Mapping the Evolution of Financial Technology in Auditing and Accounting Through a Bibliometric and Systematic Review

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Abstract

Purpose. Financial technology (FinTech) has moved from the periphery of accounting and auditing research to its centre. Big data analytics, artificial intelligence (AI), blockchain, robotic process automation (RPA) and continuous auditing are now discussed as forces that reshape how financial information is produced, verified and used. This review maps how that research stream evolved between 2010 and 2021, identifies its intellectual structure, and sets out an agenda for future inquiry.

Design/methodology/approach. The study combines bibliometric analysis with a systematic literature review (SLR) following the Tranfield et al. (2003) protocol and PRISMA 2020 reporting principles. A core corpus of 77 peer-reviewed journal articles published between 2010 and 2021 was assembled through structured keyword searching of leading accounting and information systems journals and citation chaining. Performance and science-mapping indicators were computed, followed by a qualitative content synthesis, and a further 100 seed studies of adjacent applied literature published between 2018 and 2021 were mapped into nine clusters.

Findings. Output grew from 9 studies in 2010–2014 to 41 in 2018–2021, with peaks in 2017 and 2019. Three outlets (*Accounting Horizons*, the *International Journal of Accounting Information Systems* and the *Journal of Emerging Technologies in Accounting*) published 45.5% of the corpus, and a Rutgers-centred collaboration network around Vasarhelyi, Kogan and colleagues anchors the field. Thematically, big data and analytics dominated the 2015–2017 period, after which attention shifted toward AI and machine learning, blockchain and RPA, and toward the implications of these tools for professional roles, skills and ethics. The evolution can be read in three phases: an *automation and assurance foundations* phase (2010–2014), a *data revolution* phase (2015–2017) and an *intelligent and distributed ledger* phase (2018–2021).

Originality/value. The review integrates fragmented technology-specific literatures into a single evolutionary map and identifies under-researched areas: evidence on audit quality outcomes, regulatory

responses, the ethics of algorithmic judgement, and emerging economies. It proposes a conceptual model with six propositions linking FinTech capabilities and institutional pressures to audit transformation and outcomes, moderated by data governance, skills, cyber controls, ethics and regulatory clarity. The seed literature shows FinTech ideas spreading into compliance, digital banking, financial planning and data governance, with a growing but largely conceptual body of work from Sub-Saharan Africa.

Keywords: *FinTech; auditing; accounting; bibliometric analysis; systematic literature review; big data; artificial intelligence; blockchain; robotic process automation; continuous auditing; conceptual model*

Paper type: Literature review

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1. Introduction

Accounting and auditing have always depended on technology, from the ledger to the enterprise resource planning (ERP) system. What distinguishes the past decade is the speed and breadth of change. Digital innovations grouped under the label of financial technology or FinTech now allow organisations to capture entire populations of transactions, process them automatically, record them on shared ledgers and analyse them with learning algorithms (Gomber et al., 2017; Vasarhelyi et al., 2015), challenging the reliance on sampling, the periodic nature of the audit and the division of labour between junior and senior staff (Alles, 2015; Issa et al., 2016).

The academic response has been substantial but fragmented. Separate literatures have grown around big data analytics (Appelbaum et al., 2017; Gepp et al., 2018), artificial intelligence (Kokina & Davenport, 2017; Sutton et al., 2016), blockchain (Dai & Vasarhelyi, 2017; Schmitz & Leoni, 2019), robotic process automation (Huang & Vasarhelyi, 2019; Moffitt et al., 2018) and continuous auditing (Chiu et al., 2014). Several reviews have covered individual technologies, such as blockchain (Pimentel & Boulianne, 2020), digitalisation more broadly (Knudsen, 2020; Moll & Yigitbasioglu, 2019) or the changing role of accountants (Kroon et al., 2021). Fewer studies have looked across technologies to ask how the field as a whole has evolved, which themes have risen and fallen, and where the technologies meet.

This paper addresses that gap. Combining bibliometric mapping with a systematic review, it traces the evolution of FinTech research in auditing and accounting from 2010 to 2021. The review is guided by four research questions:

- **RQ1.** How has the volume of FinTech research in auditing and accounting developed over time, and which journals and authors have shaped it?

- **RQ2.** What is the thematic structure of the field, and how have its themes shifted across periods?
- **RQ3.** What do studies conclude about the effects of each technology on accounting and audit practice, the profession and its governance?
- **RQ4.** Which gaps remain, and what agenda should guide future research?

The paper makes three contributions: an integrated performance and science map of a literature usually examined one technology at a time; a three-phase account of the field's evolution from data access, to data analysis, to autonomous and distributed processing; and an integrated conceptual model with six testable propositions and a structured research agenda.

Section 1.1 sets out the literature background, Section 2 describes the research method, Section 3 presents the results and discussion, and Section 4 concludes.

1.1 Literature background

1.1.1 Defining FinTech in the accounting and auditing context

FinTech is commonly defined as the use of new technology to deliver financial services and solutions (Arner et al., 2016; Schueffel, 2016). Most definitions originate in banking and payments, and they emphasise new business models and market entrants (Gomber et al., 2017; Puschmann, 2017). In accounting and auditing the term is used more loosely. It refers to the digital technologies that change how financial information is captured, processed, reported and assured, whether they are deployed by start-ups, by large audit firms or by the finance function of established companies.

For the purposes of this review, FinTech in auditing and accounting is defined as *the set of digital technologies, including big data analytics, artificial intelligence and machine learning, distributed ledger technology, robotic process automation, continuous monitoring and digital reporting standards, applied to the recording, reporting, analysis and assurance of financial information*. Some writers prefer terms such as digitalisation, emerging technologies or Audit 4.0 (Dai & Vasarhelyi, 2016). These labels overlap heavily with the definition used here, so studies using them were treated as within scope.

1.1.2 Core technologies

Table 1 summarises the technologies that structure the literature and their principal points of contact with accounting and audit work.

Table 1. Core FinTech technologies and their relevance to accounting and auditing

Technology	Core idea	Primary relevance
Big data and analytics	Capture and analysis of large, varied and fast-moving datasets, including unstructured data	Full-population testing, analytical procedures, new audit evidence, management reporting
Artificial intelligence and machine learning	Algorithms that learn patterns, classify, predict and process language or images	Fraud and misstatement detection, estimates, document review, judgement support
Blockchain and smart contracts	Shared, append-only ledgers maintained by consensus; self-executing code	Transaction verification, triple-entry ideas, real-time assurance, new assets to audit
Robotic process automation	Software robots that mimic rule-based human actions in existing systems	Automating reconciliations, data gathering and routine audit tests
Continuous auditing and monitoring	Ongoing, automated testing of transactions and controls close to real time	Timely assurance, exception management, internal audit
Digital reporting (XBRL)	Machine-readable tagging of financial statement data	Comparability, data quality, regulatory filing, analytics on disclosures
Drones and sensors	Physical data capture by devices and the Internet of Things	Inventory and asset verification

1.1.3 Theoretical lenses

The literature draws on a small set of theories. Technology acceptance and adoption models, notably the Technology Acceptance Model (Davis, 1989), the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003) and diffusion of innovations (Rogers, 2003), explain individual and organisational uptake. Institutional theory (DiMaggio & Powell, 1983) helps explain why firms adopt similar tools under regulatory and competitive pressure, and why standards lag practice (Krahel & Titera, 2015). Studies of judgement and decision making examine how analytics and AI change auditor cognition (Brown-Liburd et al., 2015). Labour-economics work on automation (Frey & Osborne, 2017) frames debates about which accounting tasks will be substituted. Design science underpins many prototype studies in continuous auditing and audit analytics (Kogan et al., 2019). Notably, a large share of the corpus is conceptual or agenda-setting and does not adopt an explicit theory, a point taken up in Section 3.8.

