



Digital Transformation of the Finance Function: A Systematic Literature Review of Automation, Analytics, and Organizational Effectiveness

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Abstract: The digital transformation of the finance function has become a strategic priority for organizations seeking to improve operational efficiency, decision-making quality, and organizational effectiveness. This study aims to systematically review the existing literature on the roles of automation and analytics in transforming finance functions and creating organizational value. Using a qualitative Systematic Literature Review (SLR) approach based on the PRISMA 2020 framework, relevant peer-reviewed articles published between 2020 and 2025 were identified, screened, and synthesized from leading academic databases. The findings reveal that automation technologies, including Robotic Process Automation (RPA) and Artificial Intelligence (AI), primarily enhance process efficiency and accuracy, whereas business analytics significantly improves strategic decision-making, forecasting, and finance business partnering. Furthermore, successful digital transformation depends on organizational capabilities, digital leadership, governance, and employee competencies rather than technology adoption alone. The review also identifies key research gaps and provides theoretical and managerial implications for advancing finance function transformation and sustainable organizational effectiveness.

Keywords: Digital Transformation; Finance Function; Automation; Business Analytics; Organizational Effectiveness

1. Introduction

Digital transformation has become one of the most significant strategic priorities for organizations seeking to improve operational excellence, organizational agility, and long term competitiveness in an increasingly data driven business environment. Rapid advancements in digital technologies, including robotic process automation (RPA), artificial intelligence (AI), machine learning, cloud computing, big data analytics, and business intelligence systems, have fundamentally reshaped organizational processes and decision making practices. Consequently, finance functions are no longer expected merely to perform traditional accounting and financial reporting activities but are increasingly required to generate strategic insights that support business innovation and organizational value creation (Kraus et al., 2022; Plekhanov et al., 2023).

Traditionally, finance departments have focused primarily on transactional processing, budgeting, financial reporting, compliance, and internal control. However, the emergence of digital technologies has transformed the finance function from an administrative support unit into a strategic business partner capable of delivering predictive insights and supporting organizational decision-making. Contemporary organizations increasingly expect finance professionals to integrate financial expertise with analytical capabilities, digital competencies, and strategic thinking to respond effectively to rapidly changing business environments (Yigitbasioğlu et al., 2023; Boerner et al., 2024). Capacity development initiatives, such as training programs and educational resources, are essential for enhancing the understanding and professional competence of accounting professionals in implementing IFRS in Indonesia (Muhammad Rizal & Eri Kusnanto, 2021).

Recent studies demonstrate that digital transformation within finance functions is primarily characterized by two complementary technological capabilities: automation and

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analytics. Automation technologies, particularly robotic process automation, intelligent workflow systems, and AI-assisted transaction processing, significantly reduce repetitive manual activities while improving operational efficiency, accuracy, and standardization. Meanwhile, advanced analytics enables finance professionals to extract meaningful insights from large volumes of organizational data, facilitating forecasting, performance measurement, strategic planning, and risk management (Kokina et al., 2021; Lem, 2024). Together, these technologies redefine the role of finance professionals from transaction processors to strategic advisors capable of supporting evidence-based managerial decisions. Digital technologies encourage companies to shift focus toward intangible assets such as information systems and data analytics (Rizal M., et al 2025).

The increasing importance of automation and analytics has attracted substantial scholarly attention over the last decade. Automation improves operational efficiency by reducing processing time, minimizing human error, lowering operational costs, and enhancing compliance with organizational policies and regulatory requirements. Conversely, analytics strengthens organizational capabilities by improving data quality, forecasting accuracy, and managerial decision making through descriptive, predictive, and prescriptive analytical techniques (Bergmann et al., 2020; Spraakman et al., 2021). Consequently, organizations increasingly invest in digital finance initiatives to improve organizational responsiveness, strategic flexibility, and business performance. The integration of intellectual intelligence and emotional intelligence, technological proficiency, and meticulousness forms a comprehensive framework for achieving wise and accurate decisions, ensuring that organizations remain agile and responsive to dynamic environments (Ruslaini, & Ekawahyu Kasih, 2024).

The growing digitalization of finance functions is also closely associated with broader organizational digital transformation strategies. Rather than implementing isolated technological initiatives, organizations increasingly align finance digitalization with enterprise wide digital strategies that integrate business processes, information systems, and organizational capabilities. According to Kraus et al. (2022), digital transformation extends beyond technological implementation and involves organizational change, leadership commitment, cultural adaptation, and capability development. Similarly, Plekhanov et al. (2023) argue that successful digital transformation requires complementary investments in organizational structures, employee competencies, and strategic governance mechanisms.

Within this context, finance professionals are experiencing substantial changes in their organizational roles. Instead of focusing exclusively on historical financial reporting, accountants and controllers are increasingly expected to act as strategic business partners who provide analytical insights supporting managerial decisions. Yigitbasioglu et al. (2023) emphasize that digital transformation has significantly expanded the advisory role of accountants through greater utilization of digital technologies and business analytics. Likewise, Boerner et al. (2024) demonstrate that business analytics capabilities significantly enhance controllership effectiveness by strengthening the finance function's ability to support organizational decision making and strategic planning.

