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EFFECT OF INFORMATION QUALITY AND INTERNAL ELECTRONIC INTEGRATION ON INTERNAL COST MANAGEMENT AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

Internal electronic integration provides data integration for organizations. Through it, organizations obtain information about production costs, which allows the company to perform better in the market. In this context, this research aims to analyze the effect of information quality on internal cost management and its impact on organizational performance. This research was developed descriptively through data collection with 99 respondents, which include professionals in the positions of coordinator, senior analyst, manager, and cost supervisor of Brazilian companies. The data was measured using quantitative analysis and structural equations through the SmartPLS 4 software. This research's primary findings demonstrate that organizations with internal electronic integration between company departments have information that provides better internal cost management. These results are justified since quality information allows professionals to perform a more detailed analysis of expenses in the organization, making it possible to reduce organizational costs. Thus, correct and real-time information allows managers to make decisions that increase organizational performance and obtain a greater understanding of the internal processes involving production lines. This study presents new *insights* into the perception of professionals in the field of costs concerning the relationships investigated in the research. It also contributes to the managers' decisions and strategies to manage their costs and raise the company's performance.

Keywords: Information Quality. Internal electronic integration. Internal cost management. Organizational performance.

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1 INTRODUCTION

The market competitiveness and the need for quality information for managers to plan the organization's future have made cost accounting essential for companies (Dekker & Van Goor, 2000), and cost management is considered one of the most critical areas of accounting (Shank & Miguel, 2009; Kurisu et al., 2022). The information presented by the internal electronic integration allows the company to identify the nature and behavior of the costs used in developing organizational activities and use resources in technology implementation to improve the organization's internal electronic integration (Kurisu et al., 2022).

In this sense, internal cost management requires the company to process information and subsequently control it, know what expenses are involved in the production process, and plan, instigating the organization to achieve maximum productivity, aiming at higher profits (Hoque, 2014). However, it is necessary to have quality information to increase the organization's profits through internal cost management (Cooper & Chew, 1996; Cooper & Slagmulder, 2004; Fayard et al., 2012).

Information quality is determined by the system's quality, which in turn has a direct link with the technology used by the company (Lutfi et al., 2022). According to Knauer et al. (2020) and Gable et al. (2008), information quality is linked to the internal electronic integration of the organization's system, and quality information is determined by four factors, namely integrity, consistency, timeliness, and accuracy (Loshin, 2011). Internal electronic integration is the ability of the company's system to store and process the organization's data, transforming it into reliable information (Ward & Zhou, 2006).

Internal electronic integration consists of resources in the organization's possession with an internal focus, such as systems, databases, and enterprise resource planning, to coordinate and plan internal production, procurement, and inventory, as well as the knowledge and routines associated with these activities (Fayard et al., 2012; Barua et al., 2004). Thus, internal electronic integration must be reliable to transform data from company departments into quality information (Gable et al., 2008), allowing the cost professional to measure the organization's internal costs (Fayard et al., 2012).

That said, quality information and measuring costs accurately allow the company to increase its performance before the market (Ghunaim & Jaaron, 2022). According to Dekker and Van Goor (2000), the performance of an organization is shown by its ability to generate profit and grow in the face of market uncertainties. Wijethilake et al. (2018) indicate that performance is a comparison between the projected growth and the actual growth of the organization, and internal cost management allows the company to increase its profits without increasing the value of the sale of its products (Shniekat et al., 2022).

Shank and Miguel (2009), Fayard et al. (2012), and Michels and Zonatto (2017) stated that there is a specific difficulty in research involving cost management due to the small number of experienced professionals who perform these functions. Kurisu et al. (2022) also cite that the results regarding the relationship between information quality and internal cost management are not clear. Information quality is essential for good cost management, but few studies address this theme through the structural equations model (Fayard et al., 2012).

In this context, this research aims to analyze the effect of information quality on internal cost management and its impact on organizational performance. The proposed investigation is justified considering the amount of research describing the importance of researching and understanding the relationship between information quality, internal electronic integration, internal cost management, and organizational performance (Michels & Zonatto, 2017; Ghunaim & Jaaron, 2022; Kurisu et al., 2022).

As a theoretical contribution, this study presents new theoretical insights into the perception of professionals in the field of costs on the relationships investigated in the research, with professionals with experience tending to have greater aptitude and knowledge on the subject.