2. Research Method

2.1 Research design

The study combines bibliometric analysis, which provides a quantitative picture of a field's growth, sources, contributors and intellectual structure (Donthu et al., 2021; Zupic & Čater, 2015), with a systematic literature review that adds the qualitative depth needed to interpret findings (Tranfield et al., 2003). Using both reduces the risk that a quantitative map misses the substance of the debate or that a narrative review reflects selection bias. Reporting follows PRISMA 2020 (Page et al., 2021).

2.2 Search strategy

The search targeted peer-reviewed journal articles published between January 2010 and December 2021, the period in which big data, cloud computing and later blockchain and AI became prominent. The following Boolean string was applied to titles, abstracts and keywords, adapted to each database's syntax:

("fintech" OR "financial technology" OR "big data" OR "data analytics" OR "artificial intelligence" OR "machine learning" OR "blockchain" OR "distributed ledger" OR "smart contract*" OR "robotic process automation" OR "continuous audit*" OR "XBRL" OR "digitali*ation") AND ("audit*" OR "accounting" OR "accountant*" OR "assurance")

Searching concentrated on the accounting and accounting information systems journals that publish most technology-related work, including *Accounting Horizons*, *Auditing: A Journal of Practice & Theory*, the *International Journal of Accounting Information Systems*, the *Journal of Emerging Technologies in Accounting*, the *Journal of Information Systems* and *Accounting, Auditing & Accountability Journal*. Backward and forward citation chaining identified relevant papers in finance, ethics and general management outlets.

2.3 Eligibility criteria and screening

Table 2 lists the inclusion and exclusion criteria. Screening proceeded in two stages: titles and abstracts were screened for relevance, and the remaining articles were read in full to confirm that a FinTech technology was examined in direct relation to accounting, auditing or assurance.

Table 2. Inclusion and exclusion criteria

Criterion	**Included**	**Excluded**
Document type	Peer-reviewed journal articles	Books, chapters, theses, editorials, practitioner magazine pieces without review (one practitioner-focused academic outlet retained for its education focus)
Period	2010 to 2021	Before 2010 or after 2021 (earlier works used only as background)
Language	English	Other languages
Topic	A FinTech technology examined in relation to accounting, auditing, assurance or the accounting profession	Technology studies with no accounting or audit link; pure banking, payments or investment FinTech
Contribution	Conceptual, empirical, design-science or review contributions	Studies mentioning technology only in passing

The process yielded a core corpus of **77 articles** (listed in Appendix A). The corpus is deliberately a high-relevance core rather than an exhaustive extraction of every record in a citation database. This choice favours depth of reading over breadth of counting, and it is discussed further in Section 3.7.

In addition, a **seed set of 100 studies** published no later than 2021 was drawn from a consolidated reference list of applied research on FinTech, audit, internal control, fraud analytics, financial reporting, digital banking, data governance, compliance and sustainability accounting. Because these studies appear mainly in multidisciplinary outlets outside the core journal set and are predominantly conceptual, they were excluded from the bibliometric indicators and instead coded into nine thematic clusters used in Section 3.3.

2.4 Data coding and analysis

For each article, the authors, year, journal and primary technology themes were coded. An article could be assigned more than one theme where it addressed several technologies substantively. Nine themes emerged inductively and were then stabilised: big data and analytics (BDA); AI and machine learning (AI); blockchain and smart contracts (BC); RPA; continuous auditing (CA); digital reporting and XBRL (DR); profession, skills and education (PROF); ethics and governance (ETH); and drones and sensing (DRONE).

Following Donthu et al. (2021), performance analysis covered annual and cumulative output, source and author productivity, authorship patterns and frequent co-author pairs, and science mapping covered thematic frequency, the distribution of themes across three periods (2010–2014, 2015–2017, 2018–2021) and a theme co-occurrence matrix analogous to keyword co-occurrence networks in VOSviewer (van Eck & Waltman, 2010) and bibliometrix (Aria & Cuccurullo, 2017). Indicators were computed in Python from the coded dataset. The qualitative synthesis then read each theme's studies in full, and the resulting constructs were integrated into a conceptual model (Section 3.4).

3. Results and Discussion

Section 3.1 reports the bibliometric map, Sections 3.2 and 3.3 synthesise the core and adjacent literatures, Section 3.4 proposes a conceptual model, and Sections 3.5 to 3.8 discuss the findings, implications, limitations and future research.

3.1 Bibliometric mapping of the core literature

3.1.1 Publication trend

Figure 1 shows annual and cumulative publications. Output was sparse until 2014, with between zero and four articles a year. It then rose sharply. The 2015 spike (9 articles) reflects a concentrated body of work on big data in auditing, much of it published together in *Accounting Horizons*. Output peaked at 13 articles in both 2017 and 2019 and remained high in 2020 and 2021. Across the three periods, the corpus grew from 9 articles (11.7%) in 2010–2014 to 27 (35.1%) in 2015–2017 and 41 (53.2%) in 2018–2021. More than half of the literature therefore appeared in the final four years of the window, which confirms that the field was still in a growth phase at the end of 2021.

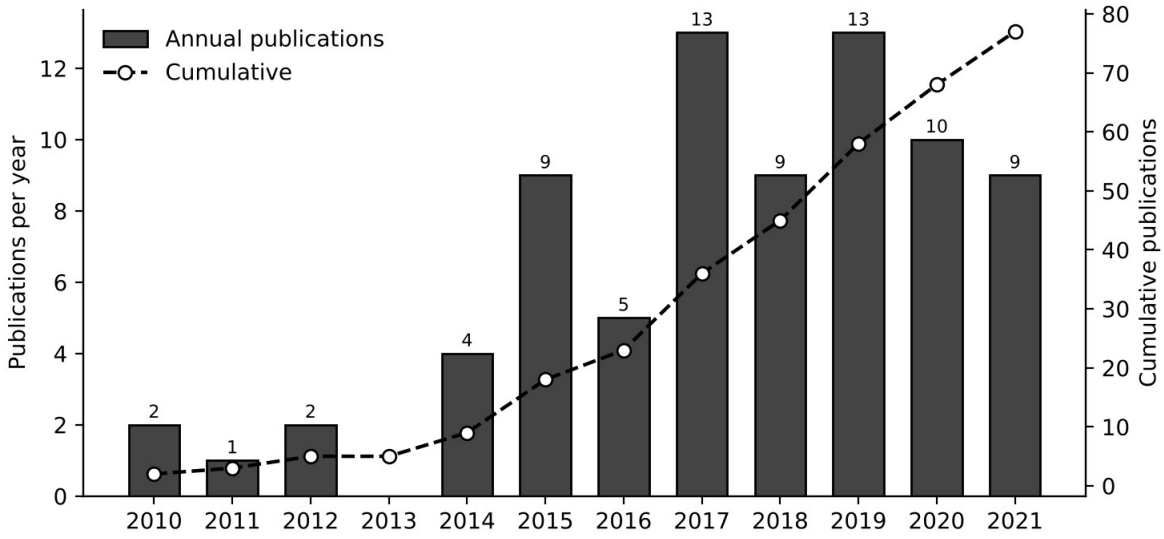


Figure 1. Annual and cumulative publications in the core corpus, 2010–2021 (n = 77)

3.1.2 Most productive sources

The 77 articles appeared in 31 journals, but output is highly concentrated (Table 3). *Accounting Horizons* (14 articles), the *International Journal of Accounting Information Systems* (12) and the *Journal of Emerging Technologies in Accounting* (9) account for 45.5% of the corpus, a Bradford-type concentration showing that the field's core sits within the accounting information systems community, while 19 journals contributing one article each signal spread into mainstream, critical, ethics and finance outlets after 2017.

