

The Impact of Digital Transformation on the Internal Audit Function: A Literature Review

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Abstract:

Digital transformation is not merely updating the tools of internal audit; it is fundamentally reshaping its practices, its strategic role, and its core purpose. This article investigates the profound ways in which digitalization redefines internal audit in both conceptual and operational terms. Drawing from recent empirical studies published between 2020 and 2024, the analysis explores the evolution of audit functions in a context marked by technological acceleration and increased governance complexity, particularly in public and private organizations.

The findings highlight a clear paradigm shift: internal auditors are no longer confined to compliance verification but are increasingly positioned as strategic advisors with hybrid expertise in finance, data analytics, and digital governance. The integration of advanced technologies such as artificial intelligence, blockchain, robotic process automation (RPA), and big data analytics is not only transforming audit practices but also challenging traditional skillsets, introducing new forms of risk, and requiring a reconfiguration of internal structures and control models. This article shows that internal audit is evolving from a retrospective control function to a forward-looking system of organizational intelligence. Rather than reacting to anomalies, auditors now contribute to continuous risk anticipation, real-time monitoring, and strategic decision-making. The shift toward value creation, agility, and innovation positions internal audit as a dynamic force within the ecosystem of digital governance, calling for a redefinition of its institutional role and future contributions.

Mots clés : Internal audit, digital transformation, artificial intelligence, data analytics, governance.

Classification JEL: M42

Paper type: Theoretical Research

Résumé :

La transformation digitale ne se limite pas à une simple mise à jour des outils de l'audit interne ; elle redéfinit en profondeur ses pratiques, son rôle stratégique et sa finalité essentielle. Cet article examine les manières profondes dont la digitalisation reconfigure l'audit interne. À partir d'études empiriques récentes publiées entre 2020 et 2024, l'analyse explore l'évolution des fonctions d'audit dans un contexte marqué par l'accélération technologique et la complexification de la gouvernance. Les résultats révèlent un changement de paradigme évident : les auditeurs internes ne se limitent plus à la vérification de conformité, mais occupent de plus en plus une fonction de conseil stratégique, dotés d'une expertise hybride en finance, en analyse de données et en gouvernance numérique. L'intégration de technologies avancées telles que l'intelligence artificielle, la blockchain, l'automatisation robotisée des processus et l'analyse des mégadonnées transforme non seulement les pratiques d'audit, mais remet également en question les compétences traditionnelles, introduit de nouvelles formes de risques, et nécessite une reconfiguration des structures internes et des modèles de contrôle.

Cet article montre que l'audit interne évolue d'une fonction de contrôle rétrospectif vers un système prospectif d'intelligence organisationnelle. Plutôt que de réagir aux anomalies, les auditeurs contribuent désormais à l'anticipation continue des risques, à la surveillance en temps réel et à la prise de décision stratégique. Cette évolution vers la création de valeur, l'agilité et l'innovation positionne l'audit interne comme une force dynamique au sein de l'écosystème de la gouvernance numérique, appelant à une redéfinition de son rôle institutionnel et de ses contributions futures.

Keywords : Audit interne, transformation digitale, intelligence artificielle, analyse de données, gouvernance, automatisation robotisée des processus.

JEL Classification : M42

Type du papier : Recherche Théorique

1. Introduction

There are transformations that announce themselves loudly, and others that unfold in a quiet, subterranean fashion—slowly yet profoundly reshaping the fabric of what they touch. Digitalization belongs to the latter category. It did not erupt into the organizational landscape in a sudden blaze; rather, it seeped through, incrementally altering processes, shifting cultures, and unsettling hierarchies long before many realized its full weight. If the COVID-19 pandemic served as a moment of rupture, a forced acceleration of digital tools, it only magnified a transformation already well underway—a deep realignment of how institutions operate, anticipate, and respond (El Haiba, 2024).

Within this sweeping realignment, the internal audit function is undergoing a metamorphosis that is as fundamental as it is underappreciated. No longer confined to the margins of compliance or retrospective control, it now finds itself summoned to occupy a more central, strategic role. Once associated with procedural rigor and post-facto risk verification, internal auditing is being reimagined as a forward-looking, analytically agile, and digitally embedded practice. Technologies such as artificial intelligence, robotic process automation, blockchain, and data analytics are no longer external variables to be monitored—they are becoming the very infrastructure of audit processes (Ramdi, 2021; Chitti, 2024).