Despite these opportunities, digital transformation also presents considerable organizational challenges. The implementation of automation technologies frequently requires substantial organizational restructuring, redesign of business processes, changes in employee competencies, and considerable financial investments. Furthermore, integrating automation with advanced analytics may create organizational complexity, role ambiguity, and technological integration challenges that potentially reduce organizational effectiveness if implementation is poorly managed (van Slooten et al., 2024; Rautiainen et al., 2024). Digital transformation therefore represents not only a technological initiative but also a comprehensive organizational change process requiring coordinated leadership, governance, and capability development.

Recent empirical evidence illustrates these complexities. Bedford et al. (2025) investigated how automation and analytics jointly influence finance function effectiveness using survey responses from finance professionals and complementary qualitative interviews. Their findings indicate that organizational digitalization strategies positively influence both automation and analytics adoption. Moreover, analytics demonstrates a positive relationship with finance function effectiveness, whereas automation alone does not consistently improve effectiveness. Surprisingly, the simultaneous implementation of automation and analytics may even reduce finance function effectiveness because of resource constraints, technological integration difficulties, role ambiguity, and insufficient digital competencies within finance departments. These findings suggest that the relationship between digital technologies and

organizational effectiveness is more complex than previously assumed and deserves further systematic investigation.

In addition to technological implementation issues, several scholars have highlighted the importance of organizational capabilities in realizing the benefits of finance digitalization. Chen and Srinivasan (2024) report that digitalization positively influences firm value and organizational performance when supported by complementary organizational resources. Similarly, Fähndrich (2023) concludes that digital technologies improve management control systems only when organizations successfully integrate digital capabilities with strategic objectives and organizational learning processes. These findings reinforce the argument that digital transformation should be understood as an organizational capability rather than merely a technological investment.

Another emerging issue concerns the evolving competencies required of finance professionals. As automation increasingly replaces routine accounting activities, finance employees must develop analytical thinking, digital literacy, data interpretation skills, and strategic communication capabilities. Kokina et al. (2021) describe accountants as digital innovators whose future roles depend on their ability to combine financial expertise with technological competencies. Likewise, Firk et al. (2024) identify digital anxiety as an important barrier affecting employees' willingness to adopt new technologies, emphasizing the need for organizational support, continuous learning, and effective change management during digital transformation initiatives.

Although research on finance digitalization has expanded considerably, the existing literature remains fragmented across multiple disciplines, including accounting, information systems, strategic management, digital innovation, and organizational behavior. Previous studies frequently examine automation, analytics, business partnering, digital capabilities, organizational agility, or finance effectiveness independently, with limited integration across these perspectives. Moreover, empirical findings remain inconsistent regarding the organizational consequences of simultaneous automation and analytics implementation, the conditions under which digital transformation enhances finance function effectiveness, and the organizational mechanisms that mediate these relationships (Bedford et al., 2025; Lem, 2024; Boerner et al., 2024).

These inconsistencies indicate the need for a comprehensive synthesis of current knowledge. A Systematic Literature Review (SLR) provides an appropriate methodological approach to consolidate fragmented evidence, identify dominant theoretical perspectives, evaluate methodological trends, recognize emerging research themes, and highlight unresolved research gaps. Compared with traditional narrative reviews, an SLR applies transparent and replicable procedures for identifying, selecting, evaluating, and synthesizing published studies, thereby providing stronger evidence for future theoretical development and empirical investigation.

Accordingly, this study aims to systematically review the contemporary literature on the digital transformation of the finance function by focusing specifically on automation, analytics, and organizational effectiveness. The review seeks to examine how digital technologies reshape finance functions, identify the organizational drivers and barriers influencing digital transformation, evaluate the consequences of automation and analytics for finance function effectiveness, and propose future research directions. By integrating evidence from accounting, management, digital transformation, and information systems research, this review contributes to a more comprehensive understanding of digital finance transformation and provides practical insights for organizational leaders seeking to enhance finance function performance in the digital era. Ultimately, this study contributes to the growing body of knowledge by offering an integrated conceptual understanding of how automation and analytics jointly influence organizational effectiveness and by identifying opportunities for future interdisciplinary research on digital transformation within finance functions.

2. Literature Review

Digital transformation has emerged as one of the most influential developments affecting finance and accounting functions worldwide. Rather than merely adopting new technologies, digital transformation represents a strategic organizational process that fundamentally changes business processes, organizational structures, employee competencies, and value creation mechanisms through the integration of digital technologies (Matt et al., 2015; Kraus et al., 2022; Plekhanov et al., 2023). Within finance organizations, digital

transformation has shifted the traditional emphasis on bookkeeping, financial reporting, and compliance toward strategic business partnering, data-driven decision making, and organizational performance improvement (Yigitbasioglu et al., 2023).

Previous studies consistently demonstrate that finance functions are becoming strategic contributors to organizational competitiveness. Bharadwaj et al. (2013) argued that digital business strategy integrates information technology with corporate strategy, enabling organizations to develop dynamic capabilities and competitive advantage. Similarly, Menz et al. (2021) emphasized that corporate strategy in the digital era increasingly depends on finance functions capable of generating real-time financial intelligence to support strategic decisions. Consequently, finance departments are evolving from transactional service providers into strategic advisors capable of influencing organizational performance.

Kraus et al. (2022) further explained that digital transformation encompasses technological innovation, organizational redesign, leadership commitment, and capability development. Likewise, Plekhanov et al. (2023) concluded that digital transformation should be viewed as a multidimensional organizational capability rather than simply technological adoption. These findings indicate that successful finance digitalization requires alignment between digital technologies, organizational strategy, employee competencies, and management support.

