

# Influencia de los controles internos en la mitigación de riesgos: Un enfoque en la conformidad de la información contable

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Este estudio analiza la influencia de los controles internos en la mitigación de riesgos y el cumplimiento de la información contable. Se utilizó una investigación cualitativa combinada con un análisis cuantitativo de los contenidos aplicada a un estudio de casos. Los datos se reunieron mediante entrevistas con gerentes y empleados de una institución de transporte público. La pertinencia del estudio radica en la necesidad de mitigar los riesgos que afectan a la conformidad de la información contable en las organizaciones, dada la necesidad de contar con información rápida y segura para la adopción de decisiones. Los resultados muestran de manera práctica la conformidad de la información mediante controles internos establecidos a nivel de los procesos operacionales de la organización, aunque algunos controles se desarrollen de manera informal. Además, los resultados identifican la tecnología como el riesgo más importante para la organización y la legislación como uno de los riesgos inherentes a la conformidad. Además, se ha identificado la necesidad de integrar la gestión de los riesgos estratégicos y operacionales para mejorar la conformidad de la información. El caso estudiado puede trasladarse a otros contextos en los que puede convertirse en una referencia que contribuya a mejorar los controles internos y la conformidad de la información contable.

**Palabras clave:** controles internos, gestión de riesgos, información contable, conformidad



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## **Influence of internal controls to risk mitigation: A focus on compliance of accounting information**

This study analyses the influence of internal controls on risk reduction and compliance of accounting information. Qualitative research combined with a quantitative analysis of contents was used applied to a case study. Data were collected through interviews with managers and employees of a public transport institution. The relevance of the study lies in the need to mitigate risks that affect the compliance of accounting information within organizations, given the need for quick and secure information for decision making. The results show in a practical way the compliance of the information through internal controls established at the level of the operational processes of the organization, even if some controls are developed in an informal way. In addition, the results identify technology as the most relevant risk to the organization and legislation as one of the risks inherent to compliance. In addition, the need to integrate strategic and operational risk management to improve information compliance has been identified. The case studied can be transferred to other contexts where it can become a contributory reference for the improvement of internal controls and compliance of accounting information.

**Keywords:** internal controls, risk management, accounting information, compliance

## **Influência dos controles internos na mitigação de riscos: Um foco na conformidade das informações contábeis**

Este estudo analisa a influência dos controles internos na mitigação de riscos e na conformidade das informações contábeis. Utilizou-se de pesquisa qualitativa, combinada com uma análise quantitativa do conteúdo aplicada a um estudo de caso. Os dados foram coletados por meio de entrevistas com gerentes e funcionários de uma instituição de transporte público. A relevância do estudo está na necessidade de mitigação de riscos que afetam a conformidade das informações contábeis dentro das organizações, visto a necessidade de informações rápidas e seguras para a tomada de decisões. Os resultados mostram de maneira prática a conformidade das informações por meio de controles internos estabelecidos no nível dos processos operacionais da organização, mesmo que alguns controles sejam desenvolvidos de maneira informal. Além disso, os resultados identificam a tecnologia como o risco mais relevante para a organização e a legislação como um dos riscos inerentes à conformidade. Além disso, foi possível identificar a necessidade de integrar o gerenciamento de riscos estratégicos e operacionais para melhorar a conformidade das informações. O caso estudado pode ser transferível a outros contextos em que pode converter-se em referência contributiva para a melhoria de controles internos e conformidade das informações contábeis.

**Palavras-chave:** controles internos, gestão de riscos, informação contábil, conformidade

## 1. INTRODUCTION

Organizational events are reflected in the accounting system, which consolidates information and generates improvements in the decision-making process in the company in a broad and systemic manner. The accounting statements aim to provide useful information in the evaluation and decision making of its users (Comitê de Pronunciamentos Contábeis [CPC], 2019; Ludícibus, 2010). In this sense compliance and organizational controls are related to the business process in which this anticipates the risks following strict management standards (Ghiran & Bresfelean, 2012; Riccio, 2001) and where the Management Accounting Information Systems on a good governance help to find the best performance indicators (Gamayuni, 2019).

The effect of financial knowledge reflects in risk management activities where the financial knowledge of directors increases the value of the company and thus can generate independence of executives before the board and audit committee (Dionne et al., 2019). This concern also involves small and medium-sized companies (Ślusarczyk & Grondys, 2019) as well as cooperative institutions in which manifestations of financial risk can also be perceived when seeking financing and increasing operating costs for debt payments.

The need for fast and secure information makes compliance of accounting information relevant to decision making within business organizations, in the practices of integrity and quality (Heitzman & Huang, 2019) related to executive responsibility (Alam et al., 2019) and in the context of risk mitigation by improving their internal controls that ensure efficiency and effectiveness in operations, as well as the reliability of the information generated. When executives have higher quality internal information, internal information is more focused on the sensitivity of investment for profits (Heitzman & Huang, 2019) where internal profit signals are less sensitive to external price signals.

In this context, while there is considerable literature on data quality, there is limited research on effective controls strategy to mitigate risks impacting information quality (Xue et al., 2012). Since the enactment of SOX there has been no discussion of emerging issues related to corporate governance without discussing the relevance of control systems for management (Dutra et al. 2009). Thus, the need to establish minimum internal controls capable of ensuring the information compliance through a well-structured business process is growing in organizations.

This work aims to analyze the influence of internal controls in reducing the compliance risks of accounting information, becoming relevant given the need for organizations to mitigate the risks that affect the compliance of this information, in view of the demand for information increasingly faster and safer for decision making. The case studied, although not generalizable, can be transferred to other contexts where it can become a contributive reference for the improvement of internal controls and of the accounting information compliance.

The work is structured in five sections, starting with this introduction, in order to contextualize the research theme. In the second section, the theoretical basis is presented, considering the issues: accounting information, internal controls and business processes. The methodological procedures are described following, in which the collection procedures, treatments and data analysis and case study are discussed. Then, the results analysis and the conclusions are presented.

## 2. THEORETICAL FOUNDATION

In order to support the research carried out, various studies were identified on the themes and theoretical gaps that could help the development of this work. Below, we discuss the objectives and results of some of the studies analyzed that contribute to an initial position on the subject and expand the state of the art.

The research of Kerr and Murthy (2013), presents results of an international study that emphasizes the importance of technological processes for effective internal control over financial reporting in organizations. The survey counted with the participation of 189 professionals from different parts of the world and identified the process of Assuring the Security of the Systems - DS5, as the most important for the effective control of financial reports.

Daronco (2013), on the other hand, evaluates the contribution of the internal and IT controls in corporate governance, specifically in the aspect related to compliance, concluding that the processes were at a level of limited maturity, and the internal controls were maintained before the constant audits. Although compliance is directly linked to adherence to internal and external standards, and the author identified the need to institute a corporate integrity system.

The study of Santos (2018), presented the process adopted by the Federal Court of Auditors (TCU) to conduct risk management audits within the Brazilian Public Administration, directing the research towards mission and competencies in a specific model for assessing organizational maturity in risk management. Internal audits also

have an impact on external audits, in this sense, the work of Formigoni et al. (2017) was developed with more than a dozen companies associated with the Institute of Internal Auditors of Brazil (IIA-Brazil).

In their work, Ghiran and Bresfeelan (2012) analyzed the best method to be adopted to accomplish a wide range of compliance standards and the main aspects that must be followed, emphasizing that, among the different methods of compliance verification, in practice, audits are prevalent. Following, it is presented the theoretical framework that supports and expands the state of the art of the issue defined above.

## **2.1. Accounting information**

According with the CPC (2019), the accounting information should be useful, and for this, it must be relevant and reliable. As for relevance, CPC states that the relevant financial accounting information is that capable of making a difference in the decisions that can be made by users in which later a traditional or more technological audit based on information systems and even behavioral ensure greater integrity not only of the information but of the computational resources that support it, input, processing and output of information (Susanto & Meiryani, 2019b).

As for reliable representation, it must be complete, neutral, and error-free. The fundamental qualitative characteristics of the accounting information, relevance, and reliable representation, defined in CPC (2019) are aligned with aspects of the information defined by Committee of Sponsoring Organizations of the Treadway Commission (COSO) as qualities of the information. In COSO, the quality of information is dealt with in its component, Information and Communication, and identifies aspects of the information on which the quality of the information, its reliability and usefulness also (Polenova et al., 2019) is dependent, supported by the level of qualification of specialists, ethical and moral components of their performances, among other more technical aspects.

For COSO (2012), the ability to generate quality information begins with the quality of the source data, because imprecise or incomplete data results in potentially erroneous judgments, estimations, or other management decisions (p. 111). With the current volume of data and dependence on information systems, an effective internal control system becomes necessary (COSO, 2012). In this sense, Xue et al. (2012) report that, although there is considerable literature on the issue of data quality, there is little research on the task of the business process to develop effective control strategies to mitigate data quality risks. Thus, the need to establish minimum internal controls that

can ensure compliance of information through a well-structured business process is growing in organizations and their related corporate governance processes (Ishak et al., 2019).

## 2.2. Internal controls

Companies are subject and required to act in compliance with laws, rules, regulations, standards, and best practices (Ghiran & Bresfelean, 2012). In this sense, the Instituto Brasileiro de Governança Corporativa (IBGC, 2015) defines the internal control systems as mechanisms aimed at monitoring the compliance of operational and financial processes, as well as the risks of non-compliance (p. 56). According to Farias et al. (2009) the term control evolves and is inserted in a postmodern vision in academic research and in business world as a tool for business management (p. 55). Internal controls can be analyzed as a means of optimizing the management process and for improving the organization, the level of corporate governance and the control of business activities (Jordão et al., 2012). The internal controls have been growing significantly, as seen in the work of Silva and Couto (2017), where they observe a better improvement of the internal control practices, especially for the dimensions of “information and communication” and “control environment”. The survey covers a period between 2003 and 2016 in which Public Management, the Public Sector and Corruption were also evaluated. The Public Governance has required a more effective accounting structure (Moreno-Enguix et al., 2019) with efficient internal control so that externally generated information is technically well validated and considering any socio-political variable that may influence the explanations.

According to Coimbra and Manzi (2010), internal controls help the organization to achieve its objectives by mitigating risks, reduce the possibility of damage to its reputation, ensure that the company is complying with laws and regulations, guarantee the safeguarding of assets, accuracy and reliability of records and maintain the exposure to risks in a manner acceptable to the organization. In addition, Gatewongsa and Ussahawanitchakit (2013) mention that the internal control strategy is a key point for the success of companies, because the effectiveness of this strategy can reduce risks, ensure the reliability of financial reports and compliance with laws and regulations.

According to Farias et al. (2009), internal control cannot be dissociated from risk because they follow a joint path that helps the institution to achieve its objectives when is applied and managed in the most appropriate way (p. 57). Risk is understood as the existence of situations that may jeopardize the achievement of corporate or operational objectives of organizations and whose proper management may also reduce

frauds (Repousis et al., 2019). The risks can be originated both from wrong processes and the absence of internal controls (Oliveira & Linhares, 2007). According to COSO (2007), risk is represented by the possibility that an event will occur and will negatively affect the achievement of objectives (p. 16). Therefore, risk management is presented as an activity of several areas of an organization (Araújo, 2009) and risk management requires an adequate management so that the risks that may affect the activities are identified and treated in an acceptable manner (Valise et al., 2012). The management of corporate risks is part of the strategic development of organizations (Dionne, 2013).

Corporate risk management and compliance refer the set of actions to mitigate risk and prevent corruption and fraud (Santos et al., 2012). Such actions are closely linked to compliance management, which involves control mechanisms capable of ensuring that business processes, operations and practices are in accordance with a set of rules and regulations to which the organization is subject (Ghiran & Bresfelean, 2012). In addition, the authors complement that the need for compliance with rules and regulations requires periodic updates, and this implies a guarantee of continued compliance. This fact motivates the need for automation in compliance management and logically improves the professional performance as the analyzed in the study of the perception of external audit professionals in open capital companies (Vidal & Silva, 2016).

### **2.3. Business processes**

According to Oliveira (2009), the term process is a structured set of sequential activities that present a logical relationship with each other, with the purpose of meeting and, preferably, overcoming needs and expectations (p. 9). Muller et al. (2010), define process as “a set of inputs, processing and outputs of product, service and information” (p. 528) while Albuquerque (2012) highlights the use of information systems in which the concept of business processes gained notoriety as a basic construct for the structuring of work in organizations. For a complete organizational integrity, accounting information systems have evolved to achieve controls with artificial intelligence capabilities, prioritizing financial operations (Susanto & Meiryani, 2019a).

Valle and Oliveira (2009) states that there are several techniques to model the processes according to their activities, all describing the production as a flow of resources that enter the organization and that are processed and transformed in it. In addition, the Business Process Modeling Notation (BPMN) is among the most used modeling techniques because it aims to offer a notation more easily understood and used by all those involved in the business, with applications including for the evaluation of processes of internationalization of HEIs (Alves, 2017).

For Tessari (2008), a company, when raising and modeling its processes, reveals its problems, facilitates the organizational restructuring and the conception and implementation of an integrated architecture of systems (p. 20). Thus, an organization that knows its processes has greater potential for results in the integration between its areas. Complementarily, Pádua and Inamasu (2008), infer that IT is directed to the management and improvement of business processes, contributes to the improvement of competitiveness and organizational vision.

#### **2.4. Empirical studies**

Gal and Akisik (2020), analysed the relationship of internal control, audit, and integrated reporting on the market value of North American companies. The authors report that since the enactment of the Sarbanes-Oxley Act (SOX), US companies must include a statement on the quality of their internal control systems in their financial statements, and that while the credibility of the statements are enhanced by the existence of audits, the evaluation of the internal control system has a more comprehensive effect. The results indicate that integrated reporting alone does not provide sufficient shareholder benefits, however, audit firm opinion that internal control is effective appears to increase shareholder benefits.

In their work, Ghiran and Bresfeelan (2012) analysed the best method to be adopted to meet a wide range of compliance standards and the main aspects that should be followed, pointing out that among the different methods of compliance verification, in practice, audits are prevalent. Daronco (2013), in turn, evaluates the contribution of internal controls and IT in corporate governance, specifically in the aspect related to compliance, concluding that the processes were in a limited maturity level and the internal controls were maintained before the constant audits. In addition, the lack of standardized and systemized processes, systems and controls was highlighted as a determining fact for the maintenance of compliance. Although compliance is directly linked to adherence to internal and external norms, the author identified the need to institute a corporate integrity system.

The research of Kerr and Murthy (2013) presents the results of an international study that emphasizes the importance of technological processes for an effective internal control system over financial reports in organizations. The research counted on the participation of 189 professionals from various parts of the world and identified the process of ensuring the systems security, as the most important for the effective control of the financial reports.



Finally, considering the relevance of accounting information for decision-making, the study by Mardi et al. (2020) on the determinants of the timeliness of financial reporting in cooperatives stands out. To this end, they considered, among others, the reliability of the accounting information system and internal controls as factors of timeliness. The results indicate that the accounting information system and internal controls have a positive and significant effect on the timeliness of financial statements. Thus, in line with the findings of other previous studies, the authors state that there is a strong relationship between internal control and timeliness of accounting information, demonstrating the influence of internal control on the reliability and accuracy of reporting.

### 3. METHOD

This section presents the methodological procedures used for collection, treatment, and data analysis, as well as for the study analysis units. This is a qualitative study carried out through the analysis of interviews with employees of a public transport company, combined with a quantitative content analysis.

A research protocol was created to support collection and data analysis. According to Yin (2010), the research protocol aims to give reliability to the research, greater focus and serves as support to the researcher in performing the data collection. Classical data collection instruments such as documents and interviews were carried out in this research. For the interviews design, the data from the theoretical framework were considered as shown in table 1, in alignment with three components of the COSO internal control framework that are directly linked to the scope of the study: risk analysis, control activities and information and communication.

**Table 1.** *COSO and theoretical reference*

COSO components	Theoretical reference	Research instrument
Risk assessment	Machado (2012), Oliveira and Linhares (2007).	Seven open type search questions, in the form “how” and “why”
Control activities	Daronco (2013), Dionne (2013), Farias et al. (2009), Ghiran and Bresfelean (2012), Pádua and Inamasu (2008), Tarouco and Graemi (2010). Valise et al. (2012).	
Information and communication	CPC (2019), Iudícibus (2010).	

The interviews were conducted with managers and employees of a large public transport company, considering research instrument referenced in the table 2.

**Table 2.** *Questionnaire*

COSO components	Research questions
Risk assessment	1) Considering risk, the existence of situations that may prevent the achievement of corporate or operational objectives of organizations (Oliveira & Linhares, 2007). To what degree (high, medium, or low) do the risks of personnel, processes, technology and compliance (Machado, 2012) affect the compliance of processes and why? Are the risks identified and formalized, how?
Control activities	<p>2) Corporate risk management is an integral part of the strategic development of organizations (Dionne, 2013). In addition, internal control cannot be dissociated from risk (Farias et al., 2009). Given these statements, how do internal controls established by the organization contribute to identify, assess, and manage operational risks?</p> <p>3) Companies are increasingly submitted and required to act in accordance with the laws, rules, regulations, standards, and best practices (Ghiran &amp; Bresfelean, 2012). In this context, how do internal control and information technology existing in the organization contribute to mitigate the compliance risk? Is there rework? Integration of processes?</p> <p>4) The information technology when directed to the management and improvement of business processes has helped the organization to complete its organizational vision and improve its competitive position. In view of this, is the organization's IT structure directed towards the management and improvement of business processes? How is it?</p> <p>5) The search for best practices in IT governance is related to the increase of technology complexity, by the growing dependence of the business areas on IT (Tarouco &amp; Graemi, 2010). Therefore, what is the degree of satisfaction (high, medium, low) regarding the applications available by IT and the quality of services? Why?</p> <p>6) Risk management culture, continue adoption of preventive internal controls in detriment of reactive internal controls (Valise et al., 2012). Moreover, internal controls maintained through audits (Daronco, 2013). Regarding this question, do you think that audits (internal and external) as well as the fiscal council, contribute to the establishment or development of a continuous culture to mitigate operational risks? Why?</p>
Information and communication	7) The purpose of accounting is to provide its users in general with the maximum possible information about the assets of an entity and its changes (Iudícibus, 2010). Being fundamental characteristics of accounting information, relevance, and reliable representation - integrity, compliance and trust - CPC (2019). As for the information generated by accounting are they relevant and reliably represented? Why?

The Budget, Finance, Procurement and Human Resources departments, as well as the Accountant and an Accounting Technician participated in the survey. The invitation to the interviewees was made by e-mail and then ratified in person, at which time the interviews were scheduled. The interviews were individual, and subsequent contacts were made to complement the responses obtained. The interviews were recorded digitally and then transcribed for analysis and treatment of data.

For data analysis, referring to the interviews, a treatment and content analysis was performed which, according to Yin (2010), consists of examining, categorizing, tabulating, testing, or recombining the evidence to treat the initial propositions of the study. As technique of analysis of documentation / information systems was used the research protocol and evaluation of the flow of information with process diagramming. The analysis of the documents was carried out to identify information that could contribute to those found in the other techniques. For the analysis of the interviews, Sphinx Lexica (version 5.1) was used, where the data was treated for content and lexical analysis. For content analysis, the transcription file of the interviews was first treated, being added before the questions the letter "P:", and before the answers the letter "R:". After this procedure, the data were imported into the software, where the analysis categories were included. The categories defined are presented in table 2 based on three components of the COSO internal control framework.

**Table 3.** *Categories for content analysis*

Categories	COSO Frameworks
Risk	Risk assessment
Control	Control activities
Information	Information and communication

#### 4. RESULTS ANALYSIS

The interviews were aligned in three directions according to the defined categories: risk assessment, control activities and information and communication. Regarding the risk assessment, in order to identify the risks that affect the conformity of the information, the degree of risks and the factors that affect the operational risks described by Machado (2012) were determined: personnel risk, control risk, technology risk and compliance risk.

Technology risk had the greatest convergence among operational risks, being considered significant by all interviewees, followed by compliance risk. The risk

analysis based on the interviews is presented below. With regard to personnel risk, the segregation of functions is pointed out as a form of control to minimize the risk: “He is low today because we work hard with the segregation of function, so the person does not do the process from beginning to end” (Interviewee 4, Human Resources Area).

The segregation of functions can also be evidenced through the flows of the organization’s business processes, identified in the documental analysis. Confidence in people was identified by two of the interviewees as a reason to classify personnel risk as medium:

Of the area is low because I know people, know their background, their behavior (Interviewee 1, Accounting Area).

There is a great confidence in the people who work in the sector, the manuals of routines are not fully updated because the activity is very technical, in this case the risk is medium because, when you work with laws there are interpretation, you may think you did it right and did not do it right (Interviewee 3, Supply Area).

The lack of personnel is pointed out as a medium risk; however, it was highlighted that it affects the slowness of the process more than the error. The attribution of responsibility was identified as a point that contributes to mitigate the risk of personnel.

In relation to process risk, the existence of clearly defined processes and routines, even if not fully formalized, was used to define both low and medium risk. For the interviewees, the routines and processes are clearly defined, and the responsibilities are very clear within the sectors. The classification of high risk is alignment with altered processes until their effective conformation and refers to the compliance of the established flow. Here are some extracts from this convergence:

We did not have this misalignment that caused a great impact because people were able to correct it, but every time there is a change in the process, even since we have to meet the two laws, when one only thinks with the understanding of a single criterion and does not think of the whole, this sometimes is misaligned (Interviewee 5, Financial Area).

High risk of what is written is not the best option for the process, but the risk of someone changing the process is low (Interviewee 4, Human Resources Area).

The technology risk presents as the most convergent risk among the operational risks. The weaknesses pointed out by the respondents are linked to their demands for controls and information necessary for the business process, which the private systems used by the organization do not fully comply with. In addition to private systems, the company also uses public systems made available and defined by the federal government, and for these has no management respect layout, parameterization, or demand for information, only orientations. Below are presented the main points extracted from the interviews that support the classification of technology risk as high.

Systems outdated in relation to the business process and legislation:

In addition to being outdated with current practices, this is a risk for us, the problems of rework, manual calculations, etc. (Interviewee 1, Accounting Area).

It is a system that I can say "half patched", we have been creating patches on it, because the information is not generated according to need, they are generated and then adapted to be adequate (Interviewee 2, Accounting Area).

The technology risk we have here is because our technology uses an ERP system from the 90's with the logic used at that time, not fully integrated (Interviewee 3, Supply Area).

Lack of integration of the systems of the different business processes: "We have a problem in the area that is reflected in the organization, it is a deficiency of our system that should be integrated and is not" (Interviewee 5, Financial Area).

Personnel performing tasks in place of the system:

I see my area as an operational administrative link, and it suffers from this lack of integration so today we minimize the achievements of this process, putting people and not systems, people working together with the areas, trying to identify needs in a short space of time (Interviewee 5, Financial Area).

I have a battalion of people here to make this business work..., so, if it works? It works, but with rework (Interviewee 3, Supply Area).

A tool that gives you a better result, gives you more speed and that may give you a reduction in your workforce, because today we depend much more on the individual for generating and managing information than on software (Interviewee 4, Human Resources Area).

Investment in software technology:

I see a very great need for a modernization, more investment of the company and is not to buy computer, we must invest in software technology (Interviewee 3, Supply Area).

A modern system that provides us with more tools, people be able to develop more because we have to do manual service, and could use the system to do analysis, there you are printing reports, setting up excel spreadsheets (Interviewee 4, Human Resources Area).

Parallel and manual controls: Bureaucratization of the process:

Is the tool that will make the management of our information and if we do not have a reliable tool, adequate, mainly adequate, we must surround ourselves with other controls that bureaucratize our process a lot because people are concerned with the reliability of the information (Interviewee 5, Financial Area).

Regarding compliance risk, two main points were identified: the technology risk already discussed and compliance with legislation in which the accounting area classified the compliance risk as high, since adherence with legislation is strongly influenced by the technology risk, especially regarding the fiscal area. This is a relatively new requirement not fully supported by the system used by the company. The second alignment of the interviews occurred within the scope of activity control and after the analysis of the interviews the following points are highlighted:

- The areas interviewed recognize the internal controls established by management, but there is a need for the areas to establish their own controls to mitigate the risk, which generates parallel and not formalized controls.
- With respect to the contribution of internal control and information technology to risk mitigation, the responses were directed to technology risks with points already addressed in the specific analysis of this risk. Here are some of the excerpts from the responses:

Today we have very manual controls; the statements that we generate, we do maintenance manually and this increases the risk of making mistakes, the existing information technology contributes barely in this sense (Interviewee 1, Accounting Area).

Our counting system is manual, and we do not have associated technology that can interconnect the areas that work (Interviewee 2, Accounting Area).

The lack of integration of the processes affects the risks, and this is visible in various situations; we often witness and experience this (Interviewee 5, Financial Area).

- As a reflection of the information technology risks identified, respondents classify as low the degree of satisfaction in relation to the applications available by IT and the quality of services. They emphasize the need for a more strategic positioning in IT and the knowledge for system solutions.
- Regarding the contribution of the governance structure established in the company to risk mitigation, this is recognized as a form of control, but is not seen as a factor in the development of a culture of risk mitigation.

The third and final topic of the interviews, information and communication, dealt with the information generated by the accounting area with emphasis on relevance and reliable representation. All respondents recognize the information provided by the accounting area as relevant. As for the reliable representation, it is found trusted, however, some areas question how these are validated to check for weaknesses imposed by the information technology available in the organization.

By the way people have segregation of information in the various systems of the company who ends up being able to consolidate and give us a series of information is our accounting area and, even with the deficiencies of the system, the team that works already has a domain over the data and can produce and reproduce the main data that are of interest for the management (Interviewee 5, Financial Area).

If we had a system that would allow us to make an adequate parameterization of the entire flow of information, and that integrate into the accounting records, we would be able to have it reliable with less rework, but today, although all the rework it is still represented with trustworthiness (Interviewee 1, Accounting Area).

The two excerpts above confirm that the responsibility lies with the individual, therefore, the control is stronger by the individual than by the internal control system formally established. The results of the analysis of the interviews based on the content analysis and lexical analysis extracted from the Sphinx software show the proximity between the information, technology, integration and quality/satisfaction categories.

The proximity established between these categories confirms the findings of the research that identify technology as the most relevant risk for the organization.

In these categories, lexicons such as “change”, “need”, “fully”, “excel”, “adaptation”, “old”, “works”, “spreadsheet”, “technology”, “resources”, “outdated”, “difficulty”, “modern” are observed, which denote weaknesses pointed out by respondents regarding the risk treated and analyzed. The risk category is close to the compliance category, which has “legislation” as its closest lexicon, reflected in the interviews as one of the risks inherent to compliance that in the current context is linked to technology.

## 5. CONCLUSIONS

This work explored the research problem related to the contribution of internal controls in mitigating the risks of compliance with accounting information and secondarily the technological issues. Through the analysis of the interviews, it was possible to verify the main convergences in relation to each type of risk as well as the main internal controls established at the operational and strategic levels.

As for the accounting information, it is made available both in the form of financial statements, as determined by the applicable legislation and in the form of management reports defined by the strategic level areas. The internal controls provide compliance in the company studied in which some of them are still developed and implemented informally to reduce risks and also referenced in the control of the segregation of functions that is essential to follow rules and norms both internal and external.

The research evidenced that technology risks have a high prevalence and importance within operational risks - obsolete systems in relation to business processes and legislation, low investment in software, lack of systems integration - followed by compliance risks that are associated with a high risk due to their close relationship with legislation and technology, especially in sectors that are highly regulated such as the financial sector. In relation to the risk associated with personnel participating in business processes, it was identified that segregation of functions is a form of control in order to reduce it. In addition, the attribution of responsibilities is shown to be a factor that contributes to risk mitigation. However, no evidence was found that the lack of personnel poses a high risk to the organization, but it is shown as a variable linked to a greater slowness and inefficiency in the execution of processes. Furthermore, the existence of well-defined processes, even if they are not formalized, is associated with a lower risk for the business.



In relation to control activities, the research identified the importance of internal controls established by management, although the implementation of parallel, even non-formal, controls by the different areas of the organization is an adequate practice for risk mitigation. In addition, the corporate governance structure also contributes to risk reduction as a form of internal control.

The importance of the accounting area in the representation of relevant and reliable information is recognized. However, there are weaknesses in the organizations linked to the segregation of information in the different systems, to the lack of integrity of the accounting information system with the information flows in the company and with the rest of the company's information systems.

Given the results presented in this study, the findings of Daronco (2013) are reinforced when he emphasized that although compliance is directly linked to adherence to internal and external regulations, there is a need to institute a corporate integrity system. The emphasis on technology risk is in line with Kerr and Murthy (2013) findings that identify information system security as the most relevant aspect to control financial reporting. Finally, the absence of integrated systems, is in line with Pernsteiner et al. (2018), decreases the expected efficiency in the use of the tool to ensure the integrity of the accounting information.

Finally, this study contributes theoretically to the advancement of research on internal controls and compliance risks of accounting information and empirically by the results that will be adopted by the company where the research was developed through the reduction of compliance risks of accounting statements, results that could be transferred to other contexts where it can be a reference for the improvement of internal controls and information compliance.

For future studies it is suggested a quantitative approach among public companies of the same transport sector. It is also possible to develop complementary own internal control evaluation models, that does not follow "so strictly" models imported from the market for public administration companies.

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### **Conflict of interest statement**

Authors declare that, throughout the research process, there has not been any sort of personal, professional, or economic interest that may have influenced the researchers' judgement and/or actions during the elaboration and publication of this article.

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