

Determinants factors of internal controls for the efficiency and effectiveness of public management: an analysis from public servants' perspective

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ABSTRACT

The dynamic context of organizations is subject to continuous changes driven by various factors, such as economic, social, and technological developments. These transformations highlight the relevance of implementing robust internal control mechanisms to mitigate risks in both public and private environments. The aim of this research was to identify the determining factors of internal control for the efficiency and effectiveness of public management. Classified as a descriptive study, it employed descriptive statistical techniques and exploratory factor analysis for data processing and analysis. The results highlighted the presence of factors that positively influence efficiency and effectiveness in the public context. Data reliability was rigorously assessed using Cronbach's alpha coefficient, which reached a value of 0.903, indicating high reliability. In addition, the KMO index revealed a value of 0.877, underscoring the consistency of the collected data. The results confirm that public servants recognize internal control as an essential component for promoting efficiency and effectiveness in public management. Furthermore, the study contributes to filling a theoretical gap by empirically analyzing this topic in the public sector, offering insights to support training policies, auditing practices, and the strengthening of governance.

Keywords: internal control, agency theory, public management

1 INTRODUCTION

Organizations, whether public or private, are continuously undergoing transformations driven by economic, social, political, and technological factors. These changes increase the inherent risks to their operations and challenge managers to adopt more effective oversight mechanisms (Richardson et al., 2016). In this context, internal control stands out as an essential tool for mitigating risks, supporting external oversight, and ensuring the achievement of institutional objectives (Castro, 2018).

Over the years, cases of fraud and scandals involving public resources have reinforced the strategic role of accounting in producing reliable information, auditing in assessing its quality, and internal control as the framework that underpins the effectiveness of these processes (Vinnari & Skaerbaek, 2014). In public



administration, internal control goes beyond a mere managerial function; it constitutes a set of systematic measures designed to mitigate risks, ensure compliance with constitutional principles, and promote transparency to society (Melo & Leitão, 2021).

From the perspective of agency theory, as proposed by Jensen and Meckling (1976), the relationship between managers (agents) and society (the principal) is characterized by information asymmetry, which can foster conflicts of interest and opportunistic behavior. To minimize these risks, internal control mechanisms function as alignment tools, narrowing the gap between those who set directives and those who implement them, thereby promoting integrity in public management (Bushman & Smith, 2001; Monteduro et al., 2020).

In the Brazilian context, public administration still faces criticism for its low efficiency in implementing public policies and delivering high-quality services (TCU, 2012). This is further compounded by a chronic lack of accurate and timely information to support decision-making (Attie, 2018; Cavalheiro & Flores, 2007). In response to these challenges, strengthening internal controls becomes an indispensable strategy to enhance accountability, reduce information asymmetry, and improve outcomes perceived by society.

Previous studies emphasize that elements such as transparency, a well-defined organizational structure, and effective communication are key determinants for the functioning of internal controls and, consequently, for improving administrative efficiency (Rocha et al., 2022; Soares & Scarpin, 2015; Souza et al., 2007). Factors such as years of experience in a given role also influence public servants' perceptions of the effectiveness of managerial processes (Eliana et al., 2023).

Despite this evidence, empirical studies that comprehensively identify the factors determining the effectiveness of internal controls in the context of Brazilian public administration—especially from the perspective of civil servants who experience these practices firsthand—remain limited. Therefore, this study justifies its efforts to broaden the scientific understanding of the topic, offer valuable insights to enhance public management, and fortify evidence-based governance.

In light of the above, the central research question arises: What are the determining factors of internal control that ensure efficiency and effectiveness in public management? Accordingly, the aim of this study is to identify these factors within the public sector context.

Finally, this research is further justified by the growing academic interest in internal controls within public administration recently, given their impact on institutional performance.

Its relevance is underscored by presenting internal control as an essential mechanism for ensuring efficiency and effectiveness and by employing agency theory to analyze how risk-sharing and principal-agent relationships operate in practice. Ultimately, this study paves the way for future research that can contribute to the academic and professional development of public servants.

2 THEORETICAL FRAMEWORK

2.1 Agency theory

Agency theory, as described by Eisenhardt (1989), explains the contractual relationship established between a principal and an agent, emphasizing the need to balance information access and risk management through mutual commitments. Hendriksen and Van Breda (1999) add that such contracts should ensure that managers act in the best interests of the organization, thereby minimizing potential conflicts of interest.

Jensen and Meckling (1976) further advanced this perspective by defining the principal-agent relationship as a contract that explicitly outlines the agent's duties for the benefit of the principal, highlighting transparency as a key element in safeguarding the interests of both parties. However, this transparency largely depends on the existence of robust internal control mechanisms.

In public administration, agency relationships become even more complex, as they involve not only citizens as principals and civil servants as agents but also multiple hierarchical levels (Monteduro et al., 2020). The information asymmetry inherent in these relationships intensifies conflicts of interest, particularly when one party holds privileged information that may not be fully disclosed (Cabral, 2006).

In this context, internal control serves as an essential tool for mitigating the risks of opportunistic behavior. By establishing formal processes for supervision, auditing, and accountability, principals can reduce information asymmetry, monitor agents' actions, and ensure that organizational directives are effectively implemented (Bushman & Smith, 2001).

Moreover, Verbeeten and Speklé (2015) argue that in the public sector, an approach focused solely on operational efficiency is insufficient to achieve sustainable outcomes. It is necessary to adopt governance principles that integrate responsibility, integrity, and transparency, using internal control as an instrument to align the interests of managers with those of society (Vijayakumar & Nagaraja, 2012).

Nevertheless, the practical application of agency theory in public management faces challenges such as high turnover among managers and the multiplicity of agents, both of which exacerbate information asymmetry (Monteduro & Allegrini, 2020). For this reason, Rocha et al. (2022) emphasize that internal controls should be complemented by participatory governance mechanisms that foster stakeholder engagement to reduce opportunistic behavior.

In this regard, Eliana et al. (2023) highlight the potential of information technology to monitor agency contracts, enhance traceability, and strengthen accountability. Thus, agency theory remains a valuable framework for understanding the risks inherent in delegating responsibilities but requires adaptations that take into account the specificities of contemporary public administration and promote a culture of integrity.