Automation represents one of the primary technological drivers transforming finance organizations. Robotic Process Automation (RPA), intelligent automation, machine learning, and artificial intelligence increasingly automate repetitive accounting activities such as invoice processing, reconciliations, financial reporting, compliance monitoring, and transaction validation (van der Aalst et al., 2018; Kokina & Blanchette, 2019).

Kokina and Blanchette (2019) provided early empirical evidence demonstrating that RPA substantially improves processing speed, operational accuracy, and cost efficiency while reducing manual intervention in accounting activities. Their findings suggest that digital labor enables finance professionals to redirect their attention toward higher-value analytical and advisory responsibilities.

Similarly, Korhonen et al. (2021) investigated the programmability of management accounting work and found that many accounting activities possess characteristics suitable for automation. The study concluded that automation enhances process standardization while simultaneously increasing opportunities for finance professionals to participate in strategic planning.

Plattfaut and Borghoff (2022) synthesized previous RPA literature and identified automation as an important catalyst for organizational efficiency, although implementation challenges remain regarding governance, process integration, and employee acceptance. These findings reinforce the conclusion that automation delivers significant operational benefits when supported by organizational readiness and appropriate change management.

However, automation does not automatically improve organizational performance. Bedford et al. (2025) reported that automation alone showed no statistically significant relationship with finance function effectiveness. Instead, automation primarily contributed to operational efficiency, while broader organizational benefits depended upon complementary capabilities, particularly analytics and strategic alignment. The authors further found that simultaneously implementing automation and analytics without sufficient organizational resources may reduce finance function effectiveness because of integration complexity and role ambiguity.

Alongside automation, data analytics has become a critical capability supporting finance transformation. Organizations increasingly utilize descriptive, diagnostic, predictive, and prescriptive analytics to improve forecasting, budgeting, risk assessment, resource allocation, and strategic decision making (Sprakman et al., 2021).

Bergmann et al. (2020) demonstrated that business analytics significantly improves budgeting quality and managerial satisfaction by providing more accurate and timely financial information. Likewise, Schnegg and Möller (2022) found that organizations adopting sophisticated analytics strategies achieve more reliable forecasting performance and improved managerial decision making.

Lem (2024) extended this discussion by showing that well developed data analytics strategies significantly improve internal information quality. High quality financial information subsequently strengthens managerial decisions, enhances organizational transparency, and improves strategic responsiveness. Similarly, Labro et al. (2023) concluded that predictive analytics contributes to better decision quality by enabling managers to anticipate future business conditions rather than relying solely on historical financial reports.

Research has also highlighted the complementary relationship between analytics capabilities and organizational flexibility. Dubey et al. (2021) demonstrated that organizations possessing strong analytics capabilities exhibit greater organizational resilience and adaptability under uncertain business environments. Comparable findings were reported by Müller et al. (2018), who observed that big data analytics positively influences firm performance through improved organizational learning and innovation.

Digital transformation has substantially changed the professional identity of finance personnel. Traditional accountants primarily prepared financial statements and monitored compliance, whereas contemporary finance professionals increasingly function as business partners responsible for strategic advice and organizational value creation (Burns & Baldvinsdottir, 2005).

Yigitbasioglu et al. (2023) argued that accountants are increasingly expected to integrate financial expertise with analytical competencies to support strategic management. Likewise, Boerner et al. (2024) found that business analytics capability significantly strengthens controllership effectiveness through enhanced business partnering activities. Their empirical evidence indicates that finance professionals capable of interpreting analytical information contribute more effectively to organizational performance than those performing only conventional accounting activities.

Nevertheless, digital transformation also introduces professional challenges. de Araujo Wanderley and Horton (2024) identified organizational tensions arising from changing professional boundaries between accountants and digital specialists. Similarly, van Slooten et al. (2024) observed that digital transformation often increases role ambiguity and role conflict among management accountants because digital technologies alter traditional professional responsibilities.

Rautiainen et al. (2024) further demonstrated that management accountants increasingly develop fluid professional identities, adapting continuously to organizational digitalization. These findings indicate that digital transformation requires continuous competency development, organizational learning, and adaptive leadership to ensure successful implementation.

Empirical evidence consistently supports the positive contribution of digital transformation toward organizational competitiveness. Chen and Srinivasan (2024) found that digitalization positively influences firm value and organizational performance when supported by complementary organizational resources and strategic capabilities. Fährndrich (2023), through a systematic review, similarly concluded that digitalization enhances management control effectiveness, although outcomes vary depending upon organizational context, technology maturity, and implementation strategies.

Firk et al. (2024) introduced another important perspective by identifying digital anxiety among finance employees as a significant obstacle to successful technology adoption. Their study suggests that organizational support, continuous training, and leadership commitment are essential for reducing resistance toward digital transformation.

The most comprehensive empirical evidence regarding finance digitalization was provided by Bedford et al. (2025). Using survey data from 137 finance professionals and complementary interviews, they found that organizational digitalization strategy significantly encourages the adoption of automation and analytics. Analytics demonstrated a positive relationship with finance function effectiveness, whereas automation alone did not. Furthermore, simultaneous implementation of automation and analytics unexpectedly generated negative interaction effects because organizations frequently lacked sufficient resources, digital competencies, and integration capabilities to optimize both technologies concurrently.