This shift is not merely technological; it is epistemological. The very nature of what it means to “audit” is changing. The auditor is no longer just the guardian of control mechanisms or the steward of organizational regularity. Increasingly, they are expected to interpret massive data flows, flag latent risks, advise on strategic vulnerabilities, and do so in real time. Their gaze must now stretch beyond mere compliance into the realm of predictive insight and systemic governance. This calls for a hybrid professional profile—one fluent in both financial rigour and algorithmic logic, comfortable with spreadsheets and neural networks alike (Michiss & Kabbaj, 2021).

Yet, this transformation is far from seamless. With each technological leap comes a new tension: between automation and judgment, between speed and accuracy, between transparency and opacity. The challenges are manifold: inadequate digital skills, organizational inertia, uneven access to tools, legal grey zones, and ethical dilemmas surrounding algorithmic bias and data governance (Gauthier & Brender, 2024; Wassie & Lakatos, 2024). Digitalization, then, is not a simple solution; it is a new terrain—full of possibility, but fraught with uncertainty.

To speak of digital transformation in internal audit is therefore not to describe a smooth evolution, but to confront a scene of active redefinition. The role, posture, and even the legitimacy of the auditor are being renegotiated. The classic boundaries between control and strategy, between independence and involvement, are being redrawn. In this context, a question becomes both necessary and urgent—not one among many, but the one that underpins the entire inquiry: How is digitalization transforming the internal audit function in its practices, its positioning, and its fundamental purpose?

This study engages with that singular question, not with the ambition to close it, but to illuminate it. It does so through a critical synthesis of twenty-three empirical studies published between 2020 and 2024, chosen not for their homogeneity but for their capacity to reflect the diversity of real-world auditing experiences in the digital age. These studies, drawn from public institutions, large private firms, and SMEs across regions such as Morocco, Algeria, and France, offer a multi-layered view of the transformations underway—from the tools adopted to the frictions encountered, from the strategic reconfigurations to the persistent institutional lag.

Rather than enumerating successes or failures, this review seeks to surface the logics, hesitations, and negotiations that digitalization introduces into internal audit. It refuses the dichotomy between utopian innovation and dystopian disruption. Instead, it looks at the space in between—where human judgment meets algorithmic calculation, where governance meets

automation, and where tradition meets rupture. The choice of a systematic literature review is not simply methodological—it is philosophical. It affirms that understanding the digital transformation of audit demands both structure and nuance, both evidence and interpretation (Ghandari & Ouenzar, 2022).

2. Literature review

2.1. Theoretical Framework

Traditionally, internal audit has been regarded as a control mechanism focused on compliance verification, risk prevention, and the enhancement of operational efficiency. Its foundational role lies in ensuring organizational accountability and safeguarding internal processes. However, the emergence of digital transformation has deeply reshaped these foundations, calling for a broader understanding of audit's purpose, tools, and positioning.

Digital transformation—defined as the strategic integration of digital technologies across organizational processes, structures, and cultures (Rogers, 2003) entails more than technological adoption. It represents a paradigmatic shift that redefines how internal auditing is conceived and practiced. In this evolving landscape, internal auditors are expected not only to monitor controls but also to engage in predictive analysis, digital governance, and strategic foresight.

Theoretically, this paper is grounded in two complementary frameworks. First, the Technology Acceptance Model (TAM), developed by Davis (1989) helps explain the determinants of digital tool adoption by internal auditors, particularly perceived usefulness and ease of use. Second, the Institutional Theory (Sarens & De Beelde, 2006) provides a lens to interpret how internal audit adapts under normative, coercive, and mimetic pressures in a rapidly evolving digital environment.

This theoretical framing establishes a conceptual foundation for the empirical review that follows, enabling a more coherent understanding of how digital transformation is reconfiguring the internal audit function across diverse contexts.

2.2. Literature review

Several recent studies further support and extend these findings by highlighting the deep transformations occurring within internal audit under the influence of digital technologies and evolving governance demands.

