsonneault, 2021; Fayard et al., 2012; Ward & Zhou, 2006; Lee et al., 2006).

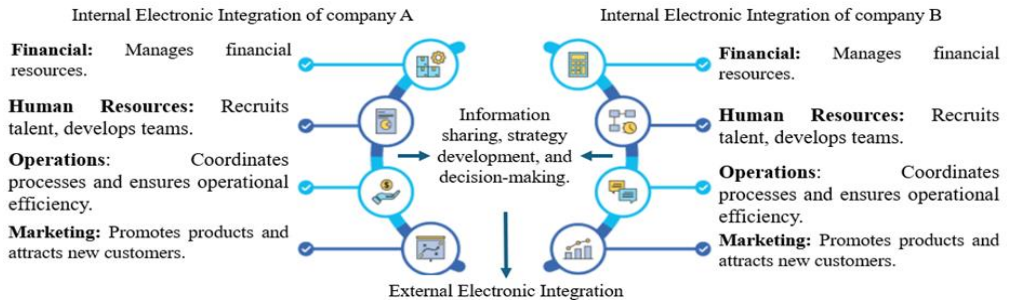


Figure 1. Internal and external electronic integration
Source: Prepared from research data by Fayard et al. (2012) (2025).

In this context, external electronic integration represents the interconnections between management systems in connection with other companies within the production chain, allowing for joint control of the processes involved in the production line (Nazir & Pinsonneault, 2021; Fayard et al., 2012). Ward and Zhou (2006) argue that most industrial companies implement internal electronic integration and, after fully understanding its functioning, extend this electronic integration to other companies involved in interorganizational cost management.

Rai and Tang (2010) further state that when internal electronic integration is extended to partner companies, it becomes possible to reconcile differences between the data-sharing standards of the involved companies. Additionally, the research by Fayard et al. (2012) and Nazir and Pinsonneault (2021) has shown that companies utilizing internal electronic integration resources find it easier to implement external electronic integration resources. Thus, the first hypothesis of this investigation has been developed:

H1. Internal electronic integration positively relates to external electronic integration.

Electronic integration and cost management

Electronic integration involves data processing that generates information to assist cost managers in analyzing costs across the entire supply chain (Anderson & Dekker, 2009; Chapman & Kihn, 2009; Fayard et al., 2012; Poffo et al., 2024). In this perspective, companies require systems capable of processing and transforming data into reliable information to control their suppliers, coordinate activities, and communicate with their partners in the supply chain (Da Silva et al., 2023; Anderson & Dekker, 2009).

In this context, the Theory of Cooperation enhances communication and information exchange among various departments within a company, facilitating coordination and planning, eliminating

redundancies, and streamlining processes, which, in turn, reduces operational costs. The Theory of Cooperation explains that this integration encourages collaboration among sectors, generating economies of scale and greater efficiency in cost management. Consequently, electronic integration enables the instant exchange of information with all companies with which it maintains interorganizational relationships (Vickery et al., 2003).

Fayard et al. (2012) argue that both internal and external electronic integration are antecedents to internal and interorganizational cost collaboration. It is noteworthy that the electronic integration utilized by companies includes communication systems, systems of norms and policies, cost control, and specific procedures for data processing and storage (Barua et al., 2004; Anderson & Dekker, 2009; Fayard et al., 2012).

Thus, electronic integration allows for closer cooperation with suppliers, customers, and logistics partners (Fayard et al., 2012; Poffo & Lunardi, 2024). The automated exchange of information, such as orders, deliveries, and invoices, reduces errors and rework, lowering costs associated with operational issues. Furthermore, a more electronically integrated supply chain facilitates negotiations and rapid adjustments, capitalizing on cost-reduction opportunities such as bulk purchases or transport optimization (Anderson & Dekker, 2009; Fayard et al., 2012; Poffo et al., 2024). According to the Theory of Cooperation, these electronically integrated relationships foster mutual trust and continuous collaboration, also resulting in reduced costs (Williamson, 1975).

Additionally, a study conducted by Poffo et al. (2024) demonstrated that internal electronic integration provides companies with information that enables managers and coordinators to manage the company's costs. However, examining a scenario of European companies, Fayard et al. (2012) point out that external electronic integration alone is insufficient to improve cost control applied to the production chain. Thus, the second and third hypotheses of this investigation are presented:

H2. The internal electronic integration positively relates to internal cost management.

H3. The external electronic integration positively relates to interorganizational cost management.

Electronic integration, high-quality information, and cost management

To ensure the quality of information, it is necessary for the data to be complete, indicating that reports must encompass all information related to the company's operations (e.g., investments, acquisitions, production costs, inventory balance) (Feng et al., 2021; Gable et al., 2008). Ghunaim and Jaaron (2022) highlight that information is a fundamental requirement for the company, as managers analyze it to make

decisions. Poffo et al. (2024) add that companies need quality information, given that decisions involving the production line are made based on the information the company possesses.

