

The evolution of the Public Sector's Internal Audit Function A Systematic Literature Review

L'evoluzione della funzione di Internal Audit nel Settore Pubblico
Un'analisi sistematica della letteratura

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Summary: 1. Introduction – 2. Methodology – 3. Findings – 4. Discussion – 5. Conclusion and future research – 6. Value and limitations of the work

Il presente lavoro identifica e analizza le aree di ricerca in cui gli studiosi hanno già indagato il ruolo della funzione di internal audit nelle organizzazioni del settore pubblico e il modo in cui hanno sviluppato i loro manoscritti, proponendo linee di ricerca future. Lo studio è stato condotto attraverso una analisi sistematica della letteratura. I risultati mostrano che la maggior parte degli articoli selezionati sono stati pubblicati negli ultimi due anni, sebbene la produzione scientifica sull'internal audit nel settore pubblico risulti ancora limitata. I temi più discussi riguardano la pianificazione e lo svolgimento delle attività di internal auditing, nonché i requisiti di autorità, credibilità e condotta etica, considerati elementi essenziali per garantire la qualità della funzione. Questa analisi sistematica della letteratura offre agli studiosi un quadro complessivo delle ricerche già condotte, permettendo di identificare le tematiche ancora inesplorate e di definire nuove linee di ricerca per sviluppi futuri.

This work aims to analyse and identify research areas where scholars have already investigated the role of the internal audit function in public sector entities and how they carried out their papers, proposing future research directions. The analysis was conducted through a systematic literature review (SLR). Results show that the selected papers have mostly been published in the last couple of years, even though the scientific literature on public sector internal audit is still limited. The most frequently discussed topics focus on the planning and execution of internal audit activities, as well as the requirements that establish the authority, credibility, and ethical standards essential for a high-value internal audit function. This SLR will help researchers identify key issues to address in their work and suggest potential areas for future research.

Cette étude vise à analyser et à identifier les domaines de recherche dans lesquels les universitaires ont déjà étudié le rôle de la fonction d'audit interne dans les organisations du secteur public et la manière dont ils ont réalisé leurs écrits, tout en proposant de futures orientations de recherche.

Parole chiave: internal audit, settore pubblico, analisi sistematica della letteratura

Keywords: internal audit, public sector, systematic literature review

Mots clés: audit interne, secteur public, revue systématique de la littérature

L'analyse a été réalisée par une revue systématique de la littérature. Les résultats montrent que les manuscrits sélectionnés ont pour la plupart été publiés au cours des deux dernières années, même si la littérature scientifique sur l'audit interne dans le secteur public est encore limitée. Les thèmes les plus étudiés concernent la planification et la réalisation des activités d'audit interne, ainsi que les exigences en matière d'autorité, de crédibilité et de conduite éthique, qui sont essentielles à une activité d'audit interne de qualité. Cette étude permettra aux chercheurs d'identifier les questions que leur travail pourrait aborder et de suggérer de nouvelles évolutions possibles pour de futures recherches.

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1. Introduction

Auditing has long been perceived as a «black box» - its ambiguous nature allows it to be adapted to serve various control needs (Power 1997: 68).

The concept of auditing in the public sector has evolved significantly over the years (Mattei et al. 2021). It has shifted from a purely inspection-based approach, where auditors were viewed primarily as watchdogs (Morin, Hazgui 2016), to a more supportive role in which audit activities are conducted to assist and add value to the management body. This transition mainly happened in the 1990s, with the advent of New Public Management (NPM). In fact, with the NPM, the audit focuses on efficiency and outputs (Mazzara, Leoni 2022), making it more like a corporate audit (Mattei et al. 2021). During this period, the focus of public sector auditing expanded to include forming opinions on a range of management issues, such as value for money, efficiency, and the effectiveness of various governmental entities' performance (Guthrie 1992).

Furthermore, as the influence of NPM brought a more significant emphasis on performance, public sector organisations saw the introduction of performance audits aimed at evaluating the results they achieved (Mattei et al. 2021). As a result of these changes, the primary focus of auditing shifted toward internal control systems, with increasing emphasis on internal audits (Almquist et al. 2013; Mattei et al. 2021). Therefore, internal auditing has become and continues to be the leading actor responsible in any internal control systems (Ncgobo and Malefane 2017), whose role is that of sponsor of the activities carried out by managers (Hinna 2020) as the third line of defence of the internal control systems included in the public sector, where auditors play a key role in the enhancement of public sector organisations' ability to protect and serve the public interest (IIA 2024a).

The peculiarities of public sector organisations show the differences between the public and private sectors. In fact, in the first one, internal auditors operate in a political context with governmental, organisational, and funding structures (IIA 2024a), which requires ongoing compliance

considering the interrelationship between these elements, which together make up the unique aspects of internal auditing in the public sector (IIA 2024b). Public sector organisations are, in fact, service-oriented agencies operating within strict frameworks where all activities must be authorised by legislation (Goodwin 2004). Therefore, beyond the reforms implemented at the end of the last century, they assign less priority to profitability and cost factor issues, which is why internal audit activities seem to have much broader coverage in the public sector than in the private one (Goodwin 2004). However, some argue that these differences are not particularly significant in the context of internal auditing. For example, Goodwin (2004) argues that there are no significant differences between the internal audit functions in the public and private sectors. However, as Sawan (2013) points out, the internal audit function has neither been established nor developed uniformly, both between these two sectors and within each of them.

Nevertheless, despite the recognised importance of internal audit within the public sector and the “internal audit explosion” phenomenon, this function is far more widespread in the private sector than in the public sector. Indeed, many public sector organisations have operated without internal auditors (Onatuyeh, Aniefor 2013). This can be attributed to the fact that few individuals outside the accounting profession recognise the crucial role played by internal auditors (Tijjani 2003). This consideration could also be done for the scientific literature (Anessi Pessina et al. 2024); despite the increasing interest in public sector auditing in recent years (Nerantzidis et al. 2022), the internal audit function is little analysed (Mattei et al. 2021).

On the other hand, a literature review on internal audit in the public sector was previously conducted by Nerantzidis et al. (2022), who examined studies on the topic published between 2010 and 2019. However, considering the limited number of eligible papers, the short time frame of reference, and the not-so-extensive search string, it was deemed appropriate and necessary to conduct a new literature review on this topic, especially considering the strong increase in the internal audit function and a greater focus on it in recent years, including within public sector organisations.