Despite the rapid growth of research, several important knowledge gaps remain. First, previous studies predominantly examine automation and analytics independently, with limited attention to their interdependent effects on finance function effectiveness. Second, existing research remains fragmented across accounting, information systems, management, and digital transformation disciplines, limiting theoretical integration. Third, relatively few studies synthesize organizational drivers, implementation challenges, and performance consequences simultaneously within a comprehensive framework. Finally, empirical findings remain inconsistent regarding whether automation, analytics, or their combination produces superior organizational effectiveness.

These unresolved issues justify the need for a Systematic Literature Review that consolidates existing evidence, critically evaluates theoretical developments, identifies methodological trends, and proposes an integrated research agenda for future studies on the

digital transformation of finance functions. Such a review provides a stronger theoretical foundation for understanding how automation and analytics collectively reshape finance organizations and contribute to sustainable organizational effectiveness.

3. Method

This study employed a qualitative research design using the Systematic Literature Review (SLR) approach to comprehensively synthesize the current body of knowledge regarding the digital transformation of the finance function, with particular emphasis on automation, analytics, and organizational effectiveness. A qualitative SLR was selected because it enables researchers to systematically identify, critically evaluate, synthesize, and interpret findings from previous empirical studies, thereby providing a comprehensive understanding of existing knowledge while identifying research gaps and future research directions (Kitchenham & Charters, 2007; Page et al., 2021).

Unlike traditional narrative reviews, a systematic literature review follows transparent, rigorous, and reproducible procedures for identifying, screening, selecting, evaluating, and synthesizing scholarly evidence. Consequently, SLR minimizes researcher bias and enhances the credibility and reliability of synthesized findings. The review protocol adopted the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure methodological transparency throughout the review process (Page et al., 2021).

The review protocol consisted of five sequential stages: (1) formulation of research questions, (2) literature identification, (3) screening and eligibility assessment, (4) quality appraisal of eligible studies, and (5) qualitative evidence synthesis. These stages followed the recommendations of PRISMA 2020 and systematic review methodology commonly adopted in management and information systems research (Page et al., 2021).

The primary research question guiding this review was: How do automation and analytics influence the digital transformation of the finance function and contribute to organizational effectiveness? Several supporting questions were also formulated: What digital technologies are most frequently implemented within finance functions? What organizational drivers facilitate finance digital transformation? What organizational barriers hinder automation and analytics implementation? How do automation and analytics influence finance function effectiveness? What research gaps remain within the current literature? These questions guided both the literature search strategy and the thematic synthesis.

The literature search was conducted using internationally recognized academic databases containing peer-reviewed journal articles. The databases were selected because they index high-quality publications in accounting, finance, management, digital transformation, and information systems. The search strategy combined Boolean operators with predefined keywords to maximize retrieval accuracy. The principal search string was constructed as follows: "digital transformation" or "digitalization" and "finance function" or "management accounting" or "finance department" and "automation" or "robotic process automation" or "artificial intelligence" and "analytics" or "business analytics" or "data analytics" and "organizational effectiveness" or "organizational performance". Additional keyword combinations were applied to ensure comprehensive coverage of the literature.

To ensure consistency and relevance, explicit inclusion and exclusion criteria were established prior to article screening. The inclusion criteria comprised: peer-reviewed journal articles; publications written in English; articles published between 2020 and 2025, ensuring contemporary evidence on digital transformation; empirical, conceptual, and systematic review studies related to finance digitalization; studies discussing automation, analytics, artificial intelligence, robotic process automation, management accounting, finance function, digital capabilities, or organizational effectiveness. Conversely, the exclusion criteria included: conference proceedings; book chapters; editorials; dissertations; duplicated publications; articles lacking full-text availability; studies unrelated to accounting, finance, or organizational digital transformation. Applying these criteria ensured that only high-quality and relevant literature contributed to the review.

Article selection followed the PRISMA 2020 flow process. Initially, all records retrieved from the selected databases were exported into a reference management application, where duplicate publications were removed. The remaining studies underwent a three-stage screening process. The first stage involved screening titles and abstracts to determine topical relevance. The second stage consisted of full-text eligibility assessment based on the predefined inclusion and exclusion criteria. The third stage involved methodological quality

appraisal to ensure that only rigorous and relevant studies were included in the final synthesis. The transparent documentation of each screening stage improved reproducibility and reduced selection bias in accordance with PRISMA 2020 recommendations (Page et al., 2021).

Methodological quality assessment was conducted to evaluate the scientific rigor of each selected publication. Each article was assessed according to the following criteria: clarity of research objectives; appropriateness of research methodology; transparency of data collection procedures; validity and reliability of analytical methods; consistency between findings and conclusions; theoretical contribution; practical contribution. Studies demonstrating strong methodological rigor were retained for qualitative synthesis. This quality appraisal strengthened the credibility of the review findings and minimized the inclusion of weak empirical evidence.

Relevant information from each selected article was extracted using a standardized data extraction form. The extracted information included: author(s); publication year; journal; country of study; research objective; theoretical framework; research methodology; sample characteristics; digital technologies investigated; principal findings; managerial implications. Standardizing the extraction process ensured consistency across all reviewed studies while facilitating comparative analysis.

This study adopted thematic synthesis as the primary qualitative analytical technique. Following repeated reading of the selected articles, findings were coded according to recurring concepts and subsequently organized into higher-order analytical themes. The thematic synthesis generated several dominant themes, including: digital transformation strategies; finance automation; robotic process automation; artificial intelligence adoption; business analytics capability; finance business partnering; organizational agility; digital competencies; organizational effectiveness; implementation barriers.

