



Artificial Intelligence, FinTech Adoption, and Financial Inclusion: Developing a Conceptual Framework for Sustainable Financial Ecosystems

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Abstract

The swift intertwining of smart technologies and digital financial services is transforming the design of modern financial systems and opening up new prospects in the inclusive and sustainable growth of economy. This is a conceptual research project looking into ways in which the Artificial Intelligence (AI) usage can be converted into wider finance involvement by offering technology-enabled financial solutions. The foundation of this study is a systematic review and synthesis of 20 high-quality scholarly publications related to the study published in 2022-2026, including two conceptual studies, two empirical studies, four systematic literature reviews, two bibliometric analysis, two cross-country studies, and two PLS-SEM-based studies. The review shows that using AI, such as predictive analytics, alternative credit assessment, intelligent automation, fraud detection, and personalized financial recommendations, can decrease informational and operational barriers and enhance the availability, affordability, accessibility, quality, and usability of financial services. The paper also theorizes the role of digital financial service adoption as an accessing engine whereby AI capabilities can be used to access underserved and financially marginalized individuals. Nonetheless, the results focus on the fact that technological development does not ensure meaningful participation. Digital and financial literacy, infrastructure, affordability, consumer trust, cybersecurity, data privacy, regulatory support, interoperability, and socio-economic conditions play a vital role in delivering inclusive outcomes. The research, therefore, suggests a combined Artificial Intelligence-FinTech-Financial Inclusion Sustainability Framework, placing AI as a technological agent, FinTech implementation as an various mechanisms, and financial inclusion as a channel to sustainable financial systems. The framework offers a conceptually based basis upon which future empirical validation can be made, as well as give implications to financial institution, technology providers, policymakers and regulators who wish to foster accessible, responsible, secure, and sustainable digital finance.

Keywords: Digital Finance, Alternative Credit Scoring, Digital Literacy, Responsible Innovation, Sustainable Development

Introduction

The blistering integration of Artificial Intelligence (AI), Financial technology (FinTech) and financial inclusion is transforming the structure of modern financial systems and gives birth to new opportunities of building sustainable financial ecosystems. Financial inclusiveness is now understood not only as having a bank account but also as being able to obtain and utilise effectively and cheaply, properly, safely and reliably, financial products by individuals and enterprises especially those that are of low incomes, reside in rural regions and are underserved. The growth of digital payments, mobile banking, digital lending, online investment technologies, and other financial services has significantly decreased the geographical distance, transaction costs, documentation, and the lack of physical banking infrastructure barriers that traditional services created. *The Global Findex 2025* prepared by the World Bank also reinforces the idea that financial inclusion can be a core element of development and points to the increasing significance of digital connectivity, cell phone access, access to the internet, and digital security in

shaping how individuals get access to and use financial services (World Bank, 2025) ^[20]. FinTech has become a significant mechanism in the context of delivering financial services to more than traditional banking establishments within this transformation. FinTech applications are able to decrease the cost of services, speed up transactions, enable remote customer on-boarding, and new credit and payment models with populations historically locked out of formal finance. According to the empirical data, higher FinTech development is positively correlated with digital financial inclusion and may end up bridging some rural and income-related financial access disparities (Tok and Heng, 2022) ^[18]. In the same spirit, Ediagbonya and Tioluwani (2022) ^[6] posit that the provision of more affordable and accessible financial services as a result of FinTech innovation has the potential to increase financial inclusion in developing and emerging countries, but that the quality of infrastructure, regulatory, digital-literacy and institutional factors remain limiting their efficacy. FinTech adoption is, therefore, a significant technological avenue, whereby financial institutions, governments and technology providers can develop more financial inclusion and at the same time enhance the efficiency and scalability of the financial service provision. Nonetheless, access solely through technology will not always have significant or lasting inclusion effects; the quality of the services, the capacity of users to comprehend digital products, trust, affordability, cybersecurity and responsible use of financial information are still important predictors of whether digital transformation will create inclusion effects.