To address this gap and gain a comprehensive understanding of the current state of the literature on public sector internal audit, the authors conducted a systematic literature review (Tranfield et al. 2003). This review spans multiple databases and encompasses all areas of the public sector and levels of government. This study provides evidence that allows the authors to address the following research questions:

RQ1: How has research on the internal audit function in the public sector evolved?

RQ2: What are the main topics discussed in the literature on public sector internal audit?

RQ3: How has the scientific literature evolved over the recent years in light of the increased focus on internal audit in the public sector?

RQ4: What does the future hold for research in this field?

In answering these research questions, the study identifies the main topics most frequently analysed by scholars, the methods employed, the research settings, the theories applied, and the geographical contexts considered by the authors (RQ1, RQ3). Moreover, from this study, authors can understand the most frequently addressed topics (RQ2, RQ3) and identify gaps in the literature so that future work can be directed into these areas (RQ4).

The paper is structured as follows. Section 2 explains the methodological approach used to carry out this study and indicates the processes used to select the articles and devise the research framework. In section 3, the analysis findings are reported. This is followed by a discussion (section 4), and in section 5, conclusions are drawn, and future research directions are suggested. The final section (6) presents the study's value and limitations.

2. Methodology

To achieve the purposes described above, which are identifying, evaluating, and interpreting the available evidence (Cillo et al. 2019), the authors chose to use the systematic literature review method proposed by Tranfield et al. (2003), as it best aligns with the needs of this study. From this type of qualitative literature review (Ardito et al. 2019), it is widely recognised that a specific segment of the literature can be analysed efficiently (Natalicchio et al. 2017) because the steps are predefined and well-structured, ensuring that the research is replicable, scientific, and transparent (Tranfield et al. 2003).

The first step in this process involves a meeting among the authors to define the research area and topic, as well as the keywords that will be used to extract information from the databases. This stage also includes establishing the review protocol, which outlines the inclusion and exclusion criteria for selecting papers (Paoloni et al. 2020). The subsequent phases were carried out considering the principles for systematic review proposed by Tranfield et al. (2003), which are explained in detail at a later stage.

Furthermore, recognising the importance of ensuring replicability and transparency (Mattei et al. 2021), the authors chose to follow the "PRISMA Flow Diagram" (Moher et al. 2009) in their research approach. This method is widely used in public-sector research (Ahunov 2023; Polzer et al. 2021).

The review process

As the protocol recommends, to explore the development of research on internal audit in the public sector and identify the main topics discussed in the literature, the authors selected the keyword "internal audit*" to search

within terms such as "public sector*" or "public administration*" or "public organisation*" or "public organization*" or "public entit*" or "local government*" or "municipalit*" or "government".

Ultimately, the search string used in each database was: ("internal audit*" AND ("public sector*" OR "public administration*" OR "public organisation*" OR "public organization*" OR "public entit*" OR "local government*" OR "municipalit*" OR "government*")).

The databases used to extract information were SCOPUS, Web of Science (WoS), and Business Source Complete (BSC), which offer a comprehensive overview of the existing literature, ensuring the quality of the publications.

The search and subsequent extractions were conducted on 9 July 2024.

The keywords searched are limited to specific fields to consider the relevant publications for the analysed field. In detail, for SCOPUS, the query was made by limiting the search to "Article title, Abstract, Keywords". In the WoS database, the query was restricted to the "TOPIC" field, which includes the "title, abstract, keywords plus, and author keywords". For BSC, the query was limited to three fields: "Title (TI)", "Abstract or Author-Supplied Abstract (AB)", and "Author-Supplied Keywords (KW)". No time limitations were applied, as the authors aimed to trace the development of internal audit from its inception to the present. The authors also decided to limit the search to peer-reviewed journal articles to ensure that the publications included were of a rigorous academic standard (Lockett et al. 2006; Podsakoff et al. 2005). Additionally, to address the challenge of translating articles (Mauro et al. 2017), only papers written in English were considered.

The authors agreed to conduct the research by limiting the analysis to specific fields to prevent documents unrelated to the research object from being extracted. In detail, the authors' academic backgrounds were taken into account (Massaro et al. 2016). As a result, the documents were categorised based on the different categories available in the three databases used. For SCOPUS, the selected subject category is "Business, Management and Accounting". For WoS, the results were refined by selecting the subject categories "Management" or "Business". No refinements were made for BSC, as the existing subject categories are particular, which could have resulted in a sample that was too limited.

A total of 294 papers were identified from these searches (composed of 203 documents found from SCOPUS, 53 from WoS, and 38 from BSC).

At this stage, 49 duplicates were removed, reducing the number of papers from 294 to 245.

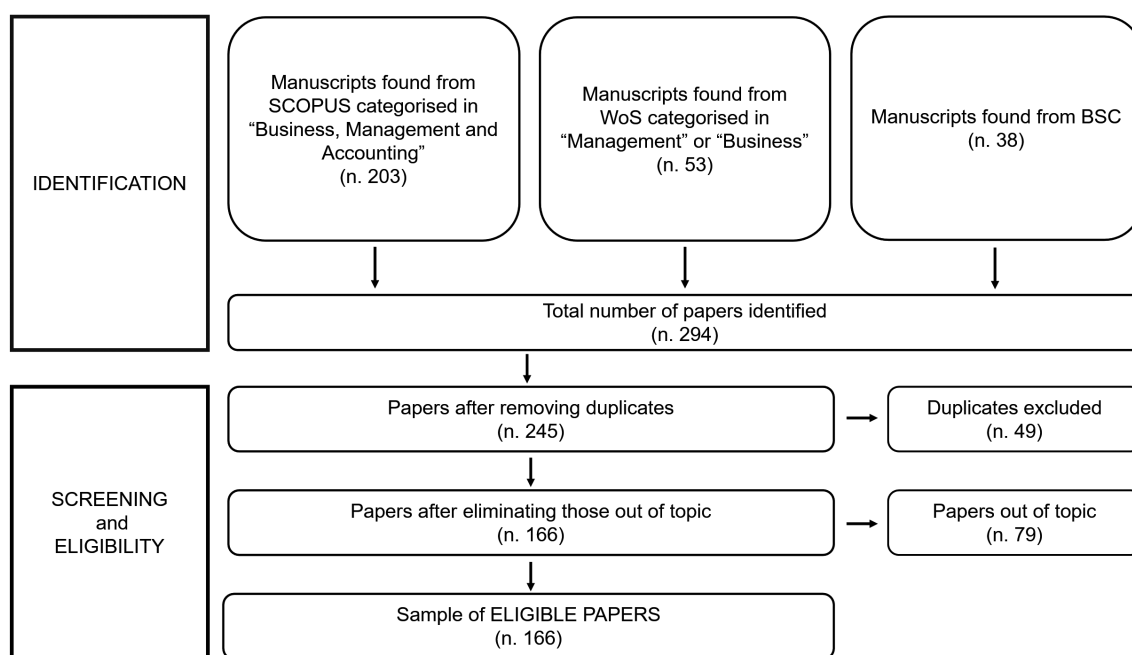
In the next step, the authors reviewed the titles, keywords, and abstracts of the papers. When information was lacking in these sections, the entire paper was read. This phase was conducted to evaluate the content of the documents thoroughly. This manual approach was applied consistently, with analysis guidelines established in advance to