Comparative analysis was then undertaken to identify similarities, differences, inconsistencies, and emerging trends across previous studies. Particular attention was given to explaining contradictory findings and identifying unresolved issues within the literature.

Finally, an integrative conceptual synthesis was developed by combining empirical evidence from accounting, information systems, digital transformation, and management research. This synthesis enabled the identification of dominant theoretical perspectives, methodological patterns, and promising directions for future research.

To enhance the trustworthiness of the review, four quality principles were emphasized: credibility, dependability, confirmability, and transferability. Credibility was achieved through systematic database searches and transparent article selection procedures. Dependability was strengthened by employing predefined review protocols and explicit inclusion criteria. Confirmability was ensured through systematic documentation of screening and data extraction processes, while transferability was enhanced by synthesizing evidence from diverse organizational contexts and multiple research disciplines.

Overall, employing the PRISMA 2020 framework, systematic screening procedures, rigorous quality assessment, and thematic synthesis provides a comprehensive and transparent methodological foundation for understanding how automation and analytics reshape finance functions and influence organizational effectiveness. The adopted methodology also offers a reliable basis for identifying theoretical developments, empirical inconsistencies, and future research opportunities in the rapidly evolving field of finance digital transformation.

4. Results

Following the PRISMA 2020 review protocol, the selected studies demonstrate a substantial increase in scholarly interest in the digital transformation of the finance function over the past five years. Most publications originated from high-impact journals in accounting, management, information systems, and finance. The reviewed studies collectively indicate that digital transformation has evolved from a technology adoption initiative into a strategic organizational capability that reshapes finance operations, organizational structures, and managerial decision-making.

The qualitative synthesis identified five dominant research themes: (1) strategic digital transformation of finance functions, (2) automation technologies, (3) analytics capability and data-driven decision making, (4) organizational effectiveness and finance business partnering, and (5) implementation challenges and future research opportunities.

Theme 1. Strategic Digital Transformation of the Finance Function. The reviewed literature consistently shows that finance functions have shifted from traditional transaction-

processing roles toward strategic business partnership. Earlier studies primarily emphasized accounting efficiency and financial reporting, whereas recent research increasingly highlights finance professionals' strategic contributions through digital technologies.

Bedford et al. (2025) found that firm-level digitalization strategy significantly influences the adoption of automation and analytics within finance departments. Organizations pursuing explicit digital strategies exhibit higher utilization of digital technologies and greater capability to integrate financial information into organizational decision-making. However, digitalization strategy alone does not guarantee improved finance function effectiveness because organizational objectives and resource availability moderate these relationships.

Similarly, Kraus et al. (2022) concluded that digital transformation extends beyond technological implementation by requiring organizational redesign, leadership commitment, digital competencies, and continuous organizational learning. Plekhanov et al. (2023) likewise emphasized that digital transformation represents an organizational capability involving technology, governance, culture, and business strategy rather than isolated technological investments. Across the reviewed literature, digital transformation is consistently conceptualized as an enterprise-wide change process rather than a purely technological initiative.

Theme 2. Automation Technologies in the Finance Function. Automation emerged as one of the most extensively investigated themes. The reviewed studies indicate that Robotic Process Automation (RPA), Artificial Intelligence (AI), intelligent workflow systems, and machine learning are increasingly employed to automate repetitive accounting activities, including invoice processing, reconciliation, budgeting, compliance monitoring, financial reporting, and audit preparation.

Kokina et al. (2021) argued that automation enables accountants to transition from manual transaction processing toward higher-value analytical and advisory activities. Likewise, studies on intelligent automation report improvements in processing speed, operational accuracy, compliance consistency, and cost efficiency after automation implementation.

Nevertheless, the literature demonstrates that automation does not independently guarantee organizational effectiveness. Bedford et al. (2025) reported that automation exhibited limited direct influence on finance function effectiveness when implemented without complementary analytical capabilities. Instead, automation primarily improved operational efficiency through standardized business processes and reduced manual workloads.

Several studies further suggest that organizations frequently underestimate implementation complexity. Legacy information systems, fragmented databases, inconsistent business processes, and insufficient employee competencies remain substantial barriers preventing organizations from fully realizing automation benefits.

Theme 3. Analytics Capability and Data-Driven Decision Making. Business analytics emerged as the strongest contributor to finance function effectiveness throughout the reviewed studies. Most empirical evidence indicates that descriptive, predictive, and prescriptive analytics significantly improve budgeting, forecasting, risk management, strategic planning, and organizational decision making.

Lem (2024) demonstrated that comprehensive data analytics strategies substantially improve internal information quality, thereby enhancing managerial decision quality. Similarly, Bergmann et al. (2020) found that business analytics improves budgeting satisfaction through greater forecasting accuracy and information transparency.

Bedford et al. (2025) likewise identified analytics as having a consistently positive relationship with finance function effectiveness, particularly when organizations emphasize business partnering objectives. Their findings indicate that analytics enables finance professionals to deliver actionable insights supporting strategic organizational decisions beyond conventional financial reporting. The synthesis therefore indicates that analytics has become the primary mechanism through which finance functions create organizational value.

Theme 4. Organizational Effectiveness and Finance Business Partnering. Another dominant finding concerns the changing professional identity of finance personnel. The reviewed literature consistently reports that accountants increasingly function as strategic advisors rather than financial record keepers.

