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Algorithmic Leadership and Financial Performance: How AI-Driven Decision Systems Transform Organisational Governance in FinTech Firms

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Abstract: The rapid proliferation of AI-driven decision systems in FinTech firms has fundamentally altered organisational governance; yet, the theoretical mechanisms linking algorithmic leadership to financial performance remain poorly understood. This conceptual paper develops an integrative framework explaining how algorithmic leadership transforms governance and influences financial performance in FinTech contexts. The paper draws on agency theory, the resource-based view, socio-technical systems theory and upper echelons theory, and combines the disparate literature on algorithmic management, AI governance, FinTech performance, and organisational governance. The framework suggests that algorithmic leadership characterised by algorithmic transparency, adaptive learning, predictive analytics, and decision automation has a positive effect on financial performance, this effect is mediated by the processual and structural governance changes, as well as the changes in the overall governance, (Proposition 2) (Proposition 1). Algorithmic leadership effectiveness is subject to the regulatory context, AI maturity and organisational culture (Proposition 3) and the performance outcome depends on the complementarity of humans and algorithms in governance processes (Proposition 4). The paper adds by adding agency theory concepts to algorithmic situations, revising socio-technical systems theory for algorithmic governance, establishing new conceptual language, and proposing testable propositions for future empirical research. The framework provides a practical approach to algorithmic governance issues for FinTech leaders, boards and regulators.

Keywords: Algorithmic leadership, AI governance, FinTech, financial performance, conceptual framework, organisational governance.

INTRODUCTION

This quickly evolving landscape of AI in financial technology presents a new paradigm in organizational governance that questions the core notions of corporate leadership and decision-making that have been the bedrock of the industry for years. With the advent of AI-driven systems that are becoming integral to financial institutions' business operations, they are not just being disrupted by technology but are also facing a shift in governance, which is what this paper calls "algorithmic leadership". While a traditional form of leadership relies on human judgment and hierarchy, algorithmic leadership is a new model that involves intelligent systems in the decision-making process, resource distribution, performance tracking, and risk management, and even in the case of full autonomy, strategic decisions (Kareem, 2025). In finance, this change will have a big impact because governance has always been fundamentally about accountability of humans, oversight roles on the board and transparent decision-making. The location of decision making power has changed, across many aspects of FinTech governance, from credit-scoring algorithms that determine who is allowed to access financial services to autonomous fraud detection systems and real-time risk intelligence platforms, raising questions about accountability, transparency and the operation of governance to affect financial outcomes (Ferilli *et al*., 2024; Jalal-Eddeen, 2025).

There are several factors that ignite the need to look at algorithmic leadership in the FinTech governance framework. Firstly, the speed at which AI is being embraced in financial services has accelerated greatly, and recent research into the industry reveals that 87% of financial services leaders trust the outcomes of AI decisioning, but the same proportion state that there are significant challenges in implementing the technology (Provenir, 2026), and shockingly, only 33% have fully embraced a responsible approach to AI (Provenir, 2026). Companies are now exposed to risk of regulatory violation, reputation damage and systemic risk as a result of a governance deficit – the disconnect between the deployment of AI and its effective supervision. Second, the characteristics of the technology and regulation, the high degree of competition, and the direct impact on the financial systems of FinTech companies make traditional governance models less applicable to FinTech (Ferilli *et al*., 2024). The European Central Bank (ECB), the Basel Committee on Banking Supervision (BCBS) and the Organisation for Economic Cooperation and Development (OECD) have all emphasised the need for financial stability and to adapt governance

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frameworks to meet the pace of change in the digitalisation and FinTech environment. The European Central Bank, the Basel Committee on Banking Supervision and the OECD have all highlighted the unique challenges of digitalisation and FinTech and reinforced the need for governance arrangements that can cope with the very dynamic nature of digitalisation and protect financial stability. Third, algorithmic systems may produce bias, lack transparency and establish accountability gaps, which has led to increased algorithmic governance scrutiny, for instance in the European Union AI Act (Kareem, 2025) which is based on a risk-based approach to algorithmic governance. All these developments highlight the need for a unified theoretical account of how algorithmic leadership reshapes governance, and, more importantly, for the implications it has for financial performance.

While there is a growing interest in the adoption of AI in financial services in the academic literature, the current research is fragmented in several ways. Another strand of research has explored the technical aspects of AI governance, such as compliance with FATE (fairness, accountability, transparency, and ethics) principles, algorithmic fairness benchmarks, and blockchain-based audit trails (Kareem, 2025). This book offers much needed technical underpinnings of ethically using AI systems, but predominantly on an operational level, and it does not adequately consider the impact of algorithmic systems on governance and strategic decision making as it should. In the second stream, the focus is on the impact of the FinTech's performance, as well as on the link between the performance of the FinTech and the characteristics of its board of directors (age, gender, size of the company, type of specialisation of the directors) (Ferilli *et al*., 2024). These studies build on the ideas of the Resource Based View and Upper Echelons Theory, respectively, and illustrate that governance characteristics are indeed important in the performance of FinTech, but that they are examined with the traditional approach of human directors and managers and ignores the governance function of algorithmic decision making systems. A third, emergent stream will focus on the socio-technical issues of algorithmic government, exploring the "algorithmic inclusion paradoxes" that can occur when user populations gain increased access to algorithms, but have a diminished ability to use and access the algorithm at the same time (Jalal-Eddeen, 2025; Flores, 2026). This scholarship significantly highlights the lived effects of algorithmic governance but tends to keep at the level of user experience and micro level dynamics, rather than formulating a coherent framework of algorithmic leadership, governance change, and firm-level financial performance.

The multiple literatures on the fragmentation demonstrate a substantial conceptual gap: the lack of an integrative framework to describe how the introduction of algorithmic leadership (as a specific governance form) influences the process of organisational governance and, through these changes, the financial performance of FinTech firms. Current theoretical models offer some valuable but limited insights. Agency theory is a tool that can be applied to understand how algorithmic monitoring and incentive alignment might help to reduce the information asymmetry between principals and agents; however, it does not capture the new governance challenges that algorithmic decision makers create: neither principals nor agents. While the resource-based view offers insights into the potential for AI capabilities as strategic resources that create competitive advantage, it does not detail how these resources will be managed and governed. While the socio-technical systems theory acknowledges that social and technical aspects of systems are mutually constituting in organisations, it does not have the theoretical specificity to articulate how algorithmic systems become embedded in governance and the performance consequences. The Upper Echelons Theory highlights how upper-level management characteristics affect company performance, but it is also based on the assumption that people are responsible for making decisions in the firm and does not allow for the potential that algorithmic systems can be viewed as “echelons” in the governance process. The above theoretical constraints in totality argue for a new conceptual space that views the unique nature of the governance dynamics of algorithmic leadership in the FinTech contexts.

