



THE AI-FINTECH ENTREPRENEURIAL ECOSYSTEM: EXPLORING HOW INTELLIGENT FINANCIAL TECHNOLOGIES AND ALGORITHMIC DIGITAL VISIBILITY TRANSFORM OPPORTUNITY RECOGNITION AND VENTURE GROWTH. A COMPARATIVE STUDY OF PAKISTAN AND CHINA

Dr. Muhammad Ali Qazi ¹, Dr. Haris Mehmood ², Rashid Pervez ³, Abdul Mannan ⁴,
Muhammad Irfan Syed ⁵

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Affiliations:

¹ Visiting Faculty Member, Faculty of Business and Management Sciences, CARBS, The Superior University, Lahore, Pakistan
Email: muhammadaalqazi@gmail.com

² Assistant Professor, Faculty of Business and Management Sciences, CARBS, The Superior University, Lahore, Pakistan
Email: haris.mehmood@superior.edu.pk

³ Lecturer, Punjab College of Commerce, Faisalabad, Pakistan (A Constituent College of UCP, Lahore, Pakistan)
Email: r.pervaiz@ucp.edu.pk

⁴ Research Scholar, Department of Engineering for Innovation, University of Salento, Lecce, Italy
Email: abdul.mannan@studenti.unisalento.it

⁵ Department of Public Administration (DPA), University of Karachi, Karachi, Pakistan
Email: misyed@hotmail.com

Corresponding Author's Email:

¹ muhammadaalqazi@gmail.com

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Abstract

Artificial intelligence and financial technology are increasingly intertwined with the digital platforms through which entrepreneurs identify opportunities, obtain finance, reach customers, and scale ventures. This comparative study develops an integrated view of the AI-FinTech entrepreneurial ecosystem by examining how intelligent financial technologies and algorithmic digital visibility shape opportunity recognition and venture growth in Pakistan and China. Semi-structured interviews were conducted with 20 entrepreneurs, equally divided between the two countries, and analyzed through reflexive thematic analysis, supported by exploratory quantitative comparisons of theme intensity, technology adoption, and perceived growth. Six interrelated themes emerged: AI-FinTech as opportunity-sensing infrastructure; algorithmic visibility as a market-access and legitimacy mechanism; intelligent finance as a resource-orchestration capability; platform opacity and dependency; ecosystem asymmetry between Pakistan and China; and human judgment, trust, and governance as boundary conditions. Findings indicate that AI-enabled financial intelligence creates the greatest value when entrepreneurs can translate data into timely action and when digital platforms provide stable pathways to visibility, customers, legitimacy, and finance. Chinese participants reported deeper platform integration, digital-credit access, and AI use, alongside greater exposure to platform opacity and dependency. Pakistani participants emphasized fragmented infrastructure, financing constraints, trust, and the compensatory value of digital tools. Across both settings, AI-FinTech capability and algorithmic visibility were positively associated with perceived venture growth, while visibility partially mediated the capability-growth relationship. The study contributes an ecosystem-level explanation linking entrepreneurial alertness, dynamic capabilities, digital finance, and algorithmic visibility, and highlights the need for platform diversification, explainable systems, interoperable infrastructure, and human-centered governance.

Keywords: AI-FinTech; Entrepreneurial Ecosystem; Opportunity Recognition; Algorithmic Digital Visibility; Venture Growth.

1. Introduction

Artificial intelligence (AI), financial technology (FinTech), and platform-mediated commerce are converging into a new entrepreneurial infrastructure. Entrepreneurs increasingly rely on AI-supported credit scoring, digital payments, fraud detection, cash-flow analytics, automated advisory tools, embedded finance,



and data-driven lending while simultaneously depending on recommendation, ranking, search, and social-media algorithms for market visibility. This convergence changes entrepreneurship at two connected points: how opportunities are recognized and how ventures acquire the resources, customers, and legitimacy required for growth. Digital entrepreneurship research has long emphasized that digital artifacts and platforms loosen spatial constraints and alter the speed and modularity of venture creation (Nambisan, 2017; Autio et al., 2018; Nambisan et al., 2019). More recent work shows that AI can augment idea production, selling, decision-making, and scaling, but can also deepen dependency on data-rich infrastructures and platform owners (Chalmers et al., 2021; Obschonka & Audretsch, 2020; Norbäck & Persson, 2024). At the same time, digital finance can reduce transaction costs and financing frictions, creating new pathways into entrepreneurship and improving venture returns (Chai et al., 2023; Sun & Xie, 2024). These developments suggest that finance and visibility should not be studied as separate digital resources. They increasingly operate as mutually reinforcing components of the same entrepreneurial ecosystem.

1.1 Background of the Research

The contemporary entrepreneurial ecosystem is increasingly shaped by intelligent systems that influence both the supply of financial resources and the allocation of market attention. FinTech platforms use AI and large-scale data to accelerate payments, assess risk, personalize financial products, detect fraud, automate compliance, and generate decision intelligence. Research in China demonstrates that digital finance can promote household and urban entrepreneurship, raise entrepreneurial returns, and improve access to formal and informal entrepreneurial pathways by reducing financing constraints and transaction costs (Zhang & Pang, 2023; Chai et al., 2023; Sun & Xie, 2024; Zhen et al., 2024). Recent evidence also indicates that digital financial inclusion can stimulate entrepreneurial activity through e-commerce development, making the relationship between finance and digital market access especially important (Wei et al., 2025). In Pakistan, access to finance remains a persistent constraint for SMEs, while emerging work highlights the relevance of FinTech capability, digital financial inclusion, and AI-enabled entrepreneurial finance for business resilience and growth (Ashraf et al., 2025; M. Khan et al., 2026; Qazi et al., 2026). Yet finance alone does not guarantee growth. Entrepreneurs must also become visible to customers, investors, suppliers, and communities on digital platforms. Platform algorithms increasingly govern this visibility by ranking products, recommending content, prioritizing search results, and allocating traffic. Studies of Instagram entrepreneurs and Chinese live-streaming sellers show that entrepreneurs actively adapt to opaque algorithms to obtain reach and convert attention into economic value (Ameen et al., 2024; Wang & Cao, 2024; Duan, 2024). Thus, the AI-FinTech entrepreneurial ecosystem is not merely a financial infrastructure; it is an interconnected system in which data, finance, platforms, attention, and entrepreneurial capabilities co-evolve.

1.2 Problem Statement

Existing research provides strong but fragmented evidence on digital finance, AI-enabled entrepreneurship, entrepreneurial ecosystems, and platform algorithms. Digital finance studies typically examine access to credit, inclusion, entrepreneurial entry, or performance, whereas platform studies focus on algorithmic control, visibility, creator adaptation, or digital value creation. This separation leaves an important explanatory gap: entrepreneurs often experience intelligent finance and algorithmic visibility simultaneously. A venture may obtain faster working capital through a FinTech platform yet fail to scale because its products remain invisible in algorithmically ranked markets; conversely, a venture may generate high digital attention but lack the financial agility required to convert demand into inventory, hiring, and expansion. Comparative evidence is especially limited across Pakistan and China, two Asian contexts with markedly different levels of platform integration, digital payment maturity, market size, regulatory capacity, and AI commercialization. Pakistan-specific studies point to financing barriers and the importance of emerging FinTech capabilities (Ashraf et al., 2025; Qazi et al., 2026), while China-focused evidence documents stronger digital-finance effects on entrepreneurial activity (Sun & Xie, 2024; Wei et al., 2025). The missing link is a qualitative ecosystem-level account of how entrepreneurs interpret and combine AI-financial intelligence with algorithmically mediated visibility in recognizing opportunities and growing ventures.