minimise both errors and personal judgments. Moreover, the authors initially worked independently and later compared their results with those of others to minimise subjectivity and bias (Paoloni et al. 2020). In cases of doubt or disagreement, the final decision was made through collective discussion or, in some instances, by majority vote, without the need for an external evaluator. This process was applied consistently across the items identified in the analysis framework, which is presented hereafter.

The total number of articles eliminated due to being out of topic was 79, meaning that the number of eligible papers extracted from the databases was 166 (see Appendix).

The process used to select the papers for analysis is summarised in Figure 1.

Figure 1 – Summary of the research and definition of the eligible papers



Subsequently, in order to address the second research question (RQ2), the authors deeply analysed the 15 papers with the highest CPY, whose topics are presented in the Discussion section.

The construction of the analysis framework

The literature review was organised using the previous classification framework defined by other scholars (Anessi Pessina et al. 2016; Broadbent, Guthrie 2008; Goddard 2010; Mattei et al. 2021; Mauro et al. 2017; Van Helden 2005) and considering both the peculiarities and the

characteristics of the topic selected for this analysis. The authors identified the dimensions to be investigated during the study and the categorisation of the articles (Hart 2018). The framework used to carry out the research, after some reviews and refinements (de Villiers, Dumay 2013), is composed of the following dimensions:

1. *Data source* (Mauro et al. 2017): this relates to specific information about the journal (such as the name, publication year, volume, issue number, first and last page numbers, total number of pages), as well as the title of the paper, author(s) name(s), and their affiliations. Additionally, the number of citations and the keywords defined by the authors are also included.
2. *Research setting*: as the context of the analysis. This dimension is particularly important in public sector studies, considering the organisations' different and various existing levels. Following the approach proposed by Mauro et al. (2017) in conjunction with the framework outlined by Dumay et al. (2015), the identified contexts are:
 - a. *Central level* refers to all administrative departments of a state and other central agencies whose responsibilities cover the entire economic territory, except for the administration of social security funds (EU 2013);
 - b. *Local level* refers to cities, towns, or municipalities;
 - c. *National level* refers to all public organisations in an entire country or nation rather than to a part of it;
 - d. *International level* refers to international organisations;
 - e. *Cross-level* refers to articles that analyse the government's different levels (central, regional, and local);
 - f. *Private/public* refers to articles that make a comparison between the private and the public sector;
 - g. *Others* refer to articles that analyse different types of entities, such as decentralised entities (agencies, state-owned enterprises, public and private partnerships, etc.) or entities operating in specific public policy areas (such as healthcare or education).
3. *Geographic context*: this refers to the work's location. The world is divided according to Dumay et al. (2015) and Mattei et al. (2021), and further revised by the authors. The identified regions are summarised in Table 1.
4. *Research method*: this dimension refers to the epistemological approach used in developing the research (Massaro et al. 2016); it means that the item is analysed based on the method used to conduct the research, regardless of how the authors collected the data. Based on previous studies (Mattei et al. 2021), the authors chose the following methods shown in Table 2.

Table 1 – Geographic context

North America	Canada and USA
Central and South America	Chile, Argentina, Dominican Republic, Brazil, Jamaica
Australasia	Australia, New Zealand, New Guinea, Polynesia
Asia	China, Japan, Korea, Singapore, Sri Lanka, Malaysia, Pakistan, India, Indonesia, Hong Kong, Thailand, Vietnam
UK	
Africa and Middle East	Tanzania, Uganda, Botswana, South Africa, Nigeria, Ethiopia, Zambia, Libya, Israel, Lebanon, United Arab Emirates, Jordan, Saudi Arabia, Iran, Oman, Kuwait, Iraq
Eastern Europe	Hungary, Russia, Slovenia, Romania, Lithuania, Slovakia, Serbia, Croatia, Estonia, Poland, Czech Republic, Kosovo, Ukraine
Northern Europe	Austria, Belgium, Denmark, Ireland, Finland, France, Germany, Netherlands, Sweden, Switzerland, Norway, Latvia
Southern Europe	Italy, Spain, Portugal, Greece, Turkey, Albania, Malta, North Macedonia, Bosnia and Herzegovina
Mixed	

Table 2 – Research method

a	Literature review
b	Qualitative research
c	Quantitative research
d	Mixed (papers using both qualitative and quantitative methods)
e	Conceptual paper
f	Other (works using different methods)

5. *Theories*: this dimension refers to the use of a specific theory (*single theory*) or more than one theory (*multiple theory*) in the papers considered in the eligible sample. If it was not possible to identify a theory, the articles were categorised under “no theory”. If a theory or theories were applied in the paper, it is also important to consider the type of theory used. Based on the revised classification of theories proposed by Goddard (2010) and Van Helden (2005), we distinguished between systems-oriented, economic, and other theories. Systems-oriented theories include institutional, legitimacy, and stakeholder theories (Deegan and Unermann 2011). Economic theories include agency, principal-agent, or moral hazard theories. Finally, all articles that do not employ theories from the previous classifications were placed in the “other” category.
6. *Citation per year*: this criterion is interesting because it stems from an analysis of citation metrics (Dumay 2014), which helps schol-

ars understand the development of the literature by examining the impact that different articles have over time.

To purify the number of citations from the document's date of publication, we use citations per year (CPY), one of the most common citation metrics (Massaro et al. 2016).

