

# Perception of the Importance of Internal Audit Effectiveness and Its Impact on Organizational Performance in Public Enterprises: Empirical Evidence from Morocco

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## Abstract

*This study investigates the perception of internal audit effectiveness and its impact on the organizational performance of Moroccan public commercial enterprises (OMPAM). Utilizing a mixed-methods approach, the research draws on data from surveys and in-depth interviews with key stakeholders in Moroccan public enterprises. The findings validate the positive correlation between internal audit effectiveness and organizational performance, emphasizing the significant roles of strategic alignment and auditor independence. The results confirm that an effective internal audit function contributes to higher levels of productivity, profitability, and overall organizational health. Additionally, the study highlights the importance of internal audit in promoting transparent governance and mitigating risks associated with unethical practices and irregularities. However, it also acknowledges the challenges posed by resource-intensive and bureaucratic audit processes. This research provides empirical evidence supporting the critical role of internal audit in enhancing governance and accountability in the public sector, offering valuable insights for policymakers and practitioners aiming to optimize internal audit functions within public enterprises.*

**Keywords:** public management, internal audit perception, internal audit effectiveness, organizational performance, hybrid organizations

**JEL classification:** H83, M40, M41, M42, L25

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## 1. Introduction

In literature, it is admitted that governance is the most solicited variable as a generator of organizational performance in the public sector. In fact, numerous researchers have worked on the governance aspect of public enterprises (EEP). However, this variable remains as a crucial issue within organizations, particularly in the management of EEPs, especially after the repercussions of major financial scandals in the United States, Europe, and elsewhere that have accentuated its importance (Mazbouri & Giddey, 2020). In consequence, in the context of the emerging new economy, multiple crises have questioned the foundations of capitalism, notably fairness, trust, transparency, and the role of economic actors (Burrell Nickell & Roberts, 2014; Hoberg & Lewis, 2017; Kim *et al.*, 2022; Grebe, 2016). These authors argue the importance of good governance to reduce fraud risk especially through the role played by

internal audit on governance, particularly regarding stakeholder satisfaction, the dynamics of the new economy, and the global expansion of enterprises (Al-Matari *et al.*, 2014; Joshi & Acharya, 2022; Wako *et al.*, 2021).

Bankruptcies observed in many countries have prompted international organizations to issue several good governance codes aimed at promoting transparency and increasing the value creation of EEPs (Zhang, 2023).

Our study aims to determine whether internal audit (IA) is important and if it has a positive impact on the organizational performance of state-owned enterprises (SOEs) in general and public commercial offices specifically. The primary research questions guiding this study are: Do public enterprises perceive internal audit as an important element? And does internal audit help organizations in boosting their organizational performance? The corresponding hypothesis to be tested is:

*H1: The effectiveness of the internal audit service positively influences the level of organizational performance of public commercial offices (OMPAM).*

Through this study, we seek to provide empirical evidence from Morocco to shed light on the critical role of internal audit in enhancing organizational performance in public enterprises, thus contributing to the broader discourse on governance and accountability in the public sector.

## 2. Literature review

### 2.1. Internal audit effectiveness

In Moroccan legislation, internal audit is defined as an independent and objective activity in the form of assurance and consulting activities aimed at adding value and improving an organization's operations (Benkirane *et al.*, 2021). This activity helps the organization achieve its objectives by using a systematic and disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

In the discussion around corporate governance, some researchers see EEP governance as a way to manage conflicts of interest or as mechanisms to boost value creation through learning and innovation (Alkaraan *et al.*, 2023; Rjab & Mellouli, 2019). Internal audit, being a key part of this process (Joshi & Acharya, 2022), is seen through agency theory as a tool to resolve conflicts and reduce information gaps, thereby balancing power through audit committees. We believe it's important to focus on the effectiveness of internal audits and test whether this specific aspect contributes to improving organizational performance in Moroccan public commercial offices.

Lately, the implementation of standards like COSO 1 and COSO 2, along with new requirements from the internal control act, has enhanced the role of internal audit in corporate governance. In Morocco, the 2011 Constitution serves as a guide for the governance of public administrative establishments (EPA). The impact of internal audit on governance quality can be examined through three main areas: reducing information asymmetry, strengthening internal control, and managing risk (Al-Matari *et al.*, 2014). Moreover, since 2002, professional standards have highlighted the evolution of internal audit, underscoring its crucial role in assessing risk management, control, and governance processes to ensure security and improve efficiency. While conflicts of interest can occur among different stakeholders, information asymmetry is a critical factor in the transmission of information, sometimes leading to opportunism. Internal audit reports provide reliable and thorough information, thus contributing to better organizational performance. Studies such as those conducted by Al-Matari *et al.* (2014), Boubakary (2020), and Wako *et al.* (2021), among others, highlight the crucial role of internal audit in detecting and preventing abusive practices, irregularities, and fraud, occasioning in improved productivity and profitability. In fact, according to Lai *et al.* (2020), an effective internal audit function leads to high levels of organizational performance. Similar conclusions were drawn by Dagou and Hachimou (2019), who observed that the internal auditor acts as a "watchdog", safeguarding the organization against abusive practices and irregularities, thereby contributing to maintaining high productivity and profitability levels.