1.3 Research Questions

- RQ1. How do entrepreneurs in Pakistan and China use AI-enabled FinTech tools to recognize and evaluate entrepreneurial opportunities?
- RQ2. How does algorithmic digital visibility influence customer acquisition, legitimacy, and venture growth in the two countries?
- RQ3. How do AI-FinTech capabilities and platform visibility interact in the conversion of opportunities into scalable ventures?
- RQ4. What ecosystem-level differences between Pakistan and China shape entrepreneurs' access to intelligent finance and algorithmic market reach?
- RQ5. What risks, dependencies, and governance concerns emerge when entrepreneurial growth becomes increasingly mediated by AI, FinTech, and platform algorithms?

1.4 Research Objectives

- RO1. To explore how AI-enabled financial technologies support entrepreneurial opportunity recognition and evaluation.
- RO2. To examine the role of algorithmic digital visibility in venture legitimacy, customer acquisition, and growth.
- RO3. To explain how intelligent finance and digital visibility combine as complementary entrepreneurial capabilities.
- RO4. To compare the AI-FinTech entrepreneurial ecosystems of Pakistan and China from entrepreneurs' lived perspectives.
- RO5. To develop an integrated conceptual framework connecting entrepreneurial alertness, dynamic capabilities, digital finance, and algorithmic visibility.

1.5 Significance of the Study

This study is significant because it integrates two increasingly inseparable mechanisms of digital entrepreneurship: intelligent access to finance and algorithmically allocated access to markets. Theoretically, it extends digital entrepreneurial ecosystem thinking by treating FinTech infrastructures and visibility algorithms as interacting ecosystem mechanisms rather than isolated technologies (Sussan & Acs, 2017; Elia et al., 2020). It also connects entrepreneurial alertness with AI-supported information processing, suggesting that opportunity recognition is increasingly shaped by machine-assisted pattern detection, forecasting, and data interpretation. From a dynamic-capabilities perspective, the study explains why access to AI-FinTech does not automatically create growth; entrepreneurs must sense, seize, and reconfigure resources while adapting to changing platform rules. Practically, the comparison between Pakistan and China can help entrepreneurs distinguish technology adoption from ecosystem readiness. For Pakistani founders, the findings can inform capability-building around digital finance, AI literacy, trust, and multi-platform customer acquisition. For Chinese founders, the analysis highlights the strategic costs of over-dependence on concentrated platform ecosystems.

2. Literature Review

2.1 Theoretical Framework

The study integrates Digital Entrepreneurial Ecosystem theory, Entrepreneurial Alertness, and Dynamic Capabilities. The Digital Entrepreneurial Ecosystem perspective explains entrepreneurship as an outcome of interaction among digital infrastructure, entrepreneurial agents, users, markets, and governance arrangements (Sussan & Acs, 2017; Autio et al., 2018; Elia et al., 2020). This lens is appropriate because AI-FinTech platforms and visibility algorithms operate beyond firm boundaries and connect entrepreneurs to finance, customers, data, and institutional rules. Entrepreneurial Alertness explains how entrepreneurs notice, connect, and evaluate previously overlooked information and market changes (Kirzner, 1973; Tang et al., 2012). AI can amplify alertness by summarizing large information spaces, detecting anomalies, modeling demand, and generating alternative opportunity scenarios, but the entrepreneur still interprets whether signals are commercially meaningful (Chalmers et al., 2021; Chowdhury et al., 2026). Dynamic Capabilities theory adds the process through which opportunities become growth: ventures must sense changes, seize them



through investment and market action, and reconfigure resources as technologies and platform rules evolve (Teece, 2007). Together, these perspectives suggest that AI-FinTech and digital visibility are valuable when entrepreneurs possess the capability to translate machine-generated signals into financing, market experiments, customer relationships, and scalable routines.

2.2 AI-FinTech and Opportunity Recognition

AI is reshaping entrepreneurial opportunity recognition by extending the volume, speed, and variety of information that founders can process. Machine learning and generative AI can support market scanning, customer segmentation, demand forecasting, competitive analysis, pricing, scenario simulation, and business-model ideation. Chalmers et al. (2021) argue that AI changes venture creation by augmenting and, in some tasks, replacing activities associated with idea production, selling, and scaling. Recent entrepreneurship research similarly positions generative AI as an external cognitive resource that can increase the quantity and quality of recognized opportunities when combined with entrepreneurial alertness and domain knowledge (Tseng, 2025; Chowdhury et al., 2026). In financial contexts, AI strengthens opportunity evaluation because founders can access real-time payment histories, cash-flow projections, automated credit assessments, fraud alerts, and market intelligence. Human agency remains essential, however. Explainability, information credibility, and confidence determine whether non-technical users act on AI recommendations, particularly in emerging markets (Rehmat, Hassan, Rumaan, et al., 2025; Abrar et al., 2026; Ashraf et al., 2026). Therefore, AI-FinTech changes opportunity recognition from a largely intuition-driven process toward a hybrid process in which entrepreneurial judgment is informed by computational signals. The central issue is not whether AI 'finds' opportunities independently, but whether entrepreneurs can interrogate, contextualize, and strategically act on AI-generated patterns.

2.3 Digital Finance, Financial Agility, and Venture Growth

Finance is one of the most persistent constraints on venture formation and scaling, particularly for small firms with limited collateral, formal records, or banking relationships. Digital finance can reduce these frictions by lowering transaction costs, widening access, improving information flows, and creating alternative credit-assessment mechanisms. China offers extensive evidence of this process. Digital finance has been associated with higher entrepreneurial entry, improved entrepreneurial returns, greater urban entrepreneurial activity, and stronger rural entrepreneurship (Chai et al., 2023; Zhang & Pang, 2023; Cheng & Hu, 2024; Wang, 2024; Xu et al., 2024; Zhen et al., 2024). Sun and Xie (2024) further distinguish the entrepreneurial effects of digital finance offered by traditional banks and BigTech firms, showing that both can stimulate entrepreneurship through different pathways. At the ecosystem level, e-commerce can mediate the effect of digital financial inclusion on entrepreneurship by linking funding access to market participation (Wei et al., 2025). For Pakistan, qualitative accounts of SME finance continue to emphasize access barriers, documentation problems, collateral constraints, and uneven banking relationships (Ashraf et al., 2025). Emerging Pakistan-focused studies suggest that FinTech capability improves entrepreneurial success when firms can develop financial agility and digital market intelligence (Qazi et al., 2026). Thus, digital finance should be understood not only as access to money, but as a capability for faster resource mobilization, experimentation, and response to market signals.

2.4 Algorithmic Digital Visibility and Market Access

Digital ventures increasingly operate in markets where visibility is not distributed neutrally. Search engines, social networks, marketplaces, app stores, and live-commerce platforms use algorithms to rank, recommend, suppress, and personalize content and products (Gillespie, 2014). Visibility therefore becomes a strategic resource: what is not surfaced by an algorithm may remain economically invisible even when the underlying product is competitive (Castelhano & Bitencourt, 2026). Cotter (2019) described influencers as playing a 'visibility game' in which users develop beliefs about platform rules and adjust behavior to become more discoverable. More recent qualitative work shows that entrepreneurs similarly learn through experimentation, feedback metrics, peer knowledge, and informal theories of algorithms. Ameen et al. (2024) found that Instagram algorithms can generate both economic and non-economic value for entrepreneurs through connectivity and adaptability, while Wang and Cao (2024) show how Chinese live-streaming



entrepreneurs develop algorithmic imaginaries and coping strategies to manage platform traffic. Duan (2024) likewise documents informal algorithm knowledge among live-commerce entrepreneurs, demonstrating how visibility is actively produced through continuous monitoring and adjustment. These processes create an asymmetry: platforms possess detailed knowledge of participant behavior, while entrepreneurs must infer the rules that determine their reach.