Table 3. Most productive journals in the core corpus

Rank	Journal	Articles	Share of corpus
1	Accounting Horizons	14	18.2%
2	International Journal of Accounting Information Systems	12	15.6%
3	Journal of Emerging Technologies in Accounting	9	11.7%
4	Auditing: A Journal of Practice & Theory	4	5.2%
5	Journal of Information Systems	3	3.9%
5	Australian Accounting Review	3	3.9%
5	Meditari Accountancy Research	3	3.9%
8	Journal of Accounting Literature; Accounting and Business Research; Accounting, Auditing & Accountability Journal; Review of Accounting Studies; Journal of Applied Accounting Research	2 each	2.6% each
	Other journals, one article each	19	24.7%

3.1.3 Authors and collaboration

The corpus involves about 145 distinct author names, with an average of 2.69 authors per article and only 9 single-authored articles (11.7%). Table 4 lists the most productive authors. Miklos A. Vasarhelyi appears

on 19 articles, a quarter of the corpus, and frequent co-authors including Alexander Kogan, Deniz Appelbaum, Ting Sun, Jun Dai and Michael Alles also rank highly; the leading co-author pairs (Kogan and Vasarhelyi, 5 articles; Sun and Vasarhelyi, 4; Dai and Vasarhelyi, 3; Appelbaum and Vasarhelyi, 3) form a dense core associated with the Rutgers Continuous Auditing and Reporting Laboratory. Smaller clusters formed around Julia Kokina (AI, blockchain and RPA) and, after 2020, Othmar Lehner (AI and automation).

Table 4. Most productive authors in the core corpus

Author	**Articles**	**Principal themes**
Vasarhelyi, M. A.	19	Continuous auditing, big data, AI, blockchain, RPA
Kogan, A.	6	Continuous auditing, big data, blockchain
Alles, M. G.	5	Big data, continuous auditing, XBRL
Appelbaum, D.	5	Big data and analytics, drones, data literacy
Sun, T.	5	AI, deep learning, machine learning
Kokina, J.	4	AI, blockchain, RPA, accountant roles
Dai, J.	3	Audit 4.0, blockchain, education
Gray, G. L.	3	Data mining, expert systems, big data
Lehner, O. M.	3	AI and RPA in accounting and controlling

3.1.4 Thematic structure

Figure 2 shows the frequency of each theme. Big data and analytics is the largest theme (29 articles, 37.7%), followed by AI and machine learning (19, 24.7%), blockchain and smart contracts (17 articles, 22.1%) and profession, skills and education (13 articles, 16.9%). RPA (7 articles), continuous auditing (6 articles) and digital reporting (5 articles) form a second tier. Ethics (1 article) and drones (2 articles) are marginal. Eighteen articles (23.4%) address more than one theme.

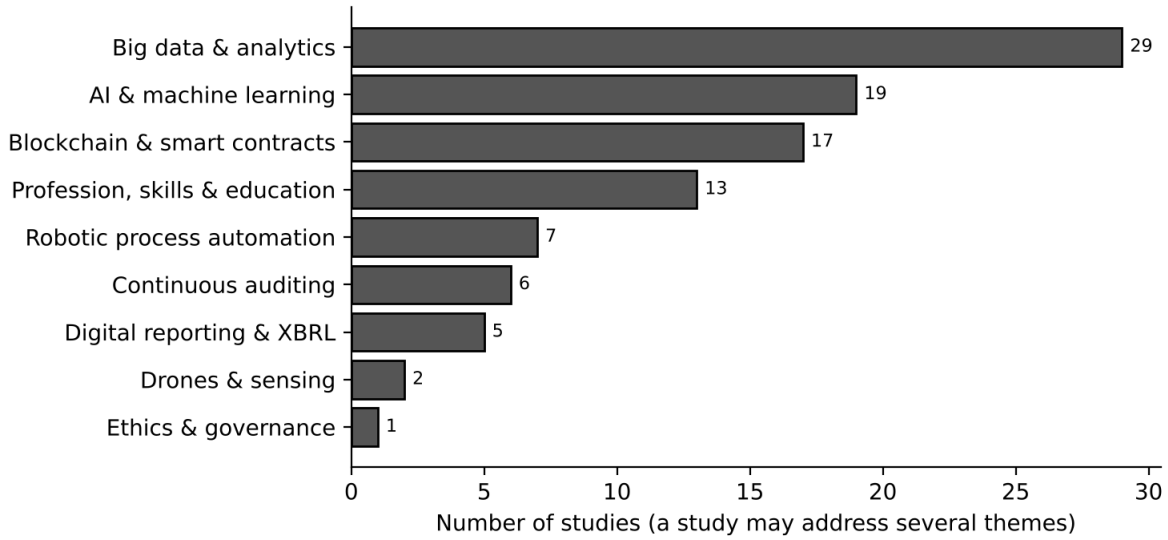


Figure 2. Frequency of themes in the core corpus (multiple themes per study allowed)

Figure 3 shows how themes moved across the three periods, and is the clearest evidence of the field's evolution. In 2010–2014, attention was spread thinly across continuous auditing, AI-based data mining and XBRL. In 2015–2017, big data and analytics dominated (18 of 32 theme occurrences). In 2018–2021, big data receded (9 occurrences) while blockchain (13 occurrences), AI (12 occurrences), profession and skills (9 occurrences) and RPA (7 occurrences, all in this period) rose. Continuous auditing, by contrast, declined as a stand-alone label, partly because its ideas were absorbed into big data, RPA and blockchain discussions.

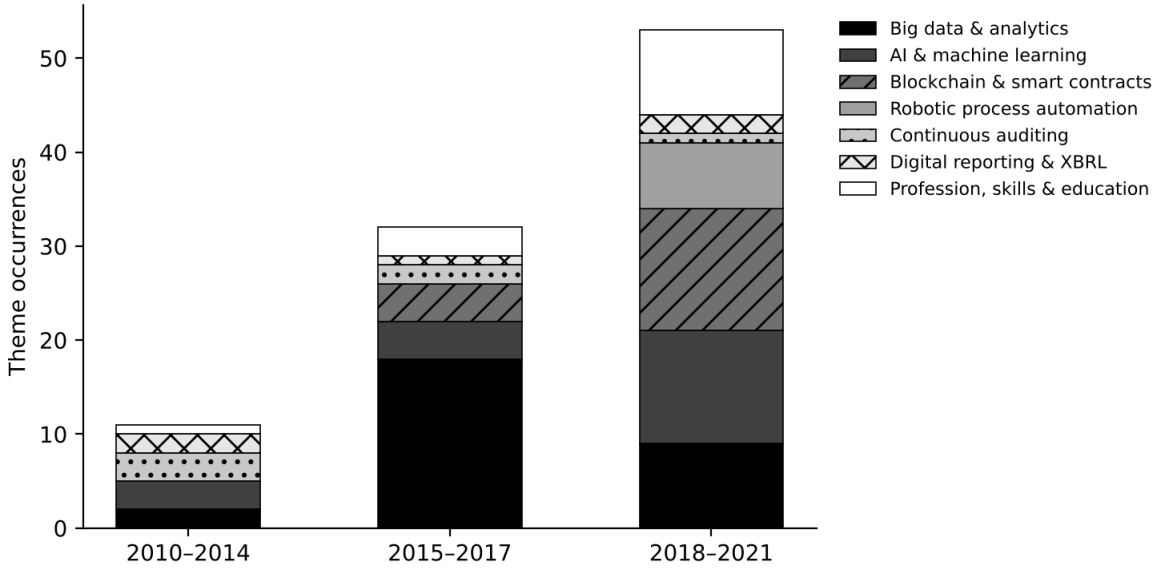


Figure 3. Theme occurrences by period, showing the shift from analytics toward AI, blockchain and RPA

Figure 4 reports the theme co-occurrence matrix, with the diagonal showing each theme's total frequency. The strongest links connect big data with the profession and skills theme (5 articles), AI with blockchain (4

articles), AI with big data (3 articles) and AI with the profession theme (3 articles). Two observations follow. First, the profession theme acts as a bridge: when authors discuss what technologies mean for accountants, they tend to discuss several technologies at once (Marrone & Hazelton, 2019; Moll & Yigitbasioglu, 2019). Second, the AI and blockchain link reflects a growing view of these technologies as complementary parts of a single digital audit ecosystem (Cong et al., 2018).