Taşdöken (2024) highlights how artificial intelligence (AI) and audit analytics are revolutionizing internal audit processes in the public sector. The study demonstrates that these technologies not only enhance operational efficiency but also improve real-time risk detection and anomaly identification. AI is thus positioned as a tool for proactive risk management, shifting internal audit from a reactive to a predictive function.

Shabani, Munir, and Mohanty (2022) emphasize the growing role of big data in reshaping internal audit methodologies. Their findings show that by leveraging intelligent data processing models, auditors can move beyond traditional sampling methods to adopt a continuous, holistic, and predictive assessment of financial and operational flows. This data-driven approach strengthens strategic decision-making and agility within organizations.

Ghafar and Perwitasari (2024) examine the impact of AI integration on the performance of internal audit functions at a global level. Their research finds that AI significantly enhances audit speed, precision, and efficiency, while simultaneously necessitating a shift in auditor competencies toward technological fluency and strategic insight. This aligns the internal audit role more closely with digital governance imperatives.

Govekar (2025) analyzes how AI and data analytics redefine internal audit performance metrics. The study proposes a shift from traditional audit indicators toward new measures

rooted in technological efficiency, automation, and responsiveness. This transformation calls for more agile and results-oriented audit models that are tightly integrated with information systems.

Wassie and Lakatos (2024) explore how the rise of AI reshapes the internal auditor's responsibilities from both ethical and organizational perspectives. They argue that internal audit must adapt to new expectations in digital governance and data stewardship, positioning auditors as key actors in ensuring algorithmic accountability and transparency within organizations.

Busco, Frigo, Quattrone, and Riccaboni (2020) advocate for a strategic alignment between internal auditing and integrated reporting. Their work suggests that internal audit should evolve beyond assurance to play a key role in linking organizational strategy, performance, and sustainability. This repositions audit as a value-creating partner in the ecosystem of digital governance.

Roussy and Perron (2023) explore how digital transformation is reshaping the professional identity of internal auditors. Through a qualitative investigation, they show that auditors are increasingly expected to balance technical, analytical, and relational skills. This role hybridization leads to a redefinition of audit value, moving it closer to strategic advisory and organizational foresight.

Sohail and Aydin (2023) highlight how artificial intelligence is automating routine audit procedures, leading to increased audit efficiency and accuracy. Their study further explores how algorithmic decision-making introduces new accountability risks and demands ethical oversight from internal auditors. Similarly, Yakubu and Abubakar (2022) argue that AI-driven audits are not only faster but also more adaptive, allowing real-time insights into complex operational processes.

The role of robotic process automation (RPA) is emphasized in the work of Stigter and Ergen (2023), who explore how repetitive and manual audit tasks are increasingly offloaded to bots. Their research shows that RPA implementation reduces human error and provides greater consistency in compliance checking, while also requiring a redesign of control frameworks. In parallel, Messaoudi and Attia (2021) examine blockchain integration in audit trails, stressing that its immutability strengthens traceability and assurance, especially in sectors prone to fraud and irregularities.

Big data analytics is identified as a game-changer in the auditing landscape. Ersoy et al. (2022) contend that big data enables holistic audits through continuous data flows rather than static samples, thus allowing a shift from retrospective to prospective audit models. This aligns with the findings of Nwokolo and Akintola (2024), who document how predictive analytics enhance risk anticipation, especially in complex financial ecosystems. The strategic use of data, however, demands new hybrid skills, combining technical literacy with interpretative judgment. Digital transformation also alters the governance role of audit. As Zubair and Sheikh (2023) point out, internal audit functions are increasingly involved in strategic decision-making, particularly as organizations face escalating regulatory pressures in digital ecosystems. This role extension implies a blurring of boundaries between audit, IT governance, and corporate risk management. In the same vein, Ofori and Mensah (2020) stress the rise of internal audit as a “value enabler,” rather than just a compliance watchdog.

From an institutional perspective, Rajan and Perera (2023) propose that the transformation of audit is not merely technical but also cultural. They argue that digital auditing brings changes in auditor identity, trust dynamics, and interdepartmental collaboration. Internal auditors must now act as digital change agents, mediating between operational units and executive boards. This cultural repositioning is echoed in the work of Bennani and Tlemsani (2021), who warn against technocratic overreach and stress the continued need for critical human oversight in AI-enhanced audits.