The introduction of Artificial Intelligence lends another transitional aspect to this FinTech relationship of financial inclusion. Machine learning, predictive analytics, natural language processing, automated decision systems, and intelligent recommendation engines are all AI technologies that can handle large and complex data to aid credit evaluation, identify fraud, offer personalized financial guidance, customer service, risk mitigation, and the customization of financial products. In a traditional financial system, people with no formal credit histories, good employment records, or significant collateral can have problems getting loans and other financial services. Using non-traditional data, AI-supported alternative credit assessment has the potential to assess a borrower as creditworthy and thus eliminate information asymmetry and reach untapped underserved customers. Development of chatbots based on AI and multilingual digital interfaces can also help to minimize the communication barriers, and predictive analytics can enable financial providers to recognize customer requirements and provide more personalized product offers. There is growing evidence in regard to the applicability of AI to financial inclusion. In this example, Lokeshwari *et al.* (2025) ^[11] look at the Indian situation, showing that the expansion of AI has a positive effect on financial inclusiveness because of machine-learning-based credit scores and automated transactions, among others. Similarly, in a systematic review, Marak and Ayyagari (2025) ^[12] find that AI has significant potential to be relevant in achieving financial inclusion and sustainable development, especially by removing the obstacles that seem to impact low-income and underserved communities. Even more recent studies point to the fact that the connection between AI and inclusion is possibly not always positive: AI preparedness can lead to variable effects when applied to

other nations based on their income status, technological coverage, institutional properties, and the capacity of the population to use and embrace digital technologies. These findings explain why it is crucial to discuss AI not as a technological change but as an element of a socio-technical financial ecosystem. Algorithms can be biased, and algorithms bring out privacy issues, hacking risks, inadequate transparency, poor digital literacy, and people without devices or stable connectivity can undermine the benefits of intelligent financial technologies. Thus, the integration of AI into FinTech needs to be successfully implemented through a suitable balance between technological complexity, ease of use, consumer safety and protection, ethical management, and institutional responsibility.

It is against this backdrop that the current study suggests a conceptual model of combining Artificial intelligence with the uptake of FinTech and financial inclusion into the greater mission of building sustainable financial ecosystems. The main idea is that AI cannot be studied separately of the FinTech adoption as AI-powered capabilities are becoming more and more implemented via digital financial platforms defining how users perceive, access, and consume financial services. The adoption of FinTech can thus be a key process where AI potential is converted into the real financial inclusion consequences, and financial inclusion is a vital channel converting technological innovation into wider economic and social sustainability. This viewpoint is especially pertinent in as far as the implications of financial inclusion go beyond personal financial access: inclusive financial systems are in a position to facilitate such things as entrepreneurship, household resilience, savings, productive investment, employment as well as engagement in formal economic activities. Recent cross-country data indicate that FinTech and financial inclusion could play a role in targeted sustainable development goals, especially those of decent work, innovation, and inclusive economic development, although the scale of such impacts differs by development levels, and institutional environments (Chaudhary *et al.*, 2025) ^[5]. On the same note, the current studies on FinTech and financial sustainability have recognized financial inclusion as a critical tool that can be used to measure through which technological innovation can impact the sustainability of financial systems (Ullah and Begum, 2025) ^[19]. Therefore, to have a sustainable financial ecosystem, it needs beyond the use of technology; it needs to be an integrated environment where AI-driven innovation, affordable and accessible FinTech services, active involvement, responsible governance, consumer confidence, cybersecurity, and synergistic long-term economic and social value supports each other. The conceptual framework formulated in this paper aims to pursue this integration by locating AI capability as a driver of technology, the adoption of FinTech as an intervention mechanism, and financial inclusion as a key outcome, and acknowledging the significance of responsible and sustainable institutional circumstances. The research, therefore, fills a research gap that is emerging: whereas existing studies have addressed AI, FinTech, and financial inclusion separately, there is relative low focus on conceptually bringing the three aspects into a single framework that explains how intelligent digital financial technologies could help achieve sustainable financial ecosystems. The combination of these two constructs brings a theoretically informed platform to further empirically investigate them and to offer insights to financial institutions,

FinTech companies, regulators, policymakers, and development organizations interested in using AI in a responsible manner and seeing that technological advancement can lead to more inclusive and inclusive financial involvement.