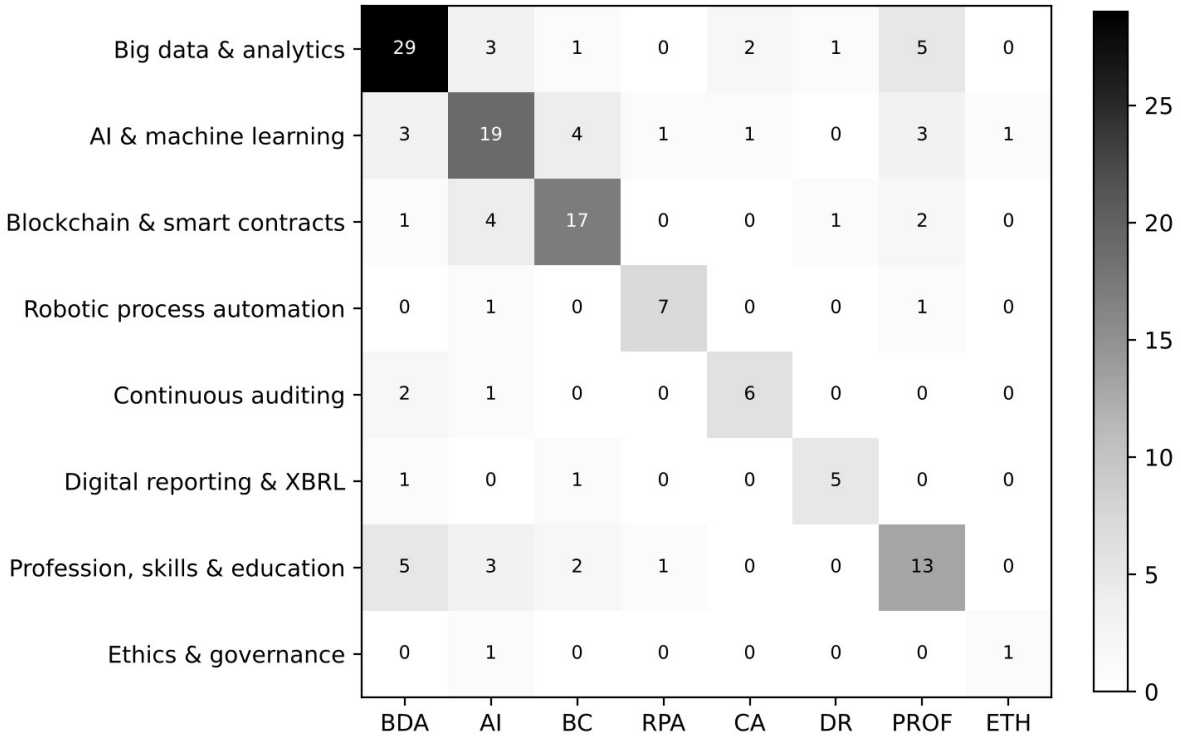


Figure 4. Theme co-occurrence matrix (off-diagonal cells: articles addressing both themes; diagonal: total articles per theme)

3.2 Literature synthesis: thematic findings from the core literature

This subsection synthesises what the core studies conclude about each theme, addressing RQ3.

3.2.1 Big data and analytics

The big data stream asks how large, varied and high-velocity data change accounting information and audit evidence. Early agenda papers argued that big data would widen the information set beyond the general ledger to include emails, sensor data, social media and other unstructured sources (Vasarhelyi et al., 2015; Warren et al., 2015). Bhimani and Willcocks (2014) placed these changes in the wider shift of accounting information toward digitised, real-time forms. For auditing, Yoon et al. (2015) proposed big data as complementary evidence, while Cao et al. (2015) and Earley (2015) described how analytics could support risk assessment, analytical procedures and testing of full populations rather than samples.

A second group examined barriers. Alles (2015) and Alles and Gray (2016) argued that auditor adoption would follow client adoption and identified inhibitors including data access, standards that presume

sampling, and false positives. Huerta and Jensen (2017) stressed sound data architecture, Rikhardsson and Yigitbasioglu (2018) found analytics research in management accounting at an early stage, Krahel and Titera (2015) noted that auditing standards were not written for full-population analysis, and Brown-Liburd et al. (2015) highlighted behavioural risks such as information overload. Appelbaum, Kogan and Vasarhelyi (2017) set out a research agenda across the audit cycle, and Gepp et al. (2018) showed that academic use of big data techniques in auditing lagged other fields.

Later studies offer field evidence. Salijeni et al. (2019) found that audit firms framed analytics both as a quality improvement and as a market differentiator, Eilifsen et al. (2020) reported that advanced audit data analytics remained limited and mostly descriptive on engagements, and Austin et al. (2021) showed that regulatory uncertainty brakes adoption. Critical studies cautioned that big data can be overstated and that its accountability effects are ambiguous (Al-Htaybat & von Alberti-Alhtaybat, 2017; Arnaboldi et al., 2017).

3.2.2 Artificial intelligence and machine learning

AI research in accounting predates the corpus window through expert systems (Baldwin et al., 2006; Gray et al., 2014), and Sutton et al. (2016) argued that reports of its death had been exaggerated. Within the window, AI work divides into three strands. The first is detection and prediction: Perols (2011) compared classifiers for financial statement fraud, Debreceny and Gray (2010) applied data mining to journal entries, Bao et al. (2020) showed that ensemble learning on raw financial data outperformed established fraud models, and Ding et al. (2020) found that machine learning improved estimates of insurance loss reserves.

The second strand concerns the audit process. Issa et al. (2016) proposed formalising audit judgement so that AI could supplement the workforce. Kokina and Davenport (2017) described how automation was entering audit tasks and argued that judgement-intensive tasks would remain human. Sun (2019) offered a framework for applying deep learning to audit procedures, especially for unstructured data such as text and images, and Cho et al. (2020) reviewed how machine learning could be embedded in assurance.

The third strand addresses consequences and limits. Munoko et al. (2020) analysed ethical risks of AI in auditing, including bias, opacity and accountability, while Losbichler and Lehner (2021) and Leitner-Hanetseder et al. (2021) set out the limits of AI in management control and traced changing roles in AI-based accounting. AI is thus shifting from a tool for specific tests toward a participant in judgement, raising unresolved questions of responsibility.

3.2.3 Blockchain and smart contracts

Blockchain research expanded quickly from 2017. Dai and Vasarhelyi (2017) proposed a blockchain-based accounting ecosystem supporting real-time, automated assurance, Yermack (2017) examined governance implications, and Kokina, Mancha and Pachamanova (2017) documented early adoption, while Coyne and

McMickle (2017) cautioned that a blockchain verifies that a transaction was recorded but not that it reflects economic reality.

This tension runs through the stream. Rozario and Vasarhelyi (2018) proposed smart contracts that execute audit procedures on blockchain data, Wang and Kogan (2018) designed confidentiality-preserving transaction systems, and Sheldon (2019) set out IT general control considerations for permissioned ledgers. Carlin (2019) and Schmitz and Leoni (2019) asked whether blockchain moves accounting beyond double entry, Bonsón and Bednárová (2019) mapped implications for practice, and Pimentel and Boulianne (2020) found the stream heavily conceptual. Tiron-Tudor et al. (2021) examined organisational change in firms adopting blockchain, and Zemánková (2019) concluded that AI and blockchain would shift audit work toward verifying systems rather than transactions. A shared conclusion is that blockchain changes what auditors must test (code, consensus mechanisms, oracles and off-chain links) rather than removing the need for audit.

3.2.4 Robotic process automation

RPA appears only in the final period, yet grew quickly. Moffitt et al. (2018) introduced RPA to the audit literature, and Huang and Vasarhelyi (2019) developed and tested an implementation framework on tasks such as confirmations and reconciliations. Cooper et al. (2019) found that large firms adopted RPA mainly for efficiency and expected it to change rather than eliminate jobs. Kokina and Blanchette (2019) and Fernandez and Aman (2018) offered early evidence on digital labour and shared services, Gotthardt et al. (2020) discussed combining RPA with AI, and Kokina et al. (2021) showed that RPA creates new roles for accountants as digital innovators.