Thus, the data consist of information generated by the internal and external electronic integration of the company's departments (Poffo et al., 2024; Loshin, 2011; Gable et al., 2008). Internal and external electronic integration enables the generation of information stored in backup, in a ready-to-use format, which cost professionals can easily understand because it is readable, clear, well-formatted, and aligned with the reality of the company (Artuzo et al., 2018; Gable et al., 2008).

When electronic integration is well established, information flows quickly and accurately, making cost management more efficient (Artuzo et al., 2018; Poffo et al., 2024). The Theory of Cooperation suggests that collaboration facilitated by electronic integration strengthens the quality of information and, consequently, enhances a company's ability to control its costs (Williamson, 1975).

As a result, companies with internal and external electronic integration tend to have information that contributes to developing and improving both internal and interorganizational cost management (Zhang et al., 2022; Nazir & Pinsonneault, 2021). When one or more companies utilize electronic integration, there is collaboration and coordination for the instant exchange of cost management information between companies (Shen et al., 2022; Ghunaim & Jaaron, 2022; Zhang et al., 2022), leading to improved processes in both internal and interorganizational cost management (Fayard et al., 2012).

Vickery et al. (2003) demonstrated that internal and external electronic integration allows for greater data storage, enabling companies to efficiently execute information transactions between production units. Furthermore, in the Brazilian organizational context, integrated systems enable companies to obtain higher quality information for developing cost management (Poffo et al., 2024). Given this, it is posited that electronic integration allows companies to obtain higher quality information and, consequently, enhance cost management both within and between companies. Thus, hypotheses four and five were developed:

H4. Quality information positively mediates the relationship between internal electronic integration and internal cost management.

H5. Quality information positively mediates the relationship between external electronic integration and interorganizational cost management.

Internal and interorganizational cost management

Hueber et al. (2016) and Mayoral et al. (2024) indicate that costs can be combined using three methods. The first method involves an analogous cost estimation, where the original raw material can be substituted to reduce costs; however, this process is only useful during the product design phase. A second method

involves calculations for precise cost estimations (Mayoral et al., 2024). The third method consists of bottom-up cost estimation, which traces manufacturing elements (e.g., materials, labor, or infrastructure) to obtain the final production cost (Hueber et al., 2016; Mayoral et al., 2024).

These methods demonstrate that the organization develops internal cost management (Fayard et al., 2012; Hueber et al., 2016). Thus, companies seeking solutions to substitute scarce materials use statistical metrics to calculate costs and track manufacturing costs to accurately measure their values (Fayard et al., 2012; Mayoral et al., 2024). Such precision in cost measurement enables companies to gain an advantage over their competitors (Anderson, 2007).

Furthermore, companies that adopt the three methods presented by Hueber et al. (2016) tend to achieve greater success in managing joint costs, as the application of these techniques among partner companies results in increased production capacity in a short period (Da Silva et al., 2023). When opting for joint cost management, companies should be able to identify benefits, such as making the production chain more efficient to reduce losses and waste, and managing the necessary resources to extend cost control beyond the company's limits (Fayard et al., 2012). Additionally, this can decrease the idle capacity of both companies (Kefe & Tanis, 2023).

Collaborative management of interorganizational costs also encourages companies to engage in open-book accounting, as this method can help companies gain more insight into their business partners' internal processes (DhaifAllah et al., 2016). Moreover, Fayard et al. (2012) presented results indicating that when a company extends its internal cost management processes to partner companies, it tends to develop higher quality and more reliable interorganizational cost management. In this regard, a positive relationship is expected between internal management and joint cost management, leading to the sixth hypothesis of this investigation:

H6. The management of internal costs is positively related to interorganizational cost management.

Cost management and organizational performance

The management of internal costs allows companies to control the flow of expenses (e.g., purchased raw materials, raw materials used, and the management of inventory and produced units) (Artuzo et al., 2018; Fayard et al., 2012). This control facilitates the reduction of costs involved in production (Shen et al., 2018; Fayard et al., 2012; Poffo et al., 2024). Consequently, companies develop strategies to reduce production costs by negotiating with other firms (Anderson & Dekker, 2009). These strategies enable companies to lower acquisition costs, which in turn increases their profit margins, making them more profitable (Artuzo et al., 2018; Fayard et al., 2012).

Internal cost management involves planning and control (Poffo et al., 2024). This includes planning for the acquisition of raw materials considering the production of units and ensuring that the company has accurate information about its operations, supported by qualified personnel to analyze and interpret reports (Poffo et al., 2024; Fayard et al., 2012; Kefe & Tanis, 2023). Internal cost management reflects how a company manages its internal costs to reduce production expenses (Cooper & Slagmulder, 2004; Kurisu et al., 2022). Poffo et al. (2024) indicate that effective planning and control of costs lead to improved company performance.