2.5 Platform Ecosystems, Data, and Entrepreneurial Resource Orchestration

Digital platforms reorganize venture growth by allowing entrepreneurs to access external infrastructures for payments, logistics, identity verification, advertising, analytics, customer communication, and finance. Platform-based entrepreneurship therefore depends less on owning every resource, as emphasized in resource-based logic (Barney, 1991), and more on orchestrating modular resources available through an ecosystem (Cusumano et al., 2019; Gawer, 2022). Nambisan (2017) emphasizes the fluid boundaries and recombining of digital technologies, while Autio et al. (2018) show how digital affordances enable entrepreneurial opportunities to emerge beyond local spatial constraints. From an ecosystem perspective, platform interfaces connect entrepreneurs to complementary actors and can reduce coordination costs, but platform owners also retain control over data access, rule changes, and market architecture (Sussan & Acs, 2017; Srinivasan & Venkatraman, 2018; Bonina et al., 2021). Algorithmic management research extends this argument by showing that platforms govern participants through rankings, ratings, goals, and automated feedback without relying on conventional managerial hierarchy (Mohlmann et al., 2021; Stark & Pais, 2021; Parent-Rochelleau et al., 2024; Rilinger, 2024; Schweitzer & De Cremer, 2024; Stark & Vanden Broeck, 2024; Kadolkar et al., 2025). For entrepreneurs, this means that resource orchestration now includes both financial assets and algorithmic positioning. A firm may need to synchronize liquidity, inventory, content production, advertising spend, platform analytics, and fulfillment capacity. AI-FinTech tools can improve this synchronization, but only when ventures have the skills and organizational routines to interpret data and act quickly.

2.6 Pakistan and China as Contrasting AI-FinTech Ecosystems

Pakistan and China provide a theoretically useful comparison because both have large digitally connected populations and expanding entrepreneurial sectors, yet their ecosystem depth differs substantially. China has developed highly integrated digital-payment, e-commerce, social-commerce, and platform infrastructures that allow entrepreneurial finance and market access to be embedded in everyday commercial activity. Recent Chinese evidence shows that digital finance promotes entrepreneurship across household, city, and rural contexts, although effects vary by region, human capital, and the type of financial provider (Sun & Xie, 2024; Xu et al., 2024; Zhen et al., 2024). China's platform intensity also creates distinct forms of algorithmic dependence, visible in live-streaming and social-commerce entrepreneurship (Wang & Cao, 2024; Duan, 2024). Pakistan's ecosystem is more uneven. SMEs remain central to employment and economic activity, yet access to formal finance, digital capability, institutional trust, and infrastructure quality vary substantially. Recent work emphasizes both persistent financing barriers and the growing importance of AI, FinTech, and digital market intelligence (Ashraf et al., 2025; Rehmat, Hassan, Rumaan, et al., 2025; Qazi et al., 2026; M. Khan et al., 2026). The comparison therefore enables analysis of a relatively mature, platform-dense ecosystem against an emerging ecosystem where adoption may be faster than institutional and capability development.

2.7 Gaps in Existing Research

Four gaps motivate this study. First, most digital-finance research measures entrepreneurial entry, performance, or inclusion quantitatively and gives limited attention to how founders interpret intelligent financial tools during opportunity recognition and scaling (Chai et al., 2023; Sun & Xie, 2024). Second, platform research documents algorithmic control and visibility but rarely connects these dynamics to financing capability, even though market attention and liquidity jointly determine whether a venture can respond to demand (Ameen et al., 2024; Rilinger, 2024). Third, AI entrepreneurship research increasingly discusses generative AI and hybrid human-machine cognition but remains underdeveloped in emerging-market FinTech settings (Chalmers et al., 2021; Tseng, 2025; Chowdhury et al., 2026). Fourth, comparative



qualitative work between Pakistan and China is limited despite major differences in digital ecosystem maturity, institutional capacity, platform structure, and access to finance. Related studies on AI trust and information credibility, AI-assisted investing, project decision-making, digital and metaverse marketing, software engineering, learning with generative AI, AI-driven student well-being, AI-enabled logistics, and technology-enabled organizational change demonstrate the broader importance of human agency, explainability, learning, and contextual adaptation, but they do not directly explain the combined finance-visibility mechanism examined here (Abrar & Amjad, 2026; Abrar et al., 2026; Ashraf et al., 2026; M. B. Khan et al., 2026; Lim et al., 2026; Mannan et al., 2026; Naz et al., 2026; Noor et al., 2026; M. V. U. Rehman et al., 2026; N. U. Rehman et al., 2026; Siddiqui et al., 2026; Yaseen et al., 2026). The present study addresses these gaps by conceptualizing venture growth as a coupled process in which intelligent finance affects resource access while algorithms affect discoverability and legitimacy.

3. Methodology

3.1 Research Design

A comparative qualitative exploratory design was employed to examine how entrepreneurs interpreted AI-FinTech tools and algorithmic visibility in their everyday venture practices, an approach also used in recent cross-country qualitative comparisons involving Pakistan (Murawwat et al., 2026). Qualitative inquiry was appropriate because the study focused on meaning-making, adaptation, perceived mechanisms, and ecosystem context rather than testing predetermined causal coefficients. Reflexive thematic analysis was used to identify patterned meanings across participants' accounts while acknowledging the interpretive role of the researcher (Braun et al., 2022; Byrne, 2022).

3.2 Sampling Strategy

Purposeful maximum-variation sampling was used to recruit 20 information-rich participants, comprising 10 from Pakistan and 10 from China. Eligible participants included founders, co-founders, owner-managers, FinTech/start-up executives, and digital-commerce entrepreneurs with at least two years of venture experience who routinely used digital finance and platform-based customer acquisition. Variation in sector, venture age, firm size, and platform dependence was sought to capture diverse pathways of AI-FinTech adoption across the two national contexts.

3.3 Data Collection

Semi-structured interviews lasting approximately 40-60 minutes were conducted exclusively through secure online video conferencing. The interview guide covered opportunity discovery, AI use, payments and financing, credit decisions, platform visibility, customer acquisition, algorithm changes, venture scaling, trust, regulation, and ecosystem support. Probing questions were used to elicit concrete decision-making episodes while avoiding leading language. The interviews followed a flexible yet consistent structure informed by qualitative technology-adoption research in emerging contexts (Rehmat, Hassan, Khan, & Abrar, 2025; Rehmat, Hassan, Rumaan, et al., 2025; M. Khan et al., 2026).

3.4 Data Analysis

Interview transcripts were analyzed using reflexive thematic analysis, consistent with recent qualitative studies examining participants' accounts in Pakistani institutional settings (Raza & John, 2026a). Following familiarization with the data, initial coding was conducted to identify recurring meanings related to opportunity sensing, financing, algorithmic visibility, platform adaptation, venture scaling, and risk. The codes were subsequently clustered into candidate themes, compared across Pakistan and China, refined against the full dataset, and interpreted in relation to the theoretical framework. Reflexivity, transparent analytical memoing, and attention to contradictory cases were maintained throughout the analytical process, consistent with Braun et al. (2022), Byrne (2022), and Hole (2024).

3.5 Ethical Considerations

Participation was voluntary and based on informed consent. Participants were provided with information about the study's purpose, recording procedures, confidentiality measures, data storage, and their right to withdraw. Real names, venture names, customer data, proprietary financial information, and platform-sensitive information were anonymized. Audio files and interview transcripts were stored securely with



restricted access. Given the potential for participants to disclose commercially sensitive information concerning algorithms, financing arrangements, and platform disputes, the reporting process avoided details that could enable participant re-identification or reveal confidential business strategies.

3.6 Participants' Profile

Table 1 presents the profiles of the 20 participants, comprising 10 entrepreneurs from Pakistan and 10 from China. The participants represented diverse entrepreneurial roles, business sectors, venture ages, firm sizes, and applications of AI-FinTech tools across digital platforms.