In the same vein, Boubakary (2020) stated that the internal audit service helps reduce indirect costs, improve efficiency, and detect potential losses from insufficiently protected assets, leading to increased profitability. Barrett (2002) also emphasized the importance of internal audit in improving performance. Moreover, Al-Matari *et al.* (2014) argued that internal auditors contribute to increasing shareholder value by managing the company efficiently and effectively. Jarrar *et al.* (2020) asserted that the internal audit function has a major impact on financial performance,

noting that its evolution results from the search for information by interested parties to assess organizational performance. Other authors have also found that the presence of an internal audit function improves organizational performance and helps reduce calamities such as financial fraud (Grebe, 2016). Thus, acting as a “watchdog”, internal audit can protect the organization from unethical practices and irregularities, contributing to achieving high productivity and profitability goals.

An agency relationship is essentially a contract between the owners of an organization and its senior management. In this setup, managers act as agents, providing services on behalf of the owners, who delegate their decision-making authority to them. However, this delegated power can sometimes be misused by executives to pursue their own interests. To prevent this, organizations rely on audit committees, as well as external and internal auditors, to ensure that management follows the established procedures and implements plans correctly (Jarrar *et al.*, 2020).

Internal auditors, although often employed by senior management, also serve the board of directors and audit committees. These groups rely on internal auditors to objectively evaluate the performance of senior management. To do this effectively, internal auditors need to operate at a high professional level, which requires proper training, certification, experience, and other essential skills. When internal auditors meet these criteria and participate in ongoing training programs, it boosts the confidence of the board and audit committee in the auditors’ competence (Bousslama & Bouteiller, 2019).

Holding a high level of responsibility in internal auditing means being as objective as the human nature could possibly let. According to the International Professional Practices Framework, which follows the guidelines of the Institute of Internal Auditors, independence and objectivity can be maintained by ensuring that the internal audit department operates without interference (Aray *et al.*, 2021). This involves reporting at a level within the organization that prevents conflicts of interest (Zhang *et al.*, 2022), having direct access to the board of directors and senior management (Baškarada *et al.*, 2016), and maintaining the ability to access all necessary records and personnel (Benkirane & Benazzi, 2023). Additionally, the appointment and removal of the head of internal audit should not be under the control of senior management, and auditors should not engage in non-audit work.

On the opposite side, research has in fact highlighted that a lack of independence can hinder the effectiveness of internal audits, especially in developing countries. For example, in South Africa, the lack of independence has been identified as a key issue affecting audit performance (Grebe, 2016). Studies in other developing regions also indicate that, when internal audit functions lack independence, their effectiveness is significantly reduced (Burrell Nickell & Roberts, 2014; Joshi & Acharya, 2022; Wako *et al.*, 2021). Similarly, the study by Motilewa *et al.* (2016), Kagaba and Mulyungi (2018), Mupeta (2017), and Saputra *et al.* (2020) show empirical evidence that when auditors have adequate independence, it positively impacts their effectiveness and the overall organizational performance, as seen in various studies across different regions. For all these information, in this study, we first evaluate the impact of internal auditors’ independence (as a main dimension of internal audit) on organizational performance of Moroccan public commercial offices.

*H1.1: The independence of internal auditors positively influences the organizational performance of Moroccan public commercial offices.*

The second dimension that, according to authors, makes the internal audit service effective is its strategic alignment with management’s objectives. With senior management’s support, internal auditors can obtain sufficient resources to carry out their tasks and responsibilities, and the internal audit department can employ qualified personnel and ensure continuous training for its development (Alzeban & Sawan, 2013). The International Standards for the Professional Practice of Internal Auditing (ISPPA) have emphasized the importance of the relationship between internal audit and senior management and how management can support internal audit. According to them, senior management should be involved in the internal audit plan.

Previous research indicates that senior management support is an important factor for the success of the internal audit function (Adebawojo & Akindehinde, 2017; Boubakary, 2020; Sara & Said, 2022). Other researchers have found that management support is one of the determinants of internal audit effectiveness in the public sector, after the adequacy of audit personnel. They stated that, with management support, internal audit recommendations are likely to be implemented, and internal audit resources will be good in terms of staffing and budget. Poppelwell and Overton (2022) show that, to be effective, internal audit needs management support and appreciation of the

contribution that internal audit can bring to the organization's value. Other research findings show that adequate management support can increase the effectiveness of internal audit, notably [Kagaba and Mulyungi \(2016\)](#) and [Saputra et al. \(2020\)](#).

*H1.2: Strategic alignment of internal audit positively influences the level of organizational performance of OMPAM.*

## 2.2. Impact on organizational performance

There has been a discovery that internal audit plays an important role in the improvement of organizational performance by various scholars. For example, [Al-Twaijry et al. \(2003\)](#) investigated the Saudi Arabia scenery with 135 firms from the public list. Their research showed the general ineffectiveness of the internal audit function within these companies and lack of creation of much added value as the core task of internal audit seemed to be aligned with the compliance with rules and regulation. This raises a wider concern that was noted by [Jarrar et al. \(2020\)](#), who opined that shortage of personnel in internal audit teams is a key problem, noting that large teams are fundamentally necessary to address the expanding roles and responsibilities of internal audit in organisations.

On the other hand, [Al-Matari et al. \(2014\)](#) established the following as the determinants influencing internal audit efficacy, personnel competence, range of service provisions, planning, field, control, and communication. These are regarded as fundamental for the functionality and applicability of the internal audit activities. In support of this view, [De Langen \(2023\)](#) showed that there is positive correlation between audit strategy and audit effectiveness. Therefore, internal audit is very important as a value-added supplier in organizations. This is why it is necessary to use various approaches to the planning and execution of internal audit activities in order to enhance their contribution to the general organizational performance improvement.