Therefore, adopting agency theory as an analytical lens in this study provides a foundation for understanding how internal control can align the interests of principals and agents, reduce information asymmetry, and contribute to the efficiency and effectiveness of public management.

2.1 Internal Control

Internal control can be defined as a set of policies and procedures that guide how tasks should be performed, aiming to standardize processes and ensure the effectiveness of organizational operations (Reske et al., 2005). This practice is essential for maintaining a continuous flow of activities and the circulation of reliable information, contributing to risk mitigation and the reduction of bottlenecks that may hinder the achievement of institutional goals (Franco & Marra, 1991).

According to Maia et al. (2005), internal controls encompass both accounting and administrative processes designed to organize the institution so that employees understand, value, and comply with institutional guidelines. In the context of public administration, internal control represents the capacity for supervision, guidance, and correction exercised by agencies or authorities over the performance of other sectors, thereby ensuring the integrity, effectiveness, efficiency, and regulatory compliance of operations (Garcia et al., 2014; Meirelles, 2011).

Internal controls can generally be classified as either accounting or administrative. Accounting controls focus on the organizational structure, procedures for safeguarding assets, and the accuracy of financial records. In contrast, administrative controls relate to the effectiveness of activities and the proper execution of operational routines (Attie, 2018).

In the public sector, internal control professionals play a strategic role given the complexity of interactions between the administration and its multiple stakeholders. It is essential that these professionals understand the relevance of accounting information—both in its production and interpretation—to guide management effectively and reduce information asymmetries across different organizational levels (Cavalheiro & Flores, 2007; Cavalcante & De Luca, 2013). The importance of segregation of duties is also evident as a structural measure to prevent inappropriate practices and should be prioritized when organizing processes (TCU, 2012).

According to Rocha et al. (2022) and COSO (2013), internal control is an indispensable pillar for guiding and monitoring public management objectives. Without this foundation, evaluating goal attainment and budget execution becomes challenging, compromising the reliability of managerial information. Monteiro (2015) adds that implementing an internal control system serves as a safeguard against risks, ensuring adherence to principles, regulations, and standards specific to the public sector.

Despite its significance, internal control in public administration still faces limitations, mainly due to poor integration across departments and the absence of a well-established organizational culture focused on compliance. Monteduro and Allegrini (2020) point out that outdated routines and excessive bureaucracy can undermine the agility and effectiveness of controls. In this regard, Rocha et al. (2022) emphasize that although progress has been made, it remains necessary to invest continuously in staff training, with an emphasis on data governance and risk analysis.

Furthermore, Eliana et al. (2023) highlight that adopting information technology strengthens internal control by enabling process automation, enhancing traceability, and improving transparency. Therefore, developing a robust internal control system requires not only effective tools and processes but also a culture of integrity shared among all stakeholders involved in public management.

Understanding how internal controls function and the factors that determine their effectiveness is thus essential for improving the efficiency, effectiveness, and governance of public organizations, aligning administrative practices with the increasing demands for accountability and the delivery of higher-quality public services.

2.3 Effectiveness and efficiency in public management

Internal control consists of a set of standards and methods that guide how activities should be carried out, standardizing processes and ensuring the effectiveness of operations (Reske et al., 2005). Its implementation is indispensable for maintaining a continuous flow of information for management purposes, while also contributing to risk mitigation and the reduction of bottlenecks that may compromise the achievement of organizational objectives (Franco & Marra, 1991).

These controls encompass both accounting and administrative procedures that organize institutional routines, ensuring that employees understand and adhere to the established guidelines (Maia et al., 2005). In the public sector, internal control plays a strategic role in supervision, guidance, and corrective actions, guaranteeing integrity, effectiveness, and regulatory compliance of operations (Garcia et al., 2014).

Internal controls can be categorized as either accounting controls—focused on organizational structure, asset protection, and the accuracy of financial records—or administrative controls, which relate to the operational effectiveness of activities and the precision of records (Attie, 2018). When properly applied, these instruments promote transparent management aligned with constitutional principles.

Given the complexity of interactions within public administration, internal control professionals play an essential role, as they are responsible for interpreting and strategically utilizing accounting information. This contributes to reducing information asymmetries and achieving institutional objectives (Cavalcante & De Luca, 2013).

According to Rocha et al. (2022) and COSO (2013), internal control is a fundamental pillar for guiding and monitoring the objectives of public management. Its absence compromises the assessment of goal achievement and budget execution. In this regard, Monteiro (2015) emphasizes that effective control systems act as safeguards against risks, ensuring compliance with the principles, regulations, and standards specific to the public sector.

Despite its importance, strengthening effectiveness and efficiency in public management still faces structural challenges, such as limited integration between departments and weak coordination of work routines. Monteduro and Allegrini (2020) observe that without consistent information governance, internal controls lose their effectiveness, limiting the ability to respond to emerging risks. To address these limitations, Rocha et al. (2022) point out that continuously updating guidelines is essential to ensure that control practices evolve in line with changes in the public sector environment.

Moreover, Eliana et al. (2023) emphasize that investing in technological tools alone is insufficient; it is also necessary to develop managerial competencies to interpret data strategically and strengthen decision-making processes. Monteduro and Allegrini (2020) note that digitalization by itself does not guarantee effectiveness if processes and people are not adequately integrated. Along these lines, Rocha et al. (2022) highlight that effective internal communication and continuous staff training are critical to reducing operational bottlenecks and enhancing the management's capacity to respond effectively.

Therefore, more than merely adopting sophisticated control systems, it is crucial to create institutional conditions that embed a culture of efficiency and effectiveness as a daily practice at all hierarchical levels. By doing so, internal control contributes to achieving organizational goals and reinforces public governance guided by transparency and accountability.

3 METHODOLOGY

The objective of this study was to identify the key factors of internal control that ensure efficiency and effectiveness in public management. Regarding its purposes, this research is classified as a descriptive study. This type of research aims to describe specific characteristics of a population or phenomenon, highlighting the interrelationships among variables (Gil, 2006).

In terms of its methodological approach, a quantitative perspective was adopted, which is appropriate for measuring and analyzing phenomena based on numerical data interpreted through statistical tests (Collis & Hussey, 2005). As for the research procedures, this study was designed as a survey using primary data, following the guidelines proposed by Vergara (2009).