3.2.5 Continuous auditing and monitoring

Continuous auditing has the deepest roots, going back to Vasarhelyi and Halper (1991). Chiu et al. (2014) mapped its intellectual structure, Kogan et al. (2014) designed and evaluated a continuous data-level auditing system, Vasarhelyi et al. (2012) studied adoption by internal auditors, Gonzalez and Hoffman (2018) found experimental evidence that it deters fraud, and Zhang et al. (2015) linked it to big data. Its declining share in the final period reflects migration of its central idea, automated near-real-time assurance, into the RPA, blockchain and analytics streams and the concept of Audit 4.0 (Dai & Vasarhelyi, 2016).

3.2.6 Digital reporting and XBRL

XBRL research addresses the machine readability of financial reports. Debreceny et al. (2010) documented frequent errors in early XBRL filings to the US Securities and Exchange Commission, raising data quality and assurance issues, and Alles and Piechocki (2012) discussed how XBRL could support corporate governance. Later work connected digital reporting to the broader digitalisation of corporate reporting.

Lombardi and Secundo (2021) reviewed how digital technologies are transforming reporting, and Mosteanu and Faccia (2020) linked XBRL, blockchain and cryptocurrencies within financial management. Although small, this theme is important because structured data are a precondition for many of the analytics and AI applications discussed above.

3.2.7 The profession: roles, skills, education and ethics

A growing body of work asks what FinTech means for accountants and auditors as people. Frey and Osborne (2017) estimated a high probability of computerisation for accounting occupations, but responses are more nuanced. Richins et al. (2017) argued that accountants bring domain knowledge that data scientists lack, Moll and Yigitbasioglu (2019) and Marrone and Hazelton (2019) reviewed how emerging technologies reshape accounting work, Knudsen (2020) found the digitalisation literature fragmented, Kroon et al. (2021) synthesised evidence that roles are shifting toward analysis, advice and technology management, and Kend and Nguyen (2020) documented Australian practitioners' perceptions.

On skills and education, Pan and Seow (2016) reviewed IT competencies in accounting programmes, Janvrin and Weidenmier Watson (2017) called for big data content in curricula, Zhang et al. (2018) asked how education should adapt, and Appelbaum et al. (2021) proposed a framework for auditor data literacy. Ethics remains thin: Munoko et al. (2020) is the only study in the corpus with ethics as its primary focus.

3.2.8 Emerging physical technologies

A small but distinctive stream examines devices that capture physical evidence. Appelbaum and Nehmer (2017) proposed a framework for using drones in internal and external audits, and Christ et al. (2021) provided experimental field evidence that drone-enabled inventory counts improve measurement accuracy and audit quality. These studies point toward an audit that combines financial data with sensor data from the Internet of Things.

3.3 Literature synthesis: adjacent applied literature, 2018–2021

To examine how FinTech ideas spread beyond the core accounting journals during the third phase, the 100 seed studies described in Section 2.3 were coded into nine clusters (Table 5). All were published between 2018 and 2021. The clusters are not a bibliometric sample, and their sizes reflect the composition of the seed list rather than the size of each field. Representative studies from each cluster are cited below.

Table 5. Clusters in the seed literature, 2018–2021

Cluster	Studies
Fraud detection, anti-money laundering and forensic analytics	7
Internal audit, control and assurance	12
Blockchain and distributed ledger applications	3
Digital banking, lending and payments	12
Financial analytics, planning, reporting and tax	22
Cybersecurity, data governance and IT risk	16
Regulatory compliance, ethics and governance	11
ESG and sustainability	3
Process automation, digital transformation and skills	14
Total	100

3.3.1 Fraud detection, anti-money laundering and forensic analytics

Data mining and predictive analytics are reviewed as the main tools for detecting financial fraud and money laundering in commercial banking (Atakpa, 2021; Unamma et al., 2021a), and several studies treat fraud as a governance problem, proposing integrated cybersecurity and AML frameworks and comparing AML regimes across emerging markets (Fadayomi et al., 2021; Ominyi & Anichukwueze, 2021).

3.3.2 Internal audit, control and assurance

Conceptual work proposes technology-enabled risk assessment for internal audit, risk-based internal control models and integrated governance strategies for financial resilience (Akomolafe & Agu, 2018; Akomolafe & Agu, 2019a). At the process level, studies address reconciliation control and single-source-of-truth reporting (Dogbatsey et al., 2019; Unamma et al., 2019a), and assurance over technology appears in security audit and risk-based cybersecurity frameworks (Dosunmu & Ogundele, 2019; Fadayomi et al., 2019).

3.3.3 Blockchain and distributed ledger applications

Blockchain studies in the applied literature move beyond the accounting ledger to tamper-proof regulatory recordkeeping and compliance audit trails, each of which raises the assurance questions discussed in Section 3.2.3 (Anichukwueze et al., 2021; Oshoba et al., 2020).

3.3.4 Digital banking, lending and payments

Machine learning for credit risk and default prediction shows analytics reshaping lending (Ashore-Onisemo et al., 2020; Uzondu et al., 2020), and FinTech-enabled transaction banking and payment portal adoption are linked to SME growth and financial inclusion (Agyei et al., 2019; Okafor et al., 2021).

3.3.5 Financial analytics, planning, reporting and tax

On the accounting side, conceptual models propose analytics-driven value creation, executive decision systems and capital allocation (Lawal & Oduleye, 2018a; Lawal & Oduleye, 2019b). Cash flow forecasting and multinational cash consolidation apply predictive analytics to core finance tasks (Dada et al., 2021a; Tonoyan et al., 2021b), while strategic accounting systems and tax governance analytics extend analytics to compliance-heavy domains (Bola-Sadipe et al., 2019; Lawal & Oduleye, 2018b).

3.3.6 Cybersecurity, data governance and IT risk

As financial data moves to cloud environments, studies address legal and ethical risk in data protection governance, comparative data protection regulation and identity-centric zero trust (Mbonu et al., 2018; Mbonu et al., 2019a), and cyber risk is treated as a financial and compliance risk through maturity assessment in Nigerian insurance (Fadero et al., 2021).

3.3.7 Regulatory compliance, ethics and governance

Compliance research covers post-merger compliance integration and regulatory clearance for cross-border mergers in Africa (Ominyi, 2020; Ominyi & Anichukwueze, 2020), and automated risk assessment for regulatory deliverables shows compliance being formalised in ways that suit automation (Uchechi & Ominyi, 2020). Natural language processing for unstructured financial records and ethics and compliance training connect this cluster to the AI and ethics themes in Section 3.2 (Iziduh et al., 2020; Anichukwueze et al., 2020).

3.3.8 ESG and sustainability

Sustainability appears through ESG-integrated procurement and the effect of ESG integration and climate risk disclosure on bank valuation (Okojie et al., 2020; Kinyanjui et al., 2021).

3.3.9 Process automation, digital transformation and skills

Operations studies document digital transformation and automation in operations management, procurement process automation and standardised change management (Agboada et al., 2018a; Akinleye & Adeyoyin, 2021), extending the control logic of audit to operations, while technology talent development and digital workforce readiness connect to the skills theme in Section 3.2.7 (Unamma et al., 2018a; Wikiri, 2019).

3.3.10 Synthesis of the adjacent literature

Three conclusions follow. First, the seed literature confirms that by 2021 the third phase of the core literature (2018–2021) had spread well beyond audit: analytics, automation and distributed ledgers were being applied to lending, payments, treasury, tax and procurement. Second, the strongest adjacent direction is the merger of FinTech with compliance. Fraud analytics, AML, data protection and cyber assurance

increasingly appear as one governance problem, which suggests that the next phase of the field is likely to centre on the governance of automated financial systems rather than their technical capability. Third, much of this work originates in Nigeria, Ghana and wider Sub-Saharan Africa, which partly answers the geographic gap in the core corpus. However, most seed studies are conceptual frameworks and reviews, so the empirical gap discussed in Sections 3.5 and 3.8 remains.