Companies that adopt interorganizational cost management can adjust their production costs to a profit margin that allows their products to be sold at lower prices (Fayard et al., 2012). By purchasing larger quantities to supply their production units, companies can negotiate better prices and more favorable payment terms with their suppliers, resulting in enhanced performance (Fayard et al., 2012; Castanha & Gasparetto, 2022).

Thus, interorganizational cost management is utilized as a strategy to reduce costs and improve company performance (Poffo et al., 2024; Castanha & Gasparetto, 2022). Additionally, Poffo et al. (2024) found a positive relationship between internal cost management and the performance of Brazilian companies. Furthermore, Da Silva et al. (2023) indicated that joint cost management leads to business growth and consequently higher performance for retail companies. This leads to the seventh and eighth hypotheses of this investigation.

H7. The internal cost management is positively related to organizational performance.

H8. Interorganizational cost management is positively related to organizational performance.

High-quality information and organizational performance

Quality information enables an increase in organizational performance. Company management makes decisions using reliable information that aligns with the reality of the organization (Poffo et al., 2024). Equipped with accurate, relevant, and timely information, the company achieves a higher return on investment in its production line, which leads to reduced product costs and increased profitability (Poffo et al., 2024). Therefore, organizational performance is tied to the ability to interpret information, predict market conditions, and develop strategies aimed at achieving higher profits compared to competitors (Shniekat et al., 2022).

The Theory of Cooperation explains that the quality of information is a natural result of a collaborative environment (Williamson, 1975). Thus, when a company has electronic integration, departments cooperate openly and reliably, and the shared information is more accurate, complete, and useful (Poffo et al., 2024). This, in turn, allows for better resource allocation, process optimization, and

implementation of effective strategies, leading to superior organizational performance (Poffo et al., 2024; Poffo & Lunardi, 2024).

Previous studies by Yuan et al. (2022) and Shniekat et al. (2022) have shown that higher quality information provides better performance for companies. Additionally, Poffo et al. (2024) indicated that correct information, consistent with the company's reality, well-structured, and immediately available allows companies to achieve superior organizational performance. Thus, the ninth research hypothesis is formulated:

H9. Quality information is positively related to organizational performance.

Methodological procedures

Measurement of variables

The variables applied in the development of this research were operationalized based on previous literature. Table 1 presents the variables used for the research development.

Table 1
 Research variables

Variables	Definition	Scale	Authors
Internal Electronic Integration	These are resources such as internal systems, databases, knowledge and routines that the organization uses to develop its internal activities (Fayard et al., 2012; Barúa et al., 2004).	Four 7-point Likert scale questions	Fayard et al. (2012)
External Electronic Integration	These are resources such as integrated external systems, databases, knowledge and routines that the organization uses to develop its activities in an integrated manner with other companies (Fayard et al., 2012; Barúa et al., 2004).	Four 7-point Likert scale questions	Fayard et al. (2012)
Quality of Information	It consists of a measure of the quality of the outputs of the information systems, that is, the quality of the information that the system produces in reports (Gable, Sedera & Chan, 2008).	Ten 7-point Likert scale questions	Gable et al., 2008
Internal Cost Management	It is a set of activities and routines that help companies manage their internal costs in order to increase profits (Fayard et al., 2012; Barúa et al., 2004).	Thirteen 7-point Likert scale questions	Fayard et al. (2012)
Interorganizational Cost Management	It represents cost management as a whole, with cost management carried out beyond the boundaries of the organization, aiming at reducing costs internally and externally (Fayard et al., 2012).	Sixteen 7-point Likert scale questions	Fayard et al. (2012)

Organizational Performance	It refers to the ability to develop organizational activities by obtaining constant growth, that is, expanding their sales and increasing their profits (Wijethilake et al., 2018).	Four 7-point Likert scale questions	Wijethilake et al. (2018)
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Source: Prepared by the authors (2025).

Two control variables were included in the model: company size (COSI) and the managers' experience (MLX). The variable related to company size was considered because large companies tend to engage in joint cost management to reduce their production costs (Fayard et al., 2012). The experience of cost managers and coordinators was included as well, as greater experience leads to a better understanding of internal cost management practices (Poffo et al., 2024). Both variables were operationalized as dummy variables, where 1 indicated large companies and 0 indicated otherwise; similarly, 1 represented managers with more than five years of experience, while 0 indicated otherwise.