This conceptual paper addresses this gap by developing a theoretical framework that explains the mechanisms through which algorithmic leadership transforms organisational governance and, in turn, drives financial performance in FinTech firms. The paper is structured around several core conceptual questions: What constitutes algorithmic leadership, and what are its key dimensions and distinguishing features? Through what governance mechanisms does algorithmic leadership influence financial performance? How does governance

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transformation mediate the relationship between algorithmic leadership and financial outcomes? And what contextual factors, regulatory environments, AI maturity, and organisational culture moderate these relationships? In addressing these questions, the paper makes several theoretical contributions. First, it extends agency theory to algorithmic contexts by conceptualising AI systems as novel governance mechanisms that simultaneously reduce traditional information asymmetries while introducing new forms of opacity and algorithmic agency. Second, it advances the resource-based view by specifying how algorithmic leadership capabilities become embedded in governance structures and generate performance advantages. Third, it enriches Socio Technical Systems theory by describing particular pathways through which algorithmic systems relate to and influence human decision actors, risk monitoring and accountability systems. Fourth, it advances governance theory by providing a systematic assessment of governance transformations in the algorithmic age, beyond traditional board-based forms of governance, to include mixed human-algorithmic forms of governance.

This intellectual project has more than an academic value. The framework offers a conceptual lens for FinTech firms' leaders and their boards to consider the governance implications of AI usage, and for developing governance frameworks that optimize algorithmic leadership's performance while mitigating its risks. The framework sheds light on the governance mechanisms that present regulators and policy makers with regulatory issues and the circumstances in which the algorithmic governance might result in systemic risks. The framework offers guidelines for evaluating the quality of governance and risk exposure in an increasingly AI-powered financial ecosystem, for both investors and strategic partners.

This paper continues in the following way. Section 2 conducts a thorough literature review, drawing upon knowledge from the fields of AI governance, algorithmic decision-making, FinTech performance and organisational governance, to create a theoretical basis for the framework. In Section 3, the conceptual framework is elaborated and key constructs are described, some theoretical relations are postulated, and a conceptual model is presented, containing testable propositions. Section 4 deals with the theoretical and practical consequences of the framework, recognizes its shortcomings and gives final comments on the future of algorithmic leadership and governance in FinTech. The paper intends to offer a theoretically sound and practically relevant basis to understand the impact of AI-based decision systems on governance in FinTech and their implications for financial performance and financial system stability.

Literature Review / Theoretical Background

It is clear that algorithmic leadership is a new form of governance and requires an in-depth study of the intellectual communities, theories, and empirical evidence that collectively shape our understanding of the impact of AI-based decision-making systems on organisational governance and financial outcomes in FinTech companies. This literature review is structured thematically, building on the work from four interrelated areas: conceptual frameworks and the nature of algorithmic leadership; characteristics and governance challenges of financial decision systems based on AI; the development of organisational governance theory in the digital era; and the evidence on the relationship of technology, governance, and financial performance in the context of FinTech. The section identifies critical gaps in the literature, through this integrative review, which can justify the creation of a new conceptual framework.

Algorithmic Leadership: Conceptual Origins and Dimensions

The idea of algorithmic leadership has grown out of scholarship on algorithmic management, human-machine collaboration and the changing nature of leadership roles in increasingly digital environments of organisations. The roots of this idea extend back to seminal research into algorithmic management that Lee, Kusbit, Metsky and Dabbish (2015) developed, defining algorithmic management as a practice in which software algorithms and only technology devices perform the duties traditionally held by human managers. It was initially conceived in the landscape of platform-based work like Uber and Lyft that provided a conceptual base for understanding how algorithmic systems could take on management tasks for which human supervisors were traditionally responsible. This basic work has evolved since then, and researchers have come to understand that algorithmic management is more than just the transfer of human management tasks to technology, it is also a new control mechanism for organisations. Möhlmann and Zalmanson (2017) expanded on this notion by

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reconceptualising algorithmic management as "oversight, governance and control practices mediated by software algorithms over numerous remote workers", which highlights the specific ability of algorithmic management to track, assess and automatically act on data collected by software.

Since then, the academic world has expanded, with scholars offering alternative conceptualisations that complement the algorithmic understanding of governance. Schildt (2016) argued that algorithmic management is "Scientific Management 2.0" and explicitly linked it to Taylor's scientific management theory, focusing on the power transition from a managerial hierarchy to a group of professionals who know how to manage analytics, program code and business operations. This perspective helps keep the human actor front and center even in algorithmically mediated spaces, while also recognising how much more invisible humans are becoming to workers. Wiener, Cram and Benlian (2019) developed the notion of the Technology-Mediated Control (TMC), which is described as a managerial practice involving advanced digital technologies and smart algorithms to influence workers' behavior in a way that is consistent with the organization's expectations, and they differentiate between the technology as a support tool and the technology as an automated tool. Duggan, Sherman, Carbery and McDonnell (2019) defined 'management-by-algorithm' as a form of control "where self-learning algorithms are charged with both decision-making and implementation of decisions regarding labour, reducing human participation and supervision in the labour process." The variety of these conceptualisations collectively illustrate the field's maturing, and also highlight other uncertainties about the scope and nature of algorithmic governance.

The change from algorithmic management to algorithmic leadership is a major theoretical advance with important implications for the understanding of organisational governance. It has been demonstrated through bibliometric analysis that the paradigm of algorithm use in the field has shifted from an attitude of surveillance to an attitude of strategic and interactional leadership. Algorithms have gone from being merely socio-technical tools to active agents that are able to guide processes of an organisation and take on leadership roles in the digital age (Frimpong, 2025). This reimagining of leadership points to a new paradigm that goes against the conceptions of what leadership can be. This is particularly identified by Harms and Han (2019) who state that algorithmic leadership is a "fundamental shift" in leadership concept and practice. The implications of this transformation are of particular importance for FinTech companies, where algorithmic systems increasingly take over strategic decision-making, resource allocation and monitoring of performance functions that are traditionally in the hands of people and boards.

Algorithmic leadership differs from conventional leadership models in a number of key aspects. One of the main differences between these two types of leadership is the focus on either transactional or transformational leadership. Transactional leadership is about what the follower gives the leader in exchange for what the leader gives the follower, and transformational is about a follower rising above self interest for the collective, and believing in the leader. Algorithmic leadership presents a new form of governance, one in which decision-making authority is dispersed between human and algorithmic actors and where algorithmic logic has an impact on leadership practice that is beyond the scope of traditional leadership typologies. The substitutes for leadership theory is useful for interpreting this change because it argues that there are alternative ways of substituting or neutralising or reinforcing the way in which leadership is exercised – in this case through technology that can substitute for human leadership. In algorithmic settings, technology is the hero, and the role of authority and accountability are totally transformed in governing an organisation. Communication processes in algorithmically mediated organizations (AMOs) are a good example of socio-technical dynamics of algorithmic leadership, as organizational messages and decisions are usually communicated via algorithms that mediate and augment these communication, and where very little communication takes place directly between the human manager and the worker.