Taken together, these studies offer robust evidence that the internal audit function is undergoing a paradigmatic transformation—technologically, structurally, and epistemologically. Auditors are no longer passive control agents; they are becoming strategic partners, risk predictors, and digital interpreters embedded within governance systems.

3. Methodology

3.1. Framing the Investigative Horizon

To engage meaningfully with the question of how digitalization is reshaping the internal audit function, one must first attend to the terrain of knowledge that precedes and underpins such an inquiry. In a field marked by rapid innovation and conceptual instability, the challenge lies not only in capturing what is known, but also in discerning the patterns, silences, and asymmetries within the literature itself. Hence, the chosen approach is not merely a technical step, but a methodological stance: to construct a lens that is both panoramic and penetrative. This review seeks not just to aggregate findings but to recompose them, to draw lines of coherence across studies that speak in different idioms, with different scopes, in different institutional dialects. It is for this reason that a systematic review of empirical literature was selected—not as an act of positivist cataloging, but as a rigorous process of curation and interpretation. Where narrative reviews often privilege thematic breadth at the cost of analytical depth, the systematic approach—when critically deployed—allows for both consistency and discernment. It opens a space where empirical evidence may be compared, contrasted, and ultimately reassembled into a framework capable of responding to the evolving complexity of audit practices in digital contexts (Ghandari & Ouenzar, 2022).

3.2. Temporal Boundaries and Justification

The temporal delimitation of the corpus—spanning the years 2020 to 2024—was neither arbitrary nor purely pragmatic. Rather, it corresponds to what may be considered a threshold period: a time when the effects of global digital acceleration, notably post-COVID-19, became particularly visible in professional routines, institutional configurations, and scholarly output. The pandemic functioned as a catalyst, destabilizing inherited practices and compelling internal auditors to adopt or confront new digital tools, often under conditions of urgency (El Haiba, 2024). To study this window is, in effect, to observe an inflection point, a moment of intensified transformation.

3.3. Selection of Sources and Corpus Constitution

The search for relevant studies unfolded across a series of respected academic and professional platforms, including Google Scholar, Scopus, Cairn, and Springer, supplemented by university repositories and institutional databases. This multi-sited approach was essential given the transdisciplinary nature of the topic, which intersects accounting, information systems, organizational theory, and risk management. The intent was to capture not only peer-reviewed journal articles, but also master's theses, white papers, and professional reports, provided they met standards of empirical rigor.

However, the criterion of empiricity—that is, the inclusion of studies grounded in data rather than theoretical speculation—remained non-negotiable. Whether through interviews, surveys, case studies, or ethnographic observation, each selected work had to demonstrate a concrete engagement with the lived realities of internal audit practices. This insistence on empirical grounding allowed the review to remain tethered to actual transformations, rather than drifting into normative abstraction (Michiss & Kabbaj, 2021; Karimallah & Drissi, 2023).

Out of an initial pool of over seventy documents, twenty-three studies were ultimately retained. The selection process was conducted manually, privileging close reading and interpretive

sensitivity over algorithmic filters. Abstracts were not taken at face value; full texts were read and evaluated for clarity of purpose, methodological transparency, and relevance to the central research question.

3.4. Quality Control and Analytical Integrity

Ensuring the quality of the selected studies required more than a superficial appraisal. A five-dimensional evaluative grid was developed—focusing on clarity, methodological robustness, relevance of findings, precision of variables, and contribution to the field. While this may recall conventional scoring systems, it was applied here with an interpretive rather than mechanistic intent. Each text was approached as an epistemic artifact, bearing traces of its assumptions, limits, and theoretical commitments.

This evaluative lens was particularly crucial given the heterogeneity of the corpus. Some studies, such as those by Ramdi (2021) and Chitti (2024), emerged from corporate fieldwork and reflected practitioner perspectives. Others, like those of Gauthier & Brender (2024) or Wassie & Lakatos (2024), were more academic in tone, embedded within established theoretical frameworks such as the Technology Acceptance Model (TAM) or the Diffusion of Innovation Theory. Balancing these diverse orientations demanded a flexible but principled approach to quality assessment.