7. *Themes*: these represent the core of the research and refer to the specific topics developed in previous studies (Massaro et al. 2016). In fact, this dimension encompasses the topics of the different eligible articles to gain insight into their focus. Regarding the main themes discussed, the authors defined the following groups, combining the Internal Auditors Institute's Competency Framework (IIA 2022) with the content of the Global Internal Audit Standards (GIAS) (IIA 2024a):
 - a. *Professionalism* refers to the competencies and requirements that demonstrate the authority, credibility, and ethical conduct essential for a valuable internal audit activity. Moreover, when the internal audit activities are effectively implemented, these features inspire trust in the profession (IIA 2024c);
 - b. *Performance* refers to planning and performing internal audit activity and effective engagement;
 - c. *Environment* refers to the activity of identifying and addressing risks specific to the industry and environment in which the organisation operates;
 - d. *Leadership & Communication* refers to providing strategic direction, communicating effectively, maintaining relationships, and managing internal audit personnel and processes.
In addition to the above, the authors decided to include two categories that can be useful for classifying papers that do not align with the previous categories:
 - e. *Mixed*, referring to papers discussing more than one of the themes mentioned above;
 - f. *Others* refer to articles that could not be allocated to previous groups (such as articles comparing the role of the internal and external auditors).

The following section describes the findings obtained from the analysis, considering the classifications mentioned above.

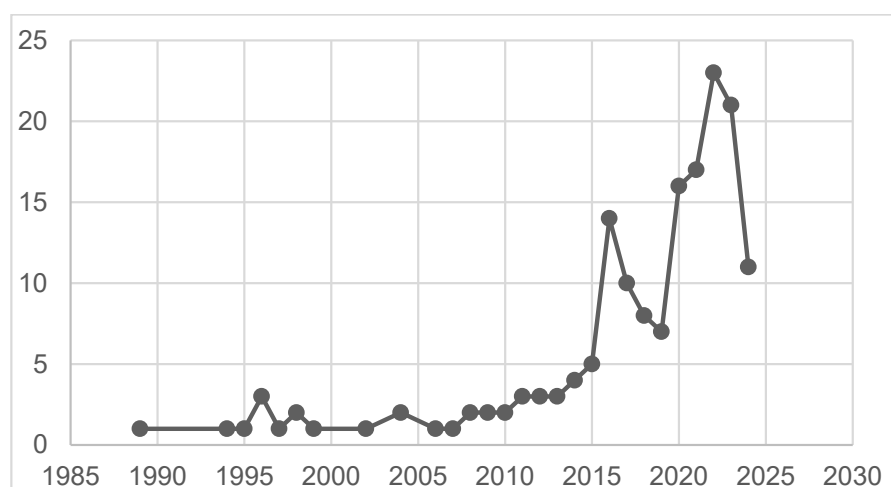
3. Findings

Trend in publications

Figure 2 below illustrates the number of publications on the topic per year. The earliest article on the internal audit function in the public sector dates back to 1989. Very few articles were published in the first two decades, up until 2016. However, starting in 2016, the trend shows a

significant increase in research on this topic, with the number of articles rising steadily. Most importantly, a significant increase occurred starting in 2020, with an even more pronounced rise in the last two years. Although the scientific literature on this topic remains limited, the trend indicates that researchers are increasingly focusing on public sector internal audits. In fact, the results show that 53% of the contributions were published in the last five years.

Figure 2 – Trend in publications

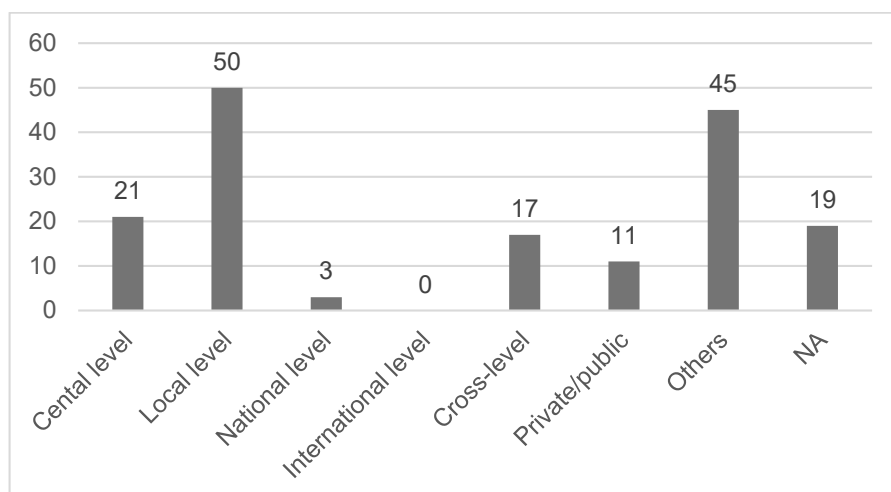


Research setting

Most of the articles focused on the local level, present in 30.12% of all contributions (50 papers), followed by 12.65% of the articles focused on the central level (21 papers), 10.24% on cross-level (17 papers), and the 1.81% on the national level (3 papers), while not a single study has focused on international level (see Figure 3).

Several contributions (6.63%) compared the internal audit function between the private and public sectors, accounting for 11 papers. The “others” category represents 27.11% of the total papers and includes articles focused on agencies, state-owned enterprises, or public services such as education and healthcare organisations (45 papers). Additionally, 11.44% of the contributions are not tied to a specific research setting (19 papers), as they are literature reviews or conceptual papers.