This research advances the findings of Michels and Zonatto (2017), generating literature insights and demonstrating that internal cost management allows the organization to increase its performance. This research also demonstrates that quality information improves internal cost management and, consequently, company performance.

In a practical way, the results of this research can contribute to the managers' decisions and strategies to manage their costs and raise the company's performance. It also contributes to society, allowing people who idealize having their own business to understand the importance of information quality so that they can plan for the future, and internal cost management, to be able to analyze the expenses involved in the organization and, as a result of this analysis, and maximize organizational profits. This study can also arouse the interest of students and researchers who wish to delve into the topic.

2 THEORETICAL FOUNDATION AND HYPOTHESIS FORMULATION

Technology allows organizations greater automation, coordination, and integration in internal processes (Poffo, 2023), generating a flow of information that allows the organization to perform better than its competitors (Chang et al., 2016; Fayard et al., 2012). Internal electronic integration assists the company in improving management processes developed by management (Lee et al., 2006).

Barua et al. (2004) define internal electronic integration as a measure in which a company integrates its various IT (Information Technology) systems to obtain greater visibility over the data of the departments that make up the organization, which results in reporting that allows better visualization of the company's information. According to Fayard et al. (2012), internal electronic integration encompasses several departments of an organization, such as production planning, purchasing, sales, costs, and inventory activities.

Chang et al. (2016) define internal electronic integration as an instrument that allows the organization to integrate information and processes that can be both from the production and administrative areas of the organization since its purpose is to provide the company with agility in obtaining internal information (Shank & Miguel, 2009; Ghunaim & Jaaron, 2022). The integration must generate information that is consistent to be considered of quality; that is, it should allow integration between the information flows of the departments of the organization and ensure that the information is complete (Lee et al., 2006; Chang et al., 2016; Lutfi et al., 2022).

The quality of the organization's information will be determined by the quality of the system it uses for internal electronic integration (Guan & Chen, 2016; Lutfi et al., 2022). This information allows the organization to obtain a competitive advantage, improving its performance before the market. A system capable of generating complete, concise, and current information leads the organization to measure its organizational costs accurately (Fayard et al., 2012).

Internal cost management refers to how the organization manages its internal costs to reduce production costs (Cooper & Slagmulder, 2004; Kurisu et al., 2022), allowing managers to adjust the profit margin of the product according to the economic scenario in which the company is inserted (Wouters et al., 2016). Thus, it is perceived that information quality and internal electronic integration are determining factors for internal cost management in the company (Michels & Zonatto, 2017).

The electronic integration of systems allows data processing, monitoring, and sharing, transforming them into information (Barua et al., 2004). On the other hand, internal cost management comprises activities and routines that require quality information so that the manager can make the best decision regarding cost management (Barua et al., 2004; Fayard et al., 2012; Kurisu et al., 2022). Thus, internal electronic integration is expected to positively and significantly measure the relationship between information quality and internal cost management. Thus, the first research hypothesis was developed:

H_1. Internal electronic integration positively and significantly mediates the relationship between information quality and internal cost management.

According to Ghunaim and Jaaron (2022), information is the key to the success of organizations. It is through information that managers make their decisions, which will determine whether the company will show growth before the market. According to Feng et al. (2021), Loshin (2011), and Gable et al. (2008), there are two essential dimensions for information to be of quality: the intrinsic dimension, composed of accuracy, semantics, structure, and language, and the contextual dimension, encompassing completeness, consistency, currency, punctuality, reasonableness, and identifiability.

Information accuracy concerns correct data; that is, systems must generate correct information (Gable et al., 2008; Loshin, 2011). Language refers to information that is easy to understand; semantics emphasizes the importance of sharing information within the organizational environment; and completeness discriminates against the need for information to be accurate (Loshin, 2011; Yuan et al., 2022; Ghunaim & Jaaron, 2022).

Consistency highlights that information is essential for all departments of the organization; currency refers to timeliness; that is, information must be current; and punctuality portrays the time it takes for information to be accessed (Loshin, 2011). Reasonableness is related to the expectations of consistency or reasonableness of the values presented, and identifiability refers to the nomenclature used in the presentation of the information (Loshin, 2011; Shen et al., 2022; Ghunaim & Jaaron, 2022).

