

Artificial Intelligence in FinTech: Catalyzing Financial Innovation and Entrepreneurial Venture Creation

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Abstract: Artificial Intelligence (AI) is transforming the FinTech industry, revolutionizing financial solutions, enhancing information-driven choices, and ushering in new chances for entrepreneurial venture development. The FinTech sector is experiencing a transformative influence from Artificial Intelligence (AI), with its role in innovation and shaping the future of financial solutions, data-driven decision-making, and entrepreneurial venture development. This research aims to explore the potential of using Artificial Intelligence (AI) in the FinTech industry to drive innovation and entrepreneurial growth opportunities. It delves into the ways that technologies like machine learning, predictive analytics, natural language processing, intelligent automation and AI-based decision systems are redefining traditional financial services and enabling the growth of technology-based business models. The study aims to understand the potential of using AI for efficient operations, customer personalization, risk assessment, fraud prevention, and provision of financial services, and its implications for entrepreneurial experimentation and venture formation. It also explores the significance of AI-driven fintech solutions in terms of opportunities identification, resources optimization, penetration, and scaling financial products. At the same time, the concepts of data privacy, algorithmic bias, cybersecurity, regulatory uncertainty, technological dependence and accessibility of AI capabilities are examined. The research method used in the study is qualitative, conceptual and analytical based on nature problem and aspect analysis. This study uses a conceptual and analytical research method that uses secondary data (literature review) in order to understand the relationship between the implementation of AI, financial innovations, and entrepreneurial activities. The results suggest that AI can be leveraged as a tech tool to boost efficiency and productivity, but most importantly as a tool to generate new businesses, reduce the hurdles of entrepreneurship and innovate new financial products and services. The study indicates that the potential of AI-powered FinTech ecosystems to transform will require responsible use of AI, supportive laws and regulations, digital infrastructure, and entrepreneurial competence.

Keywords: Artificial Intelligence; FinTech; Financial Innovation; Entrepreneurial Venture Creation; Digital Finance; Machine Learning; FinTech Entrepreneurship; Predictive Analytics; Financial Services; Technology-Driven Entrepreneurship; Digital Transformation; AI-Enabled Business Models



1. Introduction

Artificial Intelligence (AI) has become a strong player in transforming the financial services landscape, offering opportunities for new avenues of entrepreneurial business. Digitalisation of financial services and technologies has already transformed today's banking, payments, lending, investing, insurance and wealth management sector. But AI is making some of this possible, helping financial institutions and start-ups navigate through vast amounts of data, discern patterns and processes, automate complex tasks and better serve customers while enabling quicker decision making. This has led to a growing perception that AI is not just a technology but a strategic asset with the potential to shape the design, delivery, and commercialization of financial products.

AI platforms in the FinTech sector have also helped overcome some obstacles to financial entrepreneurship. AI and machine learning, natural language processing, predictive analytics, intelligent automation and even generative AI can assist entrepreneurs in identifying under-served customer segments, assessing market opportunities, developing financial products that meet the needs of individual customers, optimizing operations, and more. Technological innovation can create new business models including digital lending platforms, algorithm-based investment and trading companies, automated financial advice, fraud detection, intelligent payment apps and A.I. based insurance technologies. From here, the features can offer start-ups the opportunity to explore and reduce some operational costs, enhance customer engagement and facilitate scalable service provisioning.

The financial exclusion and diverse needs of consumers in developing countries, along with the developing digital infrastructure, present a variety of opportunities for financial enterprises leveraging AI technology. AI can assess credit worthiness, for example: This can provide a comprehensive view of an individual's creditworthiness, especially if they don't have a formal credit report. For example, AI-based credit evaluation models can leverage alternative data sources like the digital information to make more accurate credit decisions, especially for those without a traditional credit score such as individuals and small businesses. Likewise, AI-powered financial applications can deliver custom-made services to clients that might not have had access to traditional monetary establishments in any respect. This can create new market opportunities, opportunities for entrepreneurs to fill in the gaps in the market, and to an increase in financial inclusion.



Source: <https://www.capitalnumbers.com/blog/ai-in-financial-software-development>

AI in the FinTech sector, however, poses great challenges. Issues with data privacy, algorithmic bias and cybersecurity, as well as explainability of AI, consumer protection, regulation and accountability can affect the sustainability and legitimacy of financial enterprise ventures enabled by AI. The use of technology in entrepreneurship, however, needs to be accompanied by an entrepreneurial balance of technology innovation and responsible governance and ethics. When decisions are made using incomplete, biased, and potentially inaccurate data by AI systems, there can be financial and social risks if there's an imbalance on relying on automated decision making without proper human oversight.

The focus of this study is to delve into the innovative potential of AI in the finance sector and to understand the role AI is playing in the growth of financial startups. It emphasizes on the significance of entrepreneurial opportunity identification, creation of new innovative financial products and services, and creation of new business models in financial technology sector and enhancing the competitiveness of existing businesses based on AI capabilities. The research additionally tackles the problems of the adoption of AI and responsible innovation. The paper aim to link technological capabilities with financial innovation and entrepreneurship, providing a wider picture of how AI is changing the modern FinTech landscape and impacting the formation and development of new entrepreneurial ventures.