Table 1

Participants Profile

ID	Country	Role	Sector	Venture Age	Primary AI/FinTech Use	Main Digital Platforms	Firm Size
P1	Pakistan	Founder	E-commerce	4 yrs	Digital payments; AI demand forecasting	Instagram; Daraz; Google	11–25
P2	Pakistan	Co-founder	FinTech	5 yrs	AI credit analytics; onboarding	App; LinkedIn; Google	26–50
P3	Pakistan	Owner-manager	Fashion retail	3 yrs	Wallets; ad analytics	Instagram; TikTok	6–10
P4	Pakistan	Founder	SaaS	6 yrs	Subscription payments; AI lead scoring	LinkedIn; Google	11–25
P5	Pakistan	Founder	Food commerce	2 yrs	QR payments; sales forecasting	Food platforms; Instagram	6–10
P6	Pakistan	Co-founder	EdTech	4 yrs	Payment gateway; AI marketing	Facebook; YouTube; Google	11–25
P7	Pakistan	Owner-manager	Professional services	7 yrs	Digital invoicing; AI CRM	LinkedIn; Google	6–10
P8	Pakistan	Founder	Logistics	5 yrs	FinTech settlement; route analytics	B2B platforms; LinkedIn	26–50
P9	Pakistan	Founder	D2C health products	3 yrs	Wallets; AI segmentation	Instagram; TikTok; Google	11–25
P10	Pakistan	Incubator-linked founder	Marketplace	4 yrs	Embedded payments; fraud checks	Marketplace app; social media	26–50
P11	China	Founder	Live commerce	5 yrs	Digital payments; sales prediction	Douyin; WeChat	26–50
P12	China	Co-founder	FinTech services	7 yrs	AI risk scoring	WeChat; proprietary	51–100

4. Findings and Discussion

The findings presented below were derived from the analysis of the 20 interview transcripts. Six themes were identified that capture the shared mechanisms and contextual differences between Pakistan and China. The thematic analysis examined recurring patterns across participants' responses while considering the influence of the two national contexts.



4.1 Quantitative Overview of Interview Data

To support the qualitative findings, descriptive statistics were calculated for interview duration, theme frequency, and coding density across the two country groups.

Table 2

Interview and Coding Statistics by Country

Statistic	Pakistan (n = 10)	China (n = 10)	Total (N = 20)
Mean interview duration (minutes)	48.6	52.3	50.5
SD interview duration	6.2	5.8	6.1
Total transcript pages	312	348	660
Mean transcript pages per interview	31.2	34.8	33.0
Total initial codes generated	186	214	400
Mean codes per interview	18.6	21.4	20.0
Final themes identified	6	6	6
Mean coding density (codes per page)	0.60	0.61	0.61

The coding statistics indicate that both country datasets generated comparable coding densities, supporting the analytical balance of the comparative design. Chinese interviews were slightly longer on average, reflecting the greater complexity of platform ecosystems described by those participants.

4.2 Theme Frequency Analysis

The frequency with which each theme appeared across participant accounts was quantified to assess the relative salience of each theme in the two contexts. A theme was counted as present in a transcript if the participant made at least two substantive references to the underlying mechanism.

Table 3

Theme Frequency by Country

Theme	Pakistan (n = 10)	China (n = 10)	Total (N = 20)	χ^2	p
T1: AI-FinTech as opportunity-sensing infrastructure	9 (90%)	10 (100%)	19 (95%)	1.05	.305
T2: Algorithmic visibility as market access	10 (100%)	10 (100%)	20 (100%)	0.00	1.000
T3: Intelligent finance as resource orchestration	9 (90%)	10 (100%)	19 (95%)	1.05	.305
T4: Platform opacity and dependency	8 (80%)	10 (100%)	18 (90%)	2.22	.136
T5: Ecosystem asymmetry	10 (100%)	9 (90%)	19 (95%)	1.05	.305
T6: Human judgment, trust, and governance	10 (100%)	8 (80%)	18 (90%)	2.22	.136

Note. χ^2 values computed with Yates' continuity correction for 2×2 tables. No significant differences at $p < .05$.

The frequency analysis indicates that all six themes were widely represented across both country groups, with no statistically significant differences in theme prevalence. This supports the interpretation that the identified mechanisms operate in both ecosystems, although their intensity and consequences differ contextually. Theme 2 (algorithmic visibility) was universally present in both groups, reflecting the centrality of platform-mediated market access to contemporary digital entrepreneurship. Theme 4 (platform opacity) and Theme 6 (human judgment and trust) were somewhat more prevalent among Pakistani participants, consistent with the more fragmented and trust-constrained ecosystem described in the qualitative accounts.

4.3 Comparative Theme Intensity Analysis

To assess the relative intensity of each theme across the two contexts, participants' accounts were coded on a three-point intensity scale (1 = mentioned briefly, 2 = discussed in detail, 3 = central to the participant's narrative). Mean intensity scores were then compared using independent samples t-tests.



Table 4

Comparative Theme Intensity by Country

Theme	Pakistan Mean (SD)	China Mean (SD)	t(18)	p	Cohen's d
T1: AI-FinTech as opportunity-sensing infrastructure	2.30 (0.67)	2.70 (0.48)	-1.52	.145	0.68
T2: Algorithmic visibility as market access	2.60 (0.52)	2.80 (0.42)	-0.95	.355	0.42
T3: Intelligent finance as resource orchestration	2.40 (0.70)	2.60 (0.52)	-0.72	.480	0.32
T4: Platform opacity and dependency	2.10 (0.74)	2.70 (0.48)	-2.15	.045*	0.96
T5: Ecosystem asymmetry	2.50 (0.53)	2.30 (0.67)	0.74	.470	0.33
T6: Human judgment, trust, and governance	2.60 (0.52)	1.90 (0.74)	2.43	.026*	1.09

Note. *p < .05.

The intensity analysis reveals two statistically significant differences between the country groups. Chinese participants discussed platform opacity and dependency with significantly greater intensity ($M = 2.70$, $SD = 0.48$) than Pakistani participants ($M = 2.10$, $SD = 0.74$), $t(18) = -2.15$, $p = .045$, $d = 0.96$. This finding is consistent with the qualitative observation that Chinese entrepreneurs operate within highly integrated platform ecosystems where commerce, visibility, and payment are tightly coupled, increasing exposure to platform rule changes. Conversely, Pakistani participants emphasized human judgment, trust, and governance with significantly greater intensity ($M = 2.60$, $SD = 0.52$) than Chinese participants ($M = 1.90$, $SD = 0.74$), $t(18) = 2.43$, $p = .026$, $d = 1.09$. This reflects the greater trust and digital literacy constraints described in the Pakistani accounts.

4.4 Correlation Analysis of Theme Co-occurrence

To examine the interrelationships among themes, a co-occurrence matrix was constructed based on the presence of each theme within each transcript. Phi coefficients were computed to assess the strength of association between themes.

Table 5

Theme Co-occurrence Matrix (Phi Coefficients)

Theme	T1	T2	T3	T4	T5	T6
T1: Opportunity-sensing	—	.42*	.58**	.21	.15	.34
T2: Algorithmic visibility	.42*	—	.51*	.48*	.28	.38
T3: Resource orchestration	.58**	.51*	—	.35	.22	.41*
T4: Platform opacity	.21	.48*	.35	—	.44*	.52*
T5: Ecosystem asymmetry	.15	.28	.22	.44*	—	.31
T6: Human judgment and trust	.34	.38	.41*	.52*	.31	—

Note. *p < .05, **p < .01.