Technique used for data analysis

This study employed structural equation modeling (SEM) due to its applicability in the context of organizational management research and its robustness to the lack of normality in the data (Hair Jr. et al., 2017). Given the need to estimate the sample size (Faul, 2009), G*Power 3.1 software was utilized to calculate the effect size ($f^2 = 0.15$), with an α error probability of 0.05, a power ($1 - \beta$ error) of 0.80, and six predictors with the highest number of arrows. This indicated that a minimum of 92 responses was required (Faul et al., 2009).

With a sample composed of 107 participants, this was deemed appropriate for the application of SmartPLS 4 in the investigated relationships. It is noteworthy that descriptive analysis was conducted with the aid of SPSS, while McDonald's Omega, the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) were calculated using FACTOR software.

Context involving the population, data collection, and the sample

A survey conducted by the auditing firm EY in 2023 identified the challenges and trends facing companies in Latin America by interviewing 996 executives from various sectors across 18 countries. According to the survey, 46% of executives from Brazilian companies engaged in joint cost management indicate that measuring joint costs is the main challenge for companies involved in interorganizational cost management (Tiinside, 2023). This figure is significantly higher than that reported by executives from Latin American companies, which stands at 35% (Tiinside, 2023).

In light of this, several steps were taken to develop this investigation, with the first being the selection of the population. Considering that Fayard et al. (2012) and Poffo et al. (2024) highlight the necessity of consulting professionals with expertise in the cost department for research aimed at understanding internal and interorganizational costs, the decision was made to select a population comprising cost managers and coordinators from Brazilian companies. Thus, a survey was conducted via LinkedIn, revealing that 525 professionals held specific roles in cost management or coordination, resulting in a population of 525 Brazilian companies.

The second step involved conducting a pre-test of the constructs related to this investigation. An email was sent with the questionnaire to three cost managers or coordinators, as being a manager or coordinator indicates that the respondent has experience in both internal and interorganizational cost management. Initially, the purpose of the pre-test was explained to the invitees, who were asked to evaluate each item. If they deemed any part relevant, they were to highlight questions that were unclear and suggest suitable wording for the survey items.

As a result of this feedback, some words were modified to better align the questions with the respondents' understanding. To proceed with data collection, a questionnaire was developed using QuestionPro, organized into three blocks: a letter introducing the research to the respondents, questions measuring the variables, and demographic characteristics. Additionally, the Informed Consent Term (TCLE) was presented, wherein respondents were required to agree to participate voluntarily in the research and permit the use of their data in publications for events and scientific journals.

Data collection commenced with the questionnaire being sent to 525 professionals between December 2022 and April 2023. Once potential respondents accepted the invitation on the professional network LinkedIn, the questionnaire was sent. A total of 389 invitations were accepted, yielding 109 responses. However, two responses were incomplete, resulting in a valid sample of 107 responses and a response rate of 20.38%.

To ensure data reliability, two tests were conducted to check for response bias. The first test analyzed the contrast between responses from two groups (the first and the last) (Af Wählberg & Poom, 2015), applying a means test (comparing the first 25% of responses with the last 25%). This indicated ($p > 0.05$) that there was no non-response bias. For the second test, Harman's single-factor test (Podsakoff and Organ, 1986) was applied to the 50 items from the six variables of the survey, showing a total explained variance of 27.29% (ideally < 0.50), indicating the absence of response bias problems.

Results

Descriptive analysis

The study reveals that 75.76% of respondents work in companies with integrated cost systems with other businesses. The majority are male (71.72%) and are between 36 and 45 years old (40%). Of the 107 respondents, 84.84% have a background in accounting, indicating that this education is an important prerequisite for working in the cost area, followed by business administration (24.24%). Additionally, 14.48% of cost managers have between six and 15 years of experience in the field, while 37.37% have been with the same company for two to five years.

The companies where these professionals work are large, with 63.64% having more than 500 employees and 74.74% reporting revenues exceeding 300 million. However, 75.76% of these companies are not publicly listed. In terms of longevity, 43.44% of the companies have been in the market for 26 to 50 years, and 78.79% have been in operation for over 26 years, indicating their stability. Finally, 49.49% of the companies are in the manufacturing sector, while 26.26% combine manufacturing and marketing of products.

Quantitativa quantitative approach

Table 2 presents the model used to estimate the investigated variables. Hair Jr. et al. (2017) describe factor loadings as the correlation of a variable with the items of the constructs; thus, factor loadings above 0.500 indicate the validity of the estimation model in this research. Accordingly, items (questions) from the construct with factor loadings below 0.500 were removed.

Consequently, it became necessary to exclude certain items from the constructs within the proposed model, specifically: three items related to information quality (QI_1, QI_7, and QI_10), four items concerning internal cost management (GCI_1, GCI_4, GCI_5, and GCI_10), and one item regarding interorganizational cost management (GCIN_1).