3.5. Modes of Data Extraction and Structuring

The extraction of data from the selected studies followed a multi-layered interpretive logic. Rather than reducing each study to a static summary, the process aimed to trace its argumentative structure, its methodological posture, and its conceptual resonance with broader debates. Information was systematically collected on author identity, publication year, geographical context, research design, technological focus, and identified impacts.

These data points were then transposed into a central matrix—not to flatten them, but to allow for cross-textual comparison. This matrix became the scaffolding for a thematic reassembly of the literature: a conceptual cartography wherein technologies (e.g., RPA, AI), impacts (e.g., agility, quality), and constraints (e.g., resistance, lack of digital skills) could be examined not in isolation but as intersecting lines within a complex ecology of audit transformation.

3.6. Analytical Approach and Thematic Synthesis

The analysis adopted a thematic synthesis method, allowing for the emergence of patterns without predetermining them. Drawing on Braun and Clarke's (2006) reflexive model, themes were not treated as inherent properties of the texts, but as constructs emerging through iterative reading and interpretive engagement. In this sense, the review was not a mere aggregation of findings but a narrative reconstruction—a mapping of the ways in which digitalization is represented, contested, or naturalized within the empirical literature.

Notably, certain motifs surfaced across diverse organizational contexts: the shift toward continuous auditing, the redefinition of the auditor's role from controller to advisor, the centrality of data analytics, and the tensions between innovation and institutional inertia. These recurring patterns were interpreted through both inductive and abductive logics, drawing selectively on theories of institutional change, technological mediation, and professional identity (Christopher et al., 2009; Sarens & De Beelde, 2006).

In turn, divergences were not treated as anomalies but as signals of contextual specificity. For instance, studies conducted in Moroccan public-sector entities (e.g., El Haiba, 2024; Chergui, 2023) emphasized budgetary constraints and regulatory ambiguity, while research in private European firms highlighted ethical concerns related to AI deployment and algorithmic transparency (Gauthier & Brender, 2024).

3.7. Epistemological Positioning

Finally, it is important to acknowledge the epistemological horizon that frames this methodology. This review does not claim exhaustive objectivity, nor does it aspire to closure. Rather, it is animated by a hermeneutic sensibility—aware that every synthesis is also an act of interpretation, that every inclusion implies a form of exclusion. The ambition is not to establish a definitive truth about the digital transformation of internal audit, but to open a space for critical reflection, grounded in empirical evidence yet sensitive to its limits.

This methodological posture is consonant with what Sarens & De Beelde (2006) have called a “reflexive audit research agenda”—one that recognizes the audit function not as a fixed entity but as a site of ongoing negotiation between normative expectations, technological affordances, and institutional constraints.

4. Résultats et discussion

4.1. From Compliance to Strategic Foresight

The digital reconfiguration of internal audit, as it unfolds across the empirical literature examined, does not represent a simple technological upgrade nor a marginal operational shift. Rather, it marks a structural displacement in how audit is practiced, positioned, and conceived within contemporary organizations. This transformation is neither uniform nor frictionless, yet it is undeniably underway—shaped by technological forces, strategic realignments, and epistemic recalibrations that redraw the very contours of the audit function.

What the literature demonstrates, above all, is a shift from a retrospective, compliance-oriented practice to one that is deeply embedded in strategic anticipation and organizational resilience. No longer relegated to verifying past transactions or enforcing procedural orthodoxy, the internal auditor is now being repositioned as a strategic actor—someone expected not merely to report on risks but to participate in their modeling, anticipation, and mitigation. This repositioning is particularly evident in the work of Michiss and Kabbaj (2021), who emphasize the growing involvement of auditors in enterprise risk management and strategic governance structures. In this emerging paradigm, internal audit operates less as a reactive function than as a proactive interface between operational complexity and executive oversight.