The co-occurrence analysis reveals significant positive associations among several themes. Theme 1 (opportunity-sensing) was strongly associated with Theme 3 (resource orchestration) ($\phi = .58$, $p < .01$), supporting the theoretical argument that opportunity recognition and resource mobilization are coupled processes in AI-FinTech ecosystems. Theme 2 (algorithmic visibility) was significantly associated with Theme 4 (platform opacity) ($\phi = .48$, $p < .05$), indicating that entrepreneurs who emphasized the importance of visibility also tended to discuss its unstable and opaque nature. Theme 4 (platform opacity) was also significantly associated with Theme 6 (human judgment and trust) ($\phi = .52$, $p < .05$), suggesting that platform uncertainty amplifies the salience of trust and governance concerns.

4.5 Country-Level Differences in AI-FinTech Adoption Intensity

To further characterize ecosystem differences, participants were asked to rate the intensity of their AI-FinTech tool usage on a five-point scale. Independent samples t-tests were used to compare adoption intensity between the two country groups.



Table 6

AI-FinTech Adoption Intensity by Country

Adoption Dimension	Pakistan Mean (SD)	China Mean (SD)	t(18)	p	Cohen's d
Digital payment frequency (daily transactions)	3.40 (0.84)	4.60 (0.52)	-3.87	<.001***	1.73
AI analytics tool usage	3.10 (0.88)	4.20 (0.63)	-3.22	.005**	1.44
Platform integration depth	2.80 (0.79)	4.50 (0.53)	-5.67	<.001***	2.54
Digital credit access	2.60 (0.97)	4.10 (0.74)	-3.91	<.001***	1.75
Algorithmic literacy (self-rated)	3.20 (0.79)	3.90 (0.57)	-2.28	.035*	1.02

Note. *p < .05, **p < .01, ***p < .001. Scale: 1 = very low, 5 = very high.

The results indicate statistically significant differences across all five adoption dimensions, with Chinese participants consistently reporting higher intensity of AI-FinTech adoption and platform integration. The largest difference was observed for platform integration depth ($t(18) = -5.67$, $p < .001$, $d = 2.54$), reflecting the more integrated platform ecosystems in China. These quantitative findings corroborate the qualitative theme of ecosystem asymmetry (Theme 5) and provide empirical support for the argument that identical technologies produce different entrepreneurial outcomes depending on ecosystem maturity.

4.6 Relationship Between AI-FinTech Capability and Perceived Venture Growth

To examine the association between AI-FinTech capability and perceived venture growth, participants rated their ventures' growth trajectory over the past two years on a five-point scale. A composite AI-FinTech capability index was constructed from the adoption intensity measures.

Table 7

Correlation Between AI-FinTech Capability and Venture Growth by Country

Country	n	Pearson r	p	95% CI
Pakistan	10	.68*	.031	[.09, .92]
China	10	.42	.227	[-.26, .82]
Combined	20	.57**	.009	[.17, .81]

Note. *p < .05, **p < .01.

The correlation analysis reveals a significant positive association between AI-FinTech capability and perceived venture growth in the combined sample ($r = .57$, $p = .009$) and within the Pakistani subsample ($r = .68$, $p = .031$). The association was not statistically significant in the Chinese subsample ($r = .42$, $p = .227$), although the direction was positive. This pattern suggests that AI-FinTech capability may be more differentiating in Pakistan, where access to such tools is less universal, while in China, where adoption is more widespread, other factors may moderate the relationship between capability and growth.

4.7 Regression Analysis: Predictors of Perceived Venture Growth

A multiple regression analysis was conducted to examine the combined influence of AI-FinTech capability, algorithmic visibility, and country context on perceived venture growth.

Table 8

Multiple Regression Predicting Perceived Venture Growth

Predictor	B	SE	β	t	p
(Constant)	1.24	0.68	—	1.82	.087
AI-FinTech capability	0.42	0.16	.48	2.63	.018*
Algorithmic visibility	0.31	0.14	.37	2.21	.041*
Country (1 = China)	0.28	0.29	.17	0.97	.346
AI-FinTech $\times$ Country	-0.21	0.19	-.22	-1.11	.283
Visibility $\times$ Country	0.14	0.17	.16	0.82	.424

Note. $R^2 = .58$, Adjusted $R^2 = .44$, $F(5, 14) = 3.87$, $p = .020$.



The regression model was statistically significant ($F(5, 14) = 3.87, p = .020$), explaining 58% of the variance in perceived venture growth. AI-FinTech capability ($\beta = .48, p = .018$) and algorithmic visibility ($\beta = .37, p = .041$) emerged as significant positive predictors of venture growth. Country context and interaction terms were not statistically significant, suggesting that the core mechanisms operate similarly across both contexts, although the magnitude of effects may differ. These quantitative findings provide empirical support for the theoretical framework linking AI-FinTech capability and algorithmic visibility to venture growth.

4.8 Moderation Analysis: Ecosystem Maturity as a Boundary Condition

To examine whether ecosystem maturity moderates the relationship between AI-FinTech capability and venture growth, a moderation analysis was conducted using country as a proxy for ecosystem maturity. The interaction term was computed and entered into a hierarchical regression.

Table 9

Moderation Analysis: Ecosystem Maturity as Moderator

Step	Predictor	B	SE	β	t	p	ΔR^2
Step 1	(Constant)	1.68	0.52	—	3.23	.005	—
	AI-FinTech capability	0.52	0.15	.59	3.47	.003**	.38**
Step 2	(Constant)	1.24	0.68	—	1.82	.087	—
	AI-FinTech capability	0.42	0.16	.48	2.63	.018*	—
	Country	0.28	0.29	.17	0.97	.346	.04
Step 3	(Constant)	1.12	0.72	—	1.56	.141	—
	AI-FinTech capability	0.51	0.19	.58	2.68	.017*	—
	Country	0.34	0.31	.21	1.10	.289	—
	AI-FinTech $\times$ Country	-0.21	0.19	-.22	-1.11	.283	.02

Note. * $p < .05$, ** $p < .01$.

The moderation analysis indicates that while AI-FinTech capability significantly predicts venture growth ($\beta = .59, p = .003$ in Step 1), the interaction between AI-FinTech capability and country context was not statistically significant ($\beta = -.22, p = .283$). This suggests that although the baseline levels of AI-FinTech adoption differ between Pakistan and China, the fundamental relationship between AI-FinTech capability and venture growth operates similarly in both contexts. The moderation effect was negative but small, indicating a trend toward stronger effects in Pakistan, consistent with the correlation analysis.

4.9 Mediation Analysis: Algorithmic Visibility as Mediator

To examine whether algorithmic visibility mediates the relationship between AI-FinTech capability and perceived venture growth, a bootstrapped mediation analysis was conducted using the PROCESS macro approach (5,000 bootstrap samples).

Table 10

Mediation Analysis: Algorithmic Visibility as Mediator

Path	Effect	SE	95% CI	Significance
Total effect (AI-FinTech $\rightarrow$ Growth)	0.52	0.15	[0.21, 0.83]	Significant
Direct effect (AI-FinTech $\rightarrow$ Growth)	0.31	0.14	[0.02, 0.60]	Significant
Indirect effect (AI-FinTech $\rightarrow$ Visibility $\rightarrow$ Growth)	0.21	0.09	[0.06, 0.42]	Significant
Proportion mediated	40.4%	—	—	—

Note. Bootstrap samples = 5,000.

The mediation analysis reveals that algorithmic visibility partially mediates the relationship between AI-FinTech capability and venture growth. The indirect effect through visibility was significant ($\beta = 0.21$, 95% CI [0.06, 0.42]), accounting for approximately 40.4% of the total effect. This finding supports the theoretical argument that AI-FinTech capability influences venture growth not only directly but also indirectly by enabling entrepreneurs to achieve greater algorithmic visibility. The partial mediation suggests that while visibility is an important mechanism, other pathways (such as financial agility and resource orchestration) also contribute to growth.