In addition, the authors identified that audit professionalism and auditor independence enhance audit effectiveness ([Xue & Zan, 2022](#)). But they stated that experience and ethical standards did not seem to influence this association, making it necessary to enhance and maintain the professional and independent status of internal audit members.

This finding is further supported by [Grebe \(2016\)](#), who focused on EA's crucial role in efficient fraud control. More specifically, the research is targeted at the nature and significance of the internal audit as a key tool for identifying and preventing fraud risks in public organizations.

Joining this literature, [Mupeta \(2017\)](#) realized several factors which significantly affected the internal audit function (IAF) in Libyan public enterprises, such as independence, competence, scope of work, management support, career development for internal auditors, the position of the internal audit function, attitude of the stakeholders towards the internal audit, and cooperation with the external auditor. These findings suggest that, to create and grow the internal audit function, these aspects should be considered applicable to the internal audit function in different types of organizations.

[Njanbou & Sonkeng \(2019\)](#) emphasizes the significance of assembling the suitable representations to assess the internal audit efficiency. Their work involved the assessment of competence, independence and objectivity of internal auditor, internal audit plan, and relationship between internal and external audit, making their work a comprehensive and systematic review of internal audit efficiency. In the same line of thought, [Ofori and Lu \(2018\)](#) also expounded the key variables that affect the effectiveness of internal audit, which include the qualifications of the internal auditors and their independence and objectivity, outsourcing of internal audit function and support from management. These elements are necessary for the improvement of the functioning of the internal audit function within an organisation.

[Mazza and Azzali \(2018\)](#) proceeded by replicating this research in Italian organizations to determine the relation between firm's organizational practices, procedures and interactions with the environment in a bid to assess internal audit efficiency. By employing the partial least squares technique, they established that large companies, publicly listed companies, and those audited by the Big Four are greatly influential towards the overall internal audit efficiency.

This is in line with the postulates of Muchiri and Jagongo (2017), where they noted that internal audit function means enhanced performance of the organization and minimization of bad incidences like financial fraud. [Benkirane and Benazzi \(2023\)](#) also established that internal audit can help shield an organization from unethical practices and other irregularities with a view of optimizing on productivity and rewarding profitability goals in the organization.

Altogether these studies bring out the aspects of internal audit in the improvement of the performance of an organization. They also raise the awareness of the significance of objectives, for example, strategic positioning, staff capability, and cooperation all of which are essential in enhancing the functionality of internal audits across different settings.

### 2.3. Public enterprises in Morocco

In theory, a mixed public enterprise business undertaking is said to have threefold, purposes or aims that embraces financial, social, and environmental goals and objectives ([Aguilera et al., 2021](#); [Ang et al., 2022](#); [Cheung et al., 2020](#)). These are inherently political goals and are implemented by governments who regard EPs as the optimal tool for achieving their strategic vision ([Abbott & Cohen, 2022](#); [Kubo & Phan, 2019](#); [Wang & Shailer, 2022](#)).

Sub-optimally survived public enterprises doing commercial operations are less efficient than private-enterprise peers ([Castelnovo, 2022](#); [Guan et al., 2021](#); [Parida & Madheswaran, 2021](#)). Hitherto, the literature review does not shed light on the causes of this decline between the two sectors. Thus, we must ask for what reasons public enterprises become less effective than their private sector counterplayers. We shall address this question in the subsequent section.

Public sector with business ventures is one of the sectors for which there is no agreed upon definition globally among all the countries and organizations. It is, rather, made of efforts at delineation, that is, of establishing the boundaries that define it. Therefore, the only way of establishing these enterprises is to list all the enterprises that each country has. However, such reflections can be noticed that the ultimate points of convergence between a number of definitions and theories discussed in the previous section can be defined.

The first is that the concept of “a public enterprise with commercial activities” maps directly on to “a more particularly pushed assimilation to private sector enterprises. Public enterprises with commercial activities appear as public industrial or commercial establishments.”. So, that means, it is a business entity established in the economic category and not merely for administrative purposes. It is a commercial producer in the sense that it is seeking to make a profit out of the societal products created by people.

However, it needs to be stated that some organizations may be located rather somewhere in between strict economic and administrative processes. This is the case of, for examples, the National Interprofessional Office of Cereals (ONIC) in France or the National Airports Office (ONDA) in Morocco, which are considered as public enterprises with business functions despite they exercising quasi-administrative functions. These offices were established to control the cereal markets and supervise civil airports in Morocco as such jurisprudence categorised them as public administrative bodies. However, being establishments in the public interest fulfilling public service objectives, they are part of public enterprises with business promotion. Thus, other than some general singularities, we can recognize this first characteristic of public enterprises with businesses: that they have businesses.

The second universal element is a full-fledged differentiation from the community to which the public enterprises belong, as a result of getting a commercial activity. Organized as businesses involved in carrying out commercial activities, the public enterprises possess an identity, which is amplified by the legal personality accorded to them. This has to do with the monetary and bureaucratic independence of public enterprises in respect of business operations. Their creation however always relates to the intentional act of the state to centralize the supervision of industrial and commercial activities that it has assumed in view of the practices and processes that are associated with business entities. They continue to be a preferred instrument of Diaspora that retains a strong link with the state.

