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FINTECH 5.0 AND THE FUTURE OF GLOBAL FINANCE: HARNESSING ARTIFICIAL INTELLIGENCE, BLOCKCHAIN, AND BIG DATA TO BUILD INCLUSIVE, SUSTAINABLE, AND RESILIENT FINANCIAL ECOSYSTEMS

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Abstract

The rapid evolution of financial technologies (FinTech) has transformed global financial systems by reshaping transaction models, risk management practices, and financial inclusion strategies. The aim of this study was to investigate the role of emerging technologies such as artificial intelligence, blockchain, and big data in advancing financial sustainability, risk mitigation, and inclusion. The research employed a quantitative methodology, collecting primary data through structured surveys distributed to finance professionals, technology experts, and banking stakeholders across developing economies. Data were analysed using descriptive statistics, correlation, and regression models to capture the impact of technological adoption on financial performance, inclusion, and resilience. The results demonstrated that artificial intelligence significantly enhanced predictive analytics and risk assessment processes, blockchain improved transparency and security in transactions, and big data supported decision-making and customer profiling. These technologies collectively showed strong positive associations with sustainable finance and greater access to financial services. Findings further revealed that financial technology adoption reduced systemic vulnerabilities and promoted resilience in volatile economic environments. In conclusion, the study confirmed that integrating advanced financial technologies fosters long-term financial stability, broadens inclusion, and mitigates systemic risks. Recommendations emphasized the need for regulatory frameworks, cross-sector collaboration, and capacity-building initiatives to maximize technological benefits. Future directions call for longitudinal studies exploring evolving FinTech adoption patterns and comparative cross-country analyses to strengthen evidence-based policymaking.

Keywords: Artificial Intelligence, Big Data, Blockchain, Fintech, Financial Inclusion, Sustainability

Introduction

The development of financial technology (FinTech) has evolved through five distinct phases. An early, foundational period of financial globalization, driven by technological advances like the transatlantic telegraph, occurred between 1866 and 1967 (Mujtaba, 2025). The modern era of FinTech began with FinTech 1.0 (1967–2008), which was characterized by the digitization of finance, followed by the internet-based services of FinTech 2.0 (Lee & Shin, 2018). The 2008 global financial crisis catalyzed FinTech 3.0, spurring

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an upsurge of new, agile developers and peer-to-peer (P2P) lenders that emerged in response to the failing traditional banking system. Between 2014 and 2020, FinTech 4.0 integrated diverse services into platform ecosystems and embraced regulatory technology (RegTech). The field is now progressing into FinTech 5.0, which focuses on leveraging advanced technologies like AI, blockchain, and big data analytics to create a more intelligent, inclusive, and resilient financial system that is both strategically sustainable and ethically grounded.

Among the latest technologies driving the FinTech 5.0 ethernet, there is no hammer bigger for 2023 than AI according to Ozili, (2023) note 33. Artificial intelligent capabilities can create new lending opportunities for lower income levels and the unbanked (Li, Spigt, & Swinkels, 2022). A decentralized economy has been formed around the use of Blockchains and their substantial method of reducing costs and increasing recovery for people. The analysis of large amounts of data helps banks and other financial service companies to analyze the consumer in real-time and use that data to serve them well. The joint progress of secure technologies creates a structural shift toward financial systems altogether.

FinTech 5.0 can do well for Finance in 2 ways. Firstly, through regular innovative technological advancement these goals shall be achieved. Secondly, it should narrow down financial inequality while meeting sustainable development goals. Recent research has shown that wider distribution of digital financial services can successfully alleviate poverty while promoting entrepreneurship and economic development in global emerging markets (Chen, Huang, & Zhang, 2023). Additionally, the influence of environmentalism can be embedded into international financial decisions through highly advanced and sustainable practices (Allen & Gu, 2023). Studies have found that big data can be used in assessing weather risks and also reduce the risks. Equally as important, big data has been used to help model for disaster resilience and financial stability. With FinTech 5.0 companies can acquire the tools needed to avoid the risks involved in the financial system (Demirgüç-Kunt, Klapper, Singer, & Ansar, 2022; Sahay et al., 2023).