Yigitbasioglu et al. (2023) argued that digital technologies substantially strengthen accountants' advisory roles through enhanced analytical capabilities. Boerner et al. (2024) similarly demonstrated that business analytics capability positively influences controllership effectiveness by strengthening finance business partnering.

Across the reviewed studies, organizational effectiveness is generally measured through multiple dimensions, including operational efficiency, decision quality, strategic responsiveness, financial control, organizational agility, forecasting accuracy, stakeholder support, and organizational value creation.

The literature therefore suggests that digital transformation reshapes finance functions not only operationally but also strategically by expanding finance professionals' participation in organizational decision-making.

Theme 5. Challenges and Emerging Issues. Despite substantial technological progress, numerous implementation challenges remain. Several studies identified shortages of digital competencies among finance professionals as major barriers to successful digital transformation. Employees frequently experience uncertainty regarding changing professional responsibilities following automation implementation.

Firk et al. (2024) identified digital anxiety as an important factor reducing employees' willingness to adopt advanced digital technologies. Likewise, van Slooten et al. (2024) observed increasing role ambiguity among management accountants because digital transformation changes traditional organizational responsibilities.

One particularly important finding reported by Bedford et al. (2025) concerns the interaction between automation and analytics. Contrary to expectations, finance functions simultaneously adopting high levels of automation and analytics demonstrated lower overall effectiveness than organizations emphasizing analytics independently. The authors suggest that resource constraints, integration complexity, and capability limitations explain this unexpected relationship.

These findings indicate that successful finance transformation depends not only on technology investment but also on organizational readiness, leadership commitment, employee competencies, governance mechanisms, and change management.

Overall, the systematic review demonstrates that automation and analytics influence finance functions differently. Automation primarily contributes to operational efficiency by reducing repetitive work, improving processing speed, and enhancing standardization. Analytics, however, contributes more directly to organizational effectiveness through improved forecasting, decision support, strategic planning, and business partnering.

The literature further indicates that digital transformation should be understood as a multidimensional organizational capability requiring alignment among digital strategy, technology, organizational culture, governance, leadership, and employee competencies. Organizations emphasizing only technological implementation without corresponding organizational transformation experience considerably lower digitalization benefits.

Finally, the review identifies several important research gaps. Existing studies remain fragmented across accounting, management, and information systems disciplines. Few studies integrate automation, analytics, organizational effectiveness, and finance business partnering within a single theoretical framework. Moreover, empirical evidence remains limited regarding the long-term organizational impacts of AI-driven finance transformation, generative artificial intelligence, digital governance, and digital capability development. These unresolved issues provide promising directions for future interdisciplinary research.

5. Discussion

The findings of this systematic literature review demonstrate that the digital transformation of the finance function is no longer merely a technological initiative but has evolved into a strategic organizational capability that fundamentally reshapes the role of finance departments. Across the reviewed studies, automation, analytics, and organizational capabilities emerge as complementary rather than independent dimensions of finance digitalization. This finding supports the argument that digital transformation should be understood as an organizational change process integrating technology, people, processes, and governance rather than simply introducing digital tools (Kraus et al., 2022; Plekhanov et al., 2023). Consequently, finance functions are increasingly expected to contribute to organizational strategy through evidence-based decision-making and business value creation instead of focusing solely on financial reporting and compliance.

One of the most significant findings of this review concerns the distinct organizational roles of automation and analytics. The synthesized evidence suggests that automation primarily improves operational efficiency by reducing repetitive manual activities, standardizing accounting processes, minimizing human error, and accelerating transaction processing. Technologies such as Robotic Process Automation (RPA), Artificial Intelligence

(AI), and intelligent workflow systems have substantially transformed routine accounting activities, enabling finance professionals to allocate more time to analytical and strategic tasks (Kokina et al., 2021). However, automation alone appears insufficient to improve organizational effectiveness because efficiency gains do not necessarily translate into better managerial decisions or strategic performance.

This conclusion is highly consistent with the empirical findings of Bedford et al. (2025), who demonstrated that automation positively influences process efficiency but exhibits no significant direct relationship with finance function effectiveness. Their study further revealed that analytics contributes more substantially to organizational effectiveness than automation, indicating that technological efficiency must be complemented by analytical capability to generate organizational value. The present review reinforces this conclusion by synthesizing evidence from multiple empirical studies showing that organizations obtain greater benefits when automation supports rather than replaces analytical decision-making.

The review also highlights analytics as the most influential capability driving finance transformation. Data analytics enables organizations to convert financial and operational data into actionable knowledge supporting forecasting, budgeting, performance evaluation, and strategic planning. Lem (2024) demonstrated that comprehensive analytics strategies significantly improve internal information quality, thereby enhancing managerial decision-making and organizational transparency. Likewise, Bergmann et al. (2020) reported that organizations implementing business analytics experience higher budgeting quality, improved forecasting accuracy, and greater managerial satisfaction. These findings collectively indicate that analytics extends the finance function beyond transaction processing toward organizational intelligence.

Compared with previous research, the present review provides stronger evidence that analytics capability represents the primary mechanism through which finance functions create organizational value. Boerner et al. (2024) similarly concluded that business analytics capabilities strengthen controllership effectiveness by enhancing the finance business partner role. Their findings suggest that finance professionals possessing analytical competencies contribute more effectively to strategic decision-making than those relying exclusively on traditional accounting expertise. The current review supports this perspective by demonstrating that organizations increasingly value finance professionals capable of interpreting complex business information rather than merely preparing financial reports.