3.4 Conceptual model

Drawing on the synthesis in Sections 3.1 to 3.3 and the theoretical lenses in Section 1.1.3, this subsection proposes an integrated conceptual model of FinTech-driven change in auditing and accounting (Figure 5). The model organises the literature into antecedents, a transformation core, outcomes and moderating conditions, and states six propositions that can guide empirical testing.

3.4.1 Model structure

Antecedents. Two sets of forces drive change. *FinTech capabilities* are the technologies summarised in Table 2: big data and analytics, AI and machine learning, blockchain and smart contracts, RPA, continuous monitoring and digital reporting. *Institutional pressures* include client digitalisation, which tends to precede audit adoption (Alles, 2015), regulation and auditing standards (Krahel & Titera, 2015), competition among audit firms (Salijeni et al., 2019) and cost pressure. Institutional theory explains why these pressures produce similar adoption patterns across firms (DiMaggio & Powell, 1983).

Transformation core. The synthesis identifies five shifts in audit and accounting processes: audit evidence moves from samples to full populations (Vasarhelyi et al., 2015); assurance moves from periodic to continuous (Chiu et al., 2014); judgement moves from purely human to augmented by algorithms (Issa et al., 2016); records move from central to distributed ledgers (Dai & Vasarhelyi, 2017); and routine tasks move from manual to automated (Huang & Vasarhelyi, 2019).

Outcomes. The expected results are higher audit quality, efficiency and timeliness, better fraud and error detection, greater transparency and accountability, and changes in professional roles and skills (Bao et al., 2020; Cooper et al., 2019; Kroon et al., 2021).

Moderating conditions. The literature repeatedly shows that technology alone does not deliver these outcomes. Data quality and governance, skills and data literacy, cyber and IT controls, ethics and AI governance, and regulatory clarity determine how far transformation succeeds and whether its results can be trusted (Alles & Gray, 2016; Appelbaum et al., 2021; Fadayomi et al., 2019; Munoko et al., 2020; Unamma et al., 2019a).

Feedback. Outcomes in turn reshape standards, professional roles and further adoption, closing the loop (Kokina et al., 2021; Leitner-Hanetseder et al., 2021).

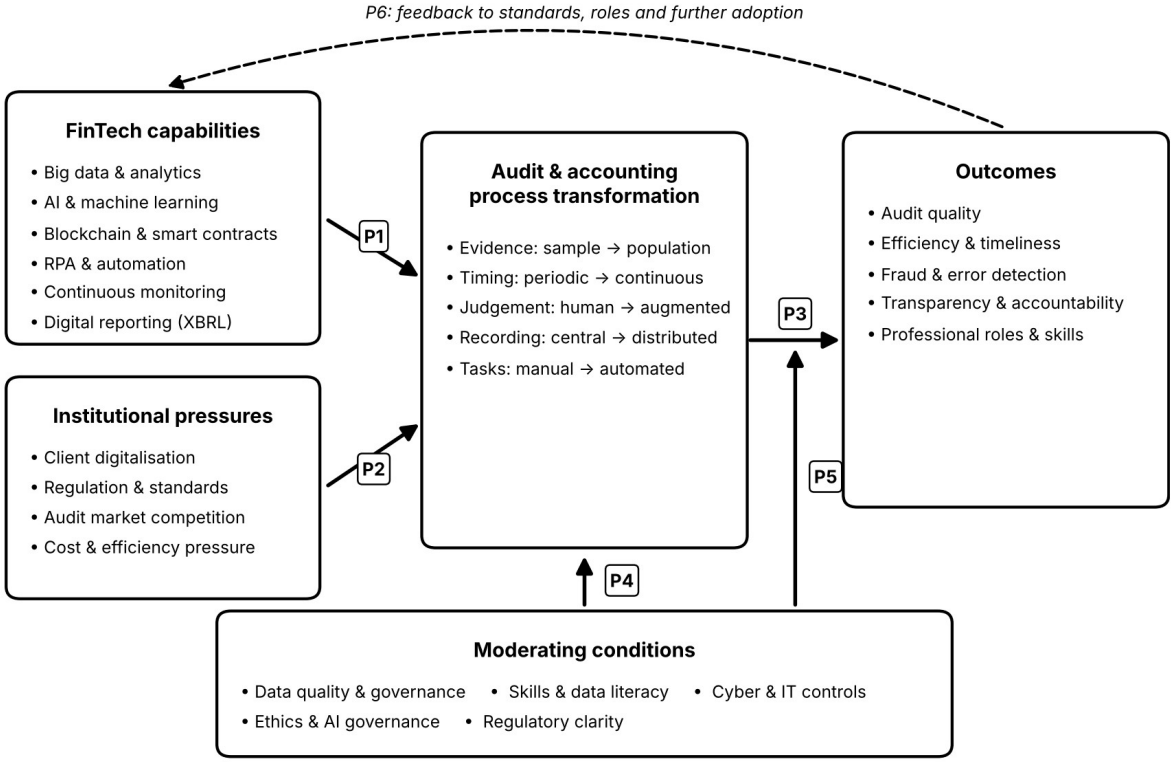


Figure 5. Integrated conceptual model of FinTech-driven transformation in auditing and accounting (P1 to P6 denote propositions)

3.4.2 Propositions

Table 6 states the propositions implied by the model and the literature that supports each one. They are framed so that they can be tested with archival, experimental, survey or case-study designs.

Table 6. Propositions derived from the conceptual model

No.	Statement	Supporting literature
P1	FinTech capabilities shift audit and accounting processes from samples to populations, from periodic to continuous assurance, from manual to automated tasks and from central to distributed records.	Vasarhelyi et al. (2015); Chiu et al. (2014); Dai & Vasarhelyi (2017); Huang & Vasarhelyi (2019); Okafor et al. (2021)
P2	Institutional pressures accelerate adoption, while sampling-based standards and regulatory uncertainty slow it.	Alles (2015); Krahel & Titera (2015); Salijeni et al. (2019); Austin et al. (2021); Ominyi & Anichukwueze (2021)
P3	Process transformation improves audit quality, efficiency and fraud detection, and strengthens transparency and accountability.	Bao et al. (2020); Gonzalez & Hoffman (2018); Christ et al. (2021); Cooper et al. (2019); Atakpa (2021); Unamma et al. (2021a)
P4	Data quality and governance, cyber and IT controls and regulatory clarity condition how far technology can transform processes.	Alles & Gray (2016); Debreceny et al. (2010); Unamma et al. (2019a); Dosunmu & Ogundele (2019); Fadayomi et al. (2019)
P5	Skills, ethics and AI governance moderate whether transformed processes translate into better outcomes.	Brown-Liburd et al. (2015); Appelbaum et al. (2021); Munoko et al. (2020); Anichukwueze et al. (2020); Wikiri (2019)
P6	Outcomes feed back into auditing standards, professional roles and further adoption.	Kroon et al. (2021); Leitner-Hanetseder et al. (2021); Kokina et al. (2021); Cooper et al. (2019)

The model integrates the theoretical lenses found in the literature. Technology acceptance and diffusion theories (Davis, 1989; Rogers, 2003; Venkatesh et al., 2003) explain adoption at P1 and P2; institutional theory explains P2 and the feedback in P6; judgement and decision-making research explains the moderating role of skills and ethics in P5 (Brown-Liburd et al., 2015); and design science supports testing of P1 and P4 through prototypes (Kogan et al., 2019). The model is therefore a bridge between the results in Sections 3.1 to 3.3 and the research agenda in Section 3.8.

3.5 Discussion

This subsection interprets the findings against the research questions, explains the field's evolution, and positions the review against earlier work.