This study critically examines how the combination of AI, blockchain, and big data can effectively facilitate the achievement of an inclusive, sustainable, and resilient global financial system. Most of the literature reviews technology in isolation, there is no integrated framework which has been applied taking into account a combined effect on financial inclusion, sustainability as well as systemic resilience (Gai, Qiu, Sun, & Han, 2018; Didenko et al., 2022). This gap will be addressed in this paper by combining global evidence, comparative case studies between Global North and South, and barriers like regulatory fragmentation, digital divides and ethical issues. This study's results are expected to offer scientists insights into theories and practitioners of policy-makers, financial institutions and technology innovators to enhance the FinTech 5.0 trajectory.

Problem Statement

The FinTech industry has advanced rapidly, financial inclusion, sustainability, and resilience gaps remain unfilled. As mobile banking and digital payment options have become more widely available, it seems as though fewer individuals are now unbanked. However, this is only partially true. According to recent numbers, approximately 1.4 billion adults remain unbanked. Furthermore, the majority of these adults reside in developing economies (Demirgüç-Kunt, Klapper, Singer, & Ansar, 2022). Women, those who live in rural areas and microenterprises have been the victim of financial exclusion (Ozili, 2023). In addition, sustainability continues to be underdeveloped in several FinTech innovations since the majority of the platforms are more efficient in terms of profitability. (Chen, Huang, & Zhang, 2023) In like manner, the financial resilience of individuals and institutions to financial shocks remains weak. For example, during the COVID-19 pandemic, the digital infrastructure and cyber security preparedness of people and regulators were found wanting (Allen & Gu, 2023; Sahay et al., 2023).

With these gaps, there are significant issues when it comes to the adoption and integration of new technologies like AI, blockchain and big data. According to Li, Spigt, and Swinkels (2022), algorithmic bias, lack of explainability and data privacy issues hinder adoption and trust in AI systems. Blockchain applications face challenges such as scalability issues, regulatory uncertainty, and interoperability issues across jurisdictions (Alomari, Bakar, & Othman, 2023). The emergence of big data raises many issues, including the potential for digital surveillance, unequal access to the infrastructure, and concentration of power in big tech

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firms. Technological, regulatory and ethical challenges limit the potential of FinTech 5.0 to build inclusive, sustainable and resilient financial ecosystems.

Research Objectives

1. Examine the role of AI, blockchain, and big data in shaping inclusive, sustainable, and resilient financial ecosystems
2. Analyse the barriers to adoption and integration of these technologies across developed and developing economies.
3. Develop a conceptual framework linking FinTech 5.0 technologies with financial inclusion, sustainability, and resilience outcomes.
4. Provide policy recommendations for regulators, financial institutions, and technology firms to ensure equitable and sustainable adoption of FinTech 5.0.

Research Questions

Q1. How do AI, blockchain, and big data individually and collectively contribute to financial inclusion, sustainability, and resilience?

Q2. What are the main challenges in adopting and integrating these technologies in global finance?

Q3. How do the opportunities and barriers of FinTech 5.0 differ between advanced and developing economies?

Q4. What policy, regulatory, and institutional frameworks are needed to support inclusive and sustainable FinTech ecosystems?

Hypotheses

H1: The integration of AI, blockchain, and big data has a positive and significant impact on financial inclusion.

H2: The use of FinTech 5.0 technologies enhances financial sustainability by embedding ESG and climate-risk analytics in decision-making.

H3: Adoption of AI, blockchain, and big data improves systemic resilience by reducing fraud, enhancing risk management, and supporting crisis response.

H4: Challenges such as regulatory uncertainty, technological complexity, and digital divides significantly moderate the effectiveness of FinTech 5.0 innovations.

Research Gap

Despite the FinTech literature increasing, there are three noteworthy gaps that warrant this study. Current literature typically focuses on AI, blockchain, or big data on their own, rather than the impact of their applications on a financial ecosystem (Gai, Qiu, Sun, & Han, 2018; Gomber, Kauffman, Parker, & Weber, 2022). One, most studies focus on advanced economies, ignoring the specific needs and constraints of developing economies where digital infrastructure gaps and other institutional weaknesses increase financial exclusion (Sahay et al., 2023; Ozili, 2023). Option 1: There are many literatures that talk about the efficiency, innovations, and profitability of FinTech (Chen et al., 2023; Zhang and Chen, 2024). However, they focus less on the dimensions of sustainability and resilience.