Panel A of Table 2 presents the descriptive statistics for this research, including the theoretical range, standard deviation (SD), mean, minimum, and maximum values, as well as reliability measures (Cronbach's Alpha > 0.70), McDonald's Omega (> 0.70), Composite Reliability (CR > 0.70), and Average Variance Extracted (AVE > 0.50) (Hair Jr. et al., 2017). Panel B of Table 2 displays the Heterotrait-Monotrait Ratio of Correlations (HTMT) (Hair Jr. et al., 2017). Regarding the evaluation of multicollinearity (Variance Inflation Factor – VIF), all constructs exhibited values below 2.280.

To ensure the model's reliability, the Comparative Fit Index (CFI) was calculated, yielding a value of 0.827 (with values expected to be close to 1.00) (Hair Jr. et al., 2009). Additionally, the Root Mean Square Error of Approximation (RMSEA) was found to be 0.087 (with values expected to be < 0.10), indicating that the model is suitable for application within the respective population (Hair Jr. et al., 2009).

Table 2
 Measurement Model

Panel A: Descriptive statistics, reliability, and convergent validity								
Variables	IT	M. M.	Aver.	DP	AC	Ômega	CR	AVE
Quality of Information	1 - 7	3 - 7	6,1	0,72	0,889	0,842	0,872	0,818
In. Electronic Integration	1 - 7	3 - 7	5,3	1,06	0,843	0,829	0,881	0,691
Ex. Electronic Integration	1 - 7	2 - 7	4,7	1,21	0,796	0,782	0,687	0,520
Internal Cost Management	1 - 7	4 - 7	5,1	1,17	0,910	0,896	0,910	0,732
Intero. Cost Management	1 - 7	4 - 7	5,8	0,82	0,929	0,887	0,949	0,621
Organizational Performance	1 - 7	2 - 7	5,6	0,80	0,848	0,831	0,879	0,741
COSI*	0 - 1	0 - 1						
MLX*	0 - 1	0 - 1						

Panel B: Discriminant validity – HTMT Criterion								
Variables	OP	ICM	ICMA	IEE	IEI	QI	COSI	MLX
1.Or. Performance								
2.Gestão Interna de Custos	0,648							
3.In. Cost Management	0,631	0,773						
4.Ex. Electronic Integration	0,257	0,279	0,452					
5.In. Electronic Integration	0,443	0,485	0,561	0,551				
6.Quality of Information	0,479	0,479	0,542	0,375	0,528			
7.COSI*	0,081	0,121	0,071	0,118	0,062	1,000		
8.MLX*	0,119	0,87	0,108	0,071	0,057	0,112	1,000	

Legend: IT: Theoretical Interval; M: Minimum; M: Maximum; SD: standard deviation; IEI: Internal Electronic Integration; IEE: External Electronic Integration; QI: Quality of Information; ICM: Internal Cost Management; ICMA: Interorganizational Cost Management; OP: Organizational Performance; COSI: Company Size; MLX: Managers' Length of Experience.

Note 1: * Control Variable.

Source: Survey data (2025).

Research findings

As presented in Panel A (Table 3), the internal integration that the company possesses results in external integrations that foster better engagement between companies ($\beta = 0.548$; $p < 0.000$), thus not rejecting H1 of this investigation. Additionally, the electronic integration of companies allows for the enhancement of internal cost management (H2) ($\beta = 0.262$; $p < 0.003$). However, external electronic integration, meaning integration developed in conjunction with other companies, was not proven sufficient to improve interorganizational cost management, leading to H3 being unsupported ($\beta = 0.168$; $p < 0.103$).

Subsequently, as shown in Panel B of Table 3, the interdependent elements of the systems provided information of higher quality, allowing managers to develop internal cost management more effectively ($\beta = 0.296$; $p < 0.000$), thereby supporting H4. Similarly, the external interdependent elements enable companies to obtain higher quality information for developing interorganizational cost management, leading to H5 ($\beta = 0.187$; $p < 0.038$) not being rejected.

The processes and metrics applied in internal cost management allow companies to apply their internal metrics and processes to interorganizational cost management ($\beta = 0.693$; $p < 0.000$). Consequently, both the management of internal costs ($\beta = 0.378$; $p < 0.000$) and the management of interorganizational costs ($\beta = 0.341$; $p < 0.001$) contribute to greater organizational performance.

Moreover, clear and concise information that reflects the company's reality, is easy to understand, and is readily available ($\beta = 0.216$; $p < 0.008$) also enables the company to achieve better organizational performance. Lastly, the control variable of manager experience (MLX) demonstrated that managers with more experience tend to perform their work in a way that enhances interorganizational cost management. This corroborates the findings of DhaifAllah et al. (2016), who noted that more experienced professionals possess a greater critical sense regarding their work, potentially leading to more effective work processes.