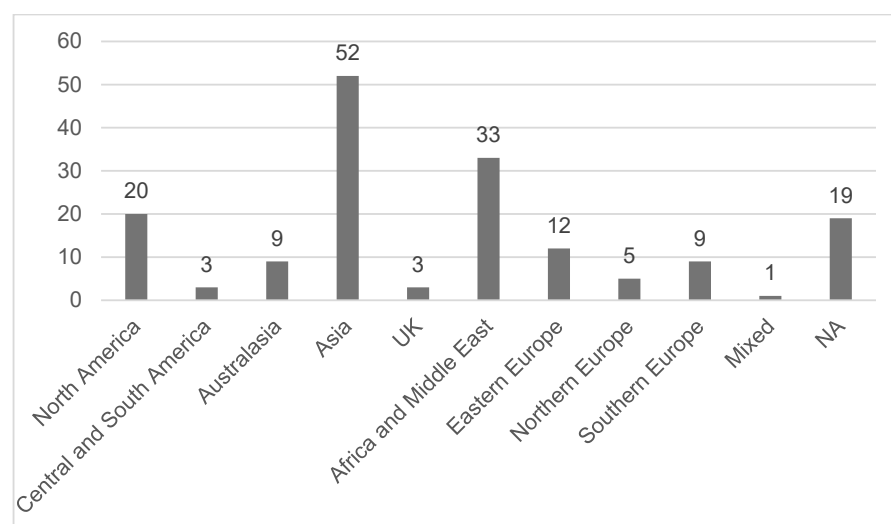
Figure 3 – Research setting



Geographic context

Considering that 19 articles (11.45%) are not linked to a particular geographic context as they are literature reviews or conceptual papers, the remaining 147 are focused on countries divided as follows: the 31.32% on Asia (52 papers), the 19.88% on Africa and Middle East (33 papers), the 12.05% on North America (20 papers), the 7.23% on Eastern Europe (12 papers), the 5.42% on Australasia (9 papers), the 5.42% on Southern Europe (9 papers), the 3.01% on Northern Europe (5 papers), the 1.81% on Central and South America (3 papers), and the 1.81% on the UK (3 papers) (see Figure 4). Only one paper fell into the "mixed" category (0.60%).

Figure 4 – Geographic context

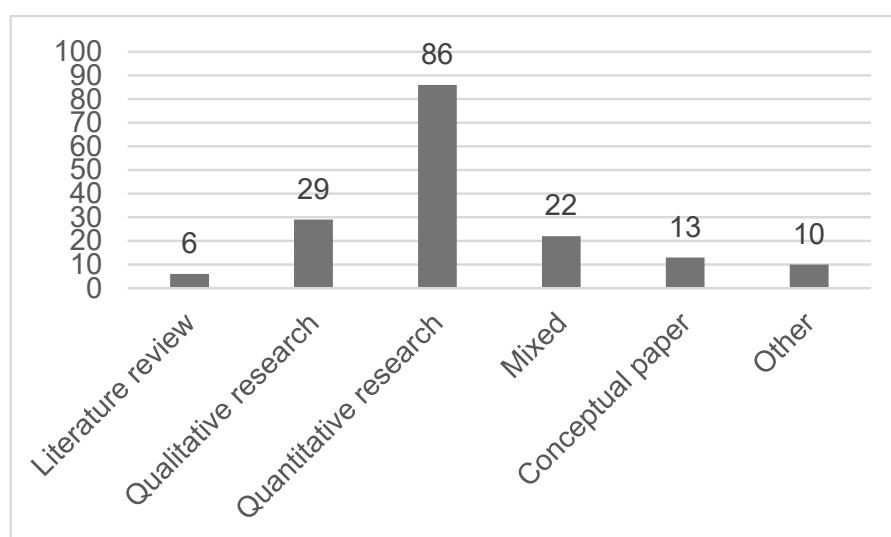


Research method

The research method most used in the studies investigated was “quantitative research”, present in 51.81% of all contributions (86 papers) (see Figure 5). The “qualitative research” was next, applied in 17.47% of the documents analysed (29 papers). The “mixed method” was present in 13.25% of all the contributions (22 papers). The remaining 17.47% were divided as follows:

- 7.83% “conceptual paper” (13 papers);
- 6.02% “other”, representing contributions where the authors primarily used experiments (10 papers);
- 3.62% “literature review” (6 papers).

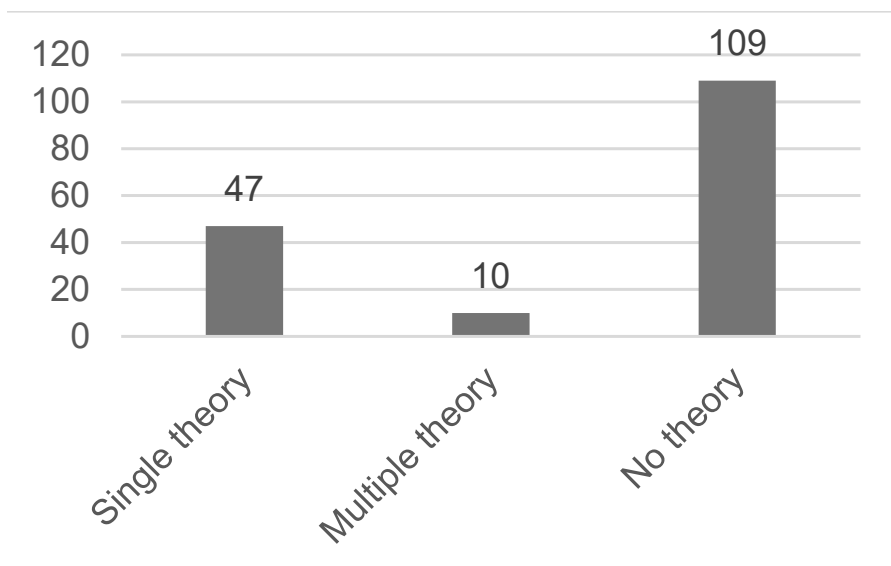
Figure 5 – Research method



Theories

Most of the contributions do not refer to any theory; in fact, the “no theory” category represents 65.66% of the total papers (109 papers) (see Figure 6). However, it is worth noting that 28.31% of the studies employed a single theory, falling under the “single theory” category (47 papers). Of the 47 documents applying a single theory, nine refer to economic theories (all related to agency theory), four use systems-oriented theories (three based on institutional theory and one on stakeholder theory), and 34 refer to other theories, including actor-network theory, framing theory, critical theory, organisational theory, trait-activation theory, resource-based theory, and others. The “multiple theory” category represents 6.03% of all the papers analysed (10 papers). The few articles combining multiple theories primarily use systems-oriented theories alongside economic theories or other theories.