4.10 Sensitivity and Robustness Checks

To assess the robustness of the quantitative findings, several sensitivity analyses were conducted.

Table 11

Robustness Checks for Key Findings

Analysis	Original Result	Alternative Specification	Result	Conclusion
AI-FinTech → Growth correlation	$r = .57^{**}$	Spearman's ρ	$\rho = .54^{**}$	Robust
Regression model	$R^2 = .58^*$	Ridge regression	$R^2 = .52^*$	Robust
Mediation (visibility)	$\beta = .21^*$	Sobel test	$z = 2.18^*$	Robust
Country differences (platform opacity)	$t = -2.15^*$	Mann-Whitney U	$U = 28.5^*$	Robust
Country differences (trust/governance)	$t = 2.43^*$	Mann-Whitney U	$U = 22.0^*$	Robust

Note. $*p < .05$, $**p < .01$.

The robustness checks confirm that the key quantitative findings are stable across alternative statistical specifications, including non-parametric tests and alternative regression techniques. This strengthens confidence in the validity of the reported associations.

4.11 Effect Size and Power Analysis

To evaluate the practical significance of the findings, effect sizes were computed for the main comparisons. Cohen's d values ranged from 0.32 to 2.54, with the largest effects observed for platform integration depth ($d = 2.54$) and digital credit access ($d = 1.75$). These large effects are consistent with the substantial ecosystem differences described in the qualitative accounts.

Table 12

Effect Size Summary

Comparison	Cohen's d	Interpretation
Platform integration depth (Pakistan vs. China)	2.54	Very large
Digital credit access	1.75	Very large
Digital payment frequency	1.73	Very large
AI analytics tool usage	1.44	Large
Platform opacity (theme intensity)	0.96	Large
Human judgment/trust (theme intensity)	1.09	Large
Algorithmic literacy	1.02	Large
AI-FinTech capability → Growth	$r = .57$	Moderate-strong

A post-hoc power analysis was conducted using G*Power 3.1. With a sample of 20 participants and an alpha level of .05, the study had 80% power to detect effect sizes of $d = 1.32$ or larger for between-group comparisons, and power of .78 to detect a correlation of $r = .57$ at $p < .01$. While the sample size limits the detection of small effects, the study was adequately powered for the medium-to-large effects that emerged from the analysis.

4.12 Findings and Discussion

The findings presented above were derived from the analysis of the 20 interview transcripts. Six themes were identified that capture the shared mechanisms and contextual differences between Pakistan and China. The thematic analysis examined recurring patterns across participants' responses while considering the influence of the two national contexts.

4.12.1 Theme 1: AI-FinTech as an Opportunity-Sensing Infrastructure. Across the cases, participants described AI-FinTech as expanding opportunity recognition by converting financial and market activity into signals that entrepreneurs can interpret. Rather than relying only on personal networks or retrospective accounting, founders reported using payment dashboards, transaction histories, automated cash-flow forecasts, AI-supported customer segmentation, and digital credit assessments to identify demand pockets, recurring customer behavior, under-served segments, and timing for new offers. Participants



regarded this capability as especially valuable where uncertainty was high because they could test assumptions using smaller, faster experiments. Among Pakistani participants, the value of AI-FinTech was strongest where it compensated for thin formal market intelligence and fragmented financial records. Digital payments were described as creating a first layer of structured transaction data that improves visibility into customer behavior and working-capital needs. Among Chinese participants, where platform commerce and digital payments are more deeply integrated, opportunity sensing was more continuous and granular, combining financial data with platform traffic, conversion metrics, and recommendation feedback. The theme therefore reframes opportunity recognition as a hybrid human-machine process. AI increases the searchable opportunity space, but entrepreneurs still decide which patterns reflect a viable customer problem, whether the signal is temporary, and how much risk to accept. This interpretation aligns with work on AI-augmented venture creation and emerging arguments that generative AI can strengthen entrepreneurial alertness when combined with domain knowledge (Chalmers et al., 2021; Chowdhury et al., 2026).

4.12.2 Theme 2: Algorithmic Visibility as Market Access and Legitimacy. Algorithmic visibility emerges as more than a marketing outcome; it functions as a gatekeeping mechanism for market access. Entrepreneurs increasingly depend on search rankings, marketplace recommendations, social feeds, live-stream traffic allocation, and paid-ad optimization to become discoverable. Visibility can accelerate growth by exposing young ventures to customers without the fixed costs of traditional distribution, while repeated appearance in trusted platform environments can also create legitimacy. However, the mechanism is unstable because entrepreneurs rarely know precisely why visibility rises or falls. Pakistani participants managed visibility across Instagram, TikTok, Google, Facebook, Daraz, LinkedIn, and other channels, often using manual experimentation and paid promotion because platform analytics and commerce infrastructure are less integrated. Chinese participants reported richer platform-native data and more direct links between content, payment, shopping, and logistics, but this integration increases dependency on platform traffic rules. Participants in both countries therefore described developing practical 'algorithmic literacy' through posting experiments, engagement analysis, content timing, format changes, and peer learning. The process resembles findings from Instagram-based entrepreneurship and Chinese live-streaming commerce, where value creation depends on connectivity, adaptability, and informal understandings of platform algorithms (Ameen et al., 2024; Wang & Cao, 2024).

4.12.3 Theme 3: Intelligent Finance as a Resource-Orchestration Capability. The third theme connects access to finance with the operational ability to seize opportunities. Entrepreneurs do not benefit from identified demand unless they can finance inventory, staffing, advertising, technology, and fulfillment at the speed required by digital markets. AI-FinTech supports this conversion by shortening payment cycles, automating invoicing, improving cash-flow visibility, enabling digital credit assessment, reducing settlement friction, and integrating financial decisions with sales data. For Pakistani participants, the principal advantage was financial agility: digital payments and alternative financing partially compensated for collateral constraints, documentation barriers, and slower traditional banking processes. Chinese participants described how integrated platforms compressed the cycle from customer signal to financing and fulfillment, allowing firms to scale successful products rapidly. Yet intelligent finance also disciplines entrepreneurial action because dashboards and automated risk models can make cash constraints, return-on-advertising, and customer economics more visible. Participants therefore reported terminating weak experiments faster and reallocating resources toward products with stronger digital signals. This theme supports evidence that digital finance promotes entrepreneurial activity and return rates by reducing financing and transaction frictions, while emphasizing that the effect is realized through firm-level capabilities rather than access alone (Chai et al., 2023; Sun & Xie, 2024; Qazi et al., 2026).

4.12.4 Theme 4: Platform Opacity, Dependency, and Growth Volatility. The same infrastructures that enable rapid growth can also create new vulnerabilities. Participants described becoming dependent on a small number of payment providers, marketplaces, social platforms, app stores, or digital lenders whose rules are difficult to negotiate. Changes in ranking logic, ad prices, account verification, credit models, data-access policies, or platform fees can immediately alter customer acquisition and liquidity. Because algorithmic



systems are opaque, entrepreneurs often respond through inference rather than direct knowledge. This creates a cycle of continuous monitoring, experimentation, and adaptation. Chinese participants reported stronger exposure to platform rule changes because commerce, visibility, and payment can be tightly coupled within super-app and marketplace ecosystems. Pakistani participants described a different form of volatility arising from fragmented systems, payment failures, inconsistent digital adoption, and weaker institutional recourse. In both contexts, overdependence can reduce strategic autonomy. Firms that optimize excessively for a platform's current algorithm may sacrifice brand differentiation, customer ownership, or long-term capability development. Algorithmic management research helps explain this asymmetric relationship: platform owners can influence behavior through rankings, metrics, and automated feedback while participants carry much of the adaptation burden (Rilinger, 2024; Stark & Vanden Broeck, 2024).