This evolution in the audit role from control to foresight is not merely conceptual; it reflects observable shifts in auditors' involvement in enterprise risk management. To better capture this strategic repositioning, we propose the following research propositions:

- The repositioning of internal audit toward strategic foresight is positively influenced by its integration into enterprise risk management systems.
- Internal auditors with involvement in forward-looking risk modeling contribute more significantly to strategic decision-making than those focused on compliance monitoring.

4.2. Technological Vectors of Transformation

The technological vectors of this transformation are numerous, but four stand out with consistent prominence: artificial intelligence, robotic process automation, data analytics, and blockchain. Each contributes not only to the enhancement of audit procedures but to a reconceptualization of what auditing entails. In the studies of Acher and Oussaid (2021), as well as Karimallah and Drissi (2023), data analytics is shown to enable a profound methodological leap—from sampling techniques to full-population auditing. This change significantly increases precision, transparency, and audit coverage, allowing auditors to detect anomalies in real time and to interpret trends with predictive intent. The implications are not merely operational but epistemological: the auditor is no longer interpreting isolated events but navigating continuous data flows that demand a new form of analytical literacy.

In parallel, robotic process automation, as discussed by Ramdi (2021) and El Modni and El Kabbouri (2024), has relieved auditors of repetitive and low-value tasks, such as data extraction and document verification. This redistribution of effort allows for a reallocation of attention toward tasks requiring interpretation, judgment, and ethical reasoning. Far from replacing the auditor, automation redefines their domain of relevance, accentuating their role as knowledge workers rather than procedural agents.

Artificial intelligence, perhaps the most disruptive force, introduces both unprecedented analytical power and ethical ambiguity. Gauthier and Brender (2024) demonstrate how AI is used in risk profiling and fraud detection, enabling auditors to uncover hidden patterns across vast data sets. Yet, the same authors caution against over-reliance on opaque algorithms whose logic may elude even their users. Here, the auditor's function expands into a dual role: both as user of intelligent systems and as critical assessor of the systems themselves. This demands a hybrid skillset—simultaneously technical and reflective—that challenges existing training paradigms and professional identities.

Blockchain, while still at the margins of mainstream audit practice, introduces a conceptual provocation that cannot be ignored. As Ramdi (2021) and later Gauthier and Brender (2024) argue, blockchain's inherent immutability and transparency suggest the possibility of self-auditing systems—structures that generate their own assurance through distributed verification. While its practical implementation remains limited, its symbolic force is immense: it challenges the necessity of traditional audit intermediaries and calls into question the temporal structure of audit itself.

The adoption of digital technologies such as AI and RPA appears to profoundly influence audit procedures and their outcomes. In light of these transformations, and consistent with findings from Ramdi (2021) and Gauthier and Brender (2024), we suggest the following research directions: The adoption of AI, RPA, data analytics, and blockchain significantly increases audit effectiveness in terms of coverage, precision, and responsiveness.

4.3. Reconfiguration of Auditor Competencies and Identity

The most visible expression of these technological shifts is the rise of continuous auditing. This is not a mere extension of existing cycles, but a transformation in tempo, rhythm, and expectation. Rather than functioning in periodic bursts, audit becomes embedded in the ongoing life of the organization. Daidj et al. (2021) and Karimallah and Drissi (2023) show how this modality enables real-time feedback, dynamic risk mapping, and early anomaly detection. The internal audit function, in this context, aligns itself not with post-hoc scrutiny but with operational foresight. Yet this always-on model also introduces new pressures. As Ramdi (2021) points out, the demand for immediacy can undermine the contemplative depth and methodological rigor that once defined the audit craft.

Alongside these structural and procedural shifts, the auditor's profile is undergoing a significant redefinition. Across multiple studies—including those by Chitti (2024), Wassie and Lakatos (2024), and Gauthier and Brender (2024)—the emergence of a hybrid professional identity is evident. Auditors are now expected to master domains previously considered external to their expertise: data science, information systems, cybersecurity, and even algorithmic ethics. This evolution requires more than upskilling; it necessitates a recalibration of what constitutes audit competence. Traditional accounting proficiency is no longer sufficient. The contemporary auditor must be a translator between technical systems and strategic priorities, capable of articulating insights in both computational and organizational languages.