Figure 6 – Theory used

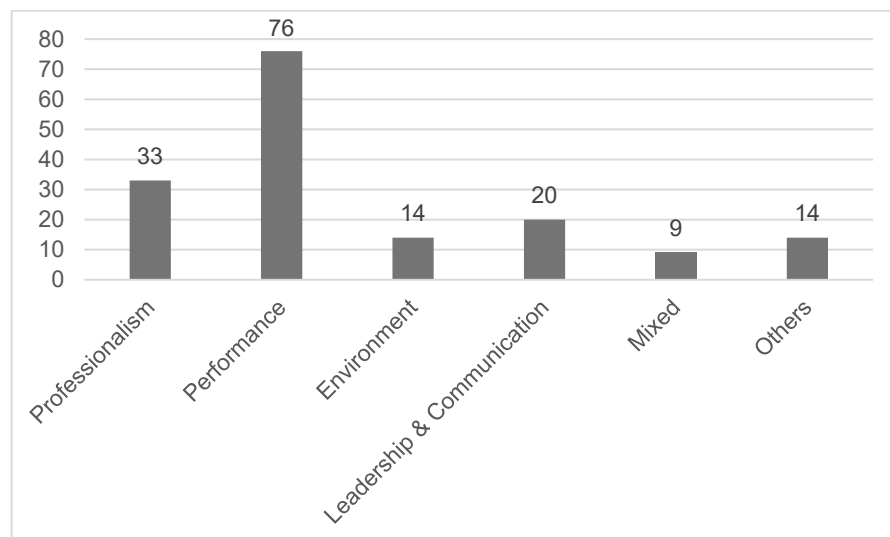


Themes

The results of the analysis show that the majority of contributions fall into the “performance” category, which focuses on the planning and execution of internal audit activities, as well as the engagement of internal auditors in their competencies and outcome requirements. Papers in this category account for 45.79% of all contributions (76 papers) (see Figure 7).

The “professionalism” category follows, representing 19.88% of the total (33 papers). This category addresses the competencies and requirements that demonstrate the authority, credibility, and ethical conduct essential for a valuable internal audit activity. Additionally, several articles fall under the “leadership & communication” category, which focuses on internal audit awareness and responsibility in providing strategic direction, communicating effectively, maintaining relationships, and managing internal audit personnel and processes. The papers belonging to this category represent 12.05% of all contributions (20 papers). The “environment” category includes 8.43% of the documents analysed (14 papers) regarding the internal audit activity and ability to identify and address risks specific to the industry and environment in which the organisation operates. The “others” category, on the other hand, accounts for 8.43% of all contributions (14 papers), addressing topics not covered by the categories mentioned above, such as comparisons between the roles of internal and external auditors and their relationships. Finally, the “mixed” category represents 5.42% of the articles (9 papers), discussing more than one of the themes outlined above.

Figure 7 – Themes



Citation per year

The 15 papers with the highest citations per year (CPY) are listed in Table 3.

Table 3 – Citations per year

Authors	Research setting	Geographic context	Research Method	Theory	Theme	N° citations	CPY
Al-Okaily et al. (2022)	National level	Africa and the Middle East	Quantitative	Yes	Performance (Engagement Fieldwork - CAATs)	53	26,50
Al-Tae and Flay-yih (2023)	Others	Africa and the Middle East	Quantitative	No	Environment (Information Technology - IT control frameworks)	23	23,00
Alqaraleh et al. (2022)	Central level	Africa and Middle East	Quantitative	No	Performance (Engagement Fieldwork - CAATs)	45	22,50
Alzeban and Gwilliam (2014)	Others	Asia	Quantitative	No	Performance (Effectiveness)	138	13,80
Coram et al. (2008)	Private/Public	Australasia	Quantitative	No	Performance (Fraud)	161	10,06
Alqudah et al. (2019)	Cross-level	Asia	Quantitative	Yes	Performance (Effectiveness)	50	10,00
Mihret and Yismaw (2007)	Others	Africa and the Middle East	Mix	No	Performance (Effectiveness)	162	9,53



Authors	Research setting	Geographic context	Research Method	Theory	Theme	N° citations	CPY
Erasmus and Coetzee (2018)	Cross-level	Africa and the Middle East	Quantitative	Yes	Leadership & Communication (Communication - Relationships)	46	7,67
Asiedu and Deffor (2017)	Others	Africa and the Middle East	Quantitative	No	Performance (Fraud)	51	7,29
Vinnari and Skærbæk (2014)	Local level	Northern Europe	Qualitative	Yes	Performance (Risk Management)	70	7,00
Roussy (2013)	Cross-level	North America	Qualitative	Yes	Professionalism (Organisational Independence)	75	6,82
Roussy and Brivot (2016)	Private/Public	North America	Mix	Yes	Leadership & Communication (Quality Assurance and Improvement Program)	54	6,75
Banana et al. (2018)	Others	Africa and the Middle East	Quantitative	Yes	Performance (Engagement Outcomes - Management Action Plan)	40	6,67
Khelil and Khlif (2022)	Others	Africa and the Middle East	Qualitative	Yes	Professionalism (Organizational Independence)	11	5,50
de Zwaan et al. (2011)	Private/Public	Australasia	Mix	No	Performance (Risk Management)	68	5,23

This CPY table is essential for discussing the 15 papers with the highest CPY in the next section, as they represent the entire sample of eligible papers based on the categories of themes in which they were classified. Specifically, of these 15 papers, ten belong to the "performance" category, two to the "professionalism" category, and two to the "leadership & communication" category. Only one paper falls under the "environment" category.

4. Discussion

This section presents a discussion of the major topics in the scientific literature based on the "themes" categories identified by the authors and outlined earlier. To identify the main topics debated in the literature, an analysis of the highest-ranked 15 CPY articles (listed in Table 3) was conducted.

The "performance" category primarily includes papers that discuss the planning and execution of various internal audit activities, covering themes such as fraud, corruption, and the effectiveness of internal audit. Specifically, two articles focus on the detection of fraud and corruption.

On this topic, Coram et al. (2008), in their analysis of both private and public sector organisations, asserted that a crucial element of an entity's good governance is the internal audit function, mainly when there is significant public concern regarding the level of fraud within organisations. Consequently, entities with an internal audit function are more likely to detect fraud than those without (Coram et al. 2008). However, it does not offer a comprehensive solution to eliminate fraud and corruption (Asiedu and Deffor 2017). Continuing on this topic, Coram et al. (2008) found that organisations, particularly in the private sector, with an in-house internal audit function are more likely to detect a higher number of self-reported frauds than organisations that outsource the entire function. This is despite the fact that companies that outsource believe an external provider is more competent. However, in their analysis of covariance, Coram et al. (2008) did not find a significant relationship between the number of self-reported frauds and the presence or type of internal audit in public sector organisations.