Cooper and Slagmulder (2004) state that organizations have many internal controls so that the company can manage its costs. These controls are information that helps the organization during production (Anderson et al., 2007; Fayard et al., 2012). Internal cost management requires valid information (Michels & Zonatto, 2017) and a manager who knows the field of costs (Ghunaim & Jaaron, 2022).

The organization can maintain a competitive market advantage by monitoring its costs. In this sense, internal cost management allows companies to detect avoidable losses during production (Shank & Miguel, 2009). Internal cost management can be considered a technique for managing costs of organizational scope to create value for the company (Zhang & Gong, 2022; Anderson et al., 2007; Cooper & Slagmulder, 2004) and that, together with quality information, allows the organization to increase its earnings (Ghunaim & Jaaron, 2022).

Kurisu et al. (2022) sought to understand the extent to which cost-relevant information is used by managers when managing organizational costs. The results showed that management had not used the information when planning and managing internal costs. Therefore, it is necessary to understand how information quality is related to cost management in the Brazilian scenario. Thus, the second hypothesis of the research is presented:

H_2. Information quality is positively and significantly related to internal cost management.

The outputs must be complete to have quality information; that is, the organization's reports must include all the data on the company's movements, namely: purchases, sales, costs, expenses, and investment (Wang et al., 2022; Ma et al., 2021; Feng et al., 2021). All data must be recorded and processed by a system so that management can use it (Lutfi et al., 2022). Information is essential for management to decide how best to manage the organization's costs (Cooper & Slagmulder, 2004; Fayard et al., 2012; Wouters et al., 2016). Lutfi et al. (2022) state that the organization will only perform well if it has reliable data so the cost manager can decide.

Organizational performance is related to the ability of managers to interpret information and develop strategies to anticipate market situations and obtain higher profits than their

competitors (Wijethilake et al., 2018). According to Fayard et al. (2012), information quality is essential for the company to manage its costs and increase its performance. According to Asree et al. (2010), cost managers must be creative in analyzing which costs can be reduced in the production process. Information is essential for the manager to make this analysis, thus increasing the organization's profit margin.

An organization capable of standing out before the market must have information that reflects the actual situation of the organization because, with quality information, the company understands its situation before the market and uses this information to decide the organization's future (Wijethilake et al., 2018). In investigating the relationship between information quality and organizational performance, Shniekat et al. (2022) found that, in Jordan, information quality is responsible for providing the organization with better performance. However, the authors indicate that this improvement occurs moderately.

Yuan et al. (2022) sought to understand the role of accounting information in decision-making, investment efficiency, and organizational performance. The results indicate that companies with higher-quality accounting information tend to reduce their investments, alleviating financial constraints and agency conflicts. Consequently, these organizations perform better than organizations with lower-quality accounting information. Thus, the third research hypothesis is formulated to understand better the relationship between information quality and organizational performance in the Brazilian scenario:

H_3. Information quality is positively and significantly related to the organization's performance.

It is essential that organizations have internal cost management to develop their activities, and it is based on cost information that managers, coordinators, and cost supervisors can use to make more assertive decisions (Michels & Zonatto, 2017). The organization assertively identifies its actual production costs by adopting internal cost management processes, adjusting the cost of the product to its profit margin to sell it for a fair value to the customer (Wouters et al., 2016).

Wouters et al. (2016), the organization will only achieve its profit and growth objectives if it has adequate cost management. According to Surowiec (2013), the primary purpose of internal cost management is to measure production costs. Internal cost management allows the company to analyze all raw materials and inputs used during manufacturing (Barua et al., 2004; Fayard et al., 2012).

An organization that manages its internal costs strategically can plan and control operational processes effectively, improving organizational performance (Michels & Zonatto, 2017). Obtaining resources causes the company to make a detailed analysis of its costs. Cooper and Slagmulder (2004) state that internal cost management is a complex process in which the organization must develop work practices that facilitate the reduction of costs in the production process since the company improves its performance with the decrease in costs, expanding its market coverage.