Another important finding concerns the changing professional identity of finance personnel. The reviewed literature consistently indicates that digital transformation has expanded the strategic responsibilities of accountants and controllers. Yigitbasioglu et al. (2023) argued that accountants increasingly function as business advisors whose responsibilities include supporting organizational strategy, interpreting business analytics, and facilitating cross-functional decision-making. Similarly, Burns and Baldvinsdottir (2005) previously introduced the concept of the "finance business partner," emphasizing that accountants should become active participants in managerial decision-making rather than passive information providers. The present review demonstrates that digital transformation has accelerated this professional evolution by increasing demand for analytical thinking, digital literacy, communication skills, and strategic business understanding.

Nevertheless, digital transformation also introduces significant organizational challenges. One recurring theme identified throughout the reviewed studies concerns the complexity of integrating automation and analytics simultaneously. Bedford et al. (2025) unexpectedly found that organizations implementing both technologies at high levels sometimes experience lower finance function effectiveness because of resource limitations, technological integration problems, and organizational complexity. Rather than generating complementary benefits, simultaneous implementation may overwhelm organizational capabilities if appropriate governance structures and digital competencies are lacking. This finding contrasts with earlier assumptions that greater technological adoption automatically produces superior organizational performance.

Similar concerns are reported by van Slooten et al. (2024), who observed increasing role ambiguity among management accountants following digital transformation initiatives. As automation replaces routine accounting activities, traditional professional boundaries become increasingly blurred, creating uncertainty regarding employee responsibilities. Firk et al. (2024) further identified digital anxiety as an important psychological barrier influencing employees' willingness to adopt emerging technologies. Their findings indicate that organizations must complement technological investment with continuous training, leadership support, and effective change management to facilitate successful digital transformation.

The present review therefore extends previous studies by emphasizing that digital transformation should not be evaluated solely through technological implementation indicators. Instead, successful finance transformation depends upon organizational readiness, digital leadership, employee competencies, governance mechanisms, and organizational learning capabilities. This interpretation aligns closely with Kraus et al. (2022), who argued that digital transformation represents a multidimensional organizational capability requiring alignment among technology, strategy, organizational culture, and leadership. Likewise, Plekhanov et al. (2023) concluded that organizations emphasizing capability development achieve more sustainable digital transformation outcomes than those focusing exclusively on technology adoption.

Another important contribution of this review concerns the integration of fragmented literature across accounting, management, and information systems disciplines. Previous studies frequently investigated automation, analytics, artificial intelligence, business partnering, organizational agility, or finance effectiveness independently. The present synthesis demonstrates that these concepts are highly interconnected and should be examined within a comprehensive conceptual framework. Automation provides operational efficiency; analytics generates strategic insights; organizational capabilities enable technology utilization; and governance mechanisms coordinate digital transformation initiatives. Together, these elements determine finance function effectiveness and ultimately contribute to organizational performance.

Compared with Chen and Srinivasan (2024), who found that digitalization positively influences firm value when supported by complementary organizational resources, the present review offers broader evidence by identifying specific organizational mechanisms through which finance digitalization creates value. Likewise, Fährndrich (2023) concluded that digitalization strengthens management control systems, whereas this review further demonstrates that organizational effectiveness depends upon balancing technological capability with human capability development. These comparisons indicate that organizational resources remain essential mediating factors connecting digital technologies and organizational performance.

From a theoretical perspective, the review provides support for Dynamic Capabilities Theory by demonstrating that organizations capable of integrating, reconfiguring, and continuously developing digital resources achieve superior finance transformation outcomes. The findings also reinforce the Resource-Based View by suggesting that analytics capability, digital competencies, and organizational knowledge constitute valuable strategic resources that are difficult for competitors to imitate. Rather than viewing digital technologies as independent competitive advantages, the evidence indicates that organizational capabilities determine whether technological investments generate sustainable value.

The practical implications are equally important. Organizational leaders should avoid measuring finance digitalization solely through automation intensity or technological investment. Instead, managers should prioritize developing analytics capability, digital competencies, interdisciplinary collaboration, and organizational learning alongside technological implementation. Investments in employee reskilling, digital governance, and change management appear equally important as investments in automation technologies. Organizations should therefore adopt integrated digital transformation strategies that simultaneously address technology, organizational processes, leadership, and human capital.

Despite the substantial growth of research, several important gaps remain. First, empirical evidence concerning the long-term organizational effects of generative artificial intelligence in finance functions remains limited. Second, relatively few studies investigate digital transformation within small and medium-sized enterprises compared with multinational corporations. Third, longitudinal studies examining organizational capability development during finance digitalization remain scarce. Finally, existing literature continues to be fragmented across disciplinary boundaries, indicating the need for more interdisciplinary investigations integrating accounting, strategic management, information systems, and organizational behavior perspectives.

Overall, this systematic literature review demonstrates that the digital transformation of the finance function represents a complex organizational phenomenon requiring technological innovation, strategic leadership, organizational capability development, and continuous learning. Automation improves efficiency, analytics enhances strategic decision-making, and organizational capabilities determine whether digital technologies generate sustainable organizational effectiveness. Consequently, future research should increasingly focus on understanding how organizations integrate these complementary capabilities to

maximize finance function performance and long-term competitive advantage in the digital economy.