Vinnari and Skærbæk (2014) and de Zwaan et al. (2011) have instead dealt with risk management internal audit practices and the internal audit involvement in enterprise risk management (ERM). Both studies found both positive and negative impacts, as well as relationships, particularly considering that de Zwaan et al. (2011) examined private and public sector organisations but did not report any significant differences between them. In fact, internal auditors play a central role in the development and operationalisation of risk management. However, their involvement can lead to unexpected dynamics as new uncertainties are continuously generated. Additionally, some internal auditors may engage in activities that could compromise their objectivity (de Zwaan et al. 2011; Vinnari, Skærbæk 2014).

Another major topic within the "performance" category is internal audit effectiveness. For instance, Bananuka et al. (2018) examined the effectiveness of internal audit in ensuring accountability in public sector organisations. Moreover, to understand how effectively the internal audit function serves its purpose, Alzeban and Gwilliam (2014) investigated factors influencing the internal audit effectiveness within public sector organisations by using different measures, such as the size of the internal audit department, the competence of the auditors, their independence, and the relationship between internal and external auditors. Building on this study, Alqudah et al. (2019) discovered that internal audit empowerment by the top management combined with task complexity is another critical factor affecting internal audit effectiveness. In a similar case study, Mihret and Yismaw (2007) highlighted that internal audit effectiveness is deeply affected by internal audit quality and management support, whilst organisational context and auditee attributes do not seem to have much impact on it. Furthermore, according to a more recent study by Alqaraleh et al. (2022), there is also a positive link between internal audit effective-

ness and information technology use, with organisational culture playing a key role in mediating this relationship.

Given their growing importance, the adoption of computer-assisted audit tools and techniques (CAATTs) is another major topic related to the "performance" category, mainly discussed in papers published in the last few years. In fact, CAATTs incorporate software such as business intelligence audit software and database applications that can reduce audit costs and improve the productivity and the quality of internal auditors' work. Their adoption is even more crucial in public sectors of developing countries, where, however, particular attention is required for strategic choices as regards the technological, organisational, and environmental factors that may impact the adoption of CAATTs (Al-Okaily et al. 2022).

Instead, the "professionalism" category, which concerns the competencies and requirements that demonstrate the credibility and ethical conduct essential for a valuable internal audit activity, has a predominance of papers discussing the primary roles that internal auditors are called upon to play and the importance of their related independence. Within public sector organisations, internal auditors often face problems of role ambiguity or, when partly defined, even role conflict issues because they interact with different types of stakeholders having different expectations (Khelil and Khlif 2022). Therefore, under these conflicting expectations, internal auditors tend to adopt a passive strategy by reducing their commitment to professional values (Khelil, Khlif 2022). Moreover, this approach has caused internal auditors to develop a nuanced conception of independence that is constantly being threatened (Roussy 2013).

On the other hand, the "leadership & communication" category includes papers investigating many different topics concerning internal audit's capacity to communicate effectively, maintain relationships, and manage internal audit personnel and processes. Effective communication and being aware of key stakeholders' perceptions are not only essential for the internal audit function to manage its personnel better but also to assess the internal audit activity's quality assurance and improvement practices (Roussy and Brivot 2016), whilst considering the importance of maintaining stakeholder relationships (Erasmus, Coetzee 2018).

Finally, the "environment" category contains papers discussing the internal audit's role in identifying and addressing risks specific to the industry and environment in which the organisation operates. This activity also regards standard business processes essential to the organisation's survival, such as procurement processes and IT control frameworks' application and impact evaluation (Al-Taei and Flayyih 2023).

5. Conclusion and future research

Public sector internal audit began to attract scholarly interest in the early 1990s, aligning with expectations given their emergence in response to the implementation of NPM principles. However, publications during the

first two decades remained sporadic and limited in number. Since 2016, there has been a noticeable shift, with researchers showing increased interest in the topic. However, the analysis reveals that this attention has intensified significantly from 2020 onwards and even more so from 2022, indicating a growing academic focus on public sector internal audit in recent years. Nevertheless, the scientific literature on this topic remains limited, indicating that the field still offers fertile ground for further exploration and research. This evidence allows us to answer the first research question: "RQ1: How has research on the internal audit function in the public sector evolved?". The previous observation can be further supported by noting that, particularly during the first two decades, only a limited number of entities had an in-house internal audit function (Subramaniam et al. 2004). This likely influenced researchers, as the scarcity of cases available for analysis constrained research opportunities.

Coming to the second research question, "RQ2: What are the main topics discussed in the literature on public sector internal audit?", the analysis reveals that the most extensively discussed topics fall within the "performance" category specifically, those related to the planning and execution of internal audit activities, as well as the engagement of internal auditors in terms of their competencies and performance requirements. Ten of the 15 most cited papers per year are also in this category; specifically, they have dealt with the detection of fraud and corruption (Asiedu, Defor 2017; Coram et al. 2008), risk management internal audit practices and internal audit involvement in enterprise risk management (ERM) (de Zwaan et al. 2011; Vinnari, Skærbæk 2014), internal audit effectiveness (Alqudah et al. 2019; Alzeban, Gwilliam 2014; Bananuka et al. 2018; Mihret, Yismaw 2007) and, considering their growing importance, with the adoption of CAATs (Al-Okaily et al. 2022; Alqaraleh et al. 2022), discussed in two of the ten papers belonging to the "performance" category. In particular, risk management activity, despite being one of the most extensively researched topics, still raises several doubts. Even though de Zwaan et al. (2011) argue that internal audit plays a fundamental role in risk management, Coetzee (2016) points out that this contribution is perceived as weak by managers in some public sector organisations. Therefore, future research should aim to verify, through comparative studies, the extent to which this perception is widespread and, if so, to identify whether the factors contributing to this bias are related to actual inefficiencies in internal audit practices.

The following most represented categories are "professionalism" and "leadership & communication". The "professionalism" category focuses on the skills and qualifications that reflect the authority, credibility, and ethical conduct necessary for practical internal audit work. Meanwhile, the "leadership & communication" category addresses internal auditors' awareness and responsibility in providing strategic direction, fostering effective communication, building relationships, and managing audit per-

sonnel and processes. These two categories received interest, which is also evidenced by the fact that four (respectively two for each category) of the 15 most cited papers per year belong to them.

The "professionalism" category revealed a predominance of papers discussing the roles internal auditors are expected to fulfil and the critical importance of maintaining their independence (Khelil and Khlif 2022; Roussy 2013). However, despite the studies analysed on this topic, the role of the internal audit function does not yet seem to have been clarified, neither by the literature nor by the Institute of Internal Auditors (Roussy, Perron 2018). As the query remains unresolved, it needs to be further explored, especially considering the risks highlighted by Roussy (2013) and Khelil and Khlif (2022) of seeing the internal auditors' independence threatened or the commitment to professional values undermined (Roussy and Perron 2018). Furthermore, because of the above and the small number of articles addressing the latter issue, future research should also investigate the presence of other threats to professional values, as well as the factors that grant internal auditors' commitment to them.