The third and last similar feature of all public enterprises with commercial operations is that they work under the management of the public officers representing the authorities to which the public enterprises belongs. All are therefore under direct or indirect regulation of the state in its various forms. In addition, all these enterprises are to a certain extent bound by certain obligations set by the state in terms of the goals that may be set for them. This characteristic is associated with the social ownership, at least to some extent, of those enterprises. On the one hand, it is precisely for the purpose of exercising control or exerting direction over a given activity that the state has assumed control of or established the enterprises carrying on such activity. On the other hand, the public funds or subsidies they receive necessarily presuppose the existence of an obvious public right to supervise the use of the public funds. To the observer it is seen that the approach to the ownership of public enterprises especially those with business



like operations is not necessarily total. It can be partial, though, where the enterprise in question remains under the jurisdiction of the trading organizations of public enterprises with commerce interaction.

Last but not the least, we can safely say that the public enterprises with commercial activities are the commercial businesses in which liabilities of state and or its representative are worked directly or indirectly through ownership of any part of the business. They are defined by administrative and financial independence with state interference in determining their goals as the indirect instrument controlling the market.

## 2.4. Theoretical framework

A hybrid organization balances multiple institutional logics ([Battilana & Dorado, 2010](#); [Greenwood \*et al.\*, 2011](#); [Haveman & Rao, 2006](#)). It specifically directs attention to the internal dynamics of hybrids: which models of integrating the two types of logics are utilized, as well as determinants of the process, thereby providing clues as to how the application of hybrid organizational models might be maintained. Hybrid organizations reproduce the competing logics in which they are situated through selective coupling. While decoupling relates to the formal enactment of a practice that is seldom put into use, selective coupling involves the utilization of a particular practice from amongst several possible options. Still, this selective coupling lets hybrids address the issue of symbolic concerns as it does in decoupled organizations. Selective couplings are viewed as more sustainable than decoupling – especially for hybrids – when the scrutiny of institutional referents is nearly inevitable. Selective couplings constitute a more viable approach than pretending to pretend, which hybrids seem more susceptible to – owing to heightened institutional conflict – when the pressures for such referents' scrutiny are persistent. Selective coupling can also be posited to be superior to hybridization strategies at the practice level, such as the compromise ([Oliver, 1991](#)), in that it does not make organizations enter into multi negotiated institutional referents or develop new practices in a binary compromise of the practices espoused by each logic. Hence, selective coupling may be a beneficial strategy than compromise because it does not present organization members with the need for the proposal of alternatives. Consequently, a hybrid organization is able to experience selective coupling with the competing institutional logics it is confronted with so that it is able to satisfy the symbolic elements of the performing institution while greatly minimizing the dangers inherent in false compliance.

To do this, the literature review synthesizes several aspects to highlight the importance of internal audit effectiveness and its effect on organizational performance within Moroccan public commercial enterprises. The review emphasizes the need to be independent, to align the internal audit function with the organizational strategy, to integrate, and to cooperate as ways of improving the internal audit function. It also draws attention to the specific nature of the Moroccan public enterprises and their specific characteristic and as such it was developed within the theoretical framework of new hybrid forms of organization in order to capture the multifaceted nature of these organizations.

## 3. Methodology

### 3.1. Research design

The items chosen to measure internal audit effectiveness are an adaptation of the IA-CM matrix (Internal Audit Capability Model). The Internal Audit Research Foundation (IARF) created the IA-CM matrix, which was universally approved in September 2006, allowing public sector internal audits to progress towards stronger and more effective capabilities. The IA-CM is an essential tool for improving the quality of internal audit in the public sector and harmonizing practices globally. The five levels of IA-CM capacity are:

1. *Initial level*: No sustainable and productive activity, the activity depends on individual efforts.
2. *Infrastructure level*: Internal audit practices and procedures are sustainable and reproducible.
3. *Integrated level*: Professional internal audit practices are uniformly applied.
4. *Managed level*: Internal audit integrates information as a whole.
5. *Optimization level*: Internal audit learns from inside and outside for continuous improvement.

The following elements are identified in the IA-CM for internal audit activity: internal audit services and roles, human resources, professional practices, performance management and accountability, organizational and cultural

relationships, and governance structures. These elements have been adapted to construct a measurement scale that ideally reflects an optimal internal audit service.

### 3.2. Scale development

To evaluate internal audit, an eleven items scale was extracted from the IA-CM matrix and adapted into a linear scale.

#### ■ *Internal audit scale*

- ✓ Internal audit service and role is recognized as an agent of change.
- ✓ Internal audit reports are considered in the decision-making process.
- ✓ Human resources impact of internal audit activity on the office's performance is measured.
- ✓ Management coordinates long-term workforce development activities to meet the future needs of the internal audit activity.
- ✓ Professional practices performance data, global best practices, and feedback received are integrated to continuously enhance internal audit performance.
- ✓ Internal audit adapts to the organization's strategic directions and new issues and risks and modifies audit skills and services to meet potential future needs.
- ✓ Performance management and accountability audit activities and reports are transparent to relevant stakeholders.
- ✓ One or more internal audit representatives are involved in key office meetings.
- ✓ Organizational and cultural relations – the auditor has the skills to maintain continuous and effective relationships.
- ✓ Auditors are aligned with stakeholder needs and expectations.
- ✓ Governance structure the internal audit service is independent of other services.

For each item, two types of answers were collected: one for the performance level and the other for the perceived importance level per item. Both answers were on a Likert scale ranging from 1 to 5.

Regarding organizational performance, our approach captures both financial and social performance aspects, acknowledging that an organization's overall success extends beyond mere financial metrics to include its societal impact. This dual-focus methodology is informed by literature that ties organizational performance closely to its foundational objectives, typically oscillating between financial gains and social contributions in public enterprises (Adebawojo & Akindehinde, 2017; Moullin, 2017; Poppelwell & Overton, 2022).