These findings point to a growing need for hybrid competence profiles among internal auditors. The convergence of technical and strategic expertise seems to redefine what constitutes effective auditing in digital contexts. Accordingly, the following propositions are offered:

Hybrid competence profiles (combining digital and financial skills) are positively associated with the perceived strategic value of internal audit.

This repositioning has been accompanied by a reframing of auditor identity. The figure of the auditor, once associated with procedural rigor and a mastery of financial documentation, is now hybridized. Today's auditor must embody a fusion of financial acumen, data literacy, algorithmic sensitivity, and strategic vision. Studies by Chitti (2024) and Sarens and De Beelde (2006) illustrate this evolution clearly: the auditor is expected to speak multiple professional languages, to traverse disciplinary boundaries, and to integrate diverse forms of knowledge into coherent narratives of assurance. This transformation necessitates not only new training regimes but also a cultural revaluation of what audit means—and who is qualified to perform it.

4.4. Organizational Constraints and Institutional Frictions

Yet these transformations are not universally accessible. The literature reveals persistent asymmetries in the pace and depth of digital adoption. In the work of Chergui (2023), the challenges faced by small and medium-sized enterprises in Morocco are laid bare: lack of infrastructure, limited digital literacy, and financial constraints inhibit the implementation of advanced audit technologies. Michiss and Kabbaj (2021) highlight cultural resistance to change as a further barrier, with some auditors expressing unease about being displaced by machines or losing their evaluative authority. In such contexts, digitalization does not empower but destabilizes—disorienting professionals and exposing gaps in governance and training.

Compounding these frictions is the absence of regulatory clarity. Ghandari and Ouenzar (2022), as well as Daidj et al. (2021), underscore the mismatch between emerging practices and existing audit standards. The lack of frameworks specific to digital audit tools creates uncertainty, inhibits innovation, and generates legal and ethical ambiguity. In some cases, this leads to a paradoxical situation where auditors adopt advanced technologies while still being judged according to outdated benchmarks.

Despite these constraints, what the literature ultimately reveals is a profound rearticulation of audit's purpose. Digitalization does not merely make audit faster or more efficient; it alters what audit is for. No longer confined to risk mitigation or compliance verification, audit becomes a strategic resource a site of sensemaking within increasingly complex and volatile organizational systems. As the boundary between governance and analytics blurs, the auditor emerges as a hybrid actor, both analyst and advisor, embedded within the fabric of organizational decision-making.

The internal audit function, therefore, is not simply being modernized. It is being reimagined. Digitalization has brought with it a new set of expectations, a new epistemological terrain, and a redefinition of professional legitimacy. The transformation is neither complete nor unproblematic, but it is undeniably underway. Internal audit is no longer a matter of checking the past it is becoming an instrument of future orientation, a mechanism not just of control but of strategic calibration.

Yet perhaps the most profound transformation lies not in what the auditor does or where they are positioned, but in what internal audit is fundamentally for. The literature suggests that we are witnessing a movement from audit as oversight to audit as sensemaking. In this emergent paradigm, the function of audit is no longer to verify the past but to illuminate the present and anticipate the future. It becomes a cognitive system within the organization, tasked with rendering intelligible the complexity of digital environments, operational vulnerabilities, and governance interdependencies. As Christopher et al. (2009) and Roussy (2013) argue, audit becomes a discourse of value creation—a mechanism by which organizations interpret their own risk landscape and align their operations with their evolving values.

This redefinition of purpose is not without tensions. The expansion of audit into strategic domains risks blurring lines of independence, creating potential conflicts between control and

collaboration. Prawitt et al. (2009) have shown how excessive integration into management structures can compromise the credibility and objectivity of internal audit. Moreover, as Ghandari and Ouenzar (2022) note, the acceleration of digital transformation often outpaces the regulatory frameworks designed to contain it. Auditors find themselves operating in a legal grey zone, particularly with respect to AI-driven systems, blockchain-based processes, and cross-jurisdictional data governance.

4.5. Audit as a Strategic and Epistemological Resource

Beyond process and technology, digitalization challenges the foundational purpose of internal audit. It becomes a mechanism for organizational sensemaking an intelligence node embedded within decision-making systems. As governance and data analytics converge, the auditor evolves into a hybrid actor: both analyst and advisor.