Table 3
 Measurement model
 Panel A

Direct Effect	Dependent variable					
	IEE	QI	ICM	ICMA	OP	
IEI	0,548*** 7,965	0,272** 2,186	0,262** 2,277			
IEE		0,156 1,758	0,168 1,696			
QI						0,216** 2,166
ICM				0,693*** 8,880		0,378*** 2,845
ICMA						0,341*** 3,180
R ₂	24,9%	27,3%	23,40%	61,10%		37,80%
Indirect Effect			GCI	GCI		
IEI → QI			0,296*** 3,222			
IEE → QI				0,187** 1,996		

Panel C

Control Variables	ICMA	OP
COSI		0,052
		0,256
MLX	0,223**	
	2,128	

Legend: IEI: Internal Electronic Integration; IEE: External Electronic Integration; QI: Quality of Information; ICM: Internal Cost Management; ICMA: Interorganizational Cost Management; OP: Organizational Performance; COSI: Company Size; MLX: Managers' Length of Experience.

Note 1: *** p < 0,01; ** p < 0,05; * p < 0,10

Note 2: * Control Variable.

Source: Survey data (2025).

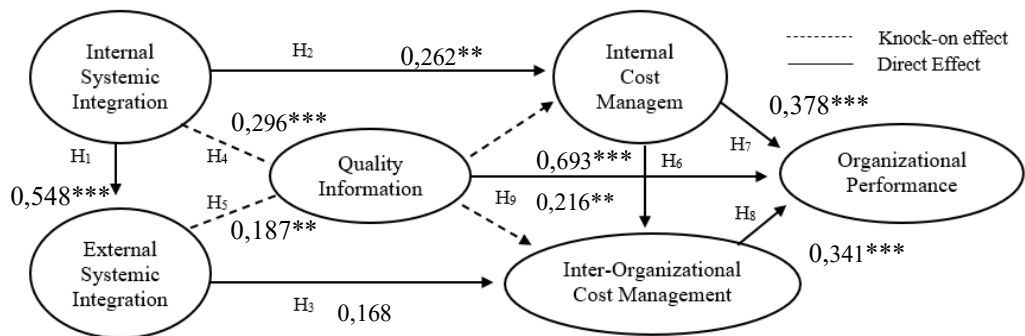


Figure 2. Relationships Investigated
 Source: Prepared by the authors (2025).

Additional analysis with different levels of professional experience

Table 4 presents a comparison between cost managers and coordinators with less than six years of experience and those with more than six years in the role. As shown, both professionals indicated that internal electronic integration enhances external electronic integration; however, managers with over six years of experience reported a stronger relationship ($\beta = 0.520$; $p < 0.000$).

For managers with more than six years of experience, internal electronic integration alone is insufficient to improve internal cost management ($\beta = 0.144$; $p < 0.340$), while less experienced managers perceive internal electronic integration as essential for effective internal cost management ($\beta = 0.638$; $p < 0.000$). Both groups of managers emphasized that external electronic integration alone does not improve interorganizational cost management.

Table 4
 Multigroup Moderation considering the level of experience of the professionals

Panel A	Mais de Seis Anos de Experiência			More Than Six Years of Experience		
	β	T	P Valor	β	T	P Valor
ICM → OP	0,286*	1,912	0,052	0,312	0,816	0,414
ICM → ICMA	0,519***	5,023	0,000	0,841***	13,332	0,000
ICMA → OP	0,216*	1,672	0,091	0,587	1,425	0,154
IEE → ICMA	0,178	1,429	0,153	0,082	1,017	0,309
IEI → ICM	0,144	0,950	0,340	0,638***	5,379	0,000
IEI → IEE	0,520***	5,901	0,000	0,457**	2,742	0,006
QI → OP	0,188*	1,879	0,057	-0,113	0,733	0,463
QI → ICM	0,320**	2,571	0,011	0,360***	3,540	0,000
QI → ICMA	0,188*	1,783	0,079	0,129*	1,690	0,091
Panel B						
Indirect Relationship						
IEI → QI → ICM	0,158**	1,989	0,047	0,033	0,354	0,723
IEE → QI → ICMA	0,016	0,362	0,701	0,054	1,250	0,211

Legend: IEI: Internal Electronic Integration; IEE: External Electronic Integration; QI: Quality of Information; ICM: Internal Cost Management; ICMA: Interorganizational Cost Management; OP: Organizational Performance; COSI: Company Size; MLX: Managers' Length of Experience.

Note 1: *** $p < 0,01$; ** $p < 0,05$; * $p < 0,10$

Source: Survey data (2025).