The survey was conducted with public servants in the municipality of Mossoró (RN) using closed-ended questionnaires with a Likert scale validated by Maia et al. (2005). The questionnaires were administered both digitally (via Google Forms) and in person. The questions were objective, with standardized response options, consistent with Gil (2002).

The data collection instrument was structured into two sections: (i) questions related to socioeconomic and professional characteristics; and (ii) items adapted from Maia et al. (2005) addressing management effectiveness and efficiency, comprising 11 variables evaluated using a Likert scale ranking from 1 – Strongly Disagree to 5 – Strongly Agree (see Table 1). The target population consisted of public servants from various areas of municipal administration, totaling 201 respondents.

Table 1*Research Variables*

Variables	Variable Description
V1	The commitment to integrity and ethical values of public servants determines the efficiency and effectiveness of public management.
V2	Communication about the importance of internal controls determines the efficiency and effectiveness of public management.
V3	A clear and well-defined organizational structure determines the efficiency and effectiveness of public management.
V4	A structured process for risk identification and assessment determines the efficiency and effectiveness of public management.
V5	The establishment of a robust accounting standard determines the efficiency and effectiveness of public management.
V6	Changes in external and internal environments influence risks, directly affecting the efficiency and effectiveness of public management.
V7	Asset security is essential for determining the efficiency and effectiveness of public management.
V8	Segregation of duties determines the efficiency and effectiveness of public management.
V9	Monitoring and ensuring compliance with policies and procedures determines the efficiency and effectiveness of public management.
V10	Communication with top management determines the efficiency and effectiveness of public management.
V11	The availability of information to everyone determines the efficiency and effectiveness of public management.

Note. Prepared by the authors (2025).

To process and analyze the data, descriptive statistical techniques and exploratory factor analysis (EFA) were employed. EFA, in turn, is a multivariate technique used to identify common factors within a set of interrelated variables (Fávero et al., 2009). This approach enables a deeper understanding of the relationships among variables and helps to reveal underlying patterns in the data.

It should be noted that the sample for this study consisted of 201 public servants from a single municipality, which constitutes a limitation of the research. This specific geographic scope may restrict the diversity of perceptions and experiences, thereby limiting the generalizability of the findings to other municipal, state, or federal contexts.

Therefore, caution is advised when interpreting and generalizing these results, as institutional and cultural characteristics in other regions may differently influence the key factors of internal control in public management.

4 RESULTS

4.1 Respondents' Profile and Descriptive Analysis

After data collection, a total of 201 responses were obtained, forming the basis for the subsequent analyses. In this context, an overview of the respondents' profile is presented, highlighting their main characteristics as shown in Table 2.

Table 2*Respondents' Profile*

Profile	Categories	Frequency	Percentage (%)
Gender	Female	107	53.24
	Male	94	46.76
Age	20 to 35 years	33	16.42
	36 to 45 years	48	23.88
	46 to 55 years	51	25.37
	Over 55 years	69	34.33
Length of Service	Less than 1 year	10	4.98
	1 to 5 years	41	20.40
	6 to 10 years	40	19.90
	More than 10 years	110	54.72
Education Level	High school diploma	31	15.42
	Bachelor's degree	54	26.86
	Postgraduate degree	28	13.94
	Master's degree	48	23.88
	Doctorate	40	19.90

Note. Prepared by the authors (2025)

According to the Brazilian Institute of Geography and Statistics (IBGE, 2022), women account for 51.1% of Brazil's estimated population, which corresponds to approximately 108.7 million people. The research sample reflects this predominance, with 53.24% female respondents and 46.76% male respondents. Regarding age, 34.33% of respondents are over 55 years old, 25.37% are between 46 and 55, 23.88% are in the 36 to 45 age group, and 16.42% are between 20 and 35 years old.

In terms of experience in public management, most participants (54.72%) have been working in the field for more than ten years. Another 20.4% have between one and five years of experience, while 19.9% have between six and ten years. Only 4.98% have worked for less than one year in this context. Rocha et al. (2022) highlight that factors such as length of service within the institution and in specific roles can influence perceptions of efficiency in public management.

Based on the data collected, means, skewness, and kurtosis were calculated to assess the distribution's proximity to normality using the Likert scale. The results are presented in Table 3.

Table 3*Descriptive Statistics*

Variables	N	Mean	Skewness	Kurtosis
V1	201	4.57	-2.204	5.975
V2	201	4.51	-1.881	3.705
V3	201	4.59	-2.047	5.461
V4	201	4.47	-1.603	2.998
V5	201	4.39	-1.337	1.230
V6	201	4.33	-1.356	2.219
V7	201	4.31	-1.416	1.606
V8	201	4.16	-1.395	1.657
V9	201	4.48	-1.549	2.082
V10	201	4.40	-1.493	1.967
V11	201	4.58	-2.188	5.482

Note. Prepared by the authors (2025)

To assess the normality of the variables, skewness and kurtosis coefficients were calculated, taking into account the use of a Likert scale (Hair et al., 2009). Kurtosis describes the shape of the data distribution. According to Finney and DiStefano (2016), skewness coefficients up to 2 and kurtosis coefficients up to 7 (in absolute value) indicate an approximately normal distribution. As shown in Table 3, none of the variables exceeded these thresholds, thereby supporting the near-normality of the results.

It was observed that variable V8, related to the segregation of duties, recorded the lowest mean score (4.16). This suggests that most respondents perceive this practice as less influential for public management, which contrasts with the position of the TCU (2012), which asserts that segregation of duties is essential for preventing inappropriate conduct.

The variable with the second lowest mean, V7, refers to asset security and recorded a mean of 4.31. Some respondents believe that asset protection has little influence on the performance of public administration. This perception contradicts Attie (2018), who emphasizes that asset protection and the authenticity of records are core functions of accounting controls. According to these authors, without such foundations, the effectiveness and efficiency related to the security of public assets may be compromised.

Variable V6, which addresses changes in external and internal environments as risk factors, had a mean of 4.33, indicating that some public servants partially agree with this statement. Melo and Leitão (2021) emphasize that both political changes and administrative dynamics can negatively affect effectiveness due to the constant re-evaluation of priorities and goals.