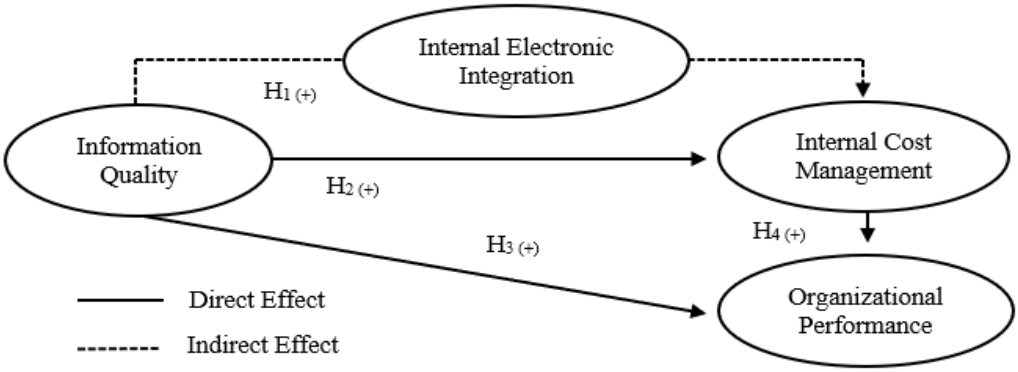
Internal cost management is not the only one responsible for improving organizational performance since factors such as the company's information quality and systems integration are essential for good performance (Gable et al., 2008; Fayard et al., 2012; Wijethilake et al., 2018). Wijethilake et al. (2018) affirm that performance consists of the realization of projected values; it is through information that the organization can achieve its objectives.

Also according to Brandão et al. (2012), a company's performance is directly related to the results, and it is possible to achieve higher profits through strategies. Thus, the internal management of organizational costs is expected to relate positively to organizational performance. Thus, the fourth research hypothesis is presented:

H_4. Internal cost management is positively and significantly related to the organization's performance.

Figure 1 shows the relationships investigated in the research.

Figure 1
Relationships Investigated in the Research



Source: Prepared by the authors (2023).

3 METHODOLOGICAL PROCEDURES

3.1 Population Context, Data Collection, and Sample

Shank and Miguel (2009), Fayard et al. (2012), and Michels and Zonatto (2017) point out that it is necessary to question people who have knowledge and experience in the field of costs to develop research in this area. Therefore, the population selected for this research was composed of professionals who work in positions that involve cost coordination, senior cost analysis, management, and supervision of costs of Brazilian companies.

Data collection was conducted through a survey first carried out with LinkedIn to identify the number of professionals with experience in cost management. Professionals who specifically performed the functions of cost coordinator, senior cost analyst, manager, and cost supervisor were considered. Thus, considering the selection criteria, the population of this research was composed of 525 professionals in the costs field of Brazilian companies and possible respondents.

After surveying the population of this research, the study's construct was pre-tested by applying the research instrument sent via email to three professionals with experience in the costs field. Initially, the purpose of the pre-test was explained to the guests, and their participation and collaboration were requested so that they could evaluate each item and, if they considered it pertinent, point out the questions that were not clearly presented.

Thus, upon request, some words were changed so that the items of the construct adapted to the cost context of the Brazilian organizational scenario. A questionnaire was prepared and presented in three blocks to proceed with the data collection: cover letter, demographic characteristics, and questionnaire measures. Also, the Informed Consent Form (ICF) was presented at the beginning of the questionnaire, in which participants must agree to participate in the research and authorize the use of the data collected for scientific publications.

Thus, according to the selected population, the questionnaires and 525 invitations were sent between December 2022 and January 2023. After the invitation was accepted, the questionnaires were sent to the following professionals, and 389 invitations were accepted. Of these, 101 returned, but 2 contained incomplete answers, leading to a sample that comprised 99 valid answers, representing a response rate of 18.85%.

3.2 Variable Measurements

The measures used in this study were operationalized from the literature concerning minor improvements. Therefore, the research instrument adopted for data collection was developed with objective questions considering the variables analyzed in the study. Table 1 describes the variables used in this research, their operational definition, and the authors who developed them.

Table 1
Research variables

Variables	Operationalization	Scale	Authors
Information Quality	Consists of a measure of the information systems output quality, that is, the quality of the information that the system produces in reports (Gable, Sedera, & Chan, 2008).	Ten *Likert* scale questions: (1) strongly disagree and (7) strongly agree	Gable, Sedera, & Chan (2008)
Internal Electronic Integration	The organization uses resources such as systems, databases, knowledge, and routines to develop its activities (Fayard et al., 2012).	Four *Likert* scale questions: (1) strongly disagree and (7) strongly agree	Fayard et al. (2012)
Internal Cost Management	It is a set of activities and routines that assist organizations in managing their internal costs to increase profits (Fayard et al., 2012).	Thirteen *Likert* scale questions: (1) strongly disagree and (7) strongly agree	Fayard et al. (2012)
Organizational Performance	The way companies refer to what is executed, in the sense of performance, by the set of teams and collaborators (Wijethilake et al., 2018).	Four *Likert* scale questions: (1) strongly disagree and (7) strongly agree	Wijethilake et al. (2018)

Source: Prepared by the authors (2023).