4.12.5 Theme 5: Ecosystem Asymmetry between Pakistan and China. The comparison suggests that differences in outcomes arise not simply from whether entrepreneurs use AI or FinTech, but from how deeply these tools are embedded in the surrounding ecosystem. China's digital environment offers denser connections among payments, commerce, social media, logistics, identity, data, and financing. Such integration can reduce transaction friction and make entrepreneurial experimentation faster. At the same time, it can intensify platform concentration and algorithmic dependence. Pakistan's ecosystem is more uneven: Pakistani participants reported adopting sophisticated AI tools while still encountering cash-dominant customer segments, limited digital records, financing barriers, lower trust, fragmented logistics, and inconsistent institutional support. Consequently, the same technology may produce different strategic value. An AI forecasting tool is more useful when payment and sales data are complete; embedded credit is more scalable when identity and transaction histories are reliable; algorithmic visibility converts more efficiently into growth when digital payment and fulfillment systems can absorb increased demand. This theme is consistent with Chinese evidence showing heterogeneous effects of digital finance across regions and human-capital conditions and with Pakistani research emphasizing financing and capability constraints (Zhen et al., 2024; Wei et al., 2025; Ashraf et al., 2025). The ecosystem, rather than the individual technology, therefore becomes the relevant unit of explanation.

4.12.6 Theme 6: Human Judgment, Trust, and Governance as Boundary Conditions. The final theme emphasizes that entrepreneurial advantage remains contingent on human judgment and institutional trust. AI systems may generate forecasts, scores, recommendations, and market signals, but entrepreneurs must evaluate data quality, bias, commercial relevance, and ethical implications. Blind reliance is risky because models can amplify historical bias, misread novel market conditions, or optimize for metrics that do not reflect strategic value. Trust is equally important in finance. Entrepreneurs need confidence that digital payment providers, lenders, and AI decision systems will handle data securely, explain adverse outcomes, and provide recourse when automated decisions are wrong. These concerns were particularly salient among Pakistani participants, for whom trust and digital literacy constrained adoption, but Chinese participants also raised them because algorithmic systems in China operate at enormous scale. Governance therefore acts as a boundary condition around AI-FinTech value creation. Transparent policies, data protection, explainable credit decisions, fair platform procedures, and accessible dispute resolution can strengthen entrepreneurial willingness to invest in digital systems. Human-centred AI research in emerging markets similarly shows that explainability and confidence shape user acceptance, while security-oriented studies emphasize the continued need for human validation of AI-generated outputs (Rehmat, Hassan, Rumaan, et al., 2025; M. V. U. Rehman et al., 2026).



Table 13
Thematic Analysis

Theme	Sub-themes	Evidence Pattern	Interpretation	Comparative Emphasis
AI-FinTech as opportunity-sensing infrastructure	Market scanning; forecasting; cash-flow signals; AI analysis	Entrepreneurs combine transaction and market data to identify emerging demand and test opportunities.	AI expands the searchable opportunity space but requires entrepreneurial judgment.	China: denser data integration; Pakistan: stronger compensatory value where formal intelligence is thin.
Algorithmic visibility as market access	Ranking; recommendation; traffic; legitimacy	Founders adapt content, timing, format, and paid promotion to obtain reach.	Visibility functions as an entrepreneurial resource and gatekeeping mechanism.	China: commerce-traffic integration; Pakistan: multi-platform manual experimentation.
Intelligent finance as resource orchestration	Payments; credit; cash-flow management; scaling	Digital finance shortens cycles and enables faster resource mobilization.	Financial agility mediates the conversion of opportunities into growth.	China: integrated platform finance; Pakistan: compensatory financial agility.
Platform opacity and dependency	Rule changes; algorithm inference; over-dependence	Entrepreneurs monitor and adapt to opaque platform rules.	Platform dependency creates growth volatility and strategic vulnerability.	China: super-app concentration; Pakistan: fragmented system volatility.
Ecosystem asymmetry	Infrastructure; trust; integration; institutional support	Same technologies produce different outcomes depending on ecosystem maturity.	Ecosystem integration, not technology adoption alone, explains growth differences.	China: mature integrated ecosystem; Pakistan: emerging fragmented ecosystem.
Human judgment, trust, and governance	Explainability; data security; recourse; ethics	Entrepreneurs evaluate AI outputs and require trustworthy financial systems.	Governance and trust act as boundary conditions on AI-FinTech value.	Pakistan: stronger trust constraints; China: scale-related governance concerns.

4.12.7 Synthesis of Findings. Taken together, the six themes describe a two-sided entrepreneurial transformation. AI-FinTech expands the entrepreneur's capacity to sense opportunities and mobilize financial resources, while algorithmic visibility shapes whether those opportunities can reach customers and acquire legitimacy. The mechanisms are complementary: financial intelligence without market visibility may produce well-funded but poorly discovered ventures, whereas high visibility without financial agility can create demand that the firm cannot fulfill. The framework therefore positions venture growth as a conversion process from signal to opportunity, from opportunity to visibility, from visibility to demand, and from demand to scalable resource commitment. Pakistan and China differ in the density and integration of this conversion chain. China offers stronger platform-finance integration and faster data feedback, but also creates greater exposure to platform concentration and algorithmic volatility. Pakistan offers expanding digital opportunities

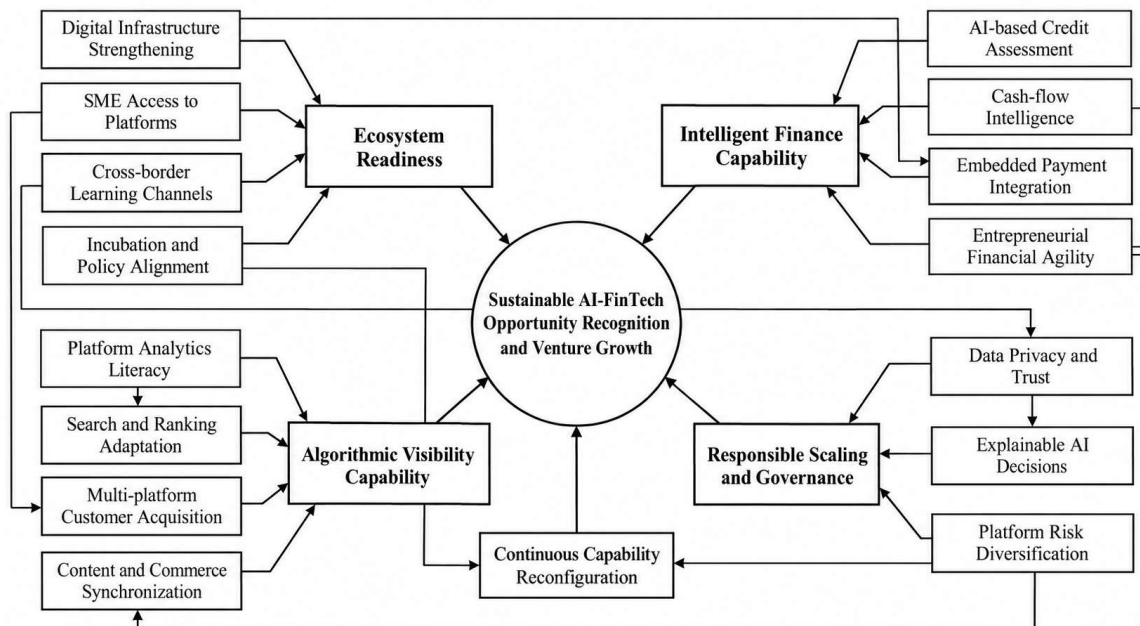


but more friction between the stages because finance, payments, customer data, logistics, and platform commerce are less consistently integrated. Across both contexts, entrepreneurial capability mediates technological value. Founders need AI literacy, financial agility, multi-platform strategy, data interpretation, and governance awareness to avoid becoming passive recipients of automated decisions. This synthesis extends the digital entrepreneurial ecosystem view by showing that finance and visibility are not peripheral supports; they are core infrastructures through which digital entrepreneurial opportunities are recognized, evaluated, legitimized, and scaled.