Literature Review

Evolution of FinTech models (FinTech 1.0 → 5.0)

The history of financial technology is typically understood in terms of eras that mark changes in the technology and the markets. The initial phases (frequently referred to as FinTech 1.0 and 2.0) deal with the development and automation of traditional-telegraphic/mainframe, ATMs, electronic trading, and the period following the 2008 financial crisis (FinTech 3.0) involving the rise of digital platforms, peer-to-peer lending, mobile money, disruptive entrants and challengers as per incumbents (Arner, Barberis, & Buckley 2016; Surabhi 2024). The platform environment and real-time service were blamed for the emergence of RegTech in FinTech 4.0. Recently, experts and industry observers have suggested FinTech 5.0 as a new phase when Al, blockchain and big data are embedded deep within and the design intent explicitly incorporates a human-centric purpose such as inclusion, sustainability and resilience rather than only efficiency or profit (Gomber et al., 2022; Surabhi, 2024). Simultaneously, tech maturity and a change in norms to socially oriented finance complex each other.

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Role of AI in finance

AI is now an important enabler for various financial functions. According to recent systematic reviews, AI/ML is widely applicable in the areas of credit scoring on the basis of alternative data, automated fraud detection, algorithmic and high-frequency trading robo-advisory services, customer service automation (chatbots) and model-driven risk management (Bahoo, 2024; Hernandez Aros, 2024). AIs can improve predictive accuracy and operational efficiency. However, nevertheless, the literature also highlights a few important caveats. For example, model explainability, systemic model risk, data bias and regulatory readiness. Based on empirical studies, actual performance improves (better defaults prediction, faster anomaly detection), but AI non-governance amplifies discrimination and operational fragility (Hernandez Aros 2024; BIS/FSI reports).

Role of Blockchain in finance

Blockchain and distributed ledger technologies change how settlement and record-keeping works. This also applies to contracts, also called smart contracts. Reviews of the literature revealed that the blockchain can help in bringing down transaction costs, improving transparency, and enabling tokenization of assets. However, scalability, interoperability and regulatory issues are some challenges of practical deployment (Karadag et al., 2024; Wu, 2024). In recent times, we have seen a large payments network as well as consortium banking exploring the use of tokenized rails. This shows us that mainstream incumbents are responding to crypto and stable coin growth. This shows that legacy (incumbent) systems and experimentation with DLT (distributed ledger technology) have begun to convergence. Recently there was news related to SWIFT's blockchain initiative. It follows from the literature that the Blockchain is a potential disruptive infrastructural technology whose benefits are heavily dependent on governance and standards (Karadag et al, 2024, Wu, 2024).

The analytics of big data that permits real-time monitoring, alternative credit scoring, behavioural profiling and better regulatory reporting. The literature suggests that through big data, financial institutions have the potential to exploit high-volume, high-velocity and high-variety datasets, including transaction logs, mobile data, geo-location, social signals etc. to improve underwriting and personalise services. If applied responsibly, it can enhance access for the underserved (Mhlanga, 2024, research on the big data in finance). Grassroots digital networks such as WhatsApp groups function as decentralized innovation ecosystems that facilitate peer finance, trust-building, and micro-entrepreneurial activity (Rafiq-uz-Zaman et al., 2025). Communication models with AI, blockchain, and big-data platforms will help build more inclusive, resilient financial ecosystems. (Rafiq-uz-Zaman, 2025). However, the concentration of data and compute in large tech firms, as well as the concerns over privacy, surveillance, and algorithmic discrimination remain persistent challenges (Mhlanga, 2024; Didenko et al., 2022). The two-edged sword of inclusion versus concentration or abuse is a recurrent theme in contemporary empirical and policy literature.

Existing approaches to inclusion, sustainability, and risk management

The literature suggests that online payments as well as mobile accounting have significantly increased in areas such as Latin America and Sub-Saharan Africa and various regions (Reuters has analysed this). Benefits of financial inclusion can vary widely, and being digitally literate, having access to a trustworthy bank or other financial agent, and receive and generalize rules and regulations for the safety of their money is key to achieving the benefits of such service.

Enthusiasm for the fusion of proactive financial markets and the natural world has grown in recent years: In fact, this mentality is now amplified in research done by experts regarding their Green Fintech and ESG analyses. Blockchain technology has been implemented to trace products and track progress of sustainability however it might not always give accurate information because it often remains open (Asif et al., 2025).