Managers and coordinators with over six years of experience indicated that quality information improves internal cost management when they perceive that the system has internal electronic integration ($\beta = 0.158$; $p < 0.047$). Supporting previous findings, both professionals noted that quality information alone does not enhance interorganizational cost management when they perceive that the system has external electronic integration.

The results demonstrated that both professionals perceive that quality information increases internal cost management, particularly highlighting less experienced managers ($\beta = 0.360$; $p < 0.000$). Moreover, managers described that quality information improves interorganizational cost management. However, it is added that for managers with less than six years of experience, quality information is not sufficient to lead to an increase in organizational performance.

Both managers and coordinators stated that internal cost management leads to better interorganizational cost management, with an emphasis on less experienced professionals ($\beta = 0.841$; $p < 0.000$). Lastly, more experienced managers pointed out that both internal and interorganizational management improves organizational performance, while less experienced managers believe that solely focusing on internal and interorganizational cost management is insufficient for companies to achieve higher performance.

Discussion of results

The data demonstrated that companies using an integrated internal system have the potential to enhance integration with the systems of other companies. These results validate previous findings, as the electronic integration employed by the company allows for detailed measurements of costs. Electronic integration enables the generation of reports that present the company's real information, positively reflecting on electronic integration between external units of the company (Fayed et al., 2012). Furthermore, understanding the company's internal system leads to a more secure implementation of the system among companies that jointly manage costs (Ward & Zhou, 2006).

This strengthens the Theory of Cooperation regarding the flow of information, as companies require relevant information on procurement, labor, sales, and costs for managers to make informed decisions. Subsequently, the results demonstrated that internal electronic integration provides a more accurate internal cost management system. In this context, the electronic integration utilized by the company generates comprehensive information on the costs involved in the production line (Chapman & Kihn, 2009; Fayard et al., 2012), indicating that the electronic integration employed by the company results in more efficient internal cost management (Poffo et al., 2024).

Fayard et al. (2012) examined how the electronic integration used by companies impacts internal cost management, showing that companies with systems tend to determine their internal costs more accurately. The findings of the investigation conducted by Fayard et al. (2012) revealed that electronic integration used collaboratively with other companies was insufficient to provide effective joint cost management in the European business landscape.

Similarly, this investigation indicates that in Brazilian companies, external electronic integration alone is not sufficient for satisfactory interorganizational cost management (H3). This is because merely having an integrated system is not enough for companies to achieve high-quality interorganizational cost management (Cohen & Lee, 1988; Fayard et al., 2012). External electronic integration represents the integration between the systems of companies that work with joint cost management (Fayard et al., 2012). However, Tu et al. (2006) and Vickery et al. (2003) highlight that companies require clear communication and continuous knowledge sharing to effectively manage their joint costs.

Fayard et al. (2012) further add that trust is a key element for companies to manage costs transparently and achieve greater cooperation. From this perspective, the Theory of Cooperation suggests that for cooperation between companies to exist, continuous information flows and guidelines for developing work processes are necessary to enable companies to coordinate their activities collectively (Williamson, 1975). Next, H4 presents the mediation involving high-quality information, electronic integration applied within companies, and internal cost management.

Thus, the integration of the internal systems utilized by companies is capable of generating information that enhances cost management. This corroborates Poffo et al. (2024), which demonstrates that internal system integration generates information in a clear and easily understandable format. The formatted and concise information regarding transactions (purchases and sales) allows for a more accurate measurement of costs (Poffo et al., 2024; Yuan et al., 2022). Therefore, the data generated by internal electronic integration results in improved cost measurement.

Internal electronic integration provides high-quality information from multiple departments in a single report (Yuan et al., 2022). Similarly, the electronic integration used by companies produces information that enhances interorganizational cost management. External electronic integration allows companies to access information from other companies, enabling greater control and transparency for those involved in joint cost management (Poffo et al., 2024). Consequently, these systems facilitate collaboration and the development of processes and communication with supply chain partners (Anderson & Dekker, 2009; Vickery et al., 2003).

These results confirmed the findings of Gable et al. (2008), who investigated the relationship between integrated systems, information, and organizational performance. Their results indicated that integrated systems generate complete and reliable data, resulting in quality information for decision-making (Gable et al., 2008). Thus, cooperation between organizations contributes to the creation of strategies that result in cost reductions and enables changes in the design of corporate structures to achieve better alignment of goals (Williamson, 1975).

Following H6, it was proven that a positive relationship exists between internal cost management and interorganizational cost management. This relationship indicates that, according to the respondents, internal costing processes can be applied across all companies, allowing for better engagement among companies to enhance organizational performance. Companies that jointly develop cost management have the opportunity to collaborate on their control processes to improve them, making the work metrics involved in cost management more effective (Anderson & Dekker, 2009; Fayard et al., 2012).