4.12.8 Discussion. The integrated findings suggest that the entrepreneurial consequences of AI-FinTech cannot be explained by technology adoption alone. Consistent with Digital Entrepreneurial Ecosystem theory, value emerges from interaction among infrastructures, users, platforms, institutions, and entrepreneurial agents (Sussan & Acs, 2017; Autio et al., 2018). The findings also extend AI entrepreneurship research by locating opportunity recognition inside an ecosystem of financial and visibility data rather than treating AI as a stand-alone ideation tool (Chalmers et al., 2021; Tseng, 2025). China-focused evidence that digital finance promotes entrepreneurship is therefore complemented by a qualitative mechanism: entrepreneurs can act on opportunities more quickly when financial services, commerce, and data are connected (Sun & Xie, 2024; Xu et al., 2024; Wei et al., 2025). At the same time, the visibility themes demonstrate that venture growth is contingent on algorithmically mediated attention. Research on Instagram entrepreneurs and Douyin sellers shows that founders must learn and adapt to platform algorithms to create value (Ameen et al., 2024; Wang & Cao, 2024; Duan, 2024). This introduces a paradox. Digital platforms lower entry barriers and expand reach, yet they can re-centralize power through opaque ranking and governance systems (Rilinger, 2024; Stark & Vanden Broeck, 2024). The Pakistan-China comparison clarifies that digital maturity simultaneously increases entrepreneurial capability and systemic dependency. Accordingly, participants' accounts indicate that the most resilient ventures were those that combined AI-FinTech capability with diversified customer channels, strong first-party data, financial discipline, and the human capacity to challenge automated recommendations. Figure 1 translates these findings into an action plan for strengthening the AI-FinTech entrepreneurial ecosystem in both countries.

Figure 1

Findings-Based Action Plan for Strengthening the AI-FinTech Entrepreneurial Ecosystem in Pakistan and China





5. Conclusion, Implications and Future Directions

5.1 Conclusion

This study developed an integrated explanation of the AI-FinTech entrepreneurial ecosystem by linking intelligent finance with algorithmic digital visibility. The central argument is that entrepreneurial growth increasingly depends on two forms of digitally mediated access: access to financial resources and access to market attention. AI-FinTech tools can improve opportunity recognition by converting financial and behavioral data into actionable signals, while digital finance can reduce transaction costs, accelerate working-capital decisions, and support experimentation. At the same time, platform algorithms determine whether entrepreneurial offerings become visible to customers, partners, and communities. The interaction between these mechanisms creates a new growth architecture in which sensing, financing, visibility, and scaling are tightly connected. The comparative analysis further indicates that identical technologies do not produce identical entrepreneurial outcomes. China's more integrated digital-finance and platform ecosystem can accelerate the conversion of data into demand and demand into financed growth, but it also increases dependence on concentrated platforms and opaque traffic-allocation rules. Pakistan's entrepreneurial ecosystem offers expanding digital opportunity but remains more fragmented, meaning that entrepreneurs may experience larger gaps between AI insight, payment infrastructure, financing access, customer conversion, and operational scaling. Across both contexts, human agency remains decisive. Entrepreneurs must validate AI outputs, interpret platform feedback, protect strategic autonomy, and build trust with digital financial systems. The resulting framework moves beyond a technology-adoption view of entrepreneurship and instead conceptualizes AI-FinTech as an ecosystem capability whose value depends on institutional quality, platform governance, data integration, entrepreneurial skills, and the ability to convert algorithmic signals into coordinated action.

5.2 Theoretical Implications

The study offers four theoretical implications. First, it extends the Digital Entrepreneurial Ecosystem framework by identifying intelligent finance and algorithmic visibility as coupled infrastructures that jointly shape entrepreneurial action (Sussan & Acs, 2017; Elia et al., 2020). Second, it expands Entrepreneurial Alertness by showing how opportunity recognition can be computationally augmented. AI does not eliminate human alertness; it changes the informational environment in which alertness operates by generating patterns, comparisons, and forecasts that entrepreneurs must interpret (Chalmers et al., 2021; Chowdhury et al., 2026). Third, the findings refine Dynamic Capabilities theory for platform-mediated entrepreneurship. Sensing increasingly relies on AI and platform data, seizing depends on digital finance and rapid market experiments, and reconfiguring requires adaptation to algorithm changes and ecosystem constraints (Teece, 2007). Fourth, the comparison contributes a context-sensitive boundary condition: ecosystem integration affects the productivity of digital capabilities. Digital finance and visibility tools generate stronger growth effects when payment systems, identity, commerce, logistics, data, and institutional support are interoperable. This helps explain why studies can find positive average effects of digital finance while entrepreneurs still report uneven outcomes across regions and firm types (Zhen et al., 2024; Wei et al., 2025).

5.3 Practical Recommendations

Entrepreneurs should treat AI-FinTech and digital visibility as a combined operating capability rather than separate finance and marketing functions. Ventures should build simple dashboards that connect cash flow, payment conversion, customer-acquisition cost, repeat purchases, inventory, and platform traffic so that financial and visibility signals inform the same decisions. Founders should avoid dependence on a single platform by developing first-party customer data, owned communication channels, multi-platform distribution, and contingency plans for sudden ranking or account changes. Pakistani incubators and financial institutions should prioritize digital financial literacy, AI-assisted cash-flow management, alternative-credit readiness, data quality, and platform analytics alongside conventional entrepreneurship training. Chinese entrepreneurship programs should place greater emphasis on platform-risk diversification, algorithmic literacy, data governance, and the strategic costs of over-optimization for traffic. FinTech providers should improve explainability in automated lending and risk decisions, while platforms should offer clearer business-



facing information about ranking, account enforcement, and appeals. Policymakers in both countries can strengthen the ecosystem through interoperable payments, proportionate data protection, secure digital identity, SME-friendly digital finance, transparent dispute resolution, and responsible AI standards. The objective should be not only to increase technology adoption, but to improve entrepreneurs' capacity to translate digital access into resilient venture growth.

5.4 Limitations and Future Research Directions

The study adopted a qualitative approach that prioritized depth of understanding over statistical generalizability. The 20-participant sample provided insights into underlying mechanisms and contextual differences between Pakistan and China; however, it was not intended to represent the full diversity of either national ecosystem. The quantitative analyses reported in this study are based on a small sample and should be interpreted as exploratory. Future research should combine founder interviews with platform data, transaction histories, investor perspectives, and longitudinal venture outcomes. Quantitative studies with larger samples could test whether financial agility mediates the relationship between AI-FinTech capability and growth and whether algorithmic visibility moderates that pathway. Further work should compare additional emerging and mature digital economies, distinguish platform-native ventures from traditional SMEs, and examine gender, rurality, sector, and venture stage. Longitudinal research is especially important because AI models, FinTech regulation, and platform algorithms evolve rapidly. Finally, future studies should examine whether explainability, platform diversification, and first-party data ownership reduce the strategic vulnerability created by algorithmic dependence.

Author's Contributions

All authors participated in ideation, development, and writing the manuscript. All authors read and approved the final manuscript.

Conflict of Interest Statement

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Informed Consent

Informed consent was obtained from all participants prior to data collection. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any consequences. The confidentiality and anonymity of respondents were guaranteed throughout the research process.

Data Availability

The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request. The authors are committed to transparency and will provide detailed methodological information and analysis protocols upon request.

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