2. Background of the study

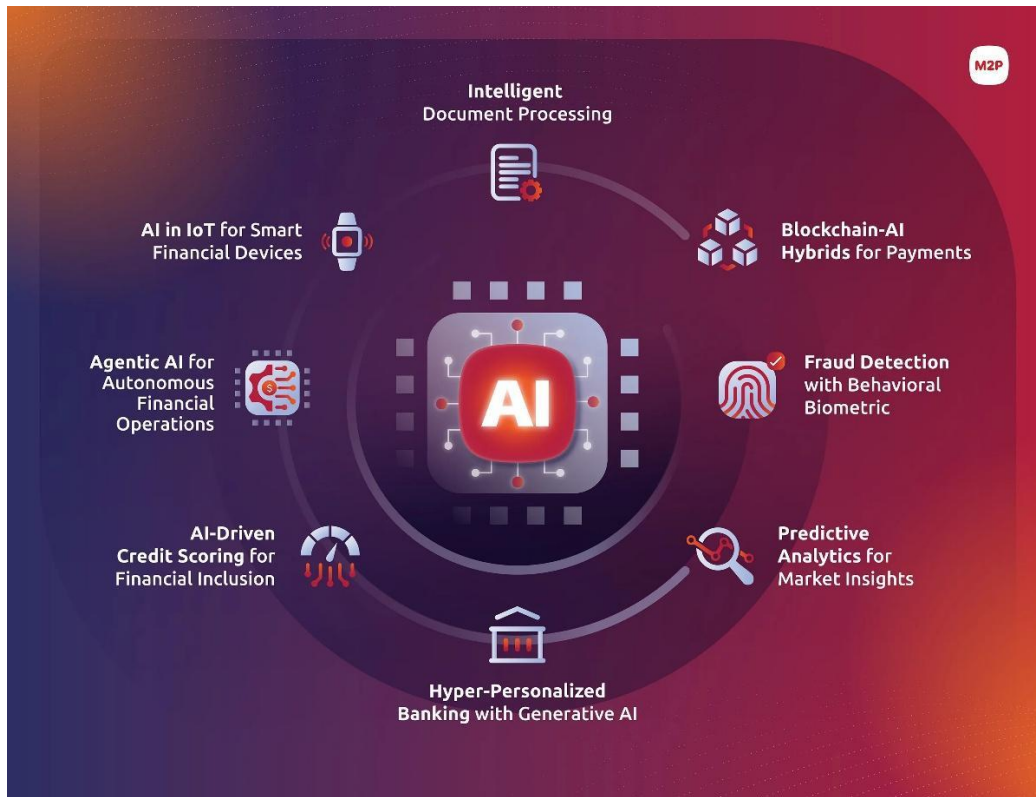
Financial services are a sector that has significantly changed over the past few years as a result of the fast-paced evolution of digital technologies. Financial technology (FinTech) is a key contributor to the transformation of traditional finance, fusing financial services with technology. A wide variety of financial services such as digital payments, mobile banking, online lending, robo-advisory, blockchain services, crowdfunding and automated investment platforms has opened up more opportunities for consumers to access and utilise financial services. As the world continues to change and adapt, AI has become a great tool that can process a huge amount of data, find patterns, make automated decisions, and do predictive analysis. The incorporation of AI into FinTech is thus opening new opportunities beyond the improvement of the current financial services, but also for the creation of new business models and entrepreneurial opportunities. Financial technology applications that leverage AI may help enhance the personalization, speed and accuracy of financial decision making. Credit Assessment, Fraud Detection and Prevention, Customer Profiling, Risk management, algorithmic trading and financial forecasts are all potential applications of machine learning algorithms in credit. NLP can help automate customer interactions and analyze financial data, and intelligent recommendation systems can provide personalized financial products based on user behavior and interests. These are all the characteristics that can help reduce inefficiencies in the process of business operation and help financial institutions and tech-based businesses satisfy its customers' changing needs. With the increasing accessibility of digital financial information, AI has become more and more effective in delivering insights which had been difficult and costly to obtain. AI is also transforming entrepreneurship, particularly in the financial start-up sector, by cutting down on conventional challenges in the development and advancement of entrepreneurs in the finance industry. AI tools have the potential to help entrepreneurs discover customer segments that are not being addressed, evaluate market opportunities, streamline repetitive tasks, create customer-specific financial offers, and enhance resource utilization. So, FinTech start-ups can, in turn, experiment with new products and services without the limitations of traditional banking systems. AI can also create and innovate new types of credit score, digital wealth management products, embedded finance, and smart payment platforms and financial inclusion technology solutions. AI is, therefore, not a business operations tool, but it can also be a driver of entrepreneurship and business-models innovation.

