

Establishing the Main Mechanisms for the Accounting Information Governance: a Delphi study with Accountants

Completed Research

Camila de Oliveira

Federal University of Rio Grande do Sul
ca.oliveira86@gmail.com

Ariel Behr

Federal University of Rio Grande do Sul
behr.ariel@gmail.com

Antônio Carlos Gastaud Maçada

Federal University of Rio Grande do Sul
acgmacada@ea.ufrgs.br

Abstract

This study aims to identify the main mechanisms of Accounting Information Governance. The Delphi method was applied in three stages with accounting experts, through which a set of mechanisms for managing accounting information was identified and ranked according to priority mechanisms. This evidence could be useful for both accounting practice and future professional training, which need to be able to meet the challenges related to the impact of new technologies and the increasing volume of data and information. In terms of Information Governance, this study highlights some of the remaining gaps in this field, regarding the identification of best mechanisms for using data and information and creating value.

Keywords

Information governance, accounting information, mechanisms, Delphi.

Introduction

Increasing data volume and the impact of new technologies are challenges currently facing Accounting. For example, the changes brought about by Big Data present new risks and opportunities for the accounting professionals in all their subareas of action: audit, managerial, financial, education and research (Huerta and Jensen 2017). Business Intelligence, Analytics, Digitalization, and Social Media are other important factors that are changing accounting practices and, therefore, require further research (Arnaboldi, Busco and Cuganesan 2017; Cockcroft and Russell; Rikhardsson and Yigitbasioglu 2018).

It is undeniable that such factors affect the way information is produced and disclosed (Miller and Skinner 2015). And, especially for Accounting, the purpose of which is to provide useful information to stakeholders for decision-making (Neely and Cook 2011; Coyne, Coyne and Walker 2018), identifying control practices is necessary to ensure efficient information management (Arnaboldi et al. 2017; Rikhardsson and Yigitbasioglu 2018).

Information Governance is a contemporary approach to better manage the use of information, protecting and maximizing its value, inside and outside organizations (Koooper, Maes and Lindgreen 2011). In light of this context, this research aims to *identify the main Accounting Information Governance mechanisms*.

To achieve this aim, 38 accounting experts were consulted using the ranking-type Delphi method. Over the course of three rounds, a consensus was sought regarding the main Accounting Information Governance mechanisms.

One justification for this study is the need to improve Information Governance in order to ensure better information for decision-making (Coyne et al. 2018) and greater data protection (Donaldson and Walker 2004). Identifying the main accounting information management mechanisms should provide the

opportunity to maximize information value and minimize costs and associated risks, thus allowing organizations to retain strategic information within a rapidly changing economic and technological environment.

It could be moreover, one can perceive the need of more field researches related to Information Governance, which approach explicitly activities to govern data and information (Alhassan, Sammon and Daly 2018), and that could contribute to the development of a central corpus of knowledge around Information Governance mechanisms (Tallon, Ramirez and Short 2013). Furthermore, the relation between Accounting scientific field and the Information Governance still needs studies, because, when searching term “information governance” account*”, in SCOPUS and Web of Science database, one can find only the article from Coyne et al. (2018) which is presented in the following section.

Finally, the Institutional Theory was used to reflect on the results of this research, whereas its potential for a greater understanding regarding the impact of the changes that has been occurring in Accounting, especially resulting from the new technologies (Rikhardsson and Yigitbasioglu 2018). Thus, one searches to bring closer the phenomena related to the adoption of practices and procedures in organizations and the relation with predominant and institutionalized elements in society (Meyer and Rowan 1977).

Theoretical References

Information Technology (IT) governance literature demonstrates that the adoption of several mechanisms represents an important way of improving the IT performance inside organizations, bringing benefits to the organizational output (Weill and Ross 2004; De Haes and Van Grembergen 2009; Lunardi, Maçada, Becker and Van Grembergen 2017). IT Governance gained considerable importance due to the growing concern into ensuring appropriate returns on IT investments and to the Sarbanes-Oxley (SOX) approval in the United States (Lunardi et al. 2017).

IT Governance can be implemented through a set of practices, more specifically, a mix of structures, processes and relational mechanisms (De Haes and Van Grembergen 2009). De Haes and Van Grembergen (2009) explain that IT Governance processes refer to IT strategic decision-making formalization and monitoring procedures as performance indicators, frameworks such as Control Objectives for Information and Related Technology (COBIT) and Information Technology Infrastructure Library (ITIL) and project management; structure mechanisms include roles and responsibilities definition and aspects that are related to IT structural form in the organization, and relational mechanisms are related to the active and collaborative participation among stakeholders.

Information Governance appears to fill an empty space that had still not been carried out by the existing structures of governance (Faria, Maçada and Kumar 2017). Information Governance is also an important instrument used to minimize problems information asymmetry, allying its structure with the IT Governance (Lajara and Maçada 2013). Information Governance considers the information as a company's critical asset and the challenge responsibly managing data in the organizations (Bruening and Waterman 2010).

In accordance with Kooper et al. (2011), Information Governance wraps an environment of opportunities, rules and decision-making for valuation, creation, collection, analysis, distribution, storage, use, and control information. However, Weber, Otto, and Österle (2009) evince the lack of a particular approach for Information Governance, which can then be portrayed in a consistent way with IT Governance mechanisms.

Tallon et al. (2013) exploit the Information Governance practices in a pioneering way on the basis of what has already been theorized of IT Governance. While questioning 37 executives of 30 organizations from different sectors of the industry, the authors identified a range of the same procedural, structural and relational practices. For these authors, the practices that compose the IT Governance apply as much to how physical IT is governed as to how the information can be governed.

For Tallon et al. (2013), the process practices reflect the information's cycle of life on the basis of utility criteria, including storage and retention, access monitoring, among others. The structure practices, include roles and responsibilities assignments in terms of data and information's property and the establishment of policies and mechanisms of supervision. And the relational practices are related to users' education and orientation regarding data and information use, and communication.

In the accounting area, some researches start to indicate the relevance and the need for progress in aspects of Information Governance and in the implementation of related effective mechanisms, especially, to the modifications brought by Big Data, Business Intelligence and Analytics (Arnaboldi et al. 2017; Rikhardsson and Yigitbasioglu; Cockcroft and Russell; Coyne et al. 2018). Coyne et al. (2018) exploit the governance of the Big Data's cycle of life as a first attempt to engage accountants in the discussions and to formalize the knowledge that they will need in a new field of the accounting profession. The authors present a cycle of life model adapted for the Big Data, indicating activities and potential players who should be involved in its governance, amongst them stand out the accounting and IT professionals.

Method

In order to identify the main mechanisms for the Accounting Information Governance, this research, with a quantitative and qualitative approach, has been driven through a Delphi, which allows the consolidation of an intuitive judgment of a group of experts (Dalkey and Helmer 1963). Among the types of existent Delphi, stands out for this query, the Ranking-type Delphi, applied to evaluate the relative importance of a range of questions, is widely used among Information Systems (IS) investigators (Schmidt 1997; Paré, Cameron, Poba-Nzaou and Templier 2013).

The choice of the method also aligns with De Haes and Van Grembergen (2008) study, which aimed to identify the best Governance of IT practices that could be applied in the Belgian financial services sector, at a time that IT Governance was booming in agenda of many organizations. Through the Delphi technique, the authors detected a set of necessary practices for IT Governance implementation.

Ranking-type Delphi includes three stages: brainstorming, reduction, and classification (Schmidt 1997; Paré et al. 2013). In agreement with Paré et al. (2013), brainstorming is the specialists' input for the next stages. The phase of reduction wraps the narrowing of the list resulting from the prior stage for a number that is manageable for classification in the third step. Finally, the classification stage aims to reach a consensus in the ranking of selected items, which may involve several rounds of experts' ranking collection and analysis.

In this study, the brainstorming stage has been replaced by the use of a structured questionnaire, based on IT Governance and Information Governance literature revision. Such modification is acceptable and common in the Delphi studies (Hsu and Sandford 2007; Paré et al. 2013). So, Stage 1 is also that in which one pursues the narrowing of the mechanisms' list for the next steps of the ranking.

From the data analysis, the measures of central tendency (mode, mean and median) are the most used in the method (Gracht, 2012). For the phase of ranking, besides the items rate classification, one can include the percentage of specialist who have placed the item in the top half of the list, in addition to the Kendall coefficient of agreement 'W', which evaluates the agreement between the respondents (Schmidt 1997; Paré et al. 2013).

A pre-test questionnaire has been carried out and the subsequent collection and data analysis were realized with five accounting experts, which has permitted some sensitive adjustments of the questions' language providing a better understanding. Although strongly recommended, few studies in the Information Systems (IS) area do the instrument validation and conduct a pilot of the method (Paré et al. 2013; Skinner, Nelson, Chin, and Land 2015).

Other recommendations indicated by Paré et al. (2013) have been adopted in this study, aiming the maturation of IS field and a further rigor in articles that are using Delphi: (i) provide detailed information regarding experts allowing better judgments regarding their credibility; (ii) in the phase of classification, to randomly order the items in the first round and then sort them by the mean classification in the next rounds; (iii) to enable the experts to comment, to justify and to add something during the rounds for a better understanding of their approach; and (iv) to specify and to apply a rule of a clear stop; and, explicitly to justify all the modifications in the method Ranking-type Delphi. In this research, the Delphi was applied in three stages, as shown in Table 1.

Stage 1 – Main Mechanisms of Accounting Information Governance (Stage of Reduction)
<ul style="list-style-type: none"> ✓ The items have been classified in a Likert of 5 points, which indicates the importance of the items; ✓ Comments and justifications might be carried out, as well as the inclusion of new items; ✓ Feedbacks have been given to the specialists so that they could compare his individual notes versus the group answer. They might also ask for some alteration before the submission of Stage 2. ✓ For the Stage 2, all items that have the same mean and median or higher than 4 have been considered, thus, taking into account items 4 and 5 from the proposed scale, besides the minimum frequency of 70 % of the respondents.
Stage 2 – First Ranking of Accounting Information Governance Mechanisms
<ul style="list-style-type: none"> ✓ Stage 1's final list has been presented with the reduction of the items and the consolidation of the principal mechanisms, in random order. ✓ The respondents were asked to indicate the importance order of the mechanisms, by clicking on the items and dragging them for getting a ranking of the priority items. ✓ Comments and additional justifications also might be carried out and this stage feedback has been indicated together in Stage 3.
Stage 3 – Second Ranking of Accounting Information Governance Mechanisms
<ul style="list-style-type: none"> ✓ The results of Stage 2 have been shown, with the mechanisms ordered on the basis of the best means obtained during the first ranking. ✓ The participants might confirm and/or change the position of the items as they deemed necessary. Justifications should be included in a specific field on the amendments proposed. ✓ For an analysis of the 1st and 2nd ranking, it has been used the Kendall non-parametric statistical test, which indicated the consensus level of the rounds.

Table 1 – Systematization of Delphi

As it can be observed in Table 1, in each round of the Delphi, specific procedures have been done to accomplish the proposed objective of this study. The stages are based on the literature regarding the technique (Dalkey and Helmer 1963; Paré et al. 2013; Skinner et al. 2015).

Results

We seek to obtain an approximately 30 participants panel to comply with Paré et al. (2013) and Skinner et al. (2015) recommendations, regarding the minimum quantity of experts to use a Ranking-type Delphi. For the participants' selection, we consider, besides the experience, the individual formation in the area of study, as well as the individual provision and good will to participate of multiple rounds (Grisham 2009; Paré et al. 2013). Experts were selected by convenience. Table 2 presents the specialists' distribution per accounting area and per the size of the company where they work.

Acting area in Accounting	
Managerial Accounting	18,42%
Corporate	18,42%
Fiscal/ Tributary	21,05%
Audit	18,42%
Accounting Office/Consultancy	18,42%
Financial	5,26%
Total	100%
Company size where the participant works	
Large-seized	44,74%
Medium-seized	26,32%
Small-seized	28,95%
Total	100%

Table 2 – Profile of expert participants

The panel had, initially, 38 specialists, all accountants, 80% with more than 10 years of experience in the Accounting area and, in its majority, post graduated. Table 1 shows specialist's representativeness in Accounting classic areas, operating in large, medium and small-sized companies. Such factors can contribute to the wealth and consistency of the results.

First Round

In the first stage of the study, the procedures described in Table 1 has been realized and the data collection initial instrument has been shown to the experts, as displayed in Figure 1.

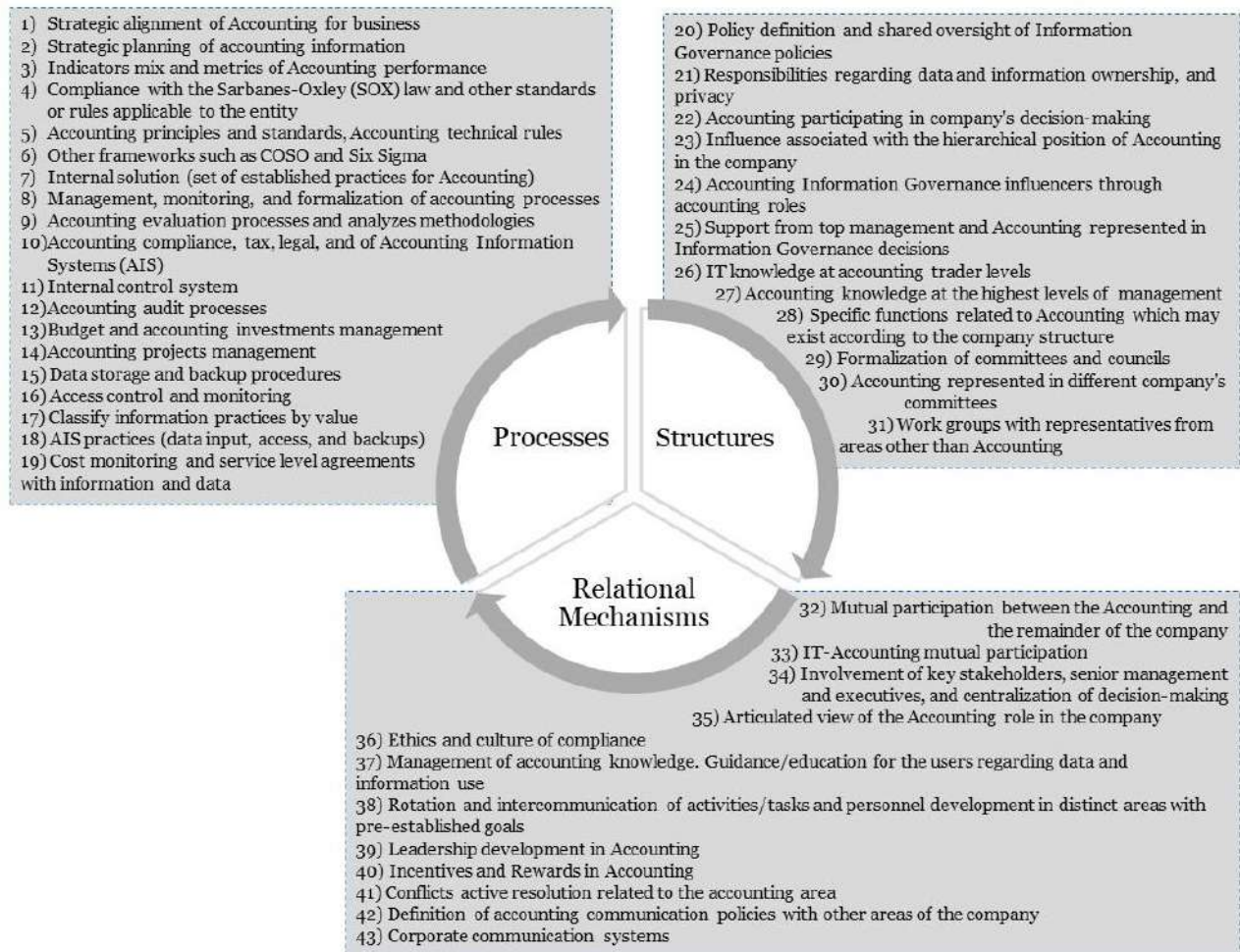


Figure 1 – Initial list of Accounting Information Governance Mechanisms

According to Figure 1, Delphi's initial list contained 43 items of mechanisms for Accounting Information Governance, that reflects the same IT Governance and Information Governance practices typology (Weill and Ross 2004; De Haes and Van Grembergen 2009; Tallon et al. 2013; Lunardi et al. 2017). However, the adaptations for the accounting context are lined up with your purpose to provide useful information for the decision-making (Bushman and Smith 2003; Neely and Cook 2011).

In this first stage, 38 specialists have answered on the relevance of the mechanisms for the Accounting Information Governance, informing since "1-Totally Disagree" until "5-Totally Agree". As a result, it was obtained the incidence of means higher than 4 (considering a 5-points Likert usage) for all items of the

questionnaire, these averages are quite close to each other, indicating sensitive differences between the mechanisms. At least 80% of the specialists have agreed partially or totally (notes 4 and 5 on the scale) to the relevancy of the presented mechanisms. The high agreement on the importance of the item indicates that the specialists have validated the Accounting Information Governance mechanisms list as a whole, enabling to infer that such set is important when considering accounting information control best practices.

The high means have hampered the natural reduction of the resulting final list of this first stage. In the phase of reduction, it is recommended to proceed to the next stage when having a list of 20 items (Schmidt 1997; Paré et al. 2013). Otherwise, the researcher needs to identify alternative actions to reduce the list to a manageable size (Skinner et al. 2015). Thus, we choose as a complementary criterium the use of the median of means of items ($Md = 4,69$) to reduce the list, then, considering the 22 items with higher punctuation for the next Delphi stages.

Second Round

The specialists received the questionnaire with the items presented on a random basis, and they were requested to indicate the mechanisms importance order, as described in Table 1. The answers of 37 specialists have been obtained in this second round.

For the attainment of ranking 1, one has analyzed the means and, complementarily, the modes and medians of each item. With the software IBM SPSS Statistics (version 25) support, it was calculated the Kendall coefficient W (W of Kendall = 0,117), indicating a very low agreement between the respondents (Schmidt 1997). The test indicated an adequate level of significance (p-value less than 0.05), which allows inferring that the specialists have not chosen randomly the item positions.

The low consensus can be acceptable for the first ranking, given the different opinions that can exist among the participants, as well as the diversity and the number of items to be sorted. In accordance with Paré et al (2013), reaching the consensus may involve several stages of collection and specialist's rankings analysis, which are one of the main determinants for the round's continuity (Skinner et al. 2015).

Third Round

For the last stage, equally, the procedures described in Table 1 have been fulfilled. In this third and last round, the answers of 36 specialists have been achieved, to whom it was requested to evaluate the established order, resulting from the previous round and if it was representing their individual opinion. If positive, they should mark the option "yes, I agree" And, in case of disagreement, the specialist could adjust the order of the items, justifying such changes. The final ranking results are displayed in Table 3.

Ranking	Accounting Information Governance Mechanisms	Mean	Type of Mechanism
1 ^o	Ethics and culture of compliance	2,19	Relational
2 ^o	Strategic alignment of the Accounting for business	2,56	Process
3 ^o	Accounting compliance, tax, legal, and AIS	3,56	Process
4 ^o	Management of accounting knowledge. Guidance/education for the users regarding data and information use	4,61	Relational
5 ^o	Support from top management and the Accounting represented in Information Governance decisions	5,69	Structure
6 ^o	Strategic planning of the accounting information	6,78	Process
7 ^o	Internal control system	7,17	Process
8 ^o	Accounting participating in the company's decision-making	8,58	Structure
9 ^o	Leadership development in the Accounting	9,33	Relational
10 ^o	Mutual participation between the Accounting and the remainder of the company	9,44	Relational
11 ^o	Management, monitoring, and formalization of accounting processes	10,92	Process
12 ^o	Accounting Information Governance influencers through accounting roles	11,94	Structure
13 ^o	Access control and monitoring	13,28	Process
14 ^o	Articulated view of the Accounting role in the company	14,00	Relational
15 ^o	Specific functions related to Accounting which may exist according to the company's structure	14,06	Structure
16 ^o	Accounting Principles and Standards (IFRS, US GAAP), Accounting technical rules (NBCs, CPCs, IPSAs)	15,72	Process
17 ^o	Compliance with Sarbanes-Oxley (SOX) law and other rules or standards applicable to the entity	16,72	Process
18 ^o	Accounting projects management	17,08	Process
19 ^o	IT-Accounting mutual participation	18,64	Relational
20 ^o	Responsibilities regarding data ownership and information, and privacy	19,58	Structure
21 ^o	Budget and accounting investments management	20,22	Process
22 ^o	Data storage and backup procedures	20,92	Process

Table 3 – Final Ranking

According to Table 3, item 1 is that one whose positions given by the specialists have allowed to define it as the most important mechanism for Accounting and so on for the other items of Table 3. One perceives that the means have been revealed more distributed regarding the position of the mechanisms. Moreover, the verification of the Kendall coefficient of agreement resulted in a coefficient equal to 0,839 (W of Kendall = 0,839), indicating a high consensus between the specialists (Schmidt 1997). This test also resulted in an appropriate level of significance.

The ranking obtained can be seen as a line of the minimum base, more specifically, a set of necessary mechanisms to implement the Accounting Information Governance, in the same way that De Haes and Van Grembergen (2008) have made on practices of IT Governance. In general, the ranking presents a mix of mechanisms, indicating that these different practices (process, structure, and relational) are fundamental for Accounting Information Governance. Such results are consistent with the literature about IT Governance and Information Governance, that indicates practices that may have degrees of distinct maturity and sophistication, in accordance with the organization (Tallon et al. 2013).

Amongst the process mechanisms, there are: 'Strategic planning of accounting information', 'Management, monitoring, and formalization of accounting processes', 'Accounting principles and standards (IFRS, US GAAP), Accounting technical rules (NBCs, CPCs, IPSAs)', representing decision-making strategies and compliance tools and metrics, in a similar way to the IT Governance mechanisms (Lunardi et al. 2017). Mechanisms as 'Access control and monitoring' and 'Data storage and backup procedures', despite

occupying distinct positions in the ranking, they line up to the practices presented by Tallon et al. (2013) - singular for Information Governance.

The mechanisms of structure include 'Accounting participating in the company's decision-making', 'Responsibilities regarding data and information ownership, and privacy', among others. These mechanisms emphasize aspects regarding rights and responsibilities definition through roles and formal positions (De Haes and Van Grembergen 2009; Tallon et al. 2013).

In the mechanisms of relational, it is presented 'Leadership development in Accounting' and 'Articulated view of the Accounting role in the company', among others. Such items seek to promote communication, development, and interaction with the entire company (De Haes and Van Grembergen 2009; Tallon et al. 2013).

An exercise of interpreting the results in the light of Institutional Theory helped us to understand regarding the origin and the decision about the Accounting Information Governance mechanisms usage discussed in this inquiry. Currie (2011, p. 25) detaches the relevance of this theoretical perspective in IT and IS areas, so "new technologies of information bring new information, relationships or processes in information management, that inevitably affect the existing institutions". This approach also appears significant in the accounting area, seeking for a wider understanding of control practices, impacted by technological changes (Rikhardsson and Yigitbasioglu 2018). The institutional pressures push individuals, groups and organizations to take action intentional or unintentional actions such as conforming to technology mandates, adopting popular innovations, and modifying the business practices, leading to increased opportunities for social approval or legitimacy (Currie, 2011).

Mechanisms like 'Management, monitoring, and formalization of accounting processes'; 'Specific functions related to Accounting may exist according to the company's structure' and 'Internal control system' have tended to be related to normative pressures, since it stems from the idea of professionalization, from stakeholders' interest or simply from the adoption of practices already standardized by the market (Dimaggio and Powell 1983). 'Accounting compliance, tax, legal, and of AIS' and 'Compliance with Sarbanes-Oxley (SOX) law and other rules and standards applicable to the entity' they can be related to the coercive pressures, since they take place from the regulations, laws and government agencies influence (Dimaggio and Powell 1983). Mechanisms such as 'IT-Accounting mutual participation' and 'Accounting Information Governance influencers through accounting roles' could be associated with the mimetic pressures, so they are items related to a more sophisticated role of Accounting when bringing to its context the contemporary approach of the Information Governance, which, if adopted by competitors, for example, they can induce its adoption (Dimaggio and Powell 1983).

Conclusions

This research reached its aim when identifying the most important mechanisms for Accounting Information Governance. Through the implementation of a Ranking-type Delphi with specialists, a list of the 22 priority mechanisms was obtained. In general, the Accounting Information Governance mechanisms ranking gains even more relevance when considering potential impacts in accounting information related the emergent subjects like Big Data and Analytics, for example (Arnaboldi et al. 2017, Cockcroft and Russell, 2018; Rikhardsson and Yigitbasioglu 2018).

As a contribution, the ranking presented, guided by the consultation of professionals in the field, indicates which mechanisms can be useful or can be implemented in the organizations for a better Accounting Information Governance. Mechanisms as 'Compliance ethics and culture'; 'Strategic alignment of Accounting for business'; 'Accounting Compliance, tax, legal and of AIS'; 'Management of the accounting knowledge. Orientation/education for users regarding data and information use'; and 'Support from top management and the Accounting represented in the Information Governance decisions', they are 5 most relevant items for the implementation and improvement of the organizational practice, when thinking about enhancing the Accounting Information Governance.

These evidences are presented as potential items for better use and management of accounting information, and may also assist in the creation of information resources value (Donaldson and Walker 2004; Kooper et al. 2011; Coyne et al. 2018). As a result, the gradual adoption of the mechanisms comes to qualify the decision-making from several stakeholders.

For the Information Governance, this research adds evidence to the study of Tallon et al. (2013), which indicated the need for more responses about how much the IT Governance mechanisms can be adapted or extended to consider the information artifact, beyond a further deepening of control practices for the Information Governance. So, the evidence as presented in this research come also to contribute to the Information Governance development (Alhassan et al. 2018).

The research was limited to an understanding with specialists on a set of Accounting Information Governance mechanisms, however, it is possible to explore how these items are operationalized in the accounting practice. A limit to the search, which may have brought a bias to the results, it's the large quantity of Accounting Information Governance mechanisms used in the Delphi. Some participants reported difficulties in classifying the mechanisms, given the importance of the whole set of items for Accounting. However, the intent of this research was not only getting the main items but to understand how the mechanisms would be seen by the experts and if they could still indicate other items. It is suggested, more in-depth analyses of the control practices that were not prioritized in Delphi, investigating them in different professional contexts.

Acknowledgments

We are deeply grateful to CAPES and CNPq for the scholarships and financial support of public notice Universal.

References

- Alhassan, I., Sammon, D., and Daly, M. (2018). "Data governance activities: a comparison between scientific and practice-oriented literature," *Journal of Enterprise Information Management* (31:2), pp. 300-316.
- Arnaboldi, M., Busco, C., and Cuganesan, S. (2017). "Accounting, accountability, social media and big data: revolution or hype?" *Accounting, Auditing & Accountability Journal* (30:4), pp. 762-776.
- Bushman, R., and Smith, A. (2003). "Transparency, Financial Accounting Information, and Corporate Governance," *Economic Policy Review* (9:1), pp. 65-87.
- Brennan, N., and Solomon, J. (2008). "Corporate governance, accountability and mechanisms of accountability: an overview," *Accounting, Auditing & Accountability* (21:7), pp. 885 – 906.
- Bruening, P., and Waterman, K. (2010). "Data tagging for new information governance models," *IEEE Security & Privacy* (8:5), pp. 64-68.
- Cockcroft, S., and Russell, M. (2018). "Big Data Opportunities for Accounting and Finance Practice and Research," *Australian Accounting Review* (28:86), pp. 323-333.
- Coyne, E., Coyne, J., and Walker, K. (2018). "Big data information governance by accountants," *International Journal of Accounting & Information Management* (26:1), pp. 153-170.
- Currie, W. L. (2011). Institutional Theory of Information Technology. In Galliers, R. D., and Currie, W. (Ed.) *The Oxford Handbook of Management Information Systems* (pp. 1-45). Oxford: The Oxford University Press.
- Dalkey, N., and Helmer, O. (1963). "An experimental application of the Delphi method to the use of experts," *Management Science* (9), pp. 458-467.
- De Haes, S., and Van Grembergen, W. (2009). "Exploring the relationship between IT governance practices and business/IT alignment through extreme case analysis in Belgian mid-to-large size financial Enterprises," *Journal of Enterprise Information Management* (22:5), pp. 615-637.
- De Haes, S., and Van Grembergen, W. (2008). "An exploratory study into the design of an IT governance minimum baseline through Delphi research," *Communications of the Association for Information Systems* (22:1), pp. 443-459.
- Dimaggio, P., and Powell, W. (1983). "The iron cage revisited: institutional isomorphism and collective rationality in organizational fields," *American Sociological Review* (48:2), pp. 147-160.

- Donaldson, A., and Walker, P. (2004). "Information governance—a view from the NHS," *International Journal of Medical Informatics* (73), pp. 281-284.
- Faria, F. A., Maçada, A. C. G., and Kumar, K. (2017). "Modelo estrutural de governança da informação para bancos," *RAE-Revista de Administração de Empresas* (57:1), pp. 79-95.
- Gracht, H. Von der. (2012). "Consensus measurement in Delphi studies Review and implications for future quality assurance," *Technological Forecasting & Social Change* (79:8), pp. 1525-1536.
- Hsu, C., and Sandford, B. (2007). "The Delphi technique: making sense of consensus," *Practical Assessment, Research & Evaluation* (12:10), pp. 1-8.
- Huerta, E., and Jensen, S. (2017). "An Accounting Information Systems Perspective on Data Analytics and Big Data," *Journal of Information Systems* (31:3), pp. 101-114.
- Kooper, M. N., Maes, R., and Lindgreen, E. E. O. R. (2011). "On the governance of information: Introducing a new concept of governance to support the management of information," *International Journal of Information Management* (31), pp. 195-200.
- Lajara, T. T., and Maçada, A. C. G. (2013). Information Governance Framework: The Defense Manufacturing Case Study. Proceedings of the Nineteenth Americas Conference on Information Systems (AMCIS), Chicago, Illinois.
- Lunardi, G., Maçada, A., Becker, J., and Van Grembergen, W. (2017). "Antecedents of IT governance effectiveness: an empirical examination in Brazilian firms," *Journal of Information Systems* (31: 1), pp. 1-57.
- Meyer, J., and Rowan, B. (1977). "Institutionalized organizations: formal structure as myth and ceremony," *American Journal of Sociology* (83), pp. 340-363.
- Miller, G. S., and Skinner, D. J. (2015). "The evolving disclosure landscape: how changes in technology, the media, and capital markets are affecting disclosure" *Journal of Accounting Research* (53:2), pp. 221-239.
- Neely, M. P., and Cook, J. S. (2011). "Fifteen years of data and information quality literature: developing a research agenda for accounting," *Journal of Information Systems* (25:1), pp. 79-108.
- Paré, G., Cameron, A., Poba-Nzaou, P., and Templier, M. (2013). "A systematic assessment of rigor in information systems ranking-type Delphi studies," *Information & Management* (50:5), pp. 207-217.
- Rikhardsson, P., and Yigitbasioglu, O. (2018). "Business intelligence & analytics in management accounting research: Status and future focus," *International Journal of Accounting Information Systems* (29:3), pp. 37-58.
- Schmidt, R. (1997). "Managing Delphi surveys using nonparametric statistical techniques," *Decision Sciences* (28:3), pp. 763-774.
- Skinner, R., Nelson, R., Chin, W., and Land, L. (2015). "The Delphi method research strategy in studies of information systems," *Communications of the Association for Information Systems* (37:2), pp. 31-63.
- Tallon, P. P., Ramirez, R. V., and Short, J. E. (2013). "The Information Artifact in IT Governance: Toward a Theory of Information Governance," *Journal of Management Information Systems* (30:3), pp. 141-177.
- Weber, K., Otto, B., and Österle, H. (2009). "One Size Does Not Fit All - A Contingency Approach to Data Governance," *Journal of Data and Information Quality* (1:4), pp. 1-27.
- Weill, P., and Ross, J. (2004). *IT governance: how top performers manage it decisions rights for superior results*. Watertown: Harvard Business School Press.