4.2 Data Analysis

4.2.1 Inter-Block Factor Analysis

An exploratory factor analysis (EFA) was conducted as a statistical technique aimed at identifying relationships within a set of interrelated variables and grouping them into factors. This approach reduces data complexity by highlighting significant variables or generating a more concise structure than the original (Kirch et al., 2017). Reliability was assessed using Cronbach's alpha coefficient, which measures the degree of correlation among the items in the data matrix. For a scale to be considered reliable, its items must present a high coefficient. The alpha coefficient ranges from 0 to 1, with values closer to 1 indicating greater internal consistency (Hair et al., 2009).

A minimum value generally accepted in research is above 0.60. In this study, the alpha coefficient was 0.903, demonstrating high data reliability (see Table 3). Bartlett's test of sphericity was applied to assess whether the covariance matrix significantly differs from an identity matrix, which would indicate an absence of correlations among variables (Field, 2005). Additionally, it tests the overall significance of all correlations within the data matrix (Hair et al., 2009). Significant results ($p < 0.05$) confirm that the matrix is factorable and differs from an identity matrix (Tabachnick & Fidell, 2007).

For Bartlett's test of sphericity, the null hypothesis assumes that the variables are not correlated in the population. The result was statistically significant ($p \leq 0.05$), as shown in Table 4.

The Kaiser-Meyer-Olkin (KMO) Index quantifies the proportion of variance among items that can be explained by underlying factors, indicating whether EFA is appropriate for the dataset (Lorenzo-Seva et al., 2011). In terms of interpretation, values below 0.5 are unacceptable; values between 0.5 and 0.7 are considered mediocre; between 0.7 and 0.8 are good; and values above 0.8 or 0.9 are classified as excellent (Hutcheson & Sofroniou, 1999; Pereira, 1999). For this study, the KMO value was 0.877, indicating excellent adequacy and data consistency, as presented in Table 4.

Table 4

Cronbach's Alpha, Bartlett's Test, and KMO Results

Test	Values Found
Cronbach's Alpha	0.903
Kaiser-Meyer-Olkin (KMO) Measure	0.877
Approx. Chi-square	1111.2989
Bartlett's Test of Sphericity	
df	45
Sig.	0.000

Note. Prepared by the authors (2025)

The analysis of the anti-image correlation matrix makes it possible to identify potential indications for excluding variables from the model. The main diagonal of this matrix provides the Measure of Sampling Adequacy (MSA) index, as described by Fávero et al. (2009). The MSA ranges from 0 to 1, reaching 1 when each variable is perfectly predicted by the others, which indicates perfect sampling adequacy. Thus, variables with values below 0.5 should be excluded from the factor model.

In this context, analyzing the anti-image matrix is important because it indicates the degree of mutual correlation among the variables. Hair et al. (2009) recommend that these values should exceed 0.5 to ensure reliable factor extraction.

In this study, variable V8 was excluded for having an MSA value below 0.5, while the remaining variables presented values equal to or greater than 0.70, as shown in Table 5. This result suggests that the developed factors have good explanatory power for the constructs, both individually and within the overall model.

Additionally, an analysis of communalities was conducted, representing the proportion of variance in each variable explained by the factor solution. According to Hair et al. (2009), values below 0.5 indicate insufficient explanation and should be excluded. As shown in Table 5, variable V8 presented a communality below 0.5, demonstrating low explanatory power with respect to the factors. For this reason, it was removed from the model.

Table 5*Anti-Image Correlation*

Variable	Anti-Image Correlation	Variable	Anti-Image Correlation	Variable	Anti-Image Correlation
V1	0.842 ^a	V5	0.931 ^a	V9	0.889 ^a
V2	0.853 ^a	V6	0.894 ^a	V10	0.787 ^a
V3	0.936 ^a	V7	0.891 ^a	V11	0.814 ^a
V4	0.930 ^a	V8	Excluded		

^a Measures of Sampling Adequacy (MSA).

Note: Prepared by the authors (2025)

Variable V10, which addresses the influence of communication with top management on the efficiency and effectiveness of public management, presented a communality of 0.852. This value indicates that approximately 85.2% of this variable's variability is explained by the factors identified through the factor analysis. This result suggests that communication with higher levels of management is indeed relevant to the underlying factors, reinforcing its importance in promoting efficiency and effectiveness in public administration.

According to Cavalheiro and Flores (2007), Cavalcante and De Luca (2013), and Nascimento and Reginato (2008), internal controls aim to optimize public management by achieving goals efficiently and reducing information asymmetry across organizational levels. The high communality supports that variable V10 is well represented within the model, confirming that effective communication with top management is essential for achieving management objectives.

Table 6*Communalities of the Theoretical Model*

Variable	Extraction	Variable	Extraction	Variable	Extraction
V1	0.708	V5	0.565	V9	0.695
V2	0.733	V6	0.509	V10	0.852
V3	0.634	V7	0.547	V11	0.689
V4	0.678	V8	0.411 (Excluded)		

Note. Prepared by the authors (2025)

Variable V10, which addresses the influence of communication with top management on the efficiency and effectiveness of public management, presented a communality of 0.852. This value indicates that approximately 85.2% of this variable's variability is explained by the factors identified through the factor analysis. This result suggests that communication with higher levels of management is indeed relevant to the underlying factors, reinforcing its importance in promoting efficiency and effectiveness in public administration.

According to Cavalheiro and Flores (2007), Cavalcante and De Luca (2013), and Nascimento and Reginato (2008), internal controls aim to optimize public management by achieving goals efficiently and reducing information asymmetry across organizational levels. The high communality supports that variable V10 is well represented within the model, confirming that effective communication with top management is essential for achieving management objectives.

Variable V2, which addresses communication about internal controls to ensure efficiency and effectiveness in public management, showed a communality of 0.733, indicating that about 73.3% of its variance is explained by the factors extracted in the analysis. This result suggests a strong association between communication about internal controls and the underlying factors, highlighting its relevance in promoting high standards of quality in public management.

As Monteiro (2015) emphasizes, implementing internal controls in the public sector is essential, given their role in supporting efficient management. Internal controls act not only as safeguards for assets against risks but also ensure compliance with the principles, regulations, and standards that define the public sphere. This perspective reinforces the importance of clear and effective communication about internal controls as a means of achieving efficient public management.