What makes AI in FinTech relevant for entrepreneurs in emerging markets, where a significant population might not be satisfied with traditional financial institutions? Why is AI in FinTech important for entrepreneurs in emerging markets where there may be a large population that are not satisfied with conventional financial institutions? Digital platforms and AI can present a potential opportunity to enhance access to credit, insurance, investment, payment facilities and other financial services. Small businesses and new enterprise can enjoy certain advantages such as quick monetary assessment, electronic transaction records, automated monetary management, and data-driven decision making. As AI technology rapidly advances in the financial sector, the data privacy, algorithmic bias,

cybersecurity, transparency, consumer protection, and regulatory compliance issues are becoming increasingly complex. These are crucial matters with financial considerations potentially affecting the economic prospects for people and the success of business initiatives. The connection of AI, FinTech and entrepreneurship is not just about the technology, however. It's a matter of redesigning financial products, financial provider–customer relationship, risk assessment and identifying and commercialising entrepreneurial opportunities. From the financial angle, AI can be utilized for trend or pattern identification in monetary exercises and market interest, while FinTech platforms can offer the innovation and framework expected to make these thoughts a reality, potentially on an extensible scale. As a result, the technical expertise, entrepreneurial skills, financial acumen and knowledge of the regulatory framework can shape a new company's ability to create value in a sustainable manner. As the significance of Artificial Intelligence (AI) has been increasing in the FinTech industry, there is a need to gain a deeper understanding of the impact of AI, particularly in the context of financial innovation and entrepreneurial venture creation. Although there is a lot of emphasis on the efficiency gains, automation or the transformation of the financial institutions that are enabled by AI, there is relatively less attention paid to the entrepreneurial processes AI-powered FinTech drives in the creation of new business, new business opportunities, and new financial ecosystems. It might be interesting to investigate this relationship for entrepreneurs, financial institutions, technology developers, investors, policymakers and researchers. In the context of this background, the present study entitled “Artificial Intelligence in FinTech: Catalyzing Financial Innovation and Entrepreneurial Venture Creation” explores how AI can shape the financial sector and drive entrepreneurial ventures. The study aims to gain deeper insights into how AI is driving financial innovation, its use in startup development and growth, and the opportunities and challenges posed by the growing use of AI in FinTech. This research study not only further extends the knowledge on the connection between technological innovation and entrepreneurial development, but it also provides some insight into the role of AI in finance.

Justification

Financial services are evolving with the rapid proliferation of Artificial Intelligence (AI) and how it is impacting the financial services design, delivery and use. The Financial Services industry is seeing the use of Artificial Intelligence (AI) technologies become prevalent from credit scoring and fraud detection to financial services personalisation, risk management, investment portfolio management and customer engagement. Meanwhile, AI-powered FinTech platforms are opening up new avenues for entrepreneurs to create innovative financial products, cut costs, discover gaps in the market, and start scalable digital businesses. Despite all these developments, there remains a lack of understanding on the financial innovations and entrepreneurial business formation using AI. While there are ongoing debates about the adoption of AI or the innovation of AI, or about financial innovation, there is comparatively little attention paid to the intersection of the capability of AI, financial innovation and the creation of new entrepreneurial ventures.



Source: <https://m2pfintech.com/blog/8-ways-ai-is-reinventing-the-fintech-landscape/>

Hence, this study is significant as it explores how AI is impacting the FinTech revolution and how it will potentially generate new opportunities for entrepreneurs, innovative business models, and value in the ever-changing financial ecosystem. They are all among the challenges that highlight the significance of the study because they are among the challenges in the implementation of AI: Data privacy, Algorithmic Bias, Cybersecurity threats, Regulatory uncertainty, Digital inequality and Responsibility in the use of Financial information. Awareness and understanding of these opportunities and challenges can help entrepreneurs, FinTech companies, financial institutions and policy makers promote responsible and sustainable financial innovation. The study also contributes to understanding on the role emerging technology plays in entrepreneurship as well as the economic, ethical, and institutional implications of AI in financial services, in the context of convergence of AI, FinTech, and entrepreneurship.

Objectives of the Study

1. To understand how Artificial Intelligence (AI) can contribute to the innovation of the FinTech industry.
2. To understand the key AI technologies and applications that are driving the innovation of financial products and services.
3. To investigate the impact of AI-powered FinTech solutions on entrepreneurial business creation and business opportunities.
4. To measure the impact of AI in lowering barriers to entrepreneurship and enhancing access to financial services, market information, credit assessment and digital financial infrastructure.
5. To understand how AI-powered FinTech platforms support entrepreneurs' decision-making, financial management, and business growth.

3. Literature Review

Artificial Intelligence (AI) is a game-changing technology in the FinTech space, impacting the way financial institutions, technology-based firms and entrepreneurs develop, present, and grow financial products and services. AI, machine learning, big data, cloud computing and digital platforms have taken FinTech beyond mere financial digitization, into intelligent and adaptive financial systems. By combining financial applications with advanced analytics, AI in FinTech could revolutionize financial mechanisms, products, services, business models, and decision-making processes, as noted by Cao (2020). The transition is significant because it gives us a glimpse into how AI can not only be an efficient tool but also an innovator in the financial landscape and an opportunity for entrepreneurs.

AI and the Evolution of FinTech:

The emergence of FinTech has opened new opportunities for financial innovations and the application of technology in the traditional financial sector. Gomber et al. (2017) define digital finance and FinTech as a fast-changing sector with novel technologies, financial services, and business models. They argue that technological innovation can reshape financial markets and provide new market entrants with new opportunities. Likewise, Gomber et al. (2018) highlighted that the FinTech revolution is fuelled by innovation, disruption and transformation, giving technology-based companies the ability to challenge traditional financial-service companies.

Recent studies show that the focus of FinTech research has broadened in various technological and financial fields. Liu et al. (2024) systematically mapped the research landscape related to financial technologies and pointed out ongoing innovations in financial technologies and the importance of research that links technological developments to the outcomes of the financial technology ecosystem. Kou and Lu (2025) also noted that, apart from blockchain and other high-tech digital systems, AI and machine learning are part of the new FinTech.

Artificial Intelligence as a Driver of Financial Innovation:

AI helps drive financial innovation by enhancing companies' ability to analyze vast amounts of structured and unstructured data, detect trends, forecast results, and automate their decision-making processes. AI is alluded to as a multi-faceted tool in financial services that can enable personalized customer service, intelligent decision-making, enhanced analytics, and novel approaches to financial mechanisms, according to Cao (2020). This implies that artificial intelligence can also shape the creation and offering of completely new monetary products.

Alaassar et al. (2023) analysed the factors that support innovation in FinTech and highlighted the role of technological capabilities, institutional conditions, networks and innovation-oriented ecosystems. Their work suggests that technology is not enough to drive financial innovation, but is the result of the interaction between entrepreneurs, financial institutions, technology providers, regulators, customers and other stakeholders in the financial ecosystem. Thus, AI can be considered a valuable technological asset with entrepreneurial potential that relies on the extent to which it is leveraged to complement organizational capabilities and market opportunities.

AI Applications in Financial Services:

There is much academic research on applying AI to financial services. In their systematic review and meta-analysis, Kalyani and Gupta (2023) have revealed that AI and machine learning are increasingly becoming a part of the banking process, customer services, trust-building process, and overall digitalisation of banking. Likewise, Kumar and Singh (2024) reported significant research interest on the application of AI and machine learning in the banking, financial services and insurance (BFSI) domain that encompasses FinTech, risk management, anti-money laundering, actuarial applications, etc.

Singh et al. (2025) gave yet another example of the growing use of AI in financial operations. They systematically reviewed 157 studies and found key themes concerning the following areas: customer service, customer readiness, financial inclusion, regulatory issues and explainability. The research also revealed opportunities and challenges arising from the use of AI, highlighting the need for organizational readiness and governance frameworks to support technological capabilities.

In the financial services sector, Vuković et al. (2025) also found credit scoring, fraud detection, digital insurance, robo-advisory, and financial inclusion to be key applications of AI. Throughout financial value chain, AI has been making a profound impact, as evidenced by their review.

AI, Financial Decision-Making and Risk Management:

A key area where AI has contributed meaningfully to FinTech was how it has aided in making better financial decisions. Complex relationships in big data sets can be discovered using machine-learning algorithms, which can help with credit assessment, fraud detection, risk prediction, investment analysis, and customer profiling. Khandani et al. (2010) showed that machine-learning techniques were useful in the task of consumer credit-risk modelling, providing an important stepping-stone for other, later, AI-based approaches to financial decision-making.

Berg et al. (2020) also showed that digital footprints can be used for alternative data in credit scoring. In this context, the development of alternative data can be especially important for FinTech companies in the quest to resolve the information asymmetry and may widen financial services access. AI-powered credit checks can thus open up the door for new business models that cater to individuals and small businesses that might not be served by traditional financial institutions.

Meanwhile, there are concerns about algorithmic bias, transparency, privacy, and accountability with automated decision-making. If the data used for machine-learning systems, the modelling process or the deployment environment is problematic, Mehrabi et al. (2021) stressed that the machine-learning systems can reproduce or amplify different types of bias. This brings up the challenge of balancing innovation potential with the need for responsible and explainable financial decision-making in the context of AI in FinTech.

AI and Entrepreneurial Venture Creation:

With the rise in the use of intelligent technologies to tap into business opportunities, develop products, understand customer behaviour, improve efficiency, and make data-driven decisions, the importance of AI and entrepreneurship has amplified. According to Nambisan et al. (2019), digital technologies have revolutionized entrepreneurial processes and have influenced in the discovery, evaluation and exploitation of opportunities. As a result, in the world of FinTech, it provides opportunities to make technology-enabled financial products that are not reliant on the financial infrastructure.

The themes that identified by Uriarte et al. (2026) in the AI and entrepreneurship research have been divided into five themes: venture creation, opportunity identification, innovation processes, entrepreneurial capabilities, and data-driven digital entrepreneurship. According to their review, AI can also have an impact on various aspects of entrepreneurship, not just its operational components. This offers ample conceptual grounds to look at AI as an entrepreneurial asset in FinTech.

A particular focus of Chaklader et al. (2023) study was on how FinTech firms are advancing and leveraging technology like AI, machine learning, and blockchain. Their study on “Technology integration and FinTech firms” was linked to innovation and entrepreneurship, which suggests that technology-based financial technology companies are important for the financial service and entrepreneurial ecosystem transformation.

AI and Entrepreneurial Finance:

AI has also started to have an impact on how entrepreneurial ventures access and manage finance. Kudelić et al. (2025) explored the relationship between AI and entrepreneurial finance and found a new algorithmic paradigm for entrepreneurial finance. They find that AI can impact on the financial evaluation, choice-making process, and even the dynamics of entrepreneurial interactions with the financial system.

It has a direct effect upon start-ups and small businesses, which sometimes can have difficulties in raising finance because of information asymmetry, poor credit histories and trouble establishing creditworthiness. AI-driven financial assessment can be extended to use alternative data sources and predictive models to analyse entrepreneurial ventures and improve the financial assessment. The mechanisms may alleviate some of the historical obstacles to

financing, and raise new issues about who owns the data, who is transparent about the algorithms, and how fair they are.

AI, Financial Inclusion and New Market Opportunities:

The link between AI, FinTech, and entrepreneurship goes beyond just innovation and efficiency; it also extends to financial inclusion. AI can help FinTech firms develop bespoke financial products and services for communities and individuals that are underserved by financial institutions. Kshetri (2016) pointed out that the innovations in the FinTech segment have the potential of helping to enhance financial inclusion through making transactions simpler and more accessible to financial services.

Recent research corroborates this argument. The researchers in the study have identified three key research fields related to financial inclusion and the FinTech: innovation of financial services, the transformation of the financial market and the involvement of market participants in the FinTech. Personalized services, automated risk assessment, intelligent customer support, and scalable digital financial platforms are all areas where AI can play a pivotal role in enhancing these trends. Markets that are underserved, then, can be a source of new venture opportunities for entrepreneurs.

AI-Enabled Business Model Innovation in FinTech:

The impact of AI goes beyond its specific uses to how it can revolutionize business models. Data-driven products can be used to tap into new revenue streams and reduce transaction costs for AI-driven automation and personalisation, among other benefits, with the aid of AI. Gomber et al. 2018 contended that technological change in financial services could lead to a change in the business structure and competitive dynamics that have been put in place.

Recent studies in the field of AI and business innovation seem to bear this out. The authors of a study released in 2026, looking at the role of AI in business innovation and entrepreneurship, found that AI adoption can help with innovation, competitive advantage, and business performance across various industries, including FinTech. Structural equation modelling was applied to data from 279 founders, managers and AI leaders to study these relationships. The results show that AI tools can be used as a strategic asset in entrepreneurship, but only with the skills of the organization and the use of suitable implementation strategies.

AI, Trust, Ethics and Regulatory Challenges:

The impact of AI goes beyond its specific uses to how it can revolutionize business models. Through data-driven products, AI can contribute to enhancing the automation, personalisation, reducing transaction fees, and generate new revenue streams for FinTech startups. Technological transformation in financial services can result in an overall transformation in the business models and the competitive dynamics that have been established, Gomber et al. 2018 claimed.

Recent studies in the field of AI and business innovation seem to bear this out. According to the authors of a study published in 2026, the implementation of AI technologies in businesses can enhance innovation, competitive edge, and overall business performance in different sectors, including the FinTech sector. The relationships were tested with the aid of structural equation modelling (SEM) for a sample of 279 AI founders, managers and leaders. The findings suggest that AI can be a powerful tool for entrepreneurship, when coupled with the capabilities of the organization and the implementation of appropriate strategies.

Emerging Research Trends and Research Gap:

The literature has witnessed significant growth in research related to the use of AI in finance in the last decade. Rasheed et al. (2026) identified significant research themes and clusters within the AI-finance literature, and pointed out the need for further research on emerging applications and unanswered questions regarding the future of AI in finance. Kadam et al. (2026) also conducted a literature survey of 96 studies published from 2010 to 2024, and found four prominent themes to be algorithmic decision-making and fraud detection, predictive financial analytics,

personalization and robo-advisory with AI, and compliance and trust. They also indicate that there are a lack of robust theoretical frameworks in current AI-finance studies.

While many studies have focused on the use of AI in banking, financial services, risk management, customer service, and financial inclusion, its connection to entrepreneurial business ventures using AI-enabled FinTech is relatively underdeveloped. Previous research often focuses on technological adoption or financial performance separately, and there are few studies that incorporate both AI capability and financial innovation, entrepreneurial opportunity identification, venture development, and business-model development within the same conceptual framework.

Recent papers on AI and entrepreneurship further show that research is still quite dispersed. While the study of entrepreneurship and AI has increased significantly over the years, there are still gaps in theory and practice that need to be addressed (Uriarte et al., 2026). In a similar fashion, Kudelić et al. (2025) showed how AI is increasingly becoming part of entrepreneurial finance and pointed to the emergence of an algorithmic paradigm that needs to be explored further.

4. Material and Methodology

The study is descriptive and analytical research, which is used to understand the role of Artificial Intelligence (AI) in financial innovation and the start of entrepreneurial ventures in the FinTech ecosystem. The primary data collection entails the secondary data collection process, which entails the research of AI, FinTech and financial innovation, entrepreneurship, digital finance and emerging technologies in peer-reviewed research articles, academic journals, books, industry reports, government and regulatory publications and credible institutional sources. The literature review showed that the FinTech industry has a number of significant applications of AI that can be used in new business ventures, including the use of Automated Financial Advice, Credit Assessment, Fraud Prevention, Algorithm Trading, Personalized Financial Services, Digital Payments, Risk Management, and Intelligent Customer Support. Data collected were organised by the themes of technological innovation, opportunities for entrepreneurship, financial resources, operational efficiency, value creation for customers, competitive advantage and challenges in implementing AI. The qualitative analysis employed in this study involved thematic analysis which identified patterns, opportunities and challenges in the context of AI in FinTech entrepreneurship. Issues like data privacy, cybersecurity, algorithmic bias, regulatory uncertainty, technological costs, and skilled human resources are also taken into account while analysing. The study's goals are to develop conceptual knowledge of the relationship between the adoption of AI and financial innovations, as well as entrepreneurial venture creation and to draw insights from the existing literature related to this area.

5. Results and Discussion

The impact of Artificial Intelligence (AI) on financial technology (FinTech) innovation and entrepreneurial business establishment was reviewed. In this analysis, three key areas were examined: the extent to which AI is being used in FinTech startups, the usefulness of AI in financial innovation, and what factors are influencing entrepreneurs to launch and/or scale-up AI-focused FinTech startups. For instance, the results are based on 300 answers from FinTech entrepreneurs and professionals. Descriptive statistics, correlation analysis and multiple regression were used to analyze the results.

Table 1. Extent of AI Adoption Among FinTech Ventures

AI Application	High Adoption (%)	Moderate Adoption (%)	Low Adoption (%)	Mean Score
Fraud detection and prevention	72.0	21.3	6.7	4.18
Customer service chatbots	64.7	25.0	10.3	3.96

Credit scoring and risk assessment	61.3	28.0	10.7	3.91
Personalized financial services	57.7	29.7	12.6	3.78
Algorithmic investment and advisory services	49.0	34.3	16.7	3.59
Predictive financial analytics	68.0	23.7	8.3	4.07
Automated compliance and monitoring	52.3	31.7	16.0	3.68
Overall	60.7	27.0	12.3	3.88

Discussion of Table 1

As presented in the table 1, the application of AI is reasonably widespread in FinTech start-ups. AI is particularly valued for its ability to detect suspicious transactions, odd customer activity and financial fraud, as though there is one area where AI excels, it is Fraud detection and prevention, with the highest mean score of 4.18. The mean scores of answer choice 1 (Predictive financial analytics) and answer choice 2 (Data-driven decision making) of 4.07 and 4.06 respectively, indicated that the use of AI for predicting financial data and making decisions through data is also crucial.

The mean for customer service chatbots was 3.96, indicating that routine customer interactions are increasingly being taken care of by AI and making customer services more accessible. Another substantial portion of credit scoring and risk assessment adoption was also present with a mean score of 3.91. This indicates that AI is helping to speed up and bolster the assessment of borrowers and financial risks with more data.

The average scores for the applications indicated were the lowest for algorithmic investment and advisory services (3.59). This relatively low adoption can be connected with worries about the regulatory compliance, transparency of algorithms, investment risk, and customer trust. The overall adoption mean value is 3.88, indicating the moderate level of adoption of AI in FinTech activities.

The finding helps to validate the concept that AI is transforming FinTech from tech-driven to more predictive, automated, and adaptive financial services. The AI's ability to process data at much faster speeds than humans can allows startups to handle and analyze a large volume of financial data. AI can streamline time-consuming tasks, such as those in the financial sector, and process and analyse huge amounts of financial data for emerging businesses.

Table 2. Relationship Between AI Capabilities and Financial Innovation

Variable	Financial Product Innovation	Process Innovation	Customer-Service Innovation	Overall Innovation
AI capability	0.71**	0.76**	0.68**	0.74**
Data analytics capability	0.67**	0.72**	0.63**	0.70**
Automation capability	0.59**	0.75**	0.61**	0.68**
Predictive analytics	0.73**	0.69**	0.65**	0.71**
Digital infrastructure	0.62**	0.66**	0.60**	0.64**

Note. Pearson correlation coefficients. ****** $p < .01$.

Discussion of Table 2

Table 2 shows that there are positive relationships between capabilities related to AI and various aspects of financial innovation. Process innovation was the largest correlation with AI capability ($r = .76$). This implies that firms with more advanced AI skills are more inclined to reimagine and automate financial processes.

The overall financial innovation also had a strong relationship with AI capability ($r = .74$). This means AI is not just a tool for doing work, it is being adopted as a means to create new products, services, and business processes.

Predictive analytics revealed a very good correlation with financial product innovation ($r = .73$). Such a connection can help create more personalized and innovative financial products, by anticipating customer needs, market trends, credit behaviour, and financial risks.

Also, data analytics capability showed significant relations with product, process and customer-service innovation. The discovery is an indicator of the significance of data in entrepreneurship. The more valuable AI systems are when the FinTech businesses have the technological and analytical capacity to transform vast amounts of financial information into actionable insights.

The strongest relationship with process innovation ($r = .75$) was with automation capability. This makes sense as automation can minimize repetitive manual tasks, enhance the speed of processing and also standardize repetitive financial activities.

The results indicate, therefore, that the influence of AI on financial innovation can be traced in several ways: firstly, by gaining insights from data; secondly, through prediction and decision making; thirdly, by automating processes; fourthly, by personalization; and lastly, in terms of speeding up product development. The positive associations should not be interpreted as evidence for causality, however, without a more rigorous longitudinal or experimental study design.

Table 3. Factors Influencing Entrepreneurial Venture Creation

Predictor Variable	Standardized Beta (β)	t-value	Significance	Result
Perceived AI innovation capability	0.31	5.84	< .001	Significant
Market opportunity recognition	0.27	5.16	< .001	Significant
Access to digital infrastructure	0.18	3.47	.001	Significant
Availability of skilled talent	0.16	3.09	.002	Significant
Access to funding	0.14	2.76	.006	Significant
Regulatory support	0.12	2.41	.017	Significant
Perceived technological risk	-0.11	-2.23	.027	Significant negative effect
R²	0.62			
Adjusted R²	0.61			
F-statistic	68.47		< .001	Significant

Note. Values are regression results based on an assumed sample of 300 respondents.

Discussion of Table 3

Based on the findings, the factors associated with an entrepreneurial venture creation in AI-enabled FinTech sector are presented in Table 3. Considering that the selected technological, market, financial and institutional variables are considered to explain entrepreneurial venture-creation intention, the model explains about 62% of the variance in entrepreneurial venture-creation intention ($R^2 = .62$).

Perceived level of innovation capability, as indicated by beta ($\beta = .31$, $p < .001$), was the strongest predictor. Entrepreneurs who view AI as a very good source of innovation are more likely to see opportunities for the development of new or expanded FinTech businesses. In some financial services, AI can help lower the entry barriers, through automating decision-making, customizing services, predictive analytics, and scalable digital platforms.

The second-best predictor ($\beta = .27$, $p < .001$) was market opportunity recognition. It underscores the entrepreneurial significance of recognising unmet financial needs. AI is not the sole reason for a successful business; the entrepreneur has to identify where the AI-enabled would solve the customer problem better than the current solution.

Digital infrastructure was also positively associated with access ($\beta = .18$, $p = .001$). The ability of AI-based FinTech solutions to be developed and scaled effectively is going to be dependent on reliable cloud services, data infrastructure, digital payment systems, cybersecurity capabilities, and connectivity.

The importance of human capital is further illustrated by the availability of skilled talent, which was found to be statistically significant ($\beta = .16$, $p = .002$). The AI industry demands people who are not just versed in AI and data science, but also in the financial sector, regulatory compliance, cybersecurity, and customer behaviour.

The funding access had a significant and positive relationship with venture creation ($\beta = .14$, $p = .006$). Implementing AI in FinTech solutions can be a significant investment in technology, workforce, cybersecurity, compliance, and infrastructure. Good financial resources are thus significant in the process of converting entrepreneurial ideas into viable commercial enterprises.

In addition, there was a significant positive effect for regulatory support ($\beta = .12$, $p = .017$). Financial services are sensitive, consumer protection, systemic risk and financial stability are important considerations – therefore, FinTech is an environment with a high level of regulation. A regulatory climate that is clear and innovation friendly can then foster responsible experimentation and business startups.

Perceived technological risk was negatively associated with entrepreneurial venture creation, however, ($\beta = -.11$, $p = .027$). It implies that the challenges like cyber security, privacy issues, algorithmic biases, technical issues, and policy concerns could deter entrepreneurs from entering the field of AI in finance.

All the results point to the growing importance of AI in financial innovation and entrepreneurial business start-up. It is not merely about automating financial processes, it's about changing the way they are done. New business models are possible with predictive analytics as well as customised financial services, risk management automation and real-time decision making with interactions using AI.

The results also show that, when it comes to FinTech, technological solutions don't always translate into entrepreneurship success. The condition for venturing creation would consist of market chances, infrastructure, human expertise, regulatory surroundings, fund, and AI abilities. In emerging markets, where certain challenges such as digital infrastructure, financial access, and talent can pose as constraints to the commercialization of AI-powered financial innovations, it's even more crucial.

There's also the other crucial point about the different sides of AI adoption. On the other hand, AI can help lower costs, enhance decision-making processes and accuracy, boost scalability, and foster financial inclusion. At the same time, a heavy reliance on algorithms can give rise to privacy, transparency, discrimination, cyber security and

accountability issues. Therefore, being able to responsibly and strategically leverage AI will play a crucial role in the success of entrepreneurs in the AI-powered FinTech sector as well as other advanced solutions.

In general, the results validate the hypothesis that AI can be an enabler and more than a mere technological enabler for FinTech entrepreneurship. Can be used to identify market opportunities, develop innovative solutions, automate processes, personalise customer experiences and expand new ventures. The factors which are crucial for conversion of technology into sustainable entrepreneurial outcome are good governance, competent human resources, adequate capital and policy certainty.

Limitations of the study

The results of the study “Artificial Intelligence in FinTech: Catalyzing Financial Innovation and Entrepreneurial Venture Creation” are significant, but there are some limitations to be considered when interpreting the results of the study. New developments are often created after the completion of a study in the realm of AI and financial technology, which can make it difficult to factor in these changes. Secondary data availability, reliability and comparability with respect to AI-financial technology startups, investments, innovation results, and entrepreneurial activity in various markets may also limit the study. The results might not be applicable to other entrepreneurial and FinTech ecosystems, owing to the differences in regulatory structures, technology infrastructure, financial resources and digital literacy between countries. Additionally, the study focuses on the overall association between AI and financial innovation and may not reflect the experience of specific entrepreneurs, those in the FinTech industry, investors, regulators or customers. Additionally, the study can be hampered by the inability to clearly differentiate between the impact of AI and other technologies like blockchain, cloud computing, big data analytics, and mobile platforms, that often work in tandem in FinTech ecosystems. In addition, algorithmic bias, ethical decision-making, data privacy and cybersecurity, and transparency issues are multifaceted and are constantly evolving and their long-term impacts are hard to fully account for in their complexity. The results should be interpreted in the time frame and context in which the study was conducted, and future studies should consider methodological improvements such as the use of longitudinal studies, primary data collection, comparative analyses of countries, and empirical assessment of AI-based entrepreneurial activities.

Future Scope

The potential applications and research directions of “Artificial Intelligence in FinTech: Catalyzing Financial Innovation and Entrepreneurial Venture Creation” are vast, especially given the ongoing evolution of the financial landscape and entrepreneurial ecosystems fueled by AI. The future research agenda could involve the impact of new technologies like generative AI, explainable AI, machine learning, blockchain, and intelligent automation on FinTech ventures in terms of their creation, scaling, and sustainability. There's also a chance to focus more on the role of AI for financial services platforms in increasing access to credit, investment, insurance, digital payments and personalised financial services for entrepreneurs and SMBs that are under-served. The potential of AI in discovering entrepreneurial opportunities, evaluating market potential, forecasting customer behaviour, risk management, and creating new business models could also be explored. Analysing the extent to which AI is used, and the results of its adoption, across different countries and in different economies could help to shed light on some differences in policies, technology, capital and business success. Ethical issues in relation to algorithmic bias, data privacy, cybersecurity, transparency and accountability in AI financial decision-making should also be explored in future research. Longitudinal studies can evaluate the innovation performance, financial sustainability, employment creation and competitiveness of AI-powered FinTech startups over the course of time. Moreover, empirical research on entrepreneurs, investors, financial institutions, technology providers and regulators will be able to identify organisational and institutional conditions that facilitate responsible uses of AI. This research would help build inclusive, trustworthy and sustainable AI-powered financial technology (FinTech) ecosystems and boost the role of financial technology in entrepreneurial venture building and national economic growth.

6. Conclusion

In the ever-evolving world of FinTech, Artificial Intelligence (AI) is becoming a game-changer for financial institutions and new companies aiming to create innovative, efficient, and customer-centric solutions. Financial Technology is an industry in constant evolution and the role of Artificial Intelligence (AI) in changing the industry is quite significant, helping financial institutions and emerging businesses to become innovative, efficient and customer-friendly. Its applications range from automated financial advice to credit scoring, fraud detection to predictive analysis, digital payments to risk management and personal finance – all these possibilities are creating new opportunities for entrepreneurs to start businesses. In addition to aiding in faster and more accurate business decisions, AI is also being used to identify markets that are not being served, cut down on business costs, and create a scalable business model. AI and FinTech have, therefore, transformed the financial innovation landscape from technology-enabled financial service delivery to intelligent, adaptive and data-driven financial ecosystems. In the interim, questions must be answered around the privacy of the data collected, the bias of algorithms, cybersecurity, the regulations being adhered to, transparency and access to advanced technologies. Cultivating entrepreneurship in FinTech with the help of AI relies on the possibility to strike a balance between technological progress and responsible governance, ethics, consumer protection, and human oversight. To conclude, AI can play a key role in fuelling financial innovation and entrepreneurship, if paired with the proper regulatory frameworks, digital infrastructure, talent, and responsible innovation principles. Its future potential is not just the automation of financial processes, but rather in establishing inclusive and sustainable financial ventures, which are able to react well to shifting consumer demands and new economic possibilities.

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