The key aspects of algorithmic leadership are automated decision-making, predictive analytics, adaptive learning, and algorithmic transparency. Decision automation refers to the process of making decisions using AI systems without involving people. Blockchain governance mechanisms are defined as "a sequence of distributed, sequential and consensus-based technologies", which "eliminate information asymmetries and change organization structures"

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by automating governance tasks (Goldsby & Hanisch, 2023). Using machine learning algorithms, predictive analytics can anticipate outcomes and assess risk - enabling governance monitoring in real-time and with traceability. Adaptive learning demonstrates another ability of AI systems: the ability to learn from new data to improve their performance, which is a key difference from algorithmic governance, where the algorithms are set and fixed. Algorithmic transparency concerns the interpretability and auditability of AI decision processes, a dimension that has attracted significant regulatory attention. Research on algorithmic decision-making reveals that transparency is a feature of the system that provides users opportunities to see how decisions are made, to evaluate decisions' outcomes and to assess the decision-maker itself, yet evidence shows that algorithmic systems frequently lack such transparency, creating challenges for accountability and trust.

AI-Driven Decision Systems in FinTech

Speed, scale, pattern recognition, and real-time processing capabilities fundamentally differentiate AI-driven decision systems in FinTech from traditional decision-making technologies. They can process vast amounts of structured and unstructured data, faster than humans, and make rapid decisions on credit screening, fraud prevention and risk assessments. Agentic AI systems' role in FinTech also highlights their transformative potential, combining algorithmic accuracy with human knowledge to revolutionize the financial technology industry (Elgendy *et al*., 2025). Algorithmic decision-making is essential in the FinTech world, where millions of transactions and interactions with the customer happen every day; it would be impractical and too expensive to work without any humans. AI can process historical data, identify patterns and trends and utilize machine learning and pattern recognition algorithms can be beneficial in decision-making, pricing, and regulatory compliance in the lending process. Real-time processing enables FinTech companies to react in real time to market, customer behaviour, and risk profile changes, thus making governance processes continuous instead of periodic.

AI systems for FinTech governance include various types of systems that have different governance implications. Credit-risk modelling, fraud detection and customer segmentation are among the areas where the machine learning models, especially gradient-boosted decision trees and deep learning architectures are commonly used. Natural language processing systems can be used to process and extract insights from text-based data sources like customer communications, financial disclosures, and regulatory filings to guide risk assessments and compliance monitoring. Robotic process automation can be used to automate mundane governance activities including transaction monitoring, report generation and compliance checking, resulting in less manual involvement in low-level governance activities. The researchers found that, the major applications of AI in banking and FinTech are: credit scoring, fraud detection, chatbot services, portfolio advisory, regulatory compliance, and decentralised finance smart contracts, the highest AUROC (96.5%) and cost savings (23.5%) were observed in the case of fraud detection. These various types of AI all come with their own set of governance challenges, ranging from the complexity of machine learning models to the challenge of regulating the output of large language models for compliance with regulatory standards.

Three themes of AI micro-decision making have emerged from the research done on the context of FinTech firms, which are essential for the success of the AI decision process: ambidexterity, data sovereignty and model explainability (Issa, Jabbouri & Mehanna, 2023). Enabling adaptive governance in dynamic financial environments, ambidexterity is the ability of AI systems to explore new decision options as they simultaneously leverage existing knowledge. Data sovereignty is the subject of the control, the ownership or the governance of data that feeds into algorithmic decisions, hence the question of who owns the data that powers AI governance systems, and how should data governance structures be designed to be accountable? Model explainability focuses on the interpretability of AI decisions, which is a key governance criteria as regulators expect that decisions impacting customers and stakeholders should be understandable and auditable. Overall, these themes illustrate the governance issues that emerge in the context of AI systems taking decisions, and the need for governance frameworks to consider the specific nature of algorithmic decision-making in FinTech settings.

The adoption patterns indicate that there is significant variation among AI governance maturity of FinTech companies, and there is a clear indication that the governance gap between the deployment of AI and the use of robust

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governance structures is potentially exposing the companies to significant risks. According to Elgendy *et al*. (2025), the sentiment analysis of the social media sentiment of 170 social media posts shows a high level of positive sentiment towards agentic AI in the FinTech industry (85% positive sentiment). There are however a lot of difficulties that must be overcome if it's actually to be widely adopted: lack of transparency, ethical considerations, robustness of the system and the regulatory supervision. This raises a number of governance challenges for AI-based decision systems in FinTech, particularly related to fairness, accountability, transparency and ethics, and becomes even more significant in financial service applications where algorithmic decisions directly affect the welfare and access to financial services of consumers. The difficulty of auditing AI-mediated representations, particularly when firms lack control over the systems generating these representations, creates attribution and accountability exposure under existing conduct and consumer-protection regimes.

Organisational Governance in the Digital Age

Organisational governance theory has traditionally been anchored in three principal theoretical perspectives: agency theory, stewardship theory, and stakeholder theory. The dominant framework in the understanding of corporate governance is agency theory, which views the firm as a bundle of contracts between the principals (the shareholders) and the agents (the managers). Agency theory considers the firm to be a collection of contracts between the principals and the agents, and corporate governance as mechanisms that reduce the information asymmetries and harmonize the interests of the principals and agents. The primary way to monitor management and to lower agency costs is through the board of directors. According to the agency theory, there are two types of governance mechanisms that principals could employ, including incentive mechanisms (e.g., performance-based compensation) and behavioural monitoring and constraint mechanisms (e.g., process-based financial constraints) (Zhou & Chen 2023). The other theoretical approach, stewardship theory, holds that managers, as a rule, are not selfish and will take action to serve the best interests of their principals, and that governance systems should encourage, not curtail, managerial initiative. Stakeholder theory extends the governance's scope from shareholders to other stakeholders, including the employees, customers, communities and others who have legitimate interest in the governance of an organisation. These theoretical frameworks have been used to inform governance research and governance practice, but each also assumes human agency, how humans process information, and how humans make decisions, all of which are challenged by algorithmic governance.

Digital governance and board digitalisation are two emerging fields of research that focus on the changes of governance practices brought about by digital technologies. The study of corporate digital transformation and governance change has revealed that “digital transformation will raise the standards of governance” in several aspects, such as improved information quality, enhanced internal control standards, decreased excessive perquisite consumption and decreased managerial short-termism (Zhou & Chen, 2023). Digital technology enables changes in the corporate governance models because of its potential to monitor, track and influence the behaviour of processes and to limit the application of governance mechanisms, thus reducing reliance on outcome-based incentive mechanisms. There is a strong link between governance and knowledge and technical expertise of users and effectiveness of the introduction of digital technology, which indicates that governance gains are not automatic, but rely on the capabilities of organisations. Digital technologies greatly reduce the sensitivity of executive pay to results, suggesting a move away from outcome to process-oriented governance mechanisms as digital transformation grows. This transition from outcome to process based governance mechanisms is a fundamental change in governance models – and a technology called digital makes it possible to continuously and comprehensively monitor managerial behaviour.

Algorithmic technologies are changing the way governance is done to create new forms of governance, such as blockchain-based governance mechanisms. Understanding the impacts of blockchains on organisational structure and information asymmetries, as they are sequential, distributed and consensus driven, leads to insights-based intraorganisational blockchain research (Goldsby & Hanisch, 2023).

The ability to create direct and sequential relationships between principals and agents in blockchain creates opportunities for reintermediation (vertical disintermediation) and reintermediation (lateral reintermediation) in the organisation. The implications of blockchain based

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organising extend beyond the basics of agency theory, that of the chain of command, unity of direction and span of control. Similarly, the decentralised autonomous organisations (DAOs) have been studied and show how algorithmic trust can enable automated governance mechanisms that rely on consensus instead of humans, potentially changing the future of organisations regarding their governance, where agency issues are addressed using technology, not human.

There are several basic reasons why AI poses a threat to traditional models of governance.AI threatens traditional models of governance in several basic ways. Algorithmic governance transforms the nature of information asymmetry. While AI systems can reduce traditional information asymmetries by providing principals with more timely, accurate, and comprehensive information about agent behaviour, they simultaneously introduce new forms of opacity through the complexity and inscrutability of machine learning models. This "algorithmic opacity" creates what might be termed a second-order information asymmetry. Principals may lack understanding of how algorithmic monitoring systems operate and whether they are producing reliable signals. Algorithmic systems capable of continuous, real-time surveillance of managerial behaviour and organisational processes fundamentally reconfigure the monitoring functions of governance. Third, decision rights, which have been carefully assigned to human decision makers and boards by their expertise, authority and accountability, are now dispersed between human and algorithmic actors, threatening traditional governance strategies. Fourth, in governance theory and regulatory practice, who is accountable for algorithmic decisions has yet to be determined.

Financial Performance in FinTech Firms

Financial performance measurement in FinTech companies involves various measures that encompass different aspects of FinTech company success. Traditional measures of profitability and efficiency include accounting based measures like Return on Assets (ROA) and Return on Equity (ROE). Tobin's Q is a ratio of the market value of assets to replacement cost and is a measure of what the market expects in terms of future growth and profitability. Among the financial stability metrics, it is useful to consider the distance to insolvency (or Z-Score), which would be especially applicable to FinTech companies in regulated financial services. Studies related to FinTech governance and governance characteristics and FinTech performance have investigated the effects of governance characteristics on the profitability of FinTech firms, and the risks of FinTech firms, with the results indicating that governance characteristics are significant factors affecting FinTech performance. Most studies focus on governance as it is understood by the human executive and board of directors, however, they do not consider algorithmic decision systems to be part of governance.

The available research regarding technology-governance-performance relationships offers some clues to the impact of the use of AI on the performance of FinTech. Examining the relationship between corporate digital transformation and governance, the positive effects of digital transformation on agency problems, information quality, internal control standards, excessive perquisite consumption and managerial short-termism in the company are highlighted (Zhou & Chen, 2023). These governance enhancements have implications on financial performance, in terms of lower agency cost, and more efficient use of resources. The study on the application of AI in banking and FinTech has revealed that AI helps achieve considerable results in various use-cases, with the most accurate results being achieved in fraud detection (96.5%) and the lowest cost in Chatbot services (23.5%), and Regulatory compliance has stable results for which automation is suitable and can be included (Boddu *et al*., 2025). These results indicate that AI systems can provide considerable operational efficiencies which are likely to lead to a better financial performance.

The influence that AI is expected to have on the performance of FinTech takes place in a few ways. The use of AI systems is expected to enhance the efficiency of their operations, streamline repetitive governance tasks, and shorten decision-making cycles, thereby reducing transaction costs. This accelerates and potentially scales the algorithmic decision process, enabling FinTech businesses to rapidly and effectively complete transactions and engage with customers with higher margins and efficiency, and with reduced resources. Secondly, AI analytics can contribute to the enhancement of risk management, such as improved risk assessment, real-time fraud detection, and predictive risk modelling. This enhanced risk management should help to reduce default rates, reduce fraud losses and improve the efficiency of capital allocation. Third, AI systems will have a

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great role to play in improving the customer journey with personalised services, quicker response times and more convenient financial products, which will help in customer acquisition and retention. Finally, AI is seen as a strategic tool that can provide a sustainable competitive advantage, which aligns with the resource-based view perspective. Companies that can create AI governance effectively can gain performance benefits that are not easily replicable by their competitors. But the benefits of AI use are not a foregone conclusion: governance issues such as algorithmic bias, compliance violations, and the lack of accountability can cost a lot of money and reputation.

Synthesis and Gap Identification

The literature examined in each of these four areas demonstrated a very fragmented body of research and identified some important gaps in theory. First, although scholarship on algorithmic leadership has started to consider the impact of AI on the nature of the leadership role, it has not comprehensively linked these changes to governance arrangements and performance outcomes. The shift from algorithmic management to algorithmic leadership is an important conceptual evolution, but it is not well understood how this evolution will affect financial outcomes and governance of organizations. Second, AI adoption in FinTech has been studied primarily in terms of technical design of algorithms, fairness measures, and compliance, while less attention has been paid to the governance changes AI introduces. The governance literature that does exist tends to treat governance as a container for AI rather than as something that AI itself transforms. Third, organisational governance theory, while increasingly attentive to digitalisation, has not systematically incorporated algorithmic governance into its theoretical framework. Agency theory, stewardship theory, and stakeholder theory all presume human agency and struggle to accommodate algorithmic agency. Fourth, research on FinTech financial performance has documented positive associations between AI adoption and performance metrics but has not explained the governance mechanisms through which these performance gains are realised.

These gaps collectively point out the necessity of an integrative conceptual framework that addresses several core questions. What are the dimensions of algorithmic leadership that are relevant to governance transformation in FinTech firms? Through what governance mechanisms does algorithmic leadership influence financial performance? How does governance transformation mediate the relationship between algorithmic leadership and financial outcomes? And what contextual factors, regulatory environments, AI maturity, and organisational culture moderate these relationships? The lack of answers to these questions is a major gap in the theory that limits policy-making design and scholarly knowledge about the issue. The theoretical frameworks that have already been developed are good initial points to start from but still need to be extended and adapted to FinTech contexts for the unique properties of algorithmic leadership. For example, be it algorithmic agency or new types of information asymmetry that algorithmic systems create, agency theory can be adapted to explain them. The resource-based view can be elaborated to identify how algorithmic leadership capabilities can be integrated into governance processes and to create performance benefits. The socio-technical systems theory can be extended to the articulation of the interaction between algorithmic systems and human governance actors and its influence on decision processes, monitoring of risks, and accountability. The theory of governance can be further developed by going beyond the traditional board-centric governance arguments into the realm of hybrid human-algorithmic governance structures.

Conceptual Framework Development

The conceptual framework combines four complementary theories to explain the connections between algorithmic leadership, governance transformation and financial performance in FinTech companies. The framework builds on agency theory, resource-based view (RBV) and socio-technical systems theory as well as upper echelons theory, and provides a broad understanding of the changes in organisational governance brought by the use of AI-driven decision systems and of their implications for performance.

Foundational Theoretical Lenses

It is rooted in four theoretical frameworks that together offer a solid basis for the understanding of the role of algorithms and its governance consequences. The agency theory (Eisenhardt, 1989) provides insights that can help in understanding how algorithmic systems can reduce the information asymmetry between principals and agents. Process-based behavioural monitoring can be achieved with digital technologies, which make outcome-based incentive mechanisms less

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necessary (Zhou & Chen, 2023). The direct and sequenced information flow between principals and agents in algorithmic governance mechanisms elicit organizational reconfiguration (Goldsby & Hanisch, 2023). The Resource Based View (RBV) (Barney, 1991; Wernerfelt, 1984) suggests that the algorithmic leadership capabilities could be perceived as strategic resources that can be converted to SCA when they are valuable, scarce, inimitable and non-substitutable. In the research implementing RBV, the characteristics of the governance were analysed to gain insight into how these characteristics influenced the outcomes of the firm: the answer was that they lowered the risk of the FinTech and enhanced the firm's financial stability (Ferilli *et al*., 2024). Socio-technical systems theory (Trist & Bamforth, 1951) recognises that the social and technical systems are co-constitutive when governance is in operation within an organisation. The Multi-Level Perspective (Geels, 2002, 2020) is a conceptual tool for analysis of the emergence and evolution of governance innovations based on artificial intelligence, their disruptive encounter with the existing governance field, and their potential to transform the entire field of governance. Hambrick & Mason (1984) in the Upper Echelons Theory (UET) emphasize on the influence of the top management behavior on the behaviour of the organization. This view is further amplified in an algorithmic setting, where the design, deployment and governance of AI systems mirror the values, assumptions and cognitive biases of the humans who develop and manage them (Nunoo & Jaganathan, 2025). It is possible to have a comprehensive view of algorithmic leadership and what it means for governance, when these two views are put together.

Key Constructs and Definitions

Algorithmic leadership is the application of algorithmic systems for a leadership task like strategic decision making, resource allocation and monitoring. Key elements of the construct include decision automation, predictive analytics, adaptive learning, and algorithmic transparency (Frimpong, 2025). Based on the definition of algorithmic management by Lee *et al.* (2015) – "the use of software algorithms to perform functions typically carried out by human managers", the concept is adapted and extended to the area of leadership because in this context leadership roles are increasingly assigned to algorithmic systems in which strategic decisions are being made and governance functions are carried out. Algorithmic leadership can vary from augmentation, using AI to augment human leadership ability to replacement, using AI to take over leadership roles traditionally held by human leaders.

Governance transformation is the term used for governance changes resulting from the integration of AI. It includes structural changes (new board committees and technology-driven decision-making), processual changes (process automation, real-time board performance dashboards and reporting), and relational changes (redistribution of decision making power and new accountability arrangements). Process-based monitoring of behaviour may be possible with digital technologies, thereby reducing the need for outcome-based incentive mechanisms (Zhou & Chen, 2023). Organisational reconfiguration takes place when principals and agents interact directly in a sequential manner, due to the governance processes, which are constructed on blockchain technology (Goldsby & Hanisch, 2023).

Financial performance is a multi-dimensional concept, consisting of profit (ROA and ROE), market value (Tobin's Q), financial stability (Z-score) and innovation output. As illustrated, AI tools in the FinTech industry can yield multiple times greater performance, in this case fraud detection accuracy of 96.5% and cost savings of 23.5%. The factors that are likely to affect the performance of the FinTech firms include the diversity of the board of directors, director specialisation and the quality of the governance (Boddu *et al*., 2025). The impacts of these factors on firms' profitability and risk profile have been found (Ferilli *et al*., 2024).

PROPOSITIONS

Proposition 1: Algorithmic leadership positively affects the financial performance of FinTech companies due to the possibility of making timely and accurate decisions. Algorithmic systems work faster than systems that require a lot of data, and give more immediate and accurate results in order to improve the quality of data processing, assessment and decisions. The effects of AI in the FinTech industry is truly remarkable: Fraud detection accuracy of 96.5% and a cost savings of 23.5% (Boddu *et al*., 2025). AI micro-decision making enables organisational ambidexterity, enabling businesses to leverage their knowledge and discover new possibilities. (Issa *et al*., 2023).

Proposition 2: The governance revolution is in the midst of algorithms and profits. Governance

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structures such as enhanced board oversight, live risk tracking and transparency are suitable options for algorithmic leadership. Governance structures help reduce FinTech risk and enhance financial stability (Ferilli *et al*., 2024). Digital transformation enhances the level of governance such as leveraging the value of information, improving the internal control environment, and minimizing the short-termism of management (Zhou & Chen, 2023). Blockchain-based governance mechanisms boost governance effectiveness (Goldsby & Hanisch, 2023), as the governance becomes more effective via direct and sequential information channels.

Proposition 3: The impact of algorithmic leadership on governance transformation goes through regulatory frameworks and the maturity of AI and organizational culture. The regulatory environment also impacts on implications for governance, including policies on transparency, accountability and risk management, like the EU AI Act (Uyanna *et al*., 2026). Technical capacity (Zhou & Chen, 2023) will then be needed to be effective in improving governance with the use of digital technology, which will depend, in turn, on the maturity of AI. Organisational culture has an impact on the receptivity for algorithmic governance and trust by design is one of the key enablers for long-term financial performance (ValidMind, 2025). Socio-technical systems theory also considers that technical systems are socially constructed and that social practices and institutional frameworks influence the development of the technical systems, and vice versa (Geels, 2020).

Proposition 4: The value of AI-led governance lies in the human-AI complementarities, which in turn has a financial dimension. When AI is a thought partner to help interrogate, challenge and stress test the thinking of humans, the results are better (Odgers Interim, 2026). These can not be replaced by the human actor who makes critical judgements, demonstrates moral courage and has an authentic connection. The good governance via digital technology relies on knowledge and technical skills of users (Zhou & Chen, 2023). The complementarity between humans and algorithms becomes a key player in the effectiveness of governance (Frimpong, 2025).

Conceptual Model Diagram

Figure 1 shows the conceptual framework with the hypothesized relationships among the constructs.

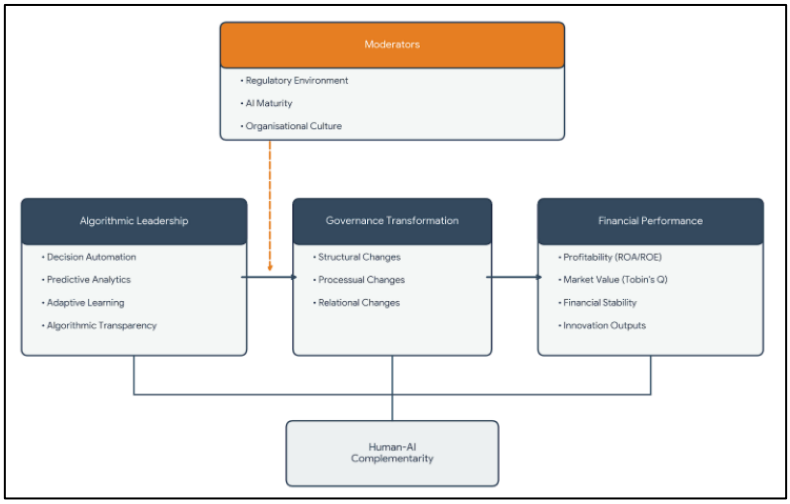

Figure 1: Conceptual Model of Algorithmic Leadership, Governance Transformation, and Financial Performance

The arrows show the hypothesized causal relationships: If an arrow intersects with other arrows, then it represents a moderating relationship.

Theoretical Rationale

The rationale for **Proposition 1** is grounded in RBV and agency theory. Algorithmic leadership capabilities are strategic assets which create efficiencies and performance benefits in operations. In the context of agency theory, algorithmic systems help remove the information asymmetry and are able to allow more efficient monitoring. There are empirical evidences that show positive real performance gains in a variety of AI use cases (Boddu *et al*., 2025). With regards to agency problem and information quality, digital transformation has a positive impact (Zhou & Chen, 2023).

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Proposition 2 is based on agency theory and socio-technical systems theory. The relationship is mediated by governance transformation which improves governance mechanisms for monitoring and controlling agents. The digital transformation can also increase the level of governance, whereby enhancing the quality and standard of internal control and information (Zhou & Chen, 2023). Governance structures help to reduce the risk of FinTech and enhance financial stability (Ferilli *et al*., 2024). Organisational reconfiguration (Goldsby & Hanisch, 2023) is one of the governance mechanisms based on blockchain that can improve governance effectiveness.

The institutional theory and socio-technical systems theory are the bases of Proposition 3. Transparency and accountability (Uyanna *et al*., 2026) are linked to governance aspects that are influenced by regulatory environment. The higher the AI maturity, the more mature the AI capabilities are, and more mature AI capabilities lead to a more profound change in the governance of AI (Zhou & Chen, 2023). The culture within the organization affects the receptivity to algorithmic governance (ValidMind, 2025). Socio-technical systems theories are an acknowledgement that technology systems are embedded in social practices and institutions (Geels, 2020; Scott, 2014).

Proposition 4 is based on two theories: upper echelons theory and a socio-technical systems theory. This is not something that algorithmic systems can replace, it is critical judgement and moral courage of the human actors. AI can also work as an "AI thought partner" and help to achieve better outcomes (Odgers Interim, 2026). Knowledge and skills of digital technology for good governance are very crucial for the effectiveness (Zhou & Chen, 2023). Participation between human and algorithms plays a crucial role in the success of governance (Frimpong, 2025). Socio-technical systems theory emphasises that optimal governance arrangements involve complementary rather than substitutive relationships (Trist & Bamforth, 1951).

DISCUSSION

The conceptual framework developed in this paper offers a comprehensive theoretical account of how algorithmic leadership transforms organisational governance and influences financial performance in FinTech firms. This section interprets the framework's significance, articulates its theoretical and practical implications, acknowledges its limitations, and identifies boundary conditions that delimit its applicability.

Theoretical Implications

The framework extends and challenges existing theories in several fundamental respects. First, it extends **agency theory** to AI-driven monitoring and incentive alignment by reconceptualising the principal-agent relationship in algorithmic contexts. The classical agency theory is based on the premise that there is "information asymmetry" between the Principal and Agent, thus opportunities for "opportunistic behaviour" that need to be dealt with by monitoring and incentive mechanisms (Eisenhardt, 1989). It introduces an additional layer of governance within algorithmic systems, through the creation of a new form of governance and by providing continuous monitoring and real-time review of the behavior of agents, it helps to minimize or eliminate the incentives based on outcomes (Zhou & Chen, 2023). It also introduces a "algorithmic opacity," a second-order information asymmetry where principals could not have enough information on how the algorithmic monitoring system would work and if the system would provide any credible signals. The work builds on agency theory, as it introduces novel agency issues related to delegating the monitoring function to algorithmic systems. Similarly, Goldsby and Hanisch (2023) revealed that the direct and sequential information flows between principals and agents created by blockchain-based governance mechanisms elicit organisational reconfiguration.

Second, it presents a revision of the socio-technical systems theory for algorithmic contexts, outlining the interaction of algorithmic systems with human governance actors, and how this interaction transforms decision processes, risk monitoring and accountability mechanisms. Socio-technical systems theory emphasises the mutual constitution of social and technical elements in organisational systems (Trist & Bamforth, 1951). The Multi-Level Perspective (Geels, 2002, 2020) conceptualises algorithmic innovations in governance as niche level innovations that challenge the current governance regimes and can change the overall governance landscape. This introduces a governance-specific application of socio-technical systems theory that considers the unique features of algorithmic systems, such as adaptive learning, predictive analytics and autonomous decision making and the consequences of these for governance structures, processes and relationships.

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Third, the framework adds to the field of governance theory, by conceptualising algorithmic governance as a new type of governance rather than simply extending the scope of traditional governance modes, which are often focused on the board room. Traditionally, governance theory has been dominated by the two constructs of agency theory (concerning board monitoring) and stewardship theory (concerning managerial initiative) (Ferilli *et al*. 2024). It puts into question the idea of governance as a human process, and the idea of algorithmic systems having a more prominent role in governance activities that are mostly human. The new feature of the theory of governance is conceptualisation thanks to the presence of new governance actors (algorithmic systems), new governance mechanisms (algorithmic monitoring, automated compliance checking) and new governance challenges (algorithmic opacity, accountability, and complementarity of humans and algorithms). The framework adds to the growing literature on digital governance and board digitalisation (Karamatzanis, Tilba, & Nikolopoulos, 2025) by offering a systematic theoretical explanation of the transformation of governance in the algorithmic age.

Contributions to Knowledge

This paper also makes several explicit contributions to knowledge that further the understanding of the theoretical aspects of algorithmic leadership, governance transformation, and financial performance in FinTech companies. First, the paper provides development of an integrative conceptual framework, which brings together the concept of algorithmic leadership, governance transformation and financial performance, an area that has been discussed individually but not in a combined framework. It offers a comprehensive theoretical explanation that goes beyond the many disjointed contributions in the different streams of literature on the impact of other AI-driven decision systems on governance and their level of performance.

Second, the paper provides a contribution by introducing the mechanism of governance transformation between algorithmic leadership and financial performance. While there have been previous studies that have established a positive correlation between using AI and performance (Boddu *et al*., 2025; Hamdouni, 2025), the exact ways in which these performance gains are achieved have been studied less. This framework provides theoretical insights on the impact of algorithmic leadership on the financial performance, as viewed through a change in governance structures, processes and relationships.

Thirdly, the paper provides by identifying and articulating the key moderating conditions that influence the effectiveness of algorithmic governance: regulatory environment, AI maturity, organisational culture, and human-AI complementarity. This responds to the contingency view that is largely missing from the literature on algorithmic governance, acknowledging that the implications of algorithmic governance are contingent. Such a narrative, then, is an account that recognises that the impact of algorithmic leadership is conditional.

Fourth, the paper contributes by conceptualizing and defining new conceptual vocabulary such as algorithmic leadership as a new form of governance, governance transformation as a multidimensional phenomenon and human-AI complementarity as an important condition for effective governance. Such conceptual innovations offer theory to scholars to analyze algorithmic governance that transcend conventional scholarly language that stems from a human-centric concept of governance. The conceptual model of the framework, which describes the mediating and moderating relationships, specifies a navigation plan for further empirical work; the propositions are statements that can be tested, which will be useful in hypothesis building using different methods and approaches.

Practical Implications

The framework has significant implications for chief executives and their boards of directors in the FinTech industry. As for structuring algorithmic governance, the first step is to build the governance structures that make the governance of algorithmic decision-making transparent and accountable, such as establishing AI-related board committees, establishing algorithmic governance oversight and accountability procedures, and implementing governance mechanisms to ensure algorithmic transparency and auditability. The research findings on FATE-compliant architectures (Kareem, 2025) could pave the way for the development of an ethical compliance governance system for FinTechs using blockchain technology. Like their human counterparts, boards should continually monitor algorithmic systems' governance.

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Second, in terms of balancing efficiency of algorithms and human supervision, this framework underscores the necessity of complementarity between humans and algorithms in governance. The algorithmic systems are highly efficient because they are fast, scale and can detect patterns but what the algorithm cannot do is provide critical judgement, moral courage, empathy and authentic connection, which are crucial areas where man is still superior. The "thought partner" aspect of AI, questioning, challenging and pushing back against human thinking is more powerful than a "be more efficient" AI (Odgers Interim, 2026). The design of governance processes should become an integrated and complementary approach between human and algorithmic capabilities with the FinTech leaders.

Third, in terms of governance redesign considerations, the framework recommends a dynamic governance as one that should evolve with the maturity of AI in the context of FinTech firms. Algorithmic capacity is evolving and should be matched by corresponding governance structures and processes, such as establishing capacity to monitor governance continuously, to assess risks in real-time, and to respond to governance in an adaptive manner. Digital transformation enhances information quality, the extent of internal controls, and reduces the manager's short-termism (Zhou & Chen, 2023). The firms need governance intelligence tools that would help them to govern algorithmic systems properly.

There are a number of aspects of the framework that have implications for regulators and policymakers. Regulatory policies must address some of the specific governance issues of algorithmic decision-making processes including algorithmic opacity, accountability attribution and principal-agent failures in the understanding of the meaning of governance policies as generated by the algorithms (de la Chica Rodríguez & Martí-González, 2026). The complementarity of humans and AI should be realised through meaningful and responsible human oversight of algorithmic decisions that impact consumers' welfare and financial stability and be ensured by regulators. The impact of the regulatory requirements on the process of governance transformation should be taken into account, as the regulations can either facilitate or hinder embedding of algorithmic systems in governance frameworks (Uyanna *et al*., 2026).

Limitations of the Conceptual Work

This is a conceptual paper which has some limitations. First, as a framework-generating exercise, the paper does not offer evidence to support its propositions. The links drawn are merely theoretical claims that need to be tested empirically by various methods. Future studies need to operationalize the key constructs, create validated instruments measuring algorithmic leadership and algorithmic governance transformation, and validate hypothesized relationships in different FinTech contexts.

Second, the framework has a set of boundary conditions, which restrict the use of the framework. It is a framework for technologically intensive, complex and with a direct impact on financial systems FinTech business. It may not be suitable for other sectors (e.g. traditional banks, non-financial and technology outside financial services) and can be assessed by comparing them.

The framework shows how algorithmic leadership and governance transformation is shaped by third, the regulatory environment, AI maturity, organisational culture, and human-AI complementarity. The propositions of the framework should be investigated further to determine whether they are valid and it is important to note that the assumptions may not hold in all contexts. The framework does not provide much attention and detail to the ethical and social ramifications of algorithmic governance, such as algorithmic bias, algorithmic fairness, and potential algorithmic exacerbation of inequities (Jalal-Eddeen, 2025). The conceptualisation of algorithmic leadership in the framework is not comprehensive enough to capture the variety of modes of algorithmic governance found in different parts of the FinTech sub-sector, different cultural settings and different regulatory systems. Nevertheless, the model offers a solid theoretical basis to grasp the phenomenon of algorithmic leadership and its effect on the financial performance of FinTech companies, despite its shortcomings.

Future Research Agenda

The conceptual framework lays the groundwork for a broad research program that may help to expand empirical research on algorithmic leadership, algorithmic governance transformation, and financial outcomes in FinTech firms. This section provides specific directions for empirical study that result from the framework, that are directions that are actionable.

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Proposition Testing and Operationalisation

Careful empirical operationalisation and testing of each proposition in different FinTech contexts is required. Proposition 1 – that algorithmic leadership has a positive impact on financial performance via improved decision-making speed and accuracy – can be realised by creating instruments that assess the degree of algorithmic decision automation, predictive analytics, adaptive learning and transparency. Data on relationship between the indicators of the application of artificial intelligence and the indicators of the company's financial performance (ROA, ROE and Tobin's Q) allowed the researchers to test the hypothesis. The mediation model between algorithmic leadership and financial performance (Proposition 2) needs to be tested by mediation analyses. An approach to governance transformation may be achieved by the governance transformation monitoring, such as the monitoring of governance structure, governance process and distribution of governance decision rights as proposed by Zhou and Chen (2023). In Proposition 3, the moderating role of the regulatory environment, AI maturity and organizational culture is identified as a variable that should be moderated by regression. In order to understand the impact of combining human and algorithmic governance processes, we need to analyse the interaction between them, which is what Proposition 4 suggests as moderating the governance transformation-performance relationship (Odgers Interim, 2026).

Methodological Suggestions

The propositions can be supported by complementary methodological approaches. Case study research would allow for an analysis of the processuality of governance transformation, the process of emergence and development of algorithmic leadership in the specific organisational context (Yin, 2014). Multiple-case designs could be used to compare firms at varying stages of AI maturity and/or regulatory regimes. Large scale testing in diverse FinTech contexts, the test for mediating and moderating relationships, would allow for the survey research approach (Karamatzanis, Tilba & Nikolopoulos, 2025) to be considered for structural equation modelling. Objective testing could be performed through archival analysis, based on publicly available data on AI adoption, characteristics of AI governance, and financial performance (Hamdouni, 2025). Algorithm governance dynamics that are hard to observe empirically could be explored, such as the co-evolution of algorithmic systems and governance structures under different circumstances, using simulation and agent-based modelling.

Scale Development

To rigorously test empirically, validated measures of key constructs are needed. Based on the conceptualisations of algorithmic management, which have been adapted to leadership contexts (Lee *et al*., 2015), algorithmic leadership measurement should include algorithmic automation, predictive analysis, algorithmic learning and transparency of algorithms. Research on digital governance transformation and blockchain-based organising (BBO) suggests that the size of the governance transformation, especially for the purposes of AI, needs to be analysed in terms of structural, processual and relational changes in governance (Goldsby & Hanisch, 2023). Human-AI complementarity measurement must express the human and algorithmic capacities in governance processes, including human supervision, questions and challenges of the algorithmic results and joint decision making (Odgers Interim, 2026). Scale development should follow existing and established psychometric criteria which include: item generation, pilot testing with experts and participants, confirmatory factor analysis (DeVellis, 2017).

Boundary Conditions

Future studies need to address the validity of the framework in other settings, taking into consideration contextual factors. But, the effectiveness of algorithmic governance could be influenced by cultural context in that cultural values on technology, authority, and accountability affect perceptions and enactment of algorithmic leadership (Jalal-Eddeen, 2025). The elements of algorithmic transparency, accountability and risk management will likely be different across various regulatory regimes, with regulatory context being a likely major factor in the elements required in each (Uyanna *et al*., 2026). Appplicability could be different based on a firm's size, for instance, larger firms might be more likely to have the resources to build algorithmic governance expertise while smaller firms might have resource constraints. Lending platforms, payment systems, insurtech and wealth management solutions have different governance pressures and regulations, which could also impact the validity of the FinTech sub-sector. Research on these contexts could lead to the

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identification of conditions where the propositions of the framework hold true or need to be modified.

Extended Framework

There are opportunities for extending beyond the scope of the current framework. Propositions for extension to other sectors outside of FinTech could explore whether there are algorithms in other tech-heavy industries where algorithmic governance is becoming more pertinent, such as healthcare, manufacturing, or professional services. The theoretical underpinnings of the framework, agency theory, RBV, socio-technical systems theory and upper echelons theory are not industry-based and hence may be applicable to a variety of organisational settings. Other outcomes could be beyond the financial dimension and include social performance (customer satisfaction, financial inclusion), innovation (patent filing, new products), and ethical compliance (regulatory compliance, algorithmic-ethics). Social implications of algorithmic governance are addressed by Jalal-Eddeen (2025) and ethical compliance dimensions are discussed by Kareem (2025). These outcomes could be incorporated into the framework to provide a more complex understanding of the effects of algorithmic leadership. **Dynamic extension** could examine how algorithmic leadership and governance transformation evolve through longitudinal research tracking FinTech firms across developmental stages or through agent-based modelling that simulates the co-evolution of algorithmic and governance systems under varying conditions.

CONCLUSION

This conceptual paper has developed a theoretical framework that explains how algorithmic leadership transforms organisational governance and influences financial performance in FinTech firms. Grounded in agency theory, the resource-based view, socio-technical systems theory, and upper echelons theory, the framework articulates algorithmic leadership as a distinct governance form characterised by decision automation, predictive analytics, adaptive learning, and algorithmic transparency. Based on this intuition, the framework purports that algorithmic leadership positively affects the financial performance via governance transformation as a mediator mechanism (Proposition 2) and enhances the decision making speed and accuracy (Proposition 1). The positive impact of algorithmic leadership would be mitigated by the regulatory environment, AI maturity, and in turn, organisational culture (Proposition 3); and performance impact depends on human-AI complementary in governance processes (Proposition 4). These propositions provide a comprehensive theoretical account addressing a significant gap where these relationships have been examined separately but not integrated.

The paper achieves several theoretical advances. First, it takes agency theory into account in the context of algorithms, conceptualizing algorithmic systems as a new form of governance that both undermines traditional information asymmetries while creating new opacities and algorithmic agency. Second, it refines the concept of socio-technical systems theory, by articulating how algorithmic systems interact with human governance actors and how they reshape decision processes, risk monitoring and accountability mechanisms. Thirdly, it advances the theory of governance by conceptualizing algorithmic governance as a new type of governance, something beyond the traditional board-based governance model that incorporates hybrid arrangements involving human and algorithmic elements. Fourth, it adds and brings together new concept vocabulary, algorithmic leadership, governance transformation, and human-AI complementarity, which offer scholars conceptual resources to analyse algorithmic governance. The articulation of the mediating and moderating relationships in the framework offers a guideline for future empirical research.

Before the proliferation of empirical research and findings on AI's role in governance, there needs to be theorizing. The governance implications are increasing as more and more FinTech firms are adopting AI, but, if no proper theory is developed, the empirical study might lead to disjointed results. This approach offers the theoretical basis for systematic empirical investigations, with the hope that future studies would be done with a framework of propositions instead of ad hoc exploration. The framework outlines mechanisms and contingencies to allow for careful and robust testing that may enhance scholarly learning and the practical design of governance.

In the future, the FinTech industry will see algorithmic governance become even more complex, due to the increasing capabilities of the various AI programs as well as regulatory changes. New challenges will emerge, necessitating continuous theoretical development through

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Agentic AI systems, blockchain-based governance, and complex human-AI cooperation models. The ability to produce successful outcomes in navigating algorithmic governance will rely on building governance mechanisms that are capable of complementing algorithmic and human capabilities in a productive manner. This paper offers a theoretical foundation, and an understanding, of these dynamics, in the hope of ensuring algorithmic governance for FinTech firms and their stakeholders, as well as for the wider financial system.

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