3.3 Technique Applied in Data Analysis

The structural equations model was used due to its usefulness in management research and its robustness regarding the lack of regularity of the research data. The structural equation model can still be used in theoretical models that present a certain degree of complexity, allowing the relationships between the constructs to be tested (Hair et al., 2017).

Faul (2009) presents the need to repute the sample's capacity. Thus, we used the *G*Power* 3.1 software to calculate the mean (0.15) effect size (f2), α err prob of 0.05, and power (1 – β err prob) of 0.80, considering four predictors in the variable with the maximum number of arrows. Thus, a minimum of 89 responses is required (Faul et al., 2009). Thus, this research's sample comprised 99 respondents, considered adequate for using the SmartPLS 4 software in the proposed archetype.

4 RESULT PRESENTATION AND ANALYSIS

4.1 Descriptive Analysis

This section presents the descriptive analysis of the respondents, the profile of the companies that made up the research sample, and the descriptive analysis, reliability, validity, and results regarding the research hypotheses analyzed in the study. Table 2 shows the analysis of the survey respondents, presenting the respondents' profile (Panel A) and the companies surveyed (Panel B).

This research has a sample of 99 respondents, as mentioned in Table 2 (Panel A), consisting of 71.72% men and 28.28% women. Thus, it can be seen that most respondents (40% of the sample) are between 36 and 45 years old, followed by 32.32% who are between 26 and 35 years old.

Regarding the length of work in the organization, most, representing 37.37%, described that they have worked there for between 2 and 5 years, followed by 25.25% and 24.24% who have worked there for 25 and 24 consecutive years, respectively. Only 8.08% reported working in the organization for between 16 and 20 years, and only 5.06% described working for more than 21 years in the same organization.

Regarding the length of experience in the function, most respondents indicated working in the field of costs between 6 and 15 years (47.48%). This result corroborates those in the literature, which states that cost managers must have knowledge and experience in the function to understand the complex movement of organizational costs (Barua et al., 2004) and interpret the information to understand the economic scenario in which the company is inserted (Ghunaim & Jaaron, 2022).

Table 2

Respondent analysis

Panel A - Respondents' profile					
Does the company have integrated cost systems with other organizations (value chain/branch office)?			**Gender**		
			Male	71	71.72%
Yes	75	75.76%	Female	28	28.28%
No	24	24.24%	I prefer not to answer	0	0.00%
Age Range			**Degree of training**		
Between 18 and 25 years	6	6.06%	Administrator	24	24.24%
Between 26 and 35 years	32	32.32%	Accountant	84	84.84%
Between 36 and 45 years	40	40%	Economist	7	7.07%
Over 46 years	21	21.22%	Others	8	8.08%
Working time in the organization			**Experience time in this function**		
Up to 1 year	24	24.24%	Up to 1 year	5	5.05%
Between 2 and 5 years	37	37.37%	Between 2 and 5 years	19	19.19%
Between 6 and 15 years	25	25.25%	Between 6 and 15 years	47	47.48%
Between 16 and 20 years	8	8.08%	Between 16 and 20 years	15	15.15%
Over 21 years	5	5.06%	Over 21 years	13	13.13%
Panel B - Company Profile					
Number of employees			**The company is listed on the Stock Exchange**		
Up to 100	6	6.06%	Yes	24	24.24%
Between 100 and 500	30	30.30%	No	75	75.76%
Over 500	63	63.64%	**Sector in which it operates**		
Time of existence of the company			Trade	7	7.07%
Between 1 and 25 years	21	21.21%	Industry	49	49.49%
Between 26 and 50 years	43	43.44%	Service	14	14.15%
Between 51 and 75 years	17	17.17%	Agribusiness	3	3.03%
Over 75 years	18	18.18%	Trade and Industry	26	26.26%
Company size by annual turnover, according to BNDES					
Small business - over 2.4 million up to 12 million				5	5.05%
Intermediate business - over 13 million up to 25 million				4	4.04%
Intermediate-large business - over 26 up to 40 million				7	7.07%
Large business - over 40 million				74	74.74%
I prefer not to answer				9	9.10%

Source: Prepared by the authors (2023)

It can also be observed that 19.19% of the respondents stated that they had between 2 and 5 years of experience, and 5.05% indicated that they had up to one year of experience in the function. When asked about the degree of training, 84.84% highlighted having a degree in accounting, followed by training in the administrative field (24.24%). Of the 99 respondents, 8.08% stated that they had an engineering background (four respondents), specialization in the field of costs (three respondents), and specialization in finance (one respondent).