3.5.1 Answering the research questions

RQ1 (growth and contributors). FinTech research in auditing and accounting grew from a marginal topic into an established field between 2010 and 2021, with more than half of the core corpus published after 2017, anchored in a few accounting information systems journals and a dense collaboration network around the Rutgers group. This concentration gave the field coherence, but it also means that much of its framing reflects one community's view of the future audit.

RQ2 (thematic structure). The thematic centre of gravity moved from continuous auditing and XBRL, through big data and analytics, to AI, blockchain and RPA. The profession and skills theme acts as a bridge

between technologies, and AI increasingly links to both blockchain and analytics. The adjacent literature shows the same technologies spreading into lending, payments, treasury, tax and compliance (Section 3.3).

RQ3 (effects). The literature agrees that FinTech changes the nature of audit evidence, the timing of assurance, the basis of judgement and the form of records, as captured in the conceptual model. However, evidence that these changes improve audit quality is limited to a few archival and experimental studies (Bao et al., 2020; Christ et al., 2021; Gonzalez & Hoffman, 2018), and field studies show that adoption lags the rhetoric (Eilifsen et al., 2020; Salijeni et al., 2019). The effects are therefore better described as potential than as demonstrated.

RQ4 (gaps). The main gaps concern outcome evidence, regulation and standards, ethics and accountability for algorithmic judgement, and evidence from emerging economies. They are developed into a research agenda in Section 3.8.

3.5.2 Three phases of evolution, 2010–2021

Bringing the bibliometric and qualitative evidence together, the evolution of FinTech research in auditing and accounting between 2010 and 2021 can be described in three overlapping phases (Table 7).

Table 7. Three phases in the evolution of FinTech research in auditing and accounting

Dimension	Phase 1: Automation and assurance foundations (2010–2014)	Phase 2: Data revolution (2015–2017)	Phase 3: Intelligent and distributed ledger (2018–2021)
Share of corpus	9 articles (11.7%)	27 articles (35.1%)	41 articles (53.2%)
Dominant themes	Continuous auditing, data mining, XBRL	Big data and analytics; early AI and blockchain	AI and machine learning, blockchain, RPA, profession and skills
Central question	Can assurance be automated and made more timely?	What can be learned from all the data, and is it valid evidence?	What happens when processing is autonomous and the ledger is shared?
Typical method	Design science, prototypes, adoption surveys	Conceptual agendas, commentaries	Frameworks, interviews, field and archival evidence, reviews
Main concern for practice	Systems readiness and data access	Standards based on sampling; information overload	Roles, skills, ethics, accountability and regulation
Representative studies	Chiu et al. (2014); Kogan et al. (2014); Debreceny et al. (2010)	Vasarhelyi et al. (2015); Appelbaum et al. (2017); Dai & Vasarhelyi (2017)	Huang & Vasarhelyi (2019); Bao et al. (2020); Munoko et al. (2020); Kokina et al. (2021)

The phases show a logical progression: from getting data out of systems and testing it automatically, to learning more from far larger datasets, to acting on data through algorithms that judge, bots that execute processes and ledgers that make records verifiable by design. Methodologically the field matured from

conceptual agendas toward empirical evidence, though conceptual work still dominates, and concerns shifted from technical feasibility to roles, ethics and regulation.

3.5.3 Convergence and the governance turn

A further pattern is convergence. Technologies that were studied separately in early years are increasingly treated as components of an integrated digital audit (Cong et al., 2018; Dai & Vasarhelyi, 2016). Continuous auditing ideas now live inside RPA and blockchain proposals, analytics feeds AI models, and XBRL-style structured data underpin all of them.

Read together with the adjacent literature and the conceptual model, convergence points to a governance turn: as capabilities mature, data governance, cyber controls, ethics and regulatory clarity become the main constraint on value. The adjacent literature already treats fraud analytics, AML compliance, data protection and cyber assurance as one governance problem (Fadayomi et al., 2021; Ominyi & Anichukwueze, 2021), suggesting that the next phase will centre on the governance of automated financial systems.

3.5.4 Comparison with prior reviews

The findings are consistent with, and extend, earlier reviews. They confirm Chiu et al. (2014) that continuous auditing formed a coherent but small community whose ideas later migrated into analytics, RPA and blockchain research, and support Gepp et al. (2018) and Pimentel and Boulianne (2020) that big data and blockchain research lagged practice and remained largely conceptual. Unlike reviews focused on a single technology or on professional roles (Kroon et al., 2021; Marrone & Hazelton, 2019), this review integrates technologies, combines bibliometric and qualitative evidence, and offers a conceptual model with testable propositions.

3.6 Implications

3.6.1 For audit firms and practitioners

The value of FinTech depends less on the technology itself than on data access, staff skills and quality-control processes. Firms should treat analytics, AI and RPA as changes to methodology and workforce structure rather than add-on tools, and invest in data governance and regulator-reviewable documentation as much as in software.

3.6.2 For regulators and standard setters

Several studies identify standards built around sampling and manual procedures as a barrier to adoption (Alles, 2015; Austin et al., 2021; Krahel & Titera, 2015). Clearer guidance on the evidential status of full-population analytics, the use of AI outputs and assurance over blockchain records would reduce uncertainty, and regulators also have a role in ensuring transparency and accountability for algorithmic judgement.

3.6.3 For educators and professional bodies

Roles are moving toward analysis, technology management and advice, so curricula and continuing professional development should build data literacy, automation skills and critical understanding of AI limitations while preserving professional scepticism (Appelbaum et al., 2021; Kokina et al., 2021).

3.6.4 For emerging-economy contexts

The core literature contains almost no evidence from emerging economies. The seed literature shows growing attention to these markets, including budget compliance, cyber risk in Nigerian insurance and FinTech-enabled SME lending (Fadero et al., 2021; Okafor et al., 2021), but this work is still mostly conceptual. Audit markets in these regions face different infrastructure, regulatory and skills constraints, and regulators, professional bodies and universities there are well placed to generate the evidence that the literature currently lacks.

3.7 Limitations

Several limitations should be noted. First, the core corpus of 77 articles was built through targeted journal searching and citation chaining rather than a complete database export, so it captures the influential core of the field but not every peripheral publication, and citation-based indicators were not computed. Second, the window ends in 2021, before the rise of generative AI. Third, only English-language journal articles were included. Fourth, theme coding involves judgement. Fifth, the 100 seed studies were selected from a consolidated reference list rather than a systematic search and are mostly conceptual, so they indicate direction rather than support bibliometric or effect claims.

3.8 Future research

The synthesis and the conceptual model reveal consistent gaps. Table 8 organises them by theme and translates them into research questions (RQ4).

Table 8. Future research agenda

Area	Gap identified	Illustrative research questions
Audit quality outcomes	Few studies link technology use to measurable audit quality, restatements, or fees	Does the use of analytics or AI on an engagement reduce subsequent restatements? How does it affect audit fees and timeliness?
Big data and analytics	Evidence shows limited real use despite investment	What organisational and regulatory factors explain the gap between analytics rhetoric and practice?
AI and machine learning	Opacity, bias and allocation of responsibility under-studied	How do auditors calibrate reliance on AI outputs? Who is accountable when an algorithm-supported judgement fails?
Blockchain	Mostly conceptual; little evidence from live implementations	How are blockchain-recorded transactions audited in practice? How do auditors gain assurance over oracles and smart contract code?
RPA and intelligent automation	Short-run efficiency documented; long-run effects unknown	How does RPA change staffing pyramids, training and the development of professional judgement?
Regulation and standards	Standard setters' responses rarely examined	How do auditing standards and regulators accommodate full-population testing and AI evidence?
Ethics and governance	Only one primary study in the corpus	What governance mechanisms ensure responsible use of AI in financial reporting and assurance?
Emerging economies	Evidence dominated by the US, Europe and Australia	How do infrastructure, regulation and firm size shape FinTech adoption in African, Asian and Latin American audit markets?
Education	Curriculum proposals outnumber evaluations	Which teaching interventions build lasting data literacy and technology competence?
Theory	Many studies lack an explicit theoretical lens	How can institutional, sociomaterial and judgement theories explain technology-driven change in audit?