The analysis of communalities provides valuable insights into the quality of the variables' representation within the factor model. High values indicate that the model is well fitted, demonstrating the factors' capacity to explain the observed variance in the analyzed variables. These findings contribute to understanding the underlying data patterns, which is crucial for interpreting and applying the results of the factor analysis (Matos & Rodrigues, 2019).

The EFA, shown in Table 6, was conducted using Varimax rotation and the Principal Component Analysis (PCA) extraction method. The results confirm that two factors are responsible for explaining 66.10% of the total variance in the dataset. Varimax is a rotation method used in EFA to simplify and interpret the extracted factors, aiming to optimize interpretability by minimizing the complexity of factor loadings and the correlations between variables and factors (Pallant, 2007).

Table 7

Principal Component Extraction Method (EFA)

Factor	Initial Eigenvalues Total	Initial Eigenvalues % of Variance	Initial Eigenvalues Cumulative %	Extraction Sums of Squared Loadings Total	Extraction Sums of Squared Loadings % of Variance	Extraction Sums of Squared Loadings Cumulative %	Rotation Sums of Squared Loadings Total	Rotation Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings Cumulative %
1.0	5.332	53.318	53.318	5.332	53.318	53.318	3.783	37.825	37.825
2.0	1.278	12.785	66.103	1.278	12.785	66.103	2.828	28.278	66.103

Extraction Method: Principal Component Analysis.

Note. Prepared by the authors (2025).

In this context, the constructs were structured as presented in Table 7, which made it possible to identify the grouping of variables. For this analysis, the Principal Component Analysis (PCA) technique was applied, followed by Varimax rotation with Kaiser normalization.

According to Hongyu e Sandanielo (2016), PCA is a relevant statistical technique for reducing the dimensionality of complex datasets while preserving as much of the original information as possible.

Based on Table 8, it can be observed that two grouped constructs were identified, with factor loadings equal to or greater than 0.5, in accordance with the guidelines provided by Hair et al. (2009).

It is worth highlighting variable V1, which refers to the commitment to integrity and the ethical values of public servants, as it plays a fundamental role in determining efficiency and effectiveness in public management, with a factor loading of 0.841. According to Dragija, Hladika, and Vasicek (2010) and Verbeeten and Speklé (2015), it is imperative to adopt sound governance principles and implement effective internal controls. An approach focused solely on efficiency proves to be insufficient. Therefore, it is essential to strike a balance in principal-agent relationships, using internal control as a mechanism to promote ethics, accountability, and integrity.

Table 8*Factor Structure*

Latent Variable	Alpha	Observed Variable	Loadings
F1	0.886	V1	0.841
		V2	0.837
		V3	0.747
		V4	0.745
		V5	0.641
		V6	0.582
		V7	0.586
F2	0.846	V9	0.774
		V10	0.909
		V11	0.800

Note. Prepared by the authors (2025)

Variable V2, which addresses communication about internal controls, also influences efficiency and effectiveness in public management, with a factor loading of 0.837. According to Monteiro (2015), the adoption of internal controls in the public sector is indispensable, as they function not only as safeguards for assets against risks but also as mechanisms to ensure compliance with the principles, regulations, and standards that govern the public sphere.

Variable V3, which concerns the definition of the organizational structure, demonstrated a significant factor loading of 0.747 in relation to efficiency and effectiveness in public management. In the public context, it is crucial that the organizational structure be meticulously designed to drive the achievement of objectives and to optimize risk management and internal control (COSO, 2013).

Regarding Factor F2, it stands out for grouping variables related to information and communication. Variable V10, with a significant factor loading of 0.909, is notable for its association with communication with top management, which is relevant for determining efficiency and effectiveness in public management. The objective is to guide public administration to achieve its goals effectively while reducing information asymmetry across different organizational levels (Cavalcante & De Luca, 2013).

Variable V11, with a factor loading of 0.800, is noteworthy for addressing the availability of information to all, which is a determining factor for efficiency and effectiveness in public management. By implementing effective internal controls, it is possible to mitigate information asymmetry between agents and principals, as highlighted by Bushman et al. (2001). Table 8 below presents the intrablock factor analysis.

2.1.2 Intrablock Factor Analysis

Confirmatory Factor Analysis (CFA) has been widely adopted in applied research as an essential method for testing and validating theories about the underlying structure of observed variables (Brown, 2006).

Accordingly, analyses were conducted, including the calculation of Cronbach's alpha coefficient, Bartlett's test of sphericity, the evaluation of the Kaiser-Meyer-Olkin (KMO) index, and communalities. In addition, other aspects were examined, such as the proportion of total variance explained, factor loadings, Pearson correlations, the assessment of composite reliability, and the analysis of the average variance extracted.

Regarding the analysis of Factor F1, Control Environment, the results indicate favorable values for construct validation, as it presented a Cronbach's alpha of 0.886, suggesting high reliability given that it exceeds the recommended threshold of 0.6, thereby strengthening the internal consistency of the measures used to assess the control environment.

The results for the Kaiser-Meyer-Olkin (KMO) index, with a value of 0.873, and Bartlett's test of sphericity, with a p-value of 0.000, indicate that the variables are correlated and that the dataset demonstrates acceptable normality. Furthermore, it is observed that the construct under analysis explains 60.10% of the total variance.

Regarding communalities, Hair et al. (2009) suggest that values equal to or greater than 0.5 are desirable. Notably, all variables for Factor F1 presented communalities ≥ 0.5 , indicating that a substantial proportion of variance is explained by the factor solution for each variable.

Table 9

Intrablock Factor Analysis of Factor

Factor	Observed Variable	Communality	Anti-Image Correlation	Factor Loadings
F1	V1	0.580	0.847 ^a	0.762
	V2	0.675	0.846 ^a	0.822
	V3	0.627	0.919 ^a	0.792
	V4	0.678	0.892 ^a	0.824
	V5	0.581	0.901 ^a	0.762
	V6	0.524	0.852 ^a	0.724
	V7	0.542	0.856 ^a	0.736

Cronbach's Alpha: 0.886

KMO: 0.873

Bartlett's Test of Sphericity (Approx. Chi-square): 701.357*

*Sig. (Significance level 0.000, thus $p < 0.001$): 0.000

Total Variance Explained: 60.10%

^aMeasures of Sampling Adequacy (MSA).