Validating previous research, companies that have internal cost management can improve their internal processes and, after applying them to partner companies, both can enhance processes developed collaboratively (Anderson & Dekker, 2009; Fayard et al., 2012). Consequently, the knowledge and skills of participants in the cost department can foster cooperation and shared knowledge, making cost management more effective for the companies involved in the production chain.

Addressing H7 and H8, the findings indicate that both internal and interorganizational cost management positively relate to organizational performance. Companies that share cost management can develop their processes to reduce costs, consequently enhancing their performance relative to their market

competitors (Poffo & Lunardi, 2024). Companies that expand their operations through cooperation can manage their costs to reduce those associated with production.

These companies can gain advantages due to the volume of units produced and the development of sales strategies that allow for broader market coverage and, therefore, higher profits (Fayard et al., 2012; Wijethilake et al., 2018). Thus, cooperation between companies leads to performance management, supporting the Theory of Cooperation. The internal and interorganizational cost management practices are applied as strategies to measure and improve organizational performance, ensuring that all companies are aligned in their pursuit of better organizational outcomes.

The final hypothesis states that high-quality information also enhances organizational performance. Therefore, data must be recorded accurately and structured so that managers or coordinators can easily comprehend it, ensuring it is accessible and reflective of reality, enabling managers to make more informed decisions (Poffo et al., 2024). Having complete information means that reports contain data from all departments of the company, prompting managers to visualize the overall context in which the company operates and make decisions that contribute to maximizing organizational performance (Poffo et al., 2024).

Moreover, information enables greater knowledge for managers (Vickery et al., 2003), as shared knowledge fosters improvements in organizational processes among companies that develop interorganizational cost management (Fayard et al., 2012). For companies to cooperate and achieve greater performance, a continuous flow of information is essential, and this information must be transparent to ensure effective decision-making.

In a broader sense, the results of this investigation reflect the perceptions of cost professionals, guided by the Theory of Cooperation. These findings suggest that companies that utilize internal electronic integration and extend this integration beyond their boundaries obtain information of higher quality to develop both internal and interorganizational cost management.

When a company applies its internal cost management procedures to its partner companies, it tends to manage joint costs more effectively. Additionally, comprehensive and concise information allows for the reduction of bottlenecks, contributing to improved measurement and cost reduction, which in turn leads to higher organizational performance.

Final considerations

This study analyzed the antecedents of internal and interorganizational cost management and their effects on organizational performance. The antecedents considered include internal electronic integration, external electronic integration, and high-quality information. Thus, an inferential investigation was

conducted using a survey method with 107 managers and coordinators from the cost department of companies located in Brazil.

The findings of this investigation indicate that internal electronic integration leads to improvements in electronic integration; such integration is capable of storing larger quantities of information, generating correct and concise data that is available at any time and consistent with the company's reality. It is understood that when a company has systems capable of accumulating and processing a greater volume of data, they tend to produce reliable information for use in the internal and interorganizational cost management of the involved companies.

This highlights the impact on transparency and the flow of information from the Theory of Cooperation, as the flow of information encourages companies to share their data transparently. The electronic integration utilized within the company allows for more advanced work metrics for the cost department; however, external electronic integration proved insufficient for enabling companies to manage joint costs more effectively. Therefore, it is perceived that integrated systems alone are not sufficient for a company to achieve high-quality interorganizational cost management.

As mentioned in the Theory of Cooperation, several factors are necessary for companies to develop cooperation. The results also show that when a company extends its integration and cost controls to other companies, it tends to obtain quality information to develop jointly managed cost management. Consequently, the information provided by these systems allows managers and coordinators in the cost department to visualize market strategies for enhancing both internal and interorganizational cost management.

The respondents also stated that internal cost management enables companies to gain a broader view of the bottlenecks related to production losses and work towards their reduction to improve organizational performance. Additionally, interorganizational cost management offers companies the opportunity to acquire products at lower costs, negotiate longer payment terms, and thus sell their products in a manner that maximizes profit, ultimately achieving better organizational performance. Moreover, structured information that is easily interpretable, legible, and backed up enables the company to achieve higher organizational performance.

However, this investigation has some limitations; the sample, characterized as non-intentional and accessible, may compromise the representativeness of the research. The scales used in the questionnaire to collect data (7-point Likert type) may introduce some response bias. Furthermore, the sample comprised only 107 respondents, which may also indicate a limitation. Future research is needed to gain a broader understanding of cost management; one alternative would be to include information sharing in the model to verify whether trust among collaborators improves internal cost management (Poffo & Lunardi, 2024).

Additionally, future research could analyze the relationship involving trust in interorganizational cost management. Furthermore, a qualitative approach could provide more insights into how companies develop interorganizational cost management, as well as efforts to expand the sample. Thus, further research is needed to understand the factors that positively influence cost management and performance in Brazilian companies.

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