Review of Literature

The recent literature shows that the intersection of financial technology (FinTech), artificial intelligence (AI) and financial inclusion is taking on a core role in transformation of financial systems in the modern era. The growing level of importance given to FinTech as a mechanism that enables the conventional geographical, institutional, and cost-based barriers to access to formal financial services to be overcome has become increasingly popular. In a comparative review of Southeast Asia and India, Morgan (2022) ^[13] emphasized that digital platforms and mobile apps and technology-enabled financial services are capable of enhancing access to savings, payments, credit, insurance, and investment services by underserved households and small enterprises. Nevertheless, the research did not overlook that inclusion with FinTech in the frontline requires proper institutional structures, infrastructure, consumer power, and regulatory facilitation. In a similar tone, Ediagbonya and Tioluwani (2022) ^[6] suggested that infrastructure deficits, regulatory uncertainty, digital illiteracy, and cybersecurity can be limiting factors to affordability, access, and efficiency of financial services by FinTech in developed and emerging economies. These outcomes suggest that the uptake of FinTech cannot be seen as a mere availability of technology, but the practice and continued use are critical to changing technological change to decisive financial inclusion. Using a panel evidence on emerging and developing economies, Aduba *et al.* (2023) ^[2] also determined that FinTech penetration is a driver of financial development and with specific significant impacts on economies with lower performance in the financial sector and less financial inclusion. Their results indicate that FinTech may be used as a supplementary source of financial deepening, specifically in cases when the marginalized groups cannot be proficiently addressed by conventional financial institutions. In a broader research context, Afjal (2023) ^[3] carried out a bibliometric evaluation of publications on digital financial services in the FinTech area and discovered growing academic interest in how digital finance could help to alleviate poverty and inequality and eliminate financial exclusion. The research has further found financial access, economic development, digital payment and inclusive growth to be relevant streams of research, by showing that FinTech is becoming more intertwined with larger socioeconomic goals than as an innovation confined to the banking sector.

The content that has been published since 2023-2025 shift towards the underpinning of FinTech fin-financial inclusion relationship by focusing on determinants of adoption, digital capability, AI use, and sustainability results. Sinha *et al.* (2023) ^[17] explored the opportunities of AI digital financial inclusion in India and determined AI to be a new technological tool that can be used to increase financial services accessibility to underserved groups. Their review shows that AI-enabled credit assessment, automated services, fraud detection, and customized financial services can mitigate some of the informational and operational barriers that are inherent with traditional financial intermediation. Concurrently, financial inclusion AI needs to be considered

in the following areas: digital infrastructure, data access, privacy, fairness of algorithms, and user-capabilities. This point is supported by Adel (2024) ^[1], whose cross-country analysis comprising 56 emerging economies revealed that digital literacy, technological maturity, and technology adoption are significant determiners of financial inclusion but their impacts vary by regions. The discovery is of significant importance as it indicates that avenues of technology do not automatically result in inclusion; users should have the knowledge and confidence required to successfully use digital financial mediums. Ferilli *et al.* (2024) ^[8] also explored FinTech innovation and digital financial literacy in Europe and explained the role of technological and financial capabilities in influencing how users can take advantage of digital financial innovations. On a conceptual level, Sant'Anna and Figueiredo (2024) ^[15] conduct a systemic review that reviewed 163 papers and showed that FinTech innovation may cause both inclusionary and exclusionary impacts based on financial abilities, regulation, and institutional parameters. Their framework thus questions the position that FinTech innovation is necessarily positive and the necessity to analyze the financial stability, regulation, and user capabilities at once. Through a groundbreaking systematic literature review of research on 96 studies, Ha *et al.* (2025) ^[9] added to evidence regarding the relationship between FinTech and financial inclusion, as well as found several additional dimensions to which the research focused insufficiently. In their review, they show that despite the established bulk of research supporting the inclusionary potential of FinTech, the literature is still disjointed with respect to technologies and geographical contexts, theoretical approaches, and results. On the same note, the sustainability aspect has also acquired great significance. Hiew *et al.* (2024) ^[10] in their PLS-SEM study of 258 participants in Sarawak, Malaysia, discovered the link between financial inclusion and FinTech adoption and the impact that FinTech adoption has on societal sustainability. Their results have not only concerning implications as they place financial inclusion as not so much an output of digital finance but as a mediating process between the perceived benefits and risks and overall sustainability result. In a systematic review of 141 FinTech studies conducted with ADO, Choudhary and Thenmozhi (2024) ^[4] also established the following antecedents of FinTech development as disruptive technology, transparency, speed, cost-effectiveness, improved credit assessment, government support, regulatory sandboxes, and bank-FinTech collaboration. Notably, the contribution of FinTech to financial inclusion, entrepreneurship, risk reduction of SMEs, as well as sustainable finance were also mentioned by the review, which means that the FinTech ecosystem starts to overlap with economic and social sustainability.

Recent works have made the idea that AI and FinTech can be considered as one and not two independently studied technological phenomena even more valid. Fazal *et al.* (2024) ^[7] specifically discussed the significance of AI to attain Sustainable Development Goals based on the financial inclusion and concluded that, AI-enabled financial services have the potential to enable the inclusiveness in the formal financial system and therefore the contribution of economic growth and poverty reduction. However, their qualitative and comparative research also showed that there is a necessity of greater empirical data about the processes according to which AI can result in inclusive outcomes. This constraint is

important as, at one time AI can help minimize exclusion by enhancing credit scoring and providing automated services and at the same time introduce new forms of exclusion with biased algorithms, lack of transparency in decision making, privacy issues, and unequal access to digital infrastructure. In their analysis of panel data of 86 nations offered by Choudhary *et al.* (2025) ^[5] offered empirical data which indicated that FinTech and financial inclusion can positively affect a variety of Sustainable Development Goals, and in particular, economic growth and innovation related goals, but the strengths of these effects depend on countries and levels of development. Their results are consistent with the thesis that the developmental effects of digital finance are relative, as opposed to being uniform across the board. Ullah and Begum (2025) ^[19] took this discussion a step further by empirically investigating 141 nations during 2011-2021 and reported that the association between FinTech and financial sustainability mediates through financial inclusion. This is especially pertinent to the current study since it offers first-hand assistance to the conceptualization of financial inclusion as a channel in which the technological financial innovation can play a role in ensuring sustainable financial performance. A PRISMA-based systematic literature review enabled Marak and Ayyagari (2025) ^[12] to generalize research findings on AI, financial inclusion, and sustainable development, and frame AI-enabling credit scoring, fraud detection, personalization, and digital financial services as a crucial process by which AI can benefit underserved populations and sustainable development. According to Sharma and Priya (2025) ^[16] the further empirical evidence on North India, 469 FinTech users, and PLS-SEM presents the idea of how AI-driven features may impact technological self-efficacy, financial self-efficacy, financial well-being, and financial inclusion. Their regional data is especially useful as it relates AI-based FinTech to the results on the user level, as opposed to exploring FinTech technology at the

macroeconomic level. Other more recent studies include Dinding of 395 smallholder farmers in South Tamil Nadu by Rathi and Sahoo (2026) ^[14], which observed that FinTech uptake could lead to financial and sustainable agriculture, as well as inclusion sustainability relationship, extended to rural and livelihood-based settings. All these studies testify to significant advances in the relationship between individuals among AI, FinTech, financial inclusion, and sustainability. Nevertheless, there is a great gap in research: most of the available literature studies either FinTech and financial inclusion, AI and financial inclusion, or FinTech and sustainability as two distinct correlations. There is a relative paucity of studies that came up with and empirically validated an integrated framework where AI serves as a technological driver a FinTech adoption as the main enabling/adoption mechanism and financial inclusion as a key channel to sustainable financial ecosystems. The current literature also differs immensely in terms of theoretical background, geographic settings, methods of measurements, and outcome variables, and it is hard to find a single explanation of how AI-enabled FinTech can be translated into inclusive and sustainable financial consequences. Moreover, despite the recent research identifying the dangers of digital exclusion, algorithmic bias, cybersecurity, regulatory uncertainty, and digital literacy, these aspects are not viewed as many key components of a sustainable financial ecosystem, but as secondary ones. The current study thus fills this gap by formulating the conceptual framework that has put Artificial Intelligence, FinTech Adoption, and Financial Inclusion together and explicitly relates their interaction with the overall goal of sustainable financial ecosystems. The framework aims to offer more solid theoretical underpinning to the future empirical research, and assist policymakers, financial institutions, and FinTech providers in recognizing the potentials in turn the AI-driven innovation into available, responsible, and sustainable financial services.

Table 1: Literature Review Summary

S. No.	Author(s) & Year	Research Focus	Methodology	Major Findings	Research Gap
1	Ediagbonya & Tioluwani (2022) ^[6]	Role of FinTech in financial inclusion in developing and emerging markets	Conceptual/review-based analysis	FinTech improves accessibility, affordability, and efficiency of financial services; however, infrastructure, regulation, digital literacy, and cybersecurity remain challenges.	Examines FinTech and inclusion but does not integrate AI as a technological driver or develop a comprehensive sustainability framework.
2	Morgan (2022) ^[13]	FinTech and financial inclusion in Southeast Asia and India	Comparative review	Digital financial technologies can expand access to financial services, particularly among underserved populations. Institutional and infrastructure conditions remain important.	Regional focus; limited integration of AI capabilities and sustainable financial ecosystem outcomes.
3	Aduba <i>et al.</i> (2023) ^[2]	FinTech penetration and financial development	Panel-data analysis of emerging and developing economies	FinTech penetration contributes to financial development and can complement traditional financial institutions.	Focuses primarily on financial development rather than the combined AI–FinTech–financial inclusion relationship.
4	Afjal (2023) ^[3]	Digital financial services, FinTech and financial inclusion	Bibliometric analysis	Identifies digital financial services, financial inclusion, economic development, and poverty reduction as major research themes.	Maps the field but does not empirically explain how AI-enabled FinTech adoption translates into sustainable inclusion.
5	Sinha <i>et al.</i> (2023) ^[17]	AI and digital financial inclusion in India	Literature/review-based study	AI has potential to improve digital financial inclusion through automated services, alternative credit assessment, and improved financial accessibility.	Primarily discusses AI and inclusion; the mediating/enabling role of FinTech adoption remains insufficiently conceptualized.
6	Sant'Anna & Figueiredo	FinTech innovation, financial inclusion	Systematic literature review	FinTech can produce both inclusionary and exclusionary outcomes depending	Highlights the dual effects of FinTech but does not establish an

	(2024) ^[15]	and financial stability		on regulation, financial capabilities, and institutional conditions.	integrated AI–FinTech–inclusion framework.
7	Ferilli <i>et al.</i> (2024) ^[8]	FinTech innovation and digital financial literacy	Empirical analysis	FinTech innovation is closely connected with digital financial literacy, indicating that users' capabilities influence the benefits obtained from digital finance.	Financial literacy is emphasized, but AI-driven FinTech and sustainable ecosystem outcomes require further investigation.
8	Adel (2024) ^[1]	Digital literacy, technology adoption and financial inclusion	Cross-country analysis of 56 emerging economies	Digital literacy, technological maturity, and technology adoption significantly influence financial inclusion.	Demonstrates the importance of adoption capabilities but does not specifically investigate AI-enabled FinTech adoption.
9	Hiew <i>et al.</i> (2024) ^[10]	Financial inclusion, FinTech adoption and societal sustainability	PLS-SEM; 258 respondents in Malaysia	FinTech adoption and financial inclusion are associated with societal sustainability; perceived benefits and risks influence technology adoption.	Provides an important sustainability link but does not explicitly incorporate AI as an antecedent of FinTech adoption.
10	Choudhary & Thenmozhi (2024) ^[4]	FinTech, financial sector transformation and future research	ADO-based systematic review	Identifies technology, transparency, speed, cost-effectiveness, credit assessment, regulation, and bank–FinTech collaboration as important factors.	Provides a broad FinTech research agenda but lacks an integrated AI–financial inclusion–sustainability model.
11	Fazal <i>et al.</i> (2024) ^[7]	AI, financial inclusion and Sustainable Development Goals	Qualitative/comparative analysis	AI can support financial inclusion and SDGs through intelligent financial services, but governance and responsible implementation are necessary.	Strong conceptual connection between AI and SDGs, but limited empirical examination of FinTech adoption as the mechanism.
12	Ha <i>et al.</i> (2025)	FinTech and financial inclusion	Systematic literature review; 96 papers selected from 2,951 records	Identifies major theories, determinants, technologies and outcomes in FinTech-driven financial inclusion research.	Literature remains fragmented across theories, technologies, regions, and outcomes; supports the need for an integrated framework. (Springer)
13	Ullah & Begum (2025)	FinTech, financial inclusion and financial sustainability	Cross-country empirical analysis; 141 countries, 2011–2021	Financial inclusion mediates the relationship between FinTech and financial sustainability.	Directly supports financial inclusion as a mechanism toward sustainability, but AI is not incorporated as an antecedent. (ScienceDirect)
14	Marak & Ayyagari (2025) ^[12]	AI, financial inclusion and sustainable development	PRISMA-based SLR; 70 studies selected from 187 Scopus records	AI can expand financial access through alternative credit scoring, fraud detection, personalization and digital financial services, but ethical, infrastructural and contextual issues remain.	Provides strong evidence for AI–inclusion–sustainability, but calls for integrated and context-sensitive frameworks combining AI and FinTech. (Springer)
15	Sharma & Priya (2025) ^[16]	AI-powered FinTech, financial inclusion and financial well-being	PLS-SEM; empirical study	AI-driven FinTech features influence technological self-efficacy, financial self-efficacy, financial well-being and financial inclusion.	Provides evidence for AI-powered FinTech but further validation across regions and development contexts is required.
16	Choudhary <i>et al.</i> (2025) ^[5]	FinTech, financial inclusion and Sustainable Development Goals	Cross-country empirical analysis	FinTech and financial inclusion contribute to selected SDGs, particularly economic growth and innovation-related outcomes.	Establishes sustainability relevance but does not examine AI as the technological antecedent of FinTech adoption.
17	Rathi & Sahoo (2026) ^[14]	FinTech adoption, financial inclusion and sustainable agriculture	Empirical study of smallholder farmers in South Tamil Nadu	FinTech adoption can improve financial inclusion and support sustainable agricultural practices.	Extends research to rural users but focuses on agriculture; broader AI-enabled sustainable financial ecosystems remain underexplored.

Study Objectives

1. The study will analyze how Artificial Intelligence (AI) will transform financial services with intelligent automation, alternative credit evaluation, fraud & predictive analytics, as well as tailored financial services.
2. To understand how the use of FinTech could enhance access, affordability, quality, availability, and usability of financial services, specifically in underserved and financially marginalized groups.
3. Analyse the interconnection between Artificial Intelligence, FinTech adoption and financial inclusion and build a holistic conceptual knowledge of these two aspects.
4. To understand what the critical contextual and enabling factors, such as digital literacy, financial literacy, digital infrastructure, trust, cybersecurity, data privacy, regulatory support, affordability, and socio-economic factors, impact inclusive adoption of AI-enabled FinTech.
5. To create a conceptual layer of how the introduction of AI-enabled FinTech may reinforce financial inclusion and help to build responsible, resilient, and sustainable financial ecosystems.

Conceptual framework of the Study

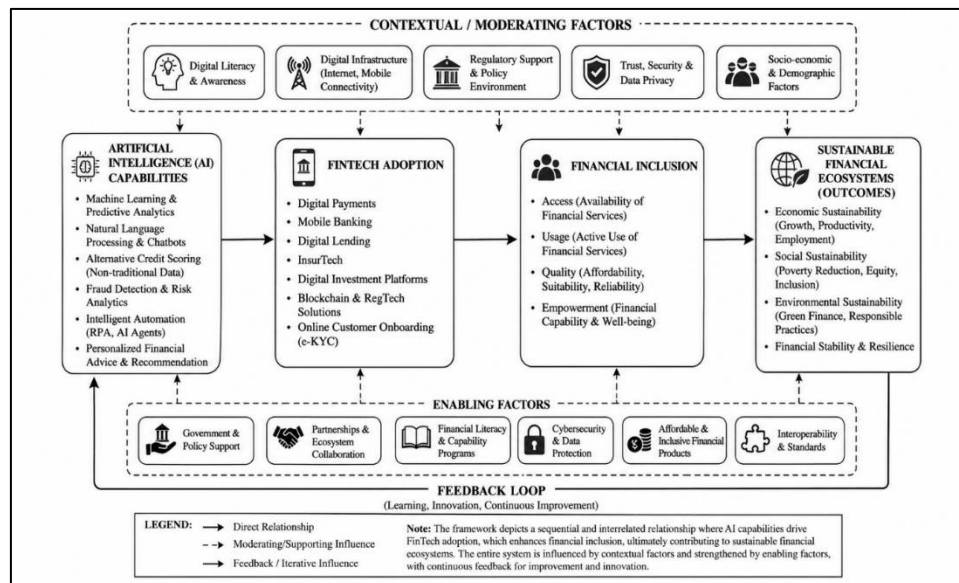


Fig 1: Artificial Intelligence–FinTech–Financial Inclusion Sustainability Framework

The conceptual framework shows the interdependency between Artificial Intelligence (AI) and FinTech adoption, financial inclusion, and sustainable financial ecosystems. The technological basis of transforming financial services is at the first level, the capabilities of AI, which comprise machine learning, predictive analytics, natural language processing, alternative credit scoring, fraud detection, intelligent automation, and personalized financial recommendations. These abilities support the creation and implementation of innovative FinTech services like digital payments, mobile banking, digital lending, digital investment platforms, InsurTech, RegTech, and online customer onboarding. The adoption of FinTech, in turn, leads to increased financial inclusion by increasing the quality, accessibility, affordability, and usability of financial services, especially relating to underserved and financially excluded groups. The increased financial inclusion, in turn, can help in the construction of sustainable financial ecosystems by helping to grow the economy, create jobs, socially integrate, reduce poverty, increase financial stability, enhance responsible finance, and become more resilient in the long term. The framework also acknowledges that contextual factors such as digital literacy, digital infrastructure, regulatory and policy support, trust, cybersecurity, data privacy, and socio-economic conditions are factors that have an influence on this process. Moreover, the empowering components like financial literacy, ecosystem collaboration, cost-effective products, government catalyst, and interoperability enhance the entire system. A feedback loop reflects the ongoing learning, innovation, and improvement and underscores the fact that sustainable financial ecosystems are dynamic and not a one-time event.

Methodology

The study is conceptual research design, which involves systematic review and synthesis of the existing academic publications on Artificial Intelligence (AI), FinTech adoption, and financial inclusion, and sustainable financial ecosystems. No statistics or primary data collection are carried out in the study. Rather, it combines the results of 20

chosen studies of 50 published between 2022 and 2026 including conceptual studies, empirical studies, systematic literature reviews, bibliometric analysis, cross-country panel studies, and PLS-SEM studies. The literature was selected based on the known academic and research platforms such as Scopus indexed journals, Springer, ScienceDirect, Web of Science-related academic sources, and more peer-reviewed academic journals. The chosen studies were analysed based on the focus of their research, their methods of research, their key findings, and gaps in the research. Synthesis specifically concentrated on the use of AI, adoption of FinTech, financial inclusion, digital literacy, regulatory encouragement, cybersecurity, and sustainability. The research constructs the Artificial Intelligence–FinTech–Financial Inclusion Sustainability Framework, which is based on this integrated review.

Results and Discussion

The results of the current conceptual paper suggest that Artificial Intelligence (AI), FinTech uptake and financial inclusivity are indeed intimately linked and, in combination, promote the creation of the sustainable financial ecosystems. The literature reviewed presents that AI features like machine learning, predictive analytics, alternative credit scoring, fraud detection, intelligent automation, and personalized financial recommendations have the potential to decrease informational and operational obstacles to financial services. The acceptance of FinTech offers the actual implementation of these AI functions made with digital payments, mobile banking, digital lending, investment platforms, InsurTech, RegTech, and customer onboarding via the world of the Internet. Literature continues to indicate that such technologies are able to enhance availability, accessibility, affordability, quality, and usability of financial services, especially to underserved and financially excluded groups. This result aligns with data that the emergence of FinTech assists in financial inclusion, and AI-driven financial services have the potential to create greater accessibility and efficiency. Moreover, it becomes evident that the inclusivity of financial systems is a key channel in the relationship

between technological innovation and sustainability since an inclusive financial system can support economic growth, job creation, poverty alleviation, financial stability, and resiliency in the long term.

The discussion also confirms that the beneficial role of AI and FinTech on financial inclusion is not automatic and. The analysed articles establish digital literacy, technologies, affordability, confidence, cybersecurity, privacy, regulatory support, financial literacy, and socio-economic status as key contextual determinants of successful adoption and inclusion. Current literature, however, suggests that FinTech innovation will have both inclusionary and exclusionary effects relying on institutional and user-level capacities. Thus, the offered framework puts AI as the technological catalyst, the use of FinTech as the facilitating factor, and financial inclusion as the key channel to sustainable financial systems. This combined view fills the identified gap in research due to the common pattern in the past where much of the available literature has analyzed AI, FinTech, financial inclusion, and sustainability as independent relationships. In general, these findings prove the argument that responsible AI-based FinTech use can enhance financial inclusion and help to provide sustainable financial ecosystems in cases of effective governance, digital, consumer protection, and accessible infrastructure.

Future Scope of the Study

The empirical testing and testing of the conceptual framework suggested in this research can be conducted in future studies on the connections between Artificial Intelligence (AI), FinTech adoption, financial inclusion, and sustainable financial ecosystems in varied geographical, demographic, and institutional settings. In future research, structuring methods like Structural Equation Modelling (SEM), PLS-SEM, and longitudinal analysis can be used to validate the hypothesized relations and the direct, indirect, and mediating relationships. Specific focus can be placed on financial inclusion as a possible mediating variable that can be used to discuss how AI-powered FinTech adoption leads to sustainable financial results. Another research question that can be explored by the researchers is the moderating effect of digital literacy, financial literacy, trust, cybersecurity awareness, regulatory support, affordability, and digital infrastructure since they could help decide whether technological innovation leads to inclusive results or not. Existing, emerging, urban, rural, and underserved areas could offer more understanding on contextual variations in AI and FinTech adoption through relative studies. Future literatures can also explore other emerging uses like AI credit score, intelligent financial advice, fraud detection, online lending, and customized financial services. Longitudinal observations may also determine whether AI-powered FinTech uptake brings long-term monetary inclusion, economic endurance, and social sustainability. This kind of research would bolster the empirical basis of proposed framework and underpin policymakers, financial institutions and FinTech providers to create responsible, accessible, secure and sustainable digital financial ecologies.

Conclusion

The current paper concludes that artificial intelligence (AI) convergence with financial technology adoption and the creation of sustainable financial ecosystems is a significant avenue in which financial inclusion fits. The conceptual

analysis determines that AI is a technological driver because it makes machine learning, predictive analytics, alternative credit assessment, and fraud detection, intelligent automation, tailored recommendations, and enhanced digital customer services possible. Such capabilities are practically available via FinTech services, such as digital payments, mobile banking, digital lending, investment platforms, InsurTech, RegTech, and digital onboarding. Adoption of FinTech, thus, can serve as a facilitating factor that can be used to make AI-powered innovations positively influence the offering, access, affordability, quality and usability of financial services, especially in underserved and financially excluded groups. It also postulates financial inclusion as a key channel between technological innovation and more holistic sustainable inputs, such as financial growth, employment, poverty alleviation, social inclusion, financial security, and resilience in the long run. This combined approach answers the research gap outlined above whereby prior literature has often looked at AI, FinTech, financial inclusion and sustainability as a discontinuous piece of analysis instead of as a single conceptual construct.

The research also finds that technology revolution by itself will never foster significant or lasting financial inclusion. Digital and financial literacy, technological infrastructure, affordability, consumer trust, cybersecurity, data privacy, regulatory support, interoperability, and socio-economic conditions are among essential elements influencing the efficacy of AI-enabled FinTech. The literature under review shows that FinTech innovation can have both inclusionary and exclusionary effects in the situation where inadequate capabilities on the side of users or technological and institutional protective measures provoke the scenario. We therefore need a responsible AI governance, transparent decision-making, consumer protection, inclusive digital infrastructure and co-operation between financial institutions, FinTech providers, governments, regulators and users to create a sustainable financial ecosystem. In general, the proposed Artificial Intelligence-FinTech-Financial Inclusion Sustainability Framework offers a theoretically informed basis of how intelligent financial technologies can reap technological innovation into greater and less biased financial inclusion. The study thus finds that sustainable finance in the future will not only rely on increasing the use of technology, but also on making AI and FinTech be formulated and utilized in a more accessible, trustworthy, responsible, secure and able to produce enduring economic and social value.

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