Note. Prepared by the authors (2025).

Based on the analysis of Construct Factor 2, Information and Communication (Table 8), it can be inferred that the construct's internal reliability is satisfactory, given its Cronbach's alpha coefficient of 0.846. Additionally, the construct's KMO value (0.688) and the significance of Bartlett's test of sphericity (0.000) meet the assumptions established by Hair et al. (2009), making them acceptable. It is also noted that the communalities of the variables in Factor F2 exceed 0.724, indicating that these variables are relevant to the model.

The minimum factor loadings reached a value of 0.851, all surpassing the recommended threshold of 0.4, as advised by Hair et al. (2009). Furthermore, the total variance explained for this construct is 76.53%, as shown in Table 10.

Factor 1, Control Environment, highlights the need for a strong commitment to integrity and the ethical values of public servants to ensure efficiency and effectiveness in public management. According to Monteduro and Allegrini (2020) and Verbeeten and Speklé (2015), adopting governance principles and fostering an ethical culture are essential for reducing opportunistic behavior. Monteiro (2015) adds that the control environment serves as the foundation for the other components of internal control, ensuring that processes are aligned with institutional objectives. Therefore, it is recommended that public managers prioritize continuous training focused on ethics, integrity, and organizational values, reinforcing a commitment to transparent practices.

Additionally, as highlighted by Castro (2018), the control environment establishes guidelines that influence behavior at all hierarchical levels. Monteduro and Allegrini (2020) emphasize that the organizational structure should be defined to avoid overlapping responsibilities, mitigating the risk of fraud and misconduct. In this regard, public managers should periodically review the organizational structure to ensure clear roles, responsibilities, and communication channels, which contributes to reducing information asymmetries (Verbeeten & Speklé, 2015).

Attie (2018) observes that the effectiveness of the control environment depends on ethical leadership, arguing that committed leaders act as role models for other public servants, thereby strengthening an organizational culture of compliance. Rocha et al. (2022) indicate that the ethical conduct of top management significantly influences the behavior of subordinates. Thus, it is recommended that public managers adopt governance policies that promote both individual and collective accountability, creating mechanisms for continuous monitoring of compliance with standards and codes of conduct (Monteduro & Allegrini, 2020).

Dragija et al. (2010) argue that the control environment should be continuously strengthened through measures aimed at preventing and detecting irregularities. Monteduro and Allegrini (2020) reinforce that the segregation of duties is a critical practice for mitigating fraud risks. The TCU (2012) emphasizes the importance of regular reviews of internal processes to prevent conflicts of interest. Therefore, public managers should invest in independent audits and periodic process reviews to ensure effectiveness within the control environment.

Finally, it is essential to consider that the control environment must be adaptable to dynamic and uncertain contexts, as Verbeeten and Speklé (2015) point out. Organizational resilience depends on leaders who are capable of implementing continuous improvements in the control system. In this regard, it is recommended that managers develop competencies related to adaptive governance, with ongoing monitoring and alignment of processes with constitutional guidelines, as reinforced by Rocha et al. (2022).

Table 10

Intrablock Factor Analysis of Factor 2

Factor	Observed Variable	Communality	Anti-Image Correlation	Factor Loadings
F2	V9	0.724	0.729 ^a	0.851
	V10	0.844	0.634 ^a	0.919
	V11	0.728	0.725 ^a	0.953

Cronbach's Alpha: 0.846

KMO: 0.688

Bartlett's Test of Sphericity (Approx. Chi-square): 267.633*

*Sig. (Significance level 0.000, therefore $p < 0.001$): 0.000

Total Variance Explained: 76.539%

^a Measures of Sampling Adequacy (MSA).

Note. Prepared by the authors (2025)

According to Melo and Leitão (2021), communication across different hierarchical levels within public administration continues to pose significant challenges for institutions. Rocha et al. (2022) confirm that shortcomings in internal communication can undermine strategic alignment and ultimately lead to conflicts of responsibility. In this context, it is the responsibility of public managers to establish permanent communication channels—such as regular meetings, information portals, and management reports—to facilitate the exchange of information among departments and reinforce commitment to results.

Eliana et al. (2023) argue that information asymmetry remains one of the primary barriers to the effectiveness of internal controls in the public sector, as it creates conditions for opportunistic behavior. Monteduro and Allegrini (2020) likewise emphasize that managers should adopt proactive communication practices and performance reporting mechanisms to better align expectations among managers, operational teams, and society at large.

Rocha et al. (2022) stress that transparent communication extends beyond the simple circulation of documents; fundamentally, it requires cultivating a culture of dialogue and participation. Melo and Leitão (2021) add that investing in staff training and awareness is essential so that everyone fully understands their role within the information flow. Consequently, it is recommended that public managers implement corporate education programs focused on information management, which foster collaborative practices and reduce communication gaps (Eliana et al., 2023).

A complementary aspect concerns the continuous monitoring of the quality of information shared. Eliana et al. (2023) advocate that internal audit reports, periodic reviews, and performance indicators should be embedded as routine practices to detect shortcomings in information flows. This enables public managers to address deviations promptly and maintain the levels of transparency demanded by society, thereby enhancing institutional trust.

Finally, Monteduro and Allegrini (2020) underscore that information technology is indispensable for ensuring the integrity and auditability of data within the public sector. Eliana et al. (2023) highlight the need for monitoring tools and performance indicators to sustain effective communication both across departments and between managers and citizens. Therefore, it is recommended that public leaders prioritize investments in robust information systems that strengthen data governance, enhance transparency, and reinforce public trust in government administration.

4.3 Practical Implications

The findings of this study offer practical implications for strengthening public governance, particularly in the design and implementation of robust and responsive internal control systems. The identified factors — Control Environment and Information and Communication indicate that public managers should invest in policies that align with ethical principles, ensure role clarity, and establish effective information-sharing channels, as recommended by Monteduro and Allegrini (2020).

In addition to directly impacting managerial practices, the results suggest that reinforcing internal controls helps foster a preventive organizational culture focused on mitigating risks and fraud. To this end, it is advisable to develop up-to-date manuals, conduct regular internal audits, and establish performance indicators linked to transparency and efficiency targets (Rocha et al., 2022). This approach enhances administrative resilience, even in contexts characterized by high turnover of public officials.

Another relevant outcome is the potential to integrate the identified factors into performance evaluation systems, enabling departments, ministries, and other agencies to develop metrics that consider the quality of internal communication, the level of information traceability, and compliance with regulatory procedures. As highlighted by Rocha et al. (2022) and Melo and Leitão (2021), this type of continuous monitoring supports evidence-based decision-making and strengthens the capacity to respond to social demands.

At the interinstitutional level, the evidence presented creates opportunities for partnerships between government bodies and educational institutions aimed at offering training, workshops, and extension programs. Eliana et al. (2023) emphasize that integrating information technology with capacity-building initiatives can improve data governance and compliance while enhancing accountability to society. Thus, the validated factors can serve as a foundation for operational manuals, training courses, and diagnostic tools adaptable to diverse administrative contexts.

Furthermore, the identified determinants may serve as a basis for independent audits and the work of external control bodies, enabling targeted actions to identify vulnerable areas. According to Monteduro and Allegrini (2020), the use of empirically validated constructs facilitates the development of checklists, risk matrices, and audit frameworks tailored to different levels of public administration, thereby increasing the effectiveness of inspections and the reliability of disclosed information.

Another practical implication is the encouragement of citizen participation in monitoring public management outcomes. By making indicators related to the control environment and information flows publicly available, government organizations can develop accessible management reports that facilitate social oversight. As Rocha et al. (2022) and Eliana et al. (2023) reinforce, strengthening accountability and transparency generates intangible gains in institutional trust, creating a virtuous cycle in which society and managers share responsibility for the continuous improvement of public services.

Given these opportunities, it is important for public managers to view the results of this study as strategic tools to refine administrative routines, strengthen a culture of integrity, and consolidate transparent and participatory governance practices. The conscious adoption of the identified factors can serve as a starting point for periodic process reviews, the promotion of managerial innovation, and the creation of secure environments aligned with societal expectations. In this way, the study broadens the academic debate on internal controls in the public sector while providing practical guidance that can positively influence the quality of public administration across different contexts.

FINAL CONSIDERATIONS

Internal control in public administration plays a significant role in promoting integrity, efficiency, and accountability in the management of public resources, serving as an essential component of good governance and the continuous improvement of services provided to society.

This study aimed to identify the determinant factors of internal control to ensure efficiency and effectiveness in public management, using factor analysis. The results showed that there are factors that positively influence effectiveness and efficiency within the context of the public sector.

Data reliability was rigorously assessed using Cronbach's alpha coefficient, which reached a value of 0.903, indicating high internal consistency. Additionally, the KMO index revealed a value of 0.877, demonstrating excellent sampling adequacy and reinforcing the consistency of the collected data.

Two grouped constructs were identified, with factor loadings equal to or greater than 0.5. These results should be interpreted with consideration of the sample limitation, as they reflect the perceptions of public servants from a single municipality.

The first factor, identified as F1, relates to the control environment. Variable V1, which addresses commitment to integrity and the ethical values of public servants, stands out, reinforcing the need for governance principles and effective internal controls. Another notable variable was V2, related to communication about internal controls, highlighting its essential role in the public sector to ensure compliance with principles, regulations, and standards.

The second factor, F2, comprises variables related to information and communication. Variable V10, concerning communication with top management, emerged as a key aspect for public management. Additionally, Variable V11, which emphasizes the availability of information, proved to be crucial for efficiency and effectiveness in this context. The adoption of well-structured internal controls can help reduce information asymmetry between agents and principals, aligning the objectives of public administration.

This research has generated practical contributions for both higher education institutions (HEIs) and government agencies, such as secretariats and ministries. The findings indicate that public servants assign significant relevance to internal control, recognizing it as an essential element of public management for promoting efficiency and effectiveness. Moreover, the study contributes to filling a theoretical gap by addressing the topic of internal control in public organizations, an area that remains relatively underexplored by academic research. Its

societal contributions can extend further by considering the direct impact on citizens and public governance.

The study underscores the role of internal control in public management, which can lead to tangible improvements in the quality of services provided by government agencies. This directly benefits citizens, who can rely on the effective and efficient administration of public resources. Furthermore, by emphasizing internal control, the research helps strengthen a culture of transparency and accountability within public institutions.

As a limitation, the study faced a relatively low response rate to the questionnaires, due to data collection being conducted online and limited to public servants from a single municipality, resulting in a sample of only 201 participants. This geographic and quantitative restriction limits the generalizability of the findings, as they may not capture the particularities of other contexts within public administration at the state or federal level. Therefore, it is recommended that future research expand the sample scope to include different regional contexts, enabling robust comparisons and, consequently, increasing the external validity and practical applicability of the results.

REFERENCES

- Attie, W. (2018). *Auditoria: Conceitos e aplicações* (7^a ed.). Atlas.
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. Guilford Publications.
- Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting & Economics*, 32(1–3), 237–333. [https://doi.org/10.1016/S0165-4101\(01\)00027-1](https://doi.org/10.1016/S0165-4101(01)00027-1)
- Cabral, S. (2006). “*Além das grades*”: Uma análise comparada das modalidades de gestão do sistema prisional (Tese de doutorado, Universidade Federal da Bahia). Universidade Federal da Bahia. <https://repositorio.ufba.br/handle/ri/36335>
- Castro, D. P. de. (2018). *Auditoria, contabilidade e controle interno no setor público* (7^a ed.). Atlas.
- Cavalheiro, J. B., & Flores, P. C. (2007). *A organização do sistema de controle interno municipal*. CRC/RS. https://www.imperatore.com.br/Artigos_Controladoria/ORGANIZACAO.pdf
- Cavalcante, M. C. N., & De Luca, M. M. M. (2013). Controladoria como instrumento de governança no setor público. *Revista de Educação e Pesquisa em Contabilidade*, 7(1). <https://doi.org/10.17524/repec.v7i1.138>
- Collis, J., & Hussey, R. (2005). *Pesquisa em administração: Um guia prático para alunos de graduação e pós-graduação* (2^a ed.). Bookman.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334.
- Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *The Academy of Management Review*, 14(1), 57–74. <https://doi.org/10.5465/amr.1989.4279003>
- Eliana, E., Astuti, I. N., Ivana, F., Suryafatma, S., & Juned, V. (2023). The Influence of the Use of Information Technology and Public Accountability on the Quality of Financial Reports in Government Organizations. *Journal of Law and Sustainable Development*, 11(11), 116. <https://doi.org/10.55908/sdgs.v11i11>.

- Fávero, L. P. L., Belfiore, P. P., Silva, F. L. da, & Chan, B. L. (2009). *Análise de dados: Modelagem multivariada para tomada de decisões*. Elsevier.
- Field, A. (2007). *Discovering statistics using SPSS* (2nd ed.). Sage.
- Franco, H., & Marra, E. (1991). *Auditoria contábil: Normas de auditoria, procedimentos e papéis de trabalho, programas de auditoria e relatórios de auditoria* (2ª ed.). Atlas.
- Garcia, O. P., Kinzler, L., & Rojo, C. A. (2014). Análise dos sistemas de controle interno em empresas de pequeno porte. *Interface*, 11(2).
<https://ojs.ccsa.ufrn.br/index.php/interface/article/view/495>
- Gil, A. C. (2002). *Como elaborar projetos de pesquisa* (4ª ed.). Atlas.
- Hair, J. F., Jr., William, B., Babin, B., & Anderson, R. E. (2009). *Análise multivariada de dados* (6ª ed.). Bookman.
- Hendriksen, E. S., & Van Breda, M. F. (1999). *Teoria da contabilidade*. Atlas.
- Hongyu, K., Sandanielo, V. L. M., & Oliveira Junior, G. J. (2016). Análise de componentes principais: Resumo teórico, aplicação e interpretação. *E&S – Engineering and Science*, 5(1), 83–90. <https://doi.org/10.18607/ES20165053>
- Hutcheson, G. D., & Sofroniou, N. (1999). *The multivariate social scientist: Introductory statistics using generalized linear models*. Sage Publications.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
<https://papers.ssrn.com/abstract=94043>
- Kirch, J. L., Hongyu, K., Silva, F. L., & Dias, C. T. S. (2017). Análise fatorial para avaliação dos questionários de satisfação do curso de Estatística de uma instituição federal. *E&S – Engineering and Science*, 6(1), 4–13. <https://doi.org/10.18607/ES201764748>
- Lorenzo-Seva, U., Timmerman, M. E., & Kiers, H. A. L. (2011). The Hull method for selecting the number of common factors. *Multivariate Behavioral Research*, 46(2), 340–364.
<https://doi.org/10.1080/00273171.2011.564527>
- Maia, M. S., Silva, M. R., Dueñas, R., Almeida, P. P., Marcondes, S., & Ching, H. Y. (2005). Contribuição do sistema de controle interno para a excelência corporativa. *Revista Universo Contábil*, 1(1), 54–70. <http://www.redalyc.org/articulo.oa?id=117015129005>
- Marçola, C. (2014). Auditoria interna como instrumento de controle social na administração pública. *Revista do Serviço Público*, 62(1), 75–87.
<https://doi.org/10.21874/rsp.v62i1.62>
- Meirelles, H. L. (2011). *Direito administrativo brasileiro* (37ª ed., atual. por E. A. Azevedo, D. B. Aleixo & J. E. B. Filho). Malheiros.
- Melo, M. S., & Leitão, C. R. S. (2021). Características do controle interno nas universidades federais brasileiras. *Revista Gestão Universitária na América Latina – GUAL*, 14(1), 224–244. <https://doi.org/10.5007/1983-4535.2021.e74526>
- Monteduro, F., & Allegrini, V. (2020). How outsourcing affects the e-disclosure of performance information by local governments. *Government Information Quarterly*, 37(1), Article 101398. <https://doi.org/10.1016/j.giq.2019.101398>

- Monteiro, R. P. (2015). Análise do sistema de controle interno no Brasil: Objetivos, importância e barreiras para sua implantação. *Revista Contemporânea de Contabilidade*, 12(25), 159–188. <https://doi.org/10.5007/2175-8069.2015v12n25p159>
- Matos, D. A., & Rodrigues, E. (2019). *Análise fatorial*. ENAP – Escola Nacional de Administração Pública.
- Nascimento, A. M., & Reginato, L. (2008). Divulgação da informação contábil, governança corporativa e controle organizacional: uma relação necessária. *Revista Universo Contábil*, 4(3), 25–47. <https://doi.org/10.4270/ruc.20084>
- Pallant, J. (2007). *SPSS survival manual*. Open University Press.
- Richardson, V. J., Peters, G. F., & Haislip, J. Z. (2016). The effect of auditor IT expertise on internal controls. *International Journal of Accounting Information Systems*, 20, 1–15. <https://doi.org/10.1016/j.accinf.2015.11.002>
- Rocha, S. S., Pinto, J. N. A., Rocha, N. F., & Valente, T. A. R. (2022). Gestão pública: O papel do controle interno no processo de tomada de decisão. *Revista Foco*, 15(2), Article e389. <https://doi.org/10.54751/revistafoco.v15n2-028>
- Soares, M., & Scarpin, J. E. (2015). Controle interno na administração pública: Avaliando sua eficiência na gestão municipal. *Revista de Ciências Jurídicas e Empresariais*, 14(1). <https://doi.org/10.17921/2448-2129.2013v14n1p>
- Souza, D. C., Martins Ribeiro, R. R., Kühl, M. R., & Clemente, A. (2007). Controle interno na administração pública municipal: Uma amostragem da implantação no estado do Paraná. *Enfoque: Reflexão Contábil*, 26(2), 29–39. <https://doi.org/10.4025/enfoque.v26i2.4796>
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Allyn & Bacon.
- Verbeeten, F. H. M., & Speklé, R. F. (2015). Management control, results-oriented culture and public sector performance: Empirical evidence on New Public Management. *Organization Studies*, 36(7), 953–978. <https://doi.org/10.1177/0170840615580014>
- Vergara, S. C. (2009). *Projetos e relatórios de pesquisa em administração* (11^a ed.). Atlas.
- Vinnari, E., & Skærbæk, P. (2014). The uncertainties of risk management: A field study on risk management internal audit practices in a Finnish municipality. *Accounting, Auditing & Accountability Journal*, 27(3), 489–526. <https://doi.org/10.1108/AAAJ-09-2012-1106>