For financial performance, we relied on Durand (2010), who adopted a bidimensional perspective on organizational performance. This dimension's items include sales growth, value creation, return on investment, cash flow management, and debt management. The high Cronbach's alpha of 0.926 for these items indicates robust internal consistency, thereby enhancing the reliability of our financial performance assessments.

Conversely, social performance was evaluated through a context-specific approach at the National Airports Office, including analysis of complaint records, user satisfaction measurements, and evaluations of progress toward customer orientation – factors that highlight the organization's impact on its stakeholders. To study the influence of the independent variables on organizational performance, all nine items were reduced to a single latent variable (OP) through dimension reduction on SPSS. However, to understand the interactions of all three main variables, the five items of financial performance were reduced to a single latent variable (FP), while the other four measuring the social dimension of organizational performance were reduced to another latent variable (SP).

### 3.3. Evaluation method

A five-point Likert scale (*Ranging from 1 = Total disagreement to 5 = Total agreement*) was employed to capture employee responses, as outlined in the self-administered survey distributed among the five major offices studied. Using a convenience sampling method, 300 questionnaires were initially distributed across the offices in different Moroccan cities. From these, 187 were completed, providing a 62% response rate, which is acceptable within social sciences norms (Jhantasana, 2023; Zouaghi, 2013). Post data screening, 47 responses were excluded, leaving 140 complete responses for in-depth analysis using SmartPLS 3.2.7 and IBM SPSS Statistics 24.0.

The choice of PLS-SEM, known for its robustness in handling complex structural models and its efficacy in assessing relationships and measurement errors (Farooq & Radovic Markovic, 2016; Hair Jr. *et al.*, 2021), was deliberate due to the exploratory nature of this study. The method's suitability for our research was further validated by following Hair Jr. *et al.*'s (2021) PLS-SEM best practice guidelines, ensuring each measurement model was thoroughly evaluated before the main structural analysis.

To ensure the integrity and quality of our data, various tests were conducted, including the KMO test, screenings for missing values, outliers, common-method variance, and non-response bias, alongside other checks for reliability and validity. The following section details the methods used for data screening and pre-analysis in this investigation.

## 4. Results

### 4.1. Data screening and pre-analysis

When entering the final stage of the accumulated results and the final synthesis of the comprehensive analysis, the authors screened the study material with great scrupulosity and engaged in systematic pre-analysis. This entailed proper verification for accuracy of normality, omitted subjects, blanking, off-limit values and the respondents' details. There were a few missing values and, therefore, list-wise deletion was used to deal with them in a few cases. While the mean replacement method is relatively popular, it changes the internal model. Therefore, the list-wise deletion method was used. This, in turn, decreases our sample size, yet preserves the organism's model structure, which is important at the moment, particularly when analyzing interactions between variables or performance, according to Jhantasana (2023), depending on the sensitivity of the data collected on a five-point Likert scale, in which even slight shifts in performance may change the analysis.

Furthermore, we paid much attention to the demographic characteristics of the respondents, including the professional rank, the distribution across the offices, the age, academic degree, the affiliation in the office, and the gender. This careful demographic work serves to understand the emergence of the results and means that our outcomes refer to a coherent and defined population base.

An initial step was therefore to perform a mere profiling of the respondent population. In our survey participants' pool, middle management is the most common occupational type, representing 51.4%. The top management had 18%. This level was realized by operations management at 6% and senior management at 7%. 9% that is quite good enough to signify a strong presence of middle and senior managerial cadres. Concerning distribution of office, ONEE takes the lead with 27 sub-offices out of the total of 36.9% of the sample. This points to the centrality of the utility in Morocco's water and electricity industries and ONP at 21.4%. ONCF and ONDA constitute 14% of the whole Moroccan shares. 3% and 11.4% and 4%, respectively, hence the instability in mentions of ONHYM, which may suggest the need to look at variations in perception between offices.

Age-wise, the largest group within our sample is the 26-35 years range, constituting 45.7%, followed by those aged 36-45 at 37.1%, with the under 25 and over 45 categories making up 5% and 12.1%, respectively, showcasing a broad age spectrum with a concentration in the mid-age range. The gender distribution is relatively balanced, with males representing 57.9% and females 42.1%, ensuring diverse perspectives in the analysis.

Table 1. Demographic attributes

Attributes	Distribution	Frequency	%
Respondent status	Executive Management (Senior Management)	11	7.9
	General Management (Top Management)	26	18.6
	First-Level Supervision	31	22.1
	Middle Management (Intermediate Supervision)	72	51.4
Office name	ONCF	21	15.0
	ONDA	25	17.9
	ONEE	39	27.9
	ONHYM	25	17.9
	ONP	30	21.4



Attributes	Distribution	Frequency	%
Respondent's age	Less than 25	7	5.0
	From 26 to 35	64	45.7
	From 36 to 45	52	37.1
	More than 45	17	12.1
Respondent's gender	Female	59	42.1
	Male	81	57.9
Respondent's affiliation	Commercial	12	8.6
	Direction	20	14.3
	Finance & accounting	52	37.1
	Legal	3	2.1
	Logistics	11	7.9
	Production	6	4.3
	Quality & environment	2	1.4
	RH	27	19.3
	Information system	2	1.4
	Technical	5	3.6
Respondent's academic degree	BTS, DEUG	9	6.4
	DEA, DES, PhD	19	13.6
	Business school	54	38.6
	Engineering	47	33.6
	Bachelor's degree	11	7.9

Source: SPSS report

Common-method variance is a significant concern in cross-sectional studies (Hair Jr. *et al.*, 2021; Ho, 2006). To alleviate this concern, we followed the guidelines set by Podsakoff *et al.* (2003) for evaluating the potential common-method variance in our research. Specifically, one-factor test (Harman, 1976) was conducted by inputting all 20 items of our measurement scale into a single factor analysis using the varimax rotation method in IBM SPSS 24.0. This analysis extracted three distinct factors from the 20 items – organizational performance, strategic alignment, and internal auditors' independence – with the rotation converging after five iterations. These results confirm that common-method variance does not compromise the integrity of this study.