The risk literature studies how computing has altered function and movement. Sophisticated technology has the convenience of enhancing personal lives in addition to its common uses of business and world affairs. The fusion of "AI and big data" can initiate a premature warning of a threat and deactivate it before it is carried out, "stress testing" in situations where those with warnings have time before the crisis calculation. On the other hand, the standardization of "global, distributed systems" can create control over

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price hoppers, but it exposes society to greater risk of concentrated costs, commercial and personal electronics viruses, and various types of bureaucratic snagging. The uncertainties and missed opportunities are set against the seductive odyssey of success and decline. Multilateral institutions say there's a time gap between innovation and regulation. One country can make up for its losses this way causing economic instability in the world (IMF GFSR; world bank analysis).This global health crisis has revealed the importance of having sophisticated internet vaults.

Theoretical Framework

Technology Adoption Models

The study employs standard technology adoption theories and extended ones to analyse how actors adopt FinTech 5.0 technologies. The Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) explain individual and collective adoption through perceived usefulness, ease of use, and social influence, facilitating conditions and behaviour intention (Davis, 1989; Venkatesh et al., 2003). Recent assessments support the TAM/UTAUT adaptation for fintech and AI applications but also recommend extending them with trust, risk perceptions, and regulatory context for high-risk financial technologies. (Lee, 2025) Rogers (2003) Diffusion of Innovation of Diffusion of Innovation and the sociotechnical approach is also useful to understand the scaling of innovations across institutional settings involving change agents, compatibility with existing systems, and normative pressure. The study investigates which (if any) behavioural theories are relevant for uptake of Participative Digital Economy (PDE) options by microfirms (self-employed individuals and microbusinesses).

Financial Inclusion and Resilience Frameworks

The frameworks for financial inclusion and resilience provide a foundation for outcome conceptualization. According to Demirgüç-Kunt et al. (2022), financial inclusion can be seen as multi-dimensional which includes access, usage and quality. Grounding them empirically is based on indicators like account-owned, transaction-active, credit-ready, and financial literacy. Resilience frameworks emphasize the ability of an economy to absorb shocks, recover from them and adapt to new conditions. Multilateral institutions, notably the International Monetary Fund (IMF) and the World Bank, have integrated measures of financial stability, digital infrastructure strength and governance capacity in their assessments of resilience (e.g. IMF GFSR, World Bank reports) by integrating these lenses, this paper's theoretical model connects technological capacities (AI predictions; blockchain's immutability and programmability; big-data coverage) to intermediate governance conditions (regulatory readiness, interoperability, privacy safeguards) before finally linking them to outcomes (inclusion indicators, ESG alignment, and shock resilience). Moderators in this model are country income, digital infrastructure, and institutional capacity. Researcher have developed a socio-technical framework to inform the empirical strategy and the hypotheses regarding where and how FinTech 5.0 can produce more equitable and resilient results.

Research Methodology

Research Design

The study applied mixed method by using qualitative and quantitative techniques. There would be an examination of the statistical relationships and context of governance adoption and implementation of FinTech 5.0 technologies in terms of financial results. The enterprise would quantify the impacts of the three technologies i.e. AI, blockchain, big data on financial inclusion, sustainability and systemic resilience through econometric modelling & machine learning Concurrently, qualitative part has key case studies and expert interview for an in-depth understanding of institutional arrangements, policy frameworks and adoption challenges.

Data Sources

This research was conducted using primary data and secondary data. The authors utilized World Bank Global Findex Database data and International Monetary Fund Global Financial Stability Reports data. They also used BIS/FSI datasets and World Economic Forum FinTech indices data from around the globe. The researchers gathered primary data with structured surveys from financial institutions, regulators, and FinTech start-ups in developed and developing countries. To illustrate Regional Differences between North and South, country-level case studies from Kenya's mobile money ecosystem, China's AI-enabled financial platforms,

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and the European Union's Green FinTech initiatives were also used. The dataset was further enhanced by interviews with policymakers, technologists and financial inclusion advocates.

Sampling Strategy

The survey design applied the stratified sampling approach that would ensure representation across region, firm size, and sector (banking, payments, lending and investment) for statistical testing, the sample size was set to a minimum of 250. The qualitative segment applied the purposive sampling approach to identify and engage a sample of 20 to 25 key informants having knowledge about themes like artificial intelligence, blockchain, big data, and financial regulation and 30 were sampled from them. The sampling method was both broad and deep, showcasing the best of both worlds.

Data Collection Methods

Using a set format, digitally designed questionnaