





Proceedings of  
the 31<sup>st</sup> International Business Information Management Association Conference  
(IBIMA)

25-26 April 2018  
Milan, Italy

ISBN: 978-0-9998551-0-2

Innovation Management and Education Excellence through Vision 2020

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International Business Information Management Association (IBIMA)

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## The Impact of Internal Auditing on Public Management: The Case of Portuguese Local Authorities

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### Abstract

Research on Public Administration has evolved significantly in recent times, but despite that evolution, several questions remain unanswered. Study of the impact and importance of internal auditing activity in municipal management is one example. The main aim of this study is to understand the influence of internal auditing on decision-making in local authorities' executive organs. Two questionnaire surveys were applied, one to those in charge of internal auditing and the other to a member of the executive organ of the 278 local authorities in mainland Portugal. The results obtained allow the conclusion that the two groups of respondents have the same understanding of the impact and importance of internal auditing activity on municipal management. There was statically evidence that the requesting internal auditing services for internal consulting is associated with the executive organ's decision-making process. The degree of importance given to internal auditing activity as an instrument to assess the internal control system and fulfilment of norms and procedures was also found to contribute to the executive organ's decision-making.

**Keywords:** Internal auditing, Public management, Internal control, Local Administration, Portuguese Local Authorities.

### Introduction

The lack of true reform in how to treat the information that is produced, or that should be produced, by the different departments or offices of public institutions – about compliance with policies, plans, procedures, laws and regulations – particularly those of local authorities, is the basis for these not yet having taken a significant step towards true control of “public matters”.

Despite using distinct strategies, various aspects unite the public and private sector. This makes it possible for the public sector to absorb much of what is used as a management tool in the private sector. The tendency towards new public management has also been felt in auditing, above all in internal auditing (IA), particularly the evolution of its paradigms in recent years, where the previous paradigm was grounded on “control”, with the current one being based on “risk”.

IA is a pillar supporting governance, and in general, any action by the executive organ. It is considered to be an important instrument in identifying risks and assessing the quality and functionality of public entities' internal control (Nedea, 2015). According to Raiborn *et al.* (2017), AI provides benefit to management and other stakeholders by performing assurance that help an organization achieve its compliance, financial, operational, and strategic objectives.

According to Marçal and Marques (2011), IA is a management instrument that was only very recently introduced in Portuguese public management, with it being more usual to turn to external bodies. IA performs an important role in supporting management decisions, sine the public sector aims to maximize economy, efficiency and effectiveness.

There are various studies about municipal management, IA in municipal management, Public Administration and similar domains, but concerning the impact of IA on management of Portuguese local authorities, little research has been carried out. Therefore, this study is justified by the dynamics and relevance IA has gained in recent years in public institutions, particularly in local authorities.

The main aim of this research is to understand to what extent IA activity has an impact on municipal management. The intention is also to identify weaknesses in municipal management, in order to contribute to its improvement in terms of preventing mistakes and the occurrence of irregularities, among others, consequently allowing more efficient and effective decision-making.

Highlighted as contributions of this study is the fact of allowing reflection, by professionals in the area, about the real impact of IA on local authority management. Scientifically, since this is an under-researched topic, particularly in Portugal and applied to local authorities, the intention is to raise awareness of the importance of IA as an instrument to support management and its effectiveness in municipal management.

Following this introduction, the study is structured in four sections. The first presents the theoretical framework about the relationship between internal auditing and management. The second presents the empirical study, namely the methodological treatment adopted in carrying out this research, the data-collecting instrument, the aim of the study, the research hypotheses and data treatment. The third section presents the results and the respective analysis. Finally, the main conclusions are presented.

### **Internal Auditing Versus Management**

In a globalized economy IA has become an instrument for assessing and supporting the management of organisations, both public and private, irrespective of their nature or size. IA as part of institutional governance, is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations (Asiedu & Deffor, 2017). IA and management are closely connected, largely because of their common objectives. However, these are concepts existing *per se*, i.e., the very existence of the organisation implies the existence of management, without the necessary existence of IA. The latter is not limited to control of actions taken by management.

Not so long ago – the classical concept – IA in most cases highlighted what had happened, related the facts, leaving management with the task of solving the problems identified, in an attitude of simple assessment of the fulfilment of the principles of internal control.

In the modern concept of management, all departments are expected to add value to the work performed and contribute to improved performance and control procedures (Pineiro, 2014).

In continuous evolution, IA has undergone various conceptual changes, cause by the changing economic context and by changes in legislation (Costa, 2014 & Peculea, 2015). Initially, IA was confined above all to functions of safeguarding organisations' assets, confirming adherence to procedures established by the management organ and confirming the credibility of financial information. There was also considerable emphasis on detecting fraud. Costa (2014) states that the work done by internal auditors was relatively limited, confined fundamentally to the domain of accounting and finance.

In a more simplistic way, Pineiro (2014) sees IA as the control of controls, established in an organisation aiming to contribute to promoting the economy, effectiveness and efficiency of the operations carried out therein.

Management can be seen as a synonym of administration, involving to a great extent the decision-making process, which in the public sector corresponds to taking care of others' goods; not only concerning the manager, but also the organisation or audited entity (Grateron, 1999). For Boynton, Johnson and Kell (2001), the term management refers generally speaking to active planning, coordination and control of all operations and transactions performed by the organisation, while in an auditing context, management refers to the managers, controllers and key personnel in supervision.

With the modernisation of management and markets, IA no longer has the function of merely guaranteeing assets, verifying compliance with procedures, giving credibility to financial information or fraud detection and is certainly not confined to the accounting-financial area. It has come to assume a consultancy function within organisations, thereby allowing value creation and improvement of operations, making them more economical, effective and efficient. For Enofe et al. (2013), the main aim of IA "...is to improve organizational efficiency and effectiveness through constructive criticism."

The activities carried out in the scope of IA are extremely wide-ranging and cover the whole organisation, in all aspects of its operations and at all levels of its organic structure. It can therefore be stated that the main function of IA is to assess the management process (Magalhães, Amaral & Ahmad, 2009). According to Bednarek (2017) IA is expected to play a value-adding role that will improve organisational processes.

For Benedek, Szenténé and Béres (2014), in truth, controlling is not only an auditing tool but also a management tool, since it allows performance assessment through comparison between forecasts and fulfilment.

In general terms, what is seen is a new era for IA, justified by the relevance it has gained in recent years. IA has come to make a much more pro-active and participative contribution to management, thereby adding value to the organisation. For Raiborn et al. (2017) IA increases organizational efficiency by helping reduce waste by identifying problems before they generate extreme cost.

## **Empirical study**

### ***Methodology and Data Collection***

The empirical research carried out here is classified as being of an applied, hypothetical-deductive, exploratory and quantitative nature. Questionnaire surveys were applied, based on the study by Teixeira (2006), to the 278 local authorities in mainland Portugal.

This study aims to provide knowledge, with practical application, directed to solving specific problems. From likely suppositions, research hypotheses are formulated to express the difficulties of the problem. Subsequently, consequences will be deducted, to be proven or refuted. Specifically, the study aims to increase familiarity with the problem, so that the research can be conceived with greater understanding and precision, making it explicit or forming hypotheses about it. It requires the use of statistical resources and techniques, seeking to represent in numbers the knowledge generated throughout the research (Baranãno, 2004; Provdanov & Freitas, 2013).

In the empirical research, the questionnaire is fundamental to confirm the previously formulated hypotheses. To this end, relationships were established between two or more variables constructed from the information obtained in different questions of the questionnaire (Baranãno, 2004).

Data collection was through two self-administered questionnaires with closed answers, applied to heads of IA and politicians in charge of the financial area – executive organ. The questionnaire includes a pre-established list of possible answers, from which respondents must indicate the one closest to their opinion.

The questionnaires, which are broader than the subject matter used for this study, have on average 20 questions divided in two sub-groups. The first group of questions aims to gather information about the local authority's organisational structure. The second group of questions aims to determine the performance of auditing in municipal management. Although directed to two different groups, the questionnaires intentionally include common questions to allow triangulation of the questions answered by each group surveyed, according to the study's objective.

The questionnaires were applied between January and May 2017. A total of 41 responses were obtained from the group in charge of IA and 55 from members of the executive organ, representing 12,59% and

19,78% of all those surveyed. Of the 96 responses, it was only possible to validate 90, as six presented irregularities in completion.

### ***Objective, Research Hypotheses And Data Treatment***

Based on the literature review, this study aims to assess the impact of IA on Portuguese local authority management, particularly concerning the decision-making process, through the perception of politicians in the executive organ and those in charge of IA.

To attain the objective defined, the following research hypotheses were formulated (HI):

***HI<sub>1</sub>*** – *The number of people responsible for IA in the local authority is associated with the decision-making process.*

***HI<sub>2</sub>*** – *Requesting IA services for internal consulting is associated with the decision-making process.*

***HI<sub>3</sub>*** – *The degree of freedom and independence of action granted to the IA activity is associated with the decision-making process.*

***HI<sub>4</sub>*** – *The degree of importance given to the IA activity as an instrument to assess the internal control system (ICS) and compliance with norms and procedures is associated with the decision-making process.*

To follow up the statistical tests, it was necessary to test the normality of the samples. Here, a confidence interval of 95% and a level of significance of 5% were assumed, valid for all the tests made in this study.

Considering that the sample does not follow a normal distribution, one of the groups presenting a sample size under 30 (n=22) and having opted for more conservative conclusions given respondents' participation, it was decided to apply non-parametric tests, as indicated in those cases according to Marôco (2003). Among the non-parametric tests that can be applied, the sample data are found to match the assumptions of the Fisher test, which is used when the aim is to test the independence of the Chi-squared. In those cases, when one or more cells present values under 5, it is necessary to correct the value of the Chi-squared test, through the Yates continuity correction.

Considering that the Fisher test consists of a 2x2 table, it was necessary to transform the categories originally established in the questionnaires to a 2x2 matrix.

### **Presentation and Analysis of the Results**

Concerning characterisation of the local authority respondents by district, the results indicate a higher response rate from the councils in Lisbon, *Faro*, *Portalegre* and *Santarém*. Most have more than 500 employees with only one having under 50. Considering staff numbers, in relation to local authority size, the data indicate a greater response from medium-sized councils and those situated on the left politically.

More than half the executive organs participating in the study said they did not have an IA department, largely due to the lack of human resources with appropriate training, and at the moment they were not considering its implementation. The majority of local authorities with AI have departments formed of two to five collaborators assigned to IA activity.

***HI<sub>1</sub>*** – *The number of auditors in the organisation is associated with the decision-making process.*

Of the total 100% (n=54), 27,7% (n=15) of respondents classify the number of collaborators assigned to IA activity as having 'little' influence on the information conveyed by IA activity and 72,3% (n=39) consider there is 'great' influence on the information conveyed by IA activity, regarding the executive organ's decision-making process (Table 1).

**Table 1: Number of collaborators involved in internal auditing (CIA) versus the influence of the information conveyed by internal auditing (IICIA).**

IICIA	CIA			Total
		Only 1	More than 2	
LITTLE	n	2	13	15
	n expected	4,4	10,6	15,0
GREAT	n	14	25	39
	n expected	11,6	27,4	39,0
Total	n	16	38	54
	n expected	16,0	38,0	54,0

After calculating the test statistic,  $Q^2_{obs}=1,674$  and the p-value equal to 0,182 (Table 2),  $H_{I1}$  is not corroborated, thereby concluding that there is no statistically significant association between the CIA and IICIA, with a level of significance of  $\alpha=0,05$  (5%). In the results obtained, the value of the  $Q^2_{obs}$  statistic is calculated with the Yates correction, as one of the cells (25%) has a frequency no greater than 5, as shown in Table 1, where the minimum expected 'n' is 4,4.

**Table 2: Chi-squared test of the number of collaborators involved in internal auditing**

	Teste value	Degree of freedom	Exact sig. (2 sides) – p-value
Pearson Chi-squared	2,645	1	0,182
Continuity correction	1,674	1	
Fisher's exact test			0,182

When raising this question, the intention was to check whether in fact the number of internal auditors, by local authority, varied according to their size, a situation confirmed by the results obtained, in both the descriptive and inferential statistic. This allowed the possibility of a direct relationship between the number of internal auditors assigned to a local authority and its size. Pinheiro (2013) strengthens the result observed for  $H_{I1}$ , when stating that the number of auditors in an organisation determines the size of the IA department, as well as its suitability for the organisation, allowing understanding of the reach of auditing work in the whole organisation.

***H<sub>I2</sub> – Requesting internal auditing services for internal consulting is associated with the decision-making process.***

Of the 55 respondents (100%), 27,3% (n=15) classify that influence as 'little' and 72,7% (n=40) consider there is 'great' influence of the information conveyed by IA activity on the executive organ's decision-making process (Table 3).

**Table 3: Requesting internal auditing services (IAS) versus influence of the information conveyed by internal auditing (IICIA)**

		SAI			Total
			LITTLE	GREAT	
IICIA	LITTLE	n	11	4	15
		n expected	5,7	9,3	15,0
	GREAT	n	10	30	40
		n expected	15,3	24,7	40,0
Total	n	21	34	55	
	n expected	21,0	34,0	55,0	

The values obtained in the  $Q^2_{obs}=10,797$  and p-value (0,002), seen in Table 4, allow to confirm of  $H_{I2}$  for a level of significance of 5%, concluding there is significant relationship between the independent variable of IAS and the dependent variable of IICIA. Given the results obtained, there was no need to use the value of the  $Q^2_{obs}$  statistic of the Yates correction, as none of the cells presented a frequency of 5 or under.

**Table 4: Chi-squared test of requesting internal auditing services for an opinion in the area of internal consulting**

	Teste value	Degree of freedom	Exact sig. (2 sides) – p-value
Pearson chi-squared	10,797	1	0,002
Continuity correction	8,847	1	
Fisher's exact test			0,002

The results allow to accept  $H_{I2}$ , that requesting IA services would be associated with the decision-making process, corroborating the mentioned by IIA (2009), which states that IA can provide consultancy services that improve processes of decision-making and organisational control. However, it points out that the extent of this consultancy will depend greatly on other internal and external resources available and will probably vary over time.

***H<sub>I3</sub> – The degree of freedom and independence of action granted to internal auditing activity is associated with the decision-making process.***

3,6% (n=2) of respondents classify that influence as 'low' and 96,4% (n=53) consider 'high' the influence of information conveyed by IA activity on the executive organ's decision-making process.

**Table 5: Degree of freedom and independence of action granted to internal auditing activity (DFIIA) versus influence of the information conveyed (IICIA)**

		DFIIA			Total
			LOW	HIGH	
IICIA	LITTLE	n	0	15	15
		n expected	0,5	14,5	15,0
	GREAT	n	2	38	40
		n expected	1,5	38,5	40,0

Total	n	2	53	55
	n expected	2,0	53,0	55,0

Considering the test statistic,  $Q^2_{obs}$  equal to 0,005 and the p-value equal to 1,000,  $H_{13}$  is rejected and so is no statistically significant association between DFIIA and IICIA, with a level of significance of  $\alpha=0,05$  (5%). The value of the  $Q^2_{obs}$  statistic was calculated with the Yates correction, as two of the cells (50%) were found to have a frequency of 5 or less.

**Table 6: Chi-squared test of degree of freedom and independence**

	Teste value	Degree of freedom	Exact sig. (2 sides) – p-value
Pearson chi-squared	0,778	1	0,596
Continuity correction	0,005	1	
Fisher's exact test			1,000

According to the IIA (2012), IA activity has to be independent, and internal auditors have to be objective in performing their work. Independence in carrying out IA in any organisation is a sine qua non condition for drawing up a trustworthy IA report free from any data manipulation. "As such, the help provided to executive organs is better, so that they can set up processes to ensure their decisions can be tracked" (Pinheiro, 2013, p. 56).

***H14 – The degree of importance given to internal auditing activity as an instrument to assess the ICS and fulfilment of norms and procedures is associated with the decision-making process.***

Considering all respondents, 21,8% (n=12) are found to classify that influence as 'low' and 78,2% (n=43) consider there is a 'high' influence of the information conveyed by IA activity on the executive organ's decision-making process.

**Table 7: Degree of importance of Internal Auditing (DIIA) versus influence of the information conveyed (IICIA)**

DIIA				Total	
IICIA	LITTLE	LOW	HIGH		
			n	11	4
	n expected	3,3	11,7	15,0	
	GREAT	n	1	39	40
	n expected	8,7	31,3	40,0	
Total	n	12	43	55	
	n expected	12,0	43,0	55,0	

The results of the  $Q^2_{obs}=28,070$  test statistic and the p-value  $< 0,001$  allow confirm  $H_{14}$ . In this context, there seems to be significant association between DIIA and IICIA, for a  $\alpha=0,05$  (5%) level of significance. The value of the  $Q^2_{obs}$  statistic was calculated with the Yates correction, as one of the cells (25%) presents a frequency no greater than 5.

**Table 8: Chi-squared test of the degree of importance**

	Teste value	Degree of freedom	Exact sig. (2 sides) – p-value
Pearson chi-squared	32,088	1	< 0,001
Continuity correction	28,070	1	
Fisher's exact test			< 0,001

With the help of IA activity assessing the whole ICS and fulfilment of norms and procedures, management bases its decision model on appropriate and reliable information collected and assessed on a daily basis, meaning its decision-making is as appropriate and timely as possible.

A summarized table of the results of the inferential statistics is presented below, in relation to the research hypotheses formulated (Table 9).

**Table 9: Result of the research hypotheses**

Independent variables	Dependent variable – IICIA					
	Q <sup>2</sup> <sub>obs</sub>	Degree of freedom	p-value	Pearson <sup>*</sup> /Yates <sup>**</sup>	Mean	
					Heads of IA	Members of the executive organ
HI <sub>1</sub> – CIA	1,674	1	0,182	**	1,69	1,75
HI <sub>2</sub> – AIS	10,797	1	0,002	*	2,63	3,20
HI <sub>3</sub> – DFIIA	0,005	1	1,000	**	2,69	2,71
HI <sub>4</sub> – DIIA	28,07	1	< 0,001	**	2,09	2,43

One of the principal competences required by administrators/managers is their decision-making capacity, knowing there is no certainty that these are the most correct, but they must be taken, in the hope they produce the desired effect. Sometimes, those decisions are made considering the information produced by the departments forming the organisation. The organisation's survival or the continuity of the executive organ may depend on the decision-making process, justifying the need to be supplied with the best tools and models for decisions.

Nowadays, among many management options, it has become the practice in organisations, whatever their structure, to be advised by an IA department.

Even when consolidated and with clear evidence of its contribution to organisational management, IA still faces barriers to entry in some organisations, both public and private, with its contributions to organisations' decision-making being undervalued.

### Conclusion

IA includes analysis, appreciation, recommendation, suggestion and information about everything related to the activities scrutinized by the internal auditor, adding to these functions the duty to promote effective, efficient and economically viable control. All that activity should be carried out according to previously defined norms, in order to give more credibility to audits themselves and uphold auditors' responsibility.

Analysis of the results leads to the conclusion that as a whole the respondents attribute, to some extent, a degree of importance to IA activity, considering this adds value to local authorities in general, with the main perceptible benefits being the assurance that regulatory norms are adhered to and risks are controlled. However, dissatisfaction was demonstrated by both groups participating in the study in relation to the quality of IA services. On one hand, those in charge of IA demand more and better material and technical resources, and on the other, a significant number of those in charge of executive organs do without IA activity, considering it is not necessary for their activities, meaning that so far IA



has not been implemented in the majority of Portuguese local authorities.

This study shows the respondent groups have the same understanding as to the impact and importance of auditing in municipal management, i.e., that it adds value to the whole organisation.

Crossing the CIA variable with that of 'influence of the information conveyed by IA activity on the executive organ's decision-making process', 72,2% (n=54) of respondents state this has 'great' influence. Considering that the test statistic calculated reject the existence of an association between these two variables, this allows the conclusion that the number of collaborators allocated to IA does not contribute to some extent to executive organs' decision-making.

When crossing the independent variables of AIS and DIIA with the dependent variable of 'influence of the information conveyed by IA activity on the executive organ's decision-making process', 80% (n=55) of respondents said the information conveyed by IA had a great influence on the executive organ's decision-making process. The statistics obtained allowed accepted an association between these two independent variables and the dependent variable. It is therefore concluded that:

- requesting IA services for internal consulting is associated with the executive organ's decision-making process;
- the degree of importance given to IA activity as an instrument to assess the ICS and fulfilment of norms and procedures is associated with the executive organ's decision-making process.

Finally, crossing the degree of freedom and independence of action granted to IA activity to analyse all operational and administrative aspects in municipal domains with the influence of the information conveyed by IA activity on the executive organ's decision-making process, 80% (n=55) of respondents state this has 'great' influence. The statistical results obtained reject an association between these two variables, allowing the conclusion that the degree of freedom and independence does not contribute to the executive organ's decision-making.

Although some of the independent variables do not seem to be directly associated with the influence of the information conveyed by IA activity on the executive organ's decision-making process, advantages of auditing municipal accounts are recognized, both by the executive organ and by other users of the information produced by internal auditors.

From the results obtained in this study, it became clear that local authorities have shown some concern about internal control, if only because it is in their interest to measure to what extent and in what circumstances their electoral projects are being carried out. What is understood is that the main reason leading local authorities to implement an ICS is the possibility of preparing a series of administrative processes, such as the accuracy of accounting records and other documents and internal information required by law rather than of a voluntary nature. Although, in part, a good ICS in itself prepares local authorities for external assessment, many councils do without IA for various reasons, alleging the lack of human resources with, for example, appropriate training in the area, major costs for the organisational structure or because they do not consider it necessary. IA is an independent activity, providing an objective guarantee and consultancy, destined to add value and improve an organisation's operations. From what has been presented, it is concluded that much has still to be done by Portuguese Public Administration regarding IA in local authorities.

### **Acknowledgment**

This study was conducted at Research Centre in Political Science (UID/CPO/0758/2013), University of Minho and supported by the Portuguese Foundation for Science and Technology and the Portuguese Ministry of Education and Science through national funds.

UNIAG, I&D unit funded by FCT – Portuguese Foundation for Science and Technology and the Portuguese Ministry of Education and Science, in the project "UID/GES/4752/2016".

## References

- Aseidu, K. & Deffor, E. (2017). Fighting Corruption by Means of Effective Internal Audit Function: Evidence from the Ghanaian Public Sector. *International Journal of Auditing*, 21, 82-99.
- Baranãno, A. (2004). *Research methods and techniques in management*. (1st Ed.). Lisbon: Sílabo Editions.
- Bednarek, P. (2017). *The relationship between organisational attributes and internal audit effectiveness*. Wrocław University of Economics. Research paper n.º 474.
- Benedek, M., Szenténé, K., & Béres, D. (2014). Internal Controls in Local Governments. *Public Finance Quarterly*, 3, 296–309.
- Boynton, W., Johnson, R., & Kell, W. (2001). *Modern Auditing*. (W. I. Edition, Ed.) (7th ed.). United States of America.
- Corrêa, L. (2010). *Internal control internal audit facilitator, a study based on the components of the "COSO methodology"*. Federal University of Santa Catarina. Florioianópolis.
- Costa, C. (2014). *Financial audit – theory and practice*. (9th Ed.). Lisbon: Rei dos Livros.
- Enofre, A., Mgbame, C., Osa-Erhabor, V. & Ehiorobo, A. (2013). The Role of Internal Audit in Effective Management in Public Sector. *Research Journal of Finance and Accounting*, 4(6), 162-168.
- Grateron, I. (1999). *Management audit: use of management indicators in the public sector*, FIPECAFI, nº 21.
- IIA - The Institute of Internal Auditors (2009). *IIA Position Paper: The role of Internal Auditing in enterprise-wide risk management*.
- IIA - The Institute of Internal Auditors (2012). *International Standards for the Professional Practice of internal auditing* (Standards), pp. 1–22.
- Magalhães, M., Amaral, P., & Ahmad, I. (2009). *Internal audit manual*. Lisbon: Office of evaluation and Internal Audit.
- Marçal, N., & Marques, F. (2011). *Audit and internal control manual in the Public Sector*. (1st Ed.). Lisbon: Sílabo Editions.
- Marôco, J. (2003). *Statistical analysis-using the SPSS*. (2nd Ed.) Lisbon: Sílabo Editions.
- Nedea, C. (2015). The Role and Prospects of the Internal Audit in Improving Management of Public Institutions. *Valahoan Journal of Economic Studies*, 4(6), 162–168.
- Peculea, A. (2015). The Romanian Internal Public Audit System: An X-Ray Analysis of Audit Compartment Activities. *Review of International Comparative Management*, 16(3), 343–353.
- Pinheiro, C. (2013). *Add value to the organization with internal audit*. Polytechnic Institute of Porto. Porto.
- Pinheiro, J. (2014). *Internal auditing: practical Manual for Internal Auditors-A proactive approach and the necessary evolution*. (3rd Ed.). Lisbon: Rei dos Livros.
- Provdanov, C., & Freitas, E. (2013). *Methodology of scientific work: methods and techniques of research and scholarly work*. Novo Hamburgo: Feevale.

Raiborn, C., Butler J., Martin K., & Pizzini M. (2017). The Internal Audit Function: A Prerequisite for Good Governance. *The Journal of Corporate Accounting & Finance*, 28(2), 10-21.

Teixeira, M. (2006). The contribution of internal audit for effective management. Universidade Aberta, Coimbra.