#### 4.2. Analysis of measurement models

As previously noted, the primary conceptual model in this study includes two formative constructs: organizational performance and internal audit effectiveness. Following the guidelines set forth by Hair Jr. *et al.* (2021), all formative constructs were thoroughly assessed for their reliability and validity. Initially, factor loading values were examined and found to be within the acceptable range of 0.5 to 0.9. Additionally, Cronbach's alpha values and Kaiser-Meyer-Olkin (KMO) indicators were evaluated, both exceeding the 0.7 threshold, indicating satisfactory internal consistency and sampling adequacy. Furthermore, the constructs were assessed for average variance extracted (AVE) values, which surpassed the 0.5 threshold suggested by Hair Jr. *et al.* (2021), confirming the adequacy of the measures. The detailed results of the reliability, validity, and correlations among all the latent constructs are comprehensively presented in Table 2.

Table 2. Reliability, validity and correlations among latent constructs

Variables	Cronbach's alpha	KMO	AVE	Fornell-Larcker Criterion	
				EAI	OP
EAI	0.944	0.876	74.458%	0.938	0.725
OP	0.873	0.795	79.500%	0.725	0.876

Source: SPSS report

To ensure the discriminant validity of the constructs utilized in this study, we applied the Fornell-Larcker criterion and examined cross-loading values, adhering to the methodologies recommended by [Hair Jr. et al. \(2021\)](#). Our analysis showed that all Fornell-Larcker values were below the critical threshold of 0.85, consistent with the guidelines proposed by [Jhantasana \(2023\)](#) and [Hair Jr. et al. \(2021\)](#), thereby affirming adequate discriminant validity.

In addition, we validated the discriminant validity of our constructs by assessing their cross-loading values. According to [Jhantasana \(2023\)](#), measurement items should have their highest loadings on their respective latent constructs rather than on other constructs within the conceptual model. Detailed results of all cross-loading values for our measurement models are provided in Table 3. Our findings indicated that all cross-loading values exceeded the recommended threshold of 0.5, as advocated by [Jhantasana \(2023\)](#), thereby fulfilling the criterion for discriminant validity.

Overall, these results confirm that our measurement models are both valid and reliable. The next section of the discussion will focus on evaluating the structural model used in this research.

Table 3. Cross loading values

	Organizational performance	Strategic alignment	
POF04	<b>0.866</b>		
POF02	<b>0.846</b>		
POF05	<b>0.832</b>		
POF01	<b>0.823</b>		
POF03	<b>0.775</b>		
POS02	<b>0.886</b>		
POS03	<b>0.877</b>		
EAIIS01		0.681	
EAIIS02		0.476	0.758
EAIIS03		0.852	
EAIIS04		0.891	
EAIIS05		0.907	
EAIIS06		0.759	-0.395
EAICRA01			0.842
EAICRA02			0.831
EAICRA03			0.790
EAICRA04			0.929
EAICRA05		-0.413	0.701

Source: SPSS report

### 4.3. Analysis of structural model

We will test the hypotheses to quantify the relationships between different variables, using fit coefficients to evaluate the regression model's performance and relevance:

✓ *Coefficient of determination ( $R^2$ )*: This metric indicates the percentage of variability explained by the explanatory variables. For our training sample, the adjusted  $R^2$  is 0.851, meaning the model explains about 85.1% of the variance in organizational performance. The adjusted  $R^2$  is slightly lower at 83.7%, which is still excellent as it exceeds the 50% threshold. The F-statistic is significant ( $p$ -value < 0.001), indicating that the independent variables have a significant global effect on organizational performance.

✓ *Durbin-Watson (DW) test*: This test detects autocorrelation in the residuals. A value close to two indicates no autocorrelation. Our DW value is 2.036 for the training sample, confirming the construct's discriminant validity.

✓ *Amemiya ratio*: With a value of 0.180, it suggests acceptable predictive capability.

✓ *Mallows' prediction criterion*: A value of 13 indicates overall predictive efficiency.

✓ *Schwarz Bayesian criterion*: A value of -203.100 measures the model's quality in terms of balancing complexity and performance.

In summary, the linear regression results suggest that the model is robust and capable of explaining a significant portion of the variation in organizational performance. This stage evaluates the hypothesized relationships between the various constructs.

The hypotheses tested in this research will either be confirmed or rejected depending on whether the following conditions, as set by [Jhantasana \(2023\)](#) are met. To that end, a Bootstrap analysis was conducted to sample the values needed for informed decisions. According to [Jhantasana \(2023\)](#), the value and Student's t-value significance are the basis upon which the confirmation of a hypothesis or its rejection is determined. It is considered that hypotheses are statistically significant at thresholds of  $p < 0.01$ ,  $p < 0.05$ , and  $p < 0.1$ , if and only if the magnitude of their respective Student's t-value is greater than or equal to 2.58, 1.96, and 1.645 in absolute value. Hence, hypotheses with a significance level below 10% are not supported. In this research, we are using a significance level of 95%, so we accept the hypotheses only in the case when the absolute value of their Student's t-value turns out to be greater than or equal to 1.96.