In contrast, the "leadership & communication" category included studies that emphasise effective communication, awareness of key stakeholders' perceptions, and the importance of maintaining strong stakeholder relationships (Erasmus, Coetzee 2018; Roussy, Brivot 2016). A common feature of these studies is that they have often loosely addressed internal audit quality, as it is closely linked to the most explored topics. However, few articles have directly tackled the challenge of analysing how internal audit quality is managed and assessed, primarily relying on internal auditors' perceptions. Therefore, future research is needed to focus more on internal audit quality, potentially incorporating the perspectives of other stakeholders.

Finally, the category that saw the fewest contributions was "environment", which refers to the internal audit activity and ability to identify and address risks specific to the industry and environment in which the organisation operates (Al-Taei and Flayyih 2023). This evidence leads us to say that the literature needs contributions to investigate how internal audit can support organisations in identifying risks specific to both the industry and individual organisations, even more considering the unique characteristics and risks of the public sector context (IIA 2024b), especially when compared to the private one. An additional emerging need is to deepen the focus on performance management and measurement, and to explore the role internal audit can play in addressing sustainability and corporate social responsibility issues, as some scholars (Jokipii and Rautiainen 2024) argue that these will become part of internal auditing's future, even if with some delay in the public sector.

Therefore, while the "performance", "professionalism", and "leadership & communication" categories have received more scholarly attention than the "environment" category, the relatively small number of to-

tal publications across all themes highlights that these areas, particularly the environmental dimension, remain rich and valuable avenues for further investigation.

The evidence above allows us to answer the third research question, "RQ3: How has the scientific literature evolved over the recent years in light of the increased focus on internal audit in the public sector?". As previously noted, the trend indicates a growing interest in this topic over the past decades. Notably, since 2020 and even more significantly from 2022 onward, researchers have increasingly concentrated their attention on the subject examined in this paper. Indeed, more than half of the eligible papers have been published in the last five years. This growing trend in the scientific literature in recent years could be due to the increase in the number of entities that have implemented the internal audit function, which means that there are more cases to be analysed than in the past. Thus, future research should explore the current state of the internal audit function in public sector organisations, focusing on specific levels of government within a single nation and comparing the same level of government across multiple countries.

Coming to the qualitative aspects of RQ3, of the 15 most cited papers per year, the evidence allows us to state that the major topics discussed in the latest years are those related to the "performance" category, especially concerning the adoption of CAATs, which is in line with the results of the total sample of eligible papers, as well as for the other theme categories, which in recent years show a similar distribution to that of the total sample. As the most recent literature on the internal audit function has raised concerns about the adoption of CAATs also for the public sector (Al-Okaily et al. 2022; Alqaraleh et al. 2022), conducting surveys as well as interviews could be beneficial for further research.

With these remarks, we already answer the question "RQ4: What does the future hold for research in this field?". Other gaps in the literature are evident in terms of the organisations investigated. The research highlights a significant gap in the analysis of the internal audit function at both national and international levels, such as within the European Court of Auditors, the United Nations, and Supreme Audit Institutions. Additionally, there is a notable lack of studies focused on the healthcare sector (Cantù et al. 2024). Furthermore, the literature would benefit from more contributions exploring the differences between internal auditing and the internal audit function in the public and private sectors. Practitioners and various institutions, such as the Institute of Internal Auditors, have predominantly highlighted this distinction (Roussy, Perron 2018).

Regarding the geographical context, the findings highlight the need for further investigation into the internal audit function in Europe, particularly in Eastern Europe, as well as in Northern and Southern Europe. Research in these regions remains limited, and further studies would provide valuable insights into the unique challenges and practices in these areas.

The lack of a substantial number of studies in this geographical region can be traced back to the difficulty or slowness of some of the countries belonging to this area in adopting this private sector logic typical of the NPM reforms (Roberto et al. 2025). Central and South America, as well as the UK, are regions with limited research on the internal audit function, making them potential areas of interest for future studies.

In contrast to what emerged from the literature review carried out on public sector audit in general (Mattei et al. 2021), the analysis of the literature on internal audit in the public sector shows that most of the studies were done using a quantitative approach; therefore, researchers should also analyse internal audit from a qualitative perspective, which aligns well with the topics mentioned above that are of growing interest to the research community. A qualitative approach would allow for a deeper understanding of the nuances and dynamics of internal audit practices in different public sector contexts. Indeed, the results achieved appear to support the notion that the majority of quantitative studies are focused on analysing the outcomes expected from the internal audit function. This aligns with the broader trend of research seeking to measure and assess the effectiveness and performance of internal audit activities within public sector organisations. Conversely, the lack of qualitative studies reinforces the idea of analysing the internal audit function also on sustainability profiles and considering the governance aspects understood as strategic management and leadership.

As already pointed out by other researchers (Goddard 2010; Jacobs 2012; Mattei et al. 2021), most of the contributions in the eligible sample do not refer to any theory. This shows that there is still a significant distance between public sector financial management and accounting researchers and the use of sociological, economic, and organisational theories to support their studies. When researchers use a theory, they most often do so by approaching more familiar paradigms (agency, stakeholder, and institutional theory), and they rarely approach using several theories simultaneously. Thus, further research on public sector internal audit could also use multiple theories, combining psycho-sociological theories.

6. Value and limitations of the work

It is believed that this literature review makes several contributions. First, using the systematic literature review, this work is replicable and reproducible and allows for the synthesis of evidence that arose from previous studies (Tranfield et al. 2003). Second, this work, which spans multiple databases and encompasses all public sector areas and government levels, highlights the most discussed research topics, providing a foundation for researchers to identify areas that require more attention compared to previous studies. Moreover, the analysis has led to the identification of innovative topics for future research. Given the characteristics and strengths of the selected method, the results are of high quality, ben-

efiting from the effectiveness of the review process (Ardito et al. 2015), which helps minimise bias and errors.

However, it is important to acknowledge the limitations of this work. One of these is the analysis method used. As explained, the papers were classified by topic, and the manual approach inherently involves a degree of subjectivity on the part of the authors.

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