6. Conclusions

This systematic literature review examined the digital transformation of the finance function by synthesizing contemporary evidence on the roles of automation, analytics, and organizational effectiveness. The review demonstrates that digital transformation has fundamentally redefined the finance function from a transaction-oriented support unit into a strategic business partner capable of creating organizational value through data driven decision making, predictive insights, and enhanced managerial support. Rather than representing a purely technological initiative, digital transformation is a multidimensional organizational capability that integrates digital technologies, organizational strategy, governance, leadership, employee competencies, and continuous organizational learning (Kraus et al., 2022; Plekhanov et al., 2023).

The findings indicate that automation and analytics play complementary but distinct roles within finance transformation. Automation technologies, including Robotic Process Automation (RPA), Artificial Intelligence (AI), machine learning, and intelligent workflow systems primarily improve operational efficiency by reducing repetitive manual activities, increasing processing speed, minimizing human errors, and strengthening process standardization. However, the review confirms that operational efficiency alone is insufficient to enhance finance function effectiveness unless supported by advanced analytical capabilities and organizational readiness (Bedford et al., 2025; Kokina et al., 2021).

Among all identified digital capabilities, business analytics emerged as the most influential contributor to finance function effectiveness. Analytics enables finance professionals to transform organizational data into strategic information that supports budgeting, forecasting, risk management, performance evaluation, and executive decision-making. Consequently, finance departments increasingly create value by serving as strategic advisors rather than merely preparing financial reports. This finding reinforces previous empirical evidence demonstrating that analytical capability strengthens business partnering, organizational agility, and strategic responsiveness (Boerner et al., 2024; Lem, 2024; Yigitbasoglu et al., 2023).

Another important contribution of this review is the identification of organizational capabilities as the primary mechanism linking digital technologies with organizational effectiveness. The synthesized literature consistently demonstrates that successful finance transformation depends upon digital leadership, employee digital competencies, governance structures, organizational culture, and continuous capability development. Organizations emphasizing technology adoption without corresponding investments in human capital, organizational learning, and change management frequently experience implementation difficulties, role ambiguity, and lower-than-expected organizational benefits (Firk et al., 2024; van Slooten et al., 2024).

The review also reveals that the existing body of knowledge remains fragmented across accounting, information systems, strategic management, and organizational behavior disciplines. Most previous studies investigate automation, analytics, digital capabilities, or finance business partnering independently, while relatively few provide an integrated explanation of how these dimensions collectively influence finance function effectiveness. Furthermore, empirical findings remain inconsistent regarding the interaction between automation and analytics, particularly concerning the organizational conditions under which simultaneous implementation generates superior performance. These inconsistencies highlight the need for more comprehensive interdisciplinary research.

From a theoretical perspective, this review extends current knowledge by integrating evidence from multiple disciplines into a comprehensive understanding of finance digital transformation. The findings support Dynamic Capabilities Theory by emphasizing organizations' ability to integrate and continuously reconfigure digital resources, while also reinforcing the Resource-Based View by identifying analytics capability, digital competencies, and organizational knowledge as valuable strategic resources that contribute to sustainable competitive advantage.

From a managerial perspective, the review suggests that organizations should adopt a holistic approach to finance digital transformation. Investments should not focus exclusively on automation technologies but also prioritize analytics capability, employee upskilling, digital governance, leadership commitment, and organizational learning. Such an integrated strategy enables finance functions to improve operational excellence while simultaneously strengthening strategic decision-making and long-term organizational effectiveness.

Overall, this systematic literature review demonstrates that the future of finance functions lies not in replacing human expertise with digital technologies but in combining automation, analytics, and organizational capabilities to create intelligent, agile, and strategically oriented finance organizations capable of supporting sustainable business performance.

6. Limitations

Despite providing a comprehensive synthesis of the current literature, this study has several limitations that should be considered when interpreting its findings. First, this review was limited to peer-reviewed journal articles published in English. Consequently, potentially relevant studies published in other languages or contained in conference proceedings, books, technical reports, and doctoral dissertations were excluded. Although this criterion improved the scientific quality of the review, it may have reduced the diversity of available evidence.

Second, the review primarily focused on literature published between 2020 and 2025 to capture recent developments in digital transformation technologies. While this timeframe ensured the inclusion of contemporary evidence regarding automation, analytics, and artificial intelligence, earlier foundational studies may not have been comprehensively represented.

Third, the reviewed studies originated from diverse industries, organizational contexts, and countries. Such contextual diversity strengthens the generalizability of the review but simultaneously limits direct comparison because finance digitalization practices differ across industries, organizational sizes, institutional environments, and levels of digital maturity.

Fourth, the majority of empirical studies included in the review employed cross-sectional research designs. Consequently, the long-term organizational impacts of finance digital transformation remain insufficiently understood. Longitudinal research is needed to examine how digital capabilities evolve over time and how organizations sustain digital transformation outcomes.

Fifth, although this review synthesized findings from multiple theoretical perspectives, it did not statistically evaluate effect sizes because the study adopted a qualitative systematic literature review rather than a meta-analysis. Future research could complement these findings through quantitative meta-analytic approaches to estimate the magnitude of relationships between automation, analytics, digital capabilities, and organizational effectiveness.

Finally, the rapid advancement of emerging technologies, including Generative Artificial Intelligence, autonomous finance systems, explainable AI, blockchain-enabled accounting, and intelligent decision-support platforms indicates that the knowledge base continues to evolve rapidly. Consequently, future systematic literature reviews should periodically update the evidence to capture new technological developments, changing organizational practices, and evolving theoretical perspectives regarding the digital transformation of finance functions.

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