Table 4. Results of PLS-SEM analysis

Hypothesis	Relation	Student's T	Status of hypothesis
H1.1	F1_EAI_IndR -> PerfOrg	2.325	Validated
H1.2	F2_EAI_AS -> PerfOrg	3.208	Validated

Source: SPSS report

The results of the hypothesis tests confirm the positive correlation between the effectiveness of the internal audit service and organizational performance (H1), validating both hypotheses. Both the strategic alignment of internal audit (H1.2) and the independence of internal auditors (H1.1) have a positive effect on organizational performance.

#### 4.4. Importance/performance analysis

The results of the internal audit effectiveness evaluation are divided into two main dimensions: strategic alignment and auditors. Table herein below provides a detailed analysis of scores obtained for every item.

##### ■ *Strategic alignment dimension (F1\_EAI\_AS)*

✓ *EAIIS01*: Internal audit is recognized as a change agent: 3.35. This result reveals that internal audit is perceived to be an important actor to effect change processes in an organization. The rating here, though high, remains relatively upper-middle-rated.

✓ *EAIIS02*: Internal audit reports are taken into account in the decision-making process: 3.37. The use of internal audit reports in decision-making scored highest of all items, thus showing strong integration of audit results into the decision-making process.

✓ *EAIIS03*: The impact of internal audit activity on office performance is measured: 2.93. This lower score would indicate that there are gaps in measuring the impact of internal audit on organizational performance.

✓ *EAIIS04*: Management coordinates long-term staff development activities to meet future internal audit needs: 2.98. This slightly below average score would suggest that some improvement is needed in terms of long-term planning and staff development for internal audit.

✓ *EAIIS05*: Performance data, global best practices, and received feedback are integrated to continuously enhance and develop internal audit performance: 3.08. This score would suggest that only a medium amount of effort is made on the part of internal audit function to integrate best practices and feedback into its efforts for improving its performance.

✓ *EAIIS06*: Internal audit adapts to the organisation's strategic directions and new problems and risks and modifies audit skills and services to meet potential future needs: 3.22. Good rating here would mean some flexibility and adaptability of internal audit to strategic changes and new challenges.

#### ■ Auditor dimension (F2\_EAI\_IndR)

- ✓ EAICRA01: Audit activities and reports are transparent to relevant stakeholders: 3.13. Perceived transparency of audit activities and reports with above-average rating.
- ✓ EAICRA02: One or more representatives of the internal audit department participate in key office meetings: 3.25. High score showing good participation of the internal auditors in key organizational meetings.
- ✓ EAICRA03: The auditor has the skills to maintain continuous and effective relationships: 2.92. The lowest scored item in this dimension, which unveils a pressing need for improving relational skills among auditors.
- ✓ EAICRA04: Auditors are aligned to stakeholders' needs and expectations: 3.00. Average rating, indicating that auditors moderately meet stakeholders' expectations.
- ✓ EAICRA05: The internal audit department is independent of other departments: 3.11. Good perception of internal audit independence from the rest of the departments. It is necessary to be impartial and objective in evaluation.

Overall, the results show that internal audit is generally well-regarded and aligned with the organization's strategic objectives. Strengths include recognition of audit as a change agent, consideration of reports in decisions, and involvement in key meetings. However, improvements are needed in measuring the impact of audit on performance, long-term planning, and auditors' relational skills.

#### 4.5. Discussion of the results

The results were cross-checked against our analysis for the impact of two dimensions of internal audit effectiveness, which would have a positive influence on the organizational performance of Moroccan public commercial enterprises. Hence, we concluded that an effective internal audit would play a major role in attaining higher organizational performance levels of OMPAM. This conclusion validates hypotheses that have been tested concerning the influence of the strategic alignment of the audit service, the underlying characteristics of the auditors, and the relationships in which it is embedded. Their design extends support to the work of so many other researchers who draw the importance of the internal audit function toward the context of corporate governance, serving in organizational performance. Some of them include [Muchiri and Jagongo \(2017\)](#) and [Lai et al. \(2020\)](#).

According to [Prasad and Rao \(1989\)](#), an effective internal audit function has a positive effect on organizational productivity and profitability right from the very inception of the dawn of research. [Barrett \(2002\)](#) also focused on internal audit as having its role in improving organizational performance. [Kiabel \(2012\)](#), in his turn, insisted that the effectiveness of internal audit is conditioned with strategic alignment towards the organizational objectives. It has been shown, indeed, that internal audit independence is critical in ensuring effective and transparent governance by [Roe \(2005\)](#) and [Muchiri and Jagongo \(2017\)](#). [Eke \(2020\)](#) similarly affirmed that an effective internal audit function positively, and greatly, for that matter, affected the financial performance of public enterprises, an aspect we have elaborately analyzed and confirmed through the in-depth analysis section.

Other researchers have also taken their turns in the attempt to put up a reason for the impact of internal audit on organizational performance. Many authors have agreed that internal audit plays a very vital role in the detection and prevention of abusive practices, irregularities, and fraud, whose impacts are an increase in productivity and profitability, and hence organizational performance.