Methodologically, the field would benefit from archival studies linking firm-level technology adoption to outcomes, experiments on human interaction with algorithms, longitudinal implementation case studies, and replication of the bibliometric mapping using full database exports. The propositions in Table 6 offer a structure: P1 and P3 call for archival and field studies of outcomes, P2 and P6 for studies of how standards respond, and P4 and P5 for experiments and surveys on the moderating role of data governance, skills, ethics and AI governance.

4. Conclusion

This review mapped the evolution of FinTech research in auditing and accounting from 2010 to 2021 by combining bibliometric analysis with a systematic synthesis of 77 core articles. The field grew rapidly, with more than half of its output after 2017, concentrated in a few accounting information systems journals and anchored by the Rutgers group. Its focus moved from continuous auditing and XBRL, through big data, to AI, blockchain and RPA, with rising attention to professional roles and skills. The conceptual model links

FinTech capabilities and institutional pressures to process transformation and outcomes, conditioned by data governance, skills, cyber controls, ethics and regulatory clarity.

The literature is rich in vision but thinner in evidence. Empirical work on audit quality outcomes, regulation, ethics and emerging-economy contexts remains limited. As technologies converge into an integrated digital audit, the pressing questions concern how they change evidence, judgement and accountability, and how standards, firms and educators should respond. The adjacent applied literature suggests that the field was already moving toward the governance of AI, data and distributed ledgers as a central concern.

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Appendix A. Core Corpus of Reviewed Studies

Theme codes: BDA = big data and analytics; AI = artificial intelligence and machine learning; BC = blockchain and smart contracts; RPA = robotic process automation; CA = continuous auditing; DR = digital reporting and XBRL; PROF = profession, skills and education; ETH = ethics and governance; DRONE = drones and sensing. Full references appear in the reference list.

Study	**Journal**	**Themes**
Debreceny & Gray (2010)	Int. J. Accounting Information Systems	BDA, AI
Debreceny et al. (2010)	J. Accounting and Public Policy	DR
Perols (2011)	Auditing: A J. of Practice & Theory	AI
Alles & Piechocki (2012)	Int. J. Accounting Information Systems	DR
Vasarhelyi et al. (2012)	Int. J. Accounting Information Systems	CA
Bhimani & Willcocks (2014)	Accounting and Business Research	BDA, PROF
Chiu et al. (2014)	J. Accounting Literature	CA
Gray et al. (2014)	Int. J. Accounting Information Systems	AI
Kogan et al. (2014)	Auditing: A J. of Practice & Theory	CA
Alles (2015)	Accounting Horizons	BDA
Brown-Liburd et al. (2015)	Accounting Horizons	BDA
Cao et al. (2015)	Accounting Horizons	BDA
Earley (2015)	Business Horizons	BDA
Krahel & Titera (2015)	Accounting Horizons	BDA
Vasarhelyi et al. (2015)	Accounting Horizons	BDA
Warren et al. (2015)	Accounting Horizons	BDA
Yoon et al. (2015)	Accounting Horizons	BDA
Zhang et al. (2015)	Accounting Horizons	BDA, CA
Alles & Gray (2016)	Int. J. Accounting Information Systems	BDA
Dai & Vasarhelyi (2016)	J. Emerging Technologies in Accounting	AI, BDA, CA
Issa et al. (2016)	J. Emerging Technologies in Accounting	AI
Pan & Seow (2016)	J. Education for Business	PROF
Sutton et al. (2016)	Int. J. Accounting Information Systems	AI
Al-Htaybat & von Alberti-Alhtaybat (2017)	Accounting, Auditing & Accountability J.	BDA, DR
Appelbaum et al. (2017)	Auditing: A J. of Practice & Theory	BDA
Appelbaum et al. (2017)	Int. J. Accounting Information Systems	BDA

Study	**Journal**	**Themes**
Appelbaum & Nehmer (2017)	J. Emerging Technologies in Accounting	DRONE
Arnaboldi et al. (2017)	Accounting, Auditing & Accountability J.	BDA
Coyne & McMickle (2017)	J. Emerging Technologies in Accounting	BC
Dai & Vasarhelyi (2017)	J. Information Systems	BC
Huerta & Jensen (2017)	J. Information Systems	BDA
Janvrin & Weidenmier Watson (2017)	J. Accounting Education	BDA, PROF
Kokina & Davenport (2017)	J. Emerging Technologies in Accounting	AI
Kokina et al. (2017)	J. Emerging Technologies in Accounting	BC
Richins et al. (2017)	J. Information Systems	BDA, PROF
Yermack (2017)	Review of Finance	BC
Cong et al. (2018)	J. Emerging Technologies in Accounting	AI, BC, BDA
Fernandez & Aman (2018)	Asian J. Accounting and Governance	RPA
Gepp et al. (2018)	J. Accounting Literature	BDA
Gonzalez & Hoffman (2018)	Auditing: A J. of Practice & Theory	CA
Moffitt et al. (2018)	J. Emerging Technologies in Accounting	RPA
Rikhardsson & Yigitbasioglu (2018)	Int. J. Accounting Information Systems	BDA
Rozario & Vasarhelyi (2018)	Int. J. Digital Accounting Research	BC
Wang & Kogan (2018)	Int. J. Accounting Information Systems	BC
Zhang et al. (2018)	The CPA Journal	PROF
Bonsón & Bednárová (2019)	Meditari Accountancy Research	BC
Carlin (2019)	Australian Accounting Review	BC
Cooper et al. (2019)	Accounting Horizons	RPA
Huang & Vasarhelyi (2019)	Int. J. Accounting Information Systems	RPA
Kogan et al. (2019)	Accounting Horizons	BDA
Kokina & Blanchette (2019)	Int. J. Accounting Information Systems	RPA
Marrone & Hazelton (2019)	Meditari Accountancy Research	PROF, AI, BC
Moll & Yigitbasioglu (2019)	The British Accounting Review	PROF, AI, BC
Salijeni et al. (2019)	Accounting and Business Research	BDA
Schmitz & Leoni (2019)	Australian Accounting Review	BC
Sheldon (2019)	Current Issues in Auditing	BC
Sun (2019)	Accounting Horizons	AI

Study	**Journal**	**Themes**
Zemánková (2019)	WSEAS Trans. Business and Economics	AI, BC
Bao et al. (2020)	J. Accounting Research	AI
Cho et al. (2020)	J. Emerging Technologies in Accounting	AI
Ding et al. (2020)	Review of Accounting Studies	AI
Eilifsen et al. (2020)	Accounting Horizons	BDA
Gotthardt et al. (2020)	ACRN J. Finance and Risk Perspectives	RPA, AI
Kend & Nguyen (2020)	Australian Accounting Review	BDA, PROF
Knudsen (2020)	Int. J. Accounting Information Systems	PROF
Mosteanu & Faccia (2020)	Quality: Access to Success	BC, DR
Munoko et al. (2020)	J. Business Ethics	AI, ETH
Pimentel & Boulianne (2020)	Accounting Perspectives	BC
Appelbaum et al. (2021)	Accounting Horizons	BDA, PROF
Austin et al. (2021)	Contemporary Accounting Research	BDA
Christ et al. (2021)	Review of Accounting Studies	DRONE
Kokina et al. (2021)	Accounting Horizons	RPA, PROF
Kroon et al. (2021)	J. Open Innovation: Tech., Market, Complexity	PROF
Leitner-Hanetseder et al. (2021)	J. Applied Accounting Research	AI, PROF
Lombardi & Secundo (2021)	Meditari Accountancy Research	DR
Losbichler & Lehner (2021)	J. Applied Accounting Research	AI
Tiron-Tudor et al. (2021)	J. Organizational Change Management	BC