Internal audit is not just modernized; it is reimagined. This paradigm shift, though unfinished and marked by tensions, redefines internal audit as a system of strategic calibration rather than backward-looking verification. It demands not only new tools and skills but also a reframing of legitimacy, independence, and purpose.

5. Conclusion

The transformation of the internal audit function under the pressures of digitalization cannot be reduced to a narrative of technological enhancement or operational refinement. What has unfolded across the empirical corpus examined is far more radical: an ontological shift, in which the internal audit no longer functions as a peripheral control mechanism but is progressively recast as an embedded node of organizational intelligence. This reconstitution operates across three fundamental axes—practice, positioning, and purpose—and in each, the force of digitalization acts not as a linear force of progress but as a destabilizing, reconfiguring energy. The rise of data analytics, robotic process automation (RPA), and artificial intelligence (AI) has also radically changed the technical repertoire of audit. These technologies extend the auditor's reach, accelerate their diagnostics, and allow for previously unimaginable granularity in analysis. However, as Acher and Oussaid (2021) and Gauthier and Brender (2024) warn, this augmentation comes with new risks: the opacity of algorithms, the potential loss of judgment, and the epistemic tensions between human interpretation and machine-generated outputs. The challenge, then, is not merely to adopt these tools but to articulate their logic within the ethical and strategic imperatives of the organization. The auditor becomes not just a user of technology but a critical mediator of its governance.

Positionally, the auditor is moving from the margins to the center. This is not a rhetorical claim but an empirical reality captured across multiple contexts, from Moroccan public institutions (El Haiba, 2024) to European corporate environments (Wassie & Lakatos, 2024). Auditors are increasingly invited into strategic decision-making processes, particularly around enterprise risk management, compliance with digital ethics, and the governance of emerging technologies. This shift reflects a growing recognition that audit is not merely reactive but generative—that it plays a constitutive role in shaping how organizations define and navigate uncertainty. As Michiss and Kabbaj (2021) emphasize, internal audit is becoming a strategic advisory function, no longer confined to technical compliance but engaged in shaping organizational foresight.

Further complicating this landscape are the persistent inequalities in access, competence, and adoption. The studies by Chergui (2023) and Daidj et al. (2021) underscore how SMEs and public sector entities—particularly in the Global South—face severe constraints in digital infrastructure, human capital, and organizational readiness. In these settings, digitalization can exacerbate exclusion rather than promote efficiency. It risks producing a two-tier audit

profession: one that is fully equipped to operate in digital ecosystems, and another that remains anchored in outdated tools, practices, and expectations.

What emerges, then, is a complex and uneven terrain. Digitalization has not homogenized audit practice; it has pluralized it. It has not closed the question of audit's role; it has reopened it. Internal audit today exists in a liminal space—between automation and autonomy, between tradition and transformation, between control and creation. To navigate this space requires not just technical tools but philosophical clarity: a recognition that audit is not merely an organizational function but a modality of thinking, a logic of vigilance, and a vector of institutional accountability.

This study, through its critical synthesis of twenty-three empirical investigations, has aimed to trace the contours of this emergent paradigm. It has shown that the digital transformation of internal audit is not a uniform process but a contested and negotiated one—shaped by institutional histories, cultural logics, technological affordances, and professional struggles. It has demonstrated that while technologies matter, it is the way they are embedded, interpreted, and contested that determines their impact. And it has revealed that the future of internal audit lies not in its ability to digitize but in its capacity to reimagine its own purpose in a world defined by volatility, complexity, and constant reconfiguration.

In light of these findings, several directions become apparent. First, audit education must be radically updated—not merely to teach new tools, but to cultivate new sensibilities. Curricula must integrate data science, digital ethics, algorithmic accountability, and critical systems thinking. Second, regulatory bodies must act swiftly to provide coherent standards that address the realities of digital audit, lest innovation be stifled by uncertainty. Third, audit teams must be supported in their efforts to innovate, through investments in infrastructure, training, and cultural change initiatives that reduce resistance and encourage experimentation. Fourth, collaboration between academics and practitioners must be intensified, to ensure that theoretical advances are informed by empirical realities, and vice versa.

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