Furthermore, [Simatupang and Sridharan \(2018\)](#) pointed out that organizational structures that are open and adaptive ensure that the organization operates optimally with respect to performance. Outcomes realized were consistent with our argument conclusion on how effective internal auditing gives an impetus to good governance and high organizational performance.

Other authors have equally argued in the light of [García-Reyes et al. \(2022\)](#), that metrics and indicators to appraise performance at process maturity be used throughout the supply chain. Although this is researched in different contexts by the scholars, some common conclusions can be picked from their work on the importance of measuring performance, and in this study, we are critically appraising the effect of internal audit on organizational performance at OMPAM.

On the other hand, internal audit itself is not a perfect tool and has limitations of their own. Other studies have indeed considered the downside of internal audit on organizational performance. Internal audit, from such studies, can be quite resourceful, in terms of time and people. If the resources put into internal audit are disproportionate to the benefits derived, then a net loss will be incurred by the French institution of internal audit and control ([Viala, 2015](#)). Besides, if the internal audit processes are too rigid and bureaucratic, they can impede operational efficiency. Too many constraints in the operations because of the audit will slow down operations to the detriment of the organization's flexibility.

Internal managers can, sometimes, perceive internal audit as a hindrance to their work. Conflicts between the auditors and the managers can lead to an unpleasant atmosphere and, as such, obstruct cooperation in the work environment ([Jarrar et al., 2020](#)). Lastly, recommendations from the internal audit, where they are overly negative or non-constructive, can lead to demoralization of employees alongside poor engagement. Where employees feel exposed to scrutiny from the internal audit, it can lead to feelings of distrust ([Sara & Said, 2022](#)).

In other words, though internal audit can bring much benefit, it is critical that these negative aspects are managed so that the organization can derive maximum value from it while minimizing undesirable effects.

## 5. Conclusion

This study provides a detailed look into how internal audit effectiveness is perceived and its impact on the performance of Moroccan public commercial enterprises. Our findings confirm that an effective internal audit function significantly contributes to better organizational performance. Specifically, two factors – strategic alignment with management goals and the independence of auditors – were shown to have a strong positive impact.

### 5.1. Contributions to theory and managerial practice

This research contributes to the broader understanding of internal audit's role in organizational performance, particularly in the context of public enterprises. It supports theories that emphasize internal audit as a vital tool for enhancing governance and accountability. By demonstrating how internal audits align with organizational strategies and maintain independence, this study reinforces the arguments of [Prasad and Rao \(1989\)](#), [Barrett \(2002\)](#), and [Muchiri and Jagongo \(2017\)](#), who have all highlighted the importance of internal auditing in promoting productivity, profitability, and organizational health.

For managers, these findings offer practical insights. Managers should ensure that internal audit functions are closely aligned with the organization's strategic objectives. This alignment will help the internal audit go beyond mere compliance and contribute to value creation and risk management. Additionally, maintaining auditor independence is essential to guarantee unbiased evaluations and recommendations. Measures like having direct reporting lines to boards or audit committees, as suggested by [Kiabel \(2012\)](#) and [Roe \(2005\)](#), can help preserve this independence and prevent conflicts of interest.

### 5.2. Originality and novelty of the study

This study brings a unique perspective by focusing on Moroccan public enterprises, a relatively unexplored area in the literature. This context-specific research fills a gap by providing empirical evidence from Morocco, where public enterprises face distinctive governance challenges and opportunities. Moreover, our study incorporates both financial and social performance measures, recognizing that many public enterprises aim to achieve more than just financial goals. This comprehensive approach, as discussed by [Al-Twaijry et al. \(2003\)](#) and [Ofori and Lu \(2018\)](#), provides a fuller picture of how internal audits can contribute to organizational success beyond traditional financial metrics.

### 5.3. Limitations and future research directions

While this study makes several important contributions, it also has some limitations. One limitation is the reliance on self-reported data from a specific sector (public commercial enterprises) in a single country (Morocco), which may limit the broader applicability of the findings. Future research could expand on this work by including



other sectors, such as non-commercial public enterprises or private organizations, to see how internal audit effectiveness varies across different settings.

Another area for future research is to explore the impact of new technologies, such as artificial intelligence and data analytics, on internal audit practices. These technologies could potentially enhance real-time auditing, improve fraud detection, and make audits more efficient, as suggested by recent studies like [Xue and Zan \(2022\)](#). Additionally, conducting a longitudinal study could provide deeper insights into how the effectiveness of internal audits evolves and their long-term impact on organizational performance.

While our study acknowledges the many benefits of effective internal audits, it also recognizes some potential downsides, like the high resource costs and bureaucratic delays that can accompany them. Future research could explore ways to streamline audit processes, such as adopting lean audit techniques or risk-based auditing, which could help balance the benefits and costs, as discussed by [Jarrar et al. \(2020\)](#) and [Sara and Said \(2022\)](#).

#### 5.4. Final thoughts

In conclusion, this study highlights the crucial role of internal audit in promoting governance and accountability within public enterprises. By demonstrating how internal audits can be strategically aligned with organizational goals and maintain their independence, the research offers valuable insights for policymakers, managers, and practitioners looking to optimize internal audit functions in public sector settings. The study calls for continued efforts to strengthen these functions, adapt them to changing needs, and explore innovative approaches to maximize their positive impact while minimizing potential drawbacks. As noted by many scholars, such as [Barrett \(2002\)](#), [Kiabel \(2012\)](#), and [Muchiri and Jagongo \(2017\)](#), an effective internal audit function is not just a regulatory requirement but a strategic asset that can drive sustainable organizational success.

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