Regarding having cost systems integrated with other organizations, such as value chains or branch offices, 75.76% of respondents said their costs were managed along with other

organizations. Panel B (Table 2) shows the characterization of the companies that make up the sample. As for the sector of activity, respondents described working in industry (49.49%), followed by trade and industry (26.26%), and 14.15% described working in service-providing organizations. Another 3.03% also described working in organizations that make up the agribusiness field.

Regarding the time of existence of the company, most are in the market between 26 and 50 years, representing 43.44%, and 18.18% described that they work in organizations that have been in the market for over 75 years, demonstrating that the organizations that make up the sample of this research have solidity in the market. Organizations that have been in the market for a long time may indicate strong roots in the market in which they operate (Wijethilake et al., 2018).

Panel B of Table 2 shows that 75 companies (75.76%) are not listed on the Stock Exchange, but 74.74% are considered large companies with revenues over 40 million. It is also noticed that most analyzed companies have more than 500 employees (63.64%). Thus, most of the sample comprises large industry and commerce companies with over 500 employees and 26 to 50 years of existence in the market. However, most are not listed on the Stock Exchange.

4.2 Quantitative Approach: PLS-SEM

Table 3 shows the Measurement Model of the research.

Table 3

Measurement model

Panel A: Descriptive statistics, reliability, and convergent validity					
Variables	Mean	(SD)	Alpha	CR	AVE
Organizational Performance	5.9	0.74	0.877	0.916	0.732
Internal Cost Management	5.6	0.83	0.920	0.933	0.520
Internal Electronic Integration	5.0	1.09	0.855	0.902	0.699
Information Quality	5.1	0.62	0.862	0.895	0.552
Panel B: Discriminant validity - Fornell-Larcker Criterion					
Variables		OP	ICM	IEI	QI
1. Organizational Performance		**0.856**			
2. Internal Cost Management		0.596	**0.748**		
3. Internal Electronic Integration		0.378	0.434	**0.836**	
4. Information Quality		0.435	0.449	0.454	**0.743**
Panel C: Discriminant validity - HTMT Criterion					
Variables			ICM	IEI	QI
1. Organizational Performance					
2. Internal Cost Management			**0.654**		
3. Internal Electronic Integration			0.420	**0.464**	
4. Information Quality			0.485	0.486	**0.523**
Panel D: R2, Q2, and VIF					
Variable	R^2		Q^2	Maximum VIF	
1. Organizational Performance	0.386		0.376	1,262	
2. Internal Cost Management	0.489		0.481	1,259	
3. Internal Electronic Integration	0.292		0.273	1,000	

Note. Values diagonally in bold (Panel B) refer to the square root of the AVE.
Source: Research data (2023).

Panel A shows the descriptive statistics (mean and standard deviation - SD), the reliability (*Cronbach's Alpha* > 0.70 and *Composite Reliability* - CR > 0.70), and the convergent validity (*Average Variance Extracted* - *AVE* > 0.50) (Hair Jr. et al., 2017). Panel B demonstrates the

discriminant validity according to Fornell-Larcker (AVE root > correlations between constructs) (Hair Jr. et al., 2017).

Panel C reinforces the discriminant validity (*Heterotrait-Monotrait Ratio of Correlations* – HTMT < 0.95 with conceptually similar constructs) (Hair Jr. et al., 2017). Finally, Panel D presents the coefficient of determination (R2), the Stone-Geisser indicator (Q2), and the multicollinearity test (*Variance Inflation Factor - VIF*). It is also noteworthy that it was necessary to remove some items from the measurement model since the items of the construct that did not present factor loads greater than 0.500, namely Information Quality (IQ1, IQ7, IQ10) and internal cost management (ICM1 and ICM3) (Hair Jr. et al., 2017).

4.3 Discussion of the Results

Table 4 shows the structural model. Thus, Panel A demonstrates the hypothesis testing with the beta coefficients, statistical *t*, and *p*-value. Panel B reveals the indirect effects, presenting the beta coefficients, statistical *t*, and *p*-value. The direct and indirect effects were tested for this research. An indirect effect was tested for the first hypothesis (Panel B of Table 4), and the direct effects were tested for the second, third, and fourth hypotheses, according to Panel A of Table 4.

Table 4

Measurement model

Panel A: Research hypotheses			
Relationships	Beta coefficient	T-statistic	P-value
QI → IEI	0.465	5,278	0.000
IQ → ICM	**0.328**	**3,470**	**0.000**
QI→ OP	**0.276**	**2,750**	**0.007**
IEI → ICM	0.289	2,752	0.007
ICM→ OP	**0.502**	**5,476**	**0.000**
Panel B: Indirect effects analysis			
Relationships	Beta coefficient	T-statistic	P-value
IQ→ ICM → OP	0.262	2,637	0.003
IQ → IEI → ICM	**0.231**	**2,472**	**0.002**
IEI → ICM → OP	0.244	2,388	0.002
QI→ IEI → ICM→ OP	0.165	2,153	0.003

Note 1. R2: 0.02 = small; 0.13 = intermediate; 0.26 = large (Cohen, 1988). Q2: > 0 = acceptable (Hair Jr et al., 2019).
Note. * p < 0.001; ** p < 0.05
Source: Data from the authors.

The organization must have a system for internal electronic integration capable of generating accurate information (Gable et al., 2008), semantics, structure, and writing so that both can understand it (Loshin, 2011; Yuan et al., 2022). The information must still be complete, consistent, described in currency, timely, reasonable, and identifiable (Loshin, 2011; Yuan et al., 2022).

This research indicates that information quality is positively related to internal cost management. Thus, the second hypothesis (H_2) was also confirmed ($\beta = 0.328$; *p-value* 0.000). The information allows the manager to analyze the economic scenario. It is through the data transformed by the systems integration into information that professionals in the field of costs can make more assertive decisions (Michels & Zonatto, 2017). The company will apply its profit margin through the information relevant to production costs; if the costs are not measured correctly, it will not have the profit it wants on a specific product (Wouters et al., 2016).

Kurisu et al. (2022) surveyed Japanese companies to understand how information quality interferes with company cost management; their results indicate that quality information allows managers to analyze the actual costs involved in the production process, thus seeking ways to

reduce production costs. The research results of Kurisu et al. (2022) corroborate the findings of this research. Thus, according to the professionals in the field of costs that comprise the sample, quality information has a strong positive relationship with internal cost management.

Comprehensive information enables cost managers to analyze the organizational landscape (Zhang et al., 2022), understand which processes are expenses of greater and lesser proportion, and make adjustments to the production process and the development of organizational activities that allow the company to reduce its production cost and maximize its profits (Cooper & Slagmulder, 2004; Kurisu et al., 2022; Ghunaim & Jaaron, 2022).

The third hypothesis of this research seeks to clarify whether information quality improves the organization's performance. The results indicated that information quality positively affects the organization's performance. Thus, the results indicated that this research's third hypothesis (H3) was also confirmed (β = 0.276; *p-value* 0.007). It is the information produced by the systems that cost managers will use. This information allows for planning and investments that allow the organization to expand its production lines (Scheele et al., 2018).

All data must be recorded with accurate, semantic, structured, easy-to-understand, complete, consistent, and timely information so managers can make decisions more confidently (Lutfi et al., 2022). Quality information improves company performance, considering the importance of information for the organizational environment (Lutfi et al., 2022).

Wijethilake et al. (2018) sought to understand how management controls can moderate the relationship between environmental innovation strategy and organizational performance. The research results indicate that the enabling use of Management Information Systems positively moderates the relationship between environmental innovation strategy and organizational performance. In contrast, the controlling use of management information systems negatively moderates the same relationship (Wijethilake & Appuhami, 2018).

We have a relationship between internal cost management and organizational performance as this research's fourth and last hypothesis. The results indicate that internal cost management is positively related to the economic performance of organizations. The fourth hypothesis (H_4) was also confirmed (β = 0.502; *p-value* 0.000). Ghunaim and Jaaron (2022) sought to understand the relationship between the level of prevention and evaluation practices, finding that the adoption of quality cost significantly positively affects organizational performance.

Also, the costs of prevention and external and internal failure were all associated with a positive impact on the organizational performance of companies. In contrast, evaluation cost did not affect organizational performance. Thus, the research results of Ghunaim and Jaaron (2022) corroborate the results of this research. Table 5 presents the relationship of the hypotheses tested in the research.

In general, the results presented the cost coordinators, senior cost analysts, managers, and cost supervisors of Brazilian companies' perception of the relationship between the variables of this study. Table 5 shows that all four hypotheses were confirmed, highlighting the importance of internal cost management determinants and their relationship with organizational performance.

Table 5

Hypotheses tested in the research

Research Hypotheses	Relationship
H_1. Internal electronic integration positively and significantly mediates the relationship between information quality and internal cost management.	Not Rejected
H_2. Information quality is positively and significantly related to internal cost management.	Not Rejected
H_3. Information quality is positively and significantly related to the organization's performance.	Not Rejected
H_4. Internal cost management is positively and significantly related to organizational performance.	Not Rejected

Source: Prepared by the authors (2023).

The results of this research corroborate the previous literature proposed by Fayard et al. (2012), who mentions that organizations must have systems that allow better data integration between the organization's departments so that the information is of quality. The systems are responsible for providing cost managers with quality information that will accurately measure costs, leading to increased organizational performance.

The measurement data showed that information quality provides managers with better internal cost management, indicating results consistent with those of Kurisu et al. (2022), who analyzed companies from Japan. These results also corroborate the findings of Wijethilake et al. (2018), demonstrating the importance of information quality for organizational performance, consistent with the literature that determines that correct, concise, and real-time information allows the manager to make decisions that increase organizational performance.

5 FINAL REMARKS

The present research aimed to analyze the effect of information quality on internal cost management and its reflection on organizational performance. Thus, descriptive research was carried out through a survey with 99 respondents who comprise professionals with experience in the field of costs of Brazilian companies: cost coordinators, senior cost analysts, managers, and cost supervisors. Data analysis was conducted using a quantitative approach using structural equation modeling through the analysis of the SmartPLS 4 software.

Four research hypotheses were elaborated to understand better the effect of information quality on internal cost management and its effects on organizational performance: Internal electronic integration positively and significantly mediates the relationship between information quality and internal cost management (H_1); Information quality is positively and significantly related to internal cost management (H_2); Information quality relates positively and significantly to the organization's performance (H_3); and Internal cost management relates positively and significantly to the organization's performance (H_4).

All four hypotheses of the study were confirmed. Thus, the results of this research indicated that internal electronic integration positively mediates the relationship between information quality and internal cost management and that information quality provides better conditions for companies to manage internal costs, thus generating better organizational performance. Thus, in addition to allowing a more detailed analysis of organizational expenses, quality information makes it possible to reduce the company's costs.

This research contributes to the literature mentioned above since many studies investigate organizational performance, but few have discussed the factors that precede the performance of an organization concerning cost. The organization's information quality is essential for the company to manage its costs assertively, and the internal electronic integration of the company gives the organization quality information. Both information and integration are essential for cost management in the organization. In turn, both variables contribute to better organizational performance.

This research has some limitations. The results are limited to the 99 respondents that comprise the study sample according to the previously defined criteria for participation in this research. The analysis at a single point in time also implies limitations of the study. Therefore, it is impossible to generalize the results. Including interorganizational cost management in the theoretical model is suggested for future research.

We also suggested investigating whether information quality and external electronic integration improve interorganizational cost management. In addition, cost management can be investigated through a qualitative approach, through interviews with cost managers. Thus, many studies are still necessary to understand which factors positively influence cost and performance management in Brazilian companies.

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CONFLICT OF INTEREST

The authors assert that there is no conflict of interest related to this submitted work.

AUTHOR CONTRIBUTIONS

Roles	1st author	2nd author	3rd author
Conceptualization	♦		
Data curation	♦		
Formal analysis	♦		♦
Funding acquisition	Does not have		
Investigation	♦		
Methodology	♦		
Project administration	♦		
Resources	♦		
Software	♦		
Supervision			♦
Validation	♦	♦	
Visualization	♦	♦	
Writing – original draft	♦	♦	
Writing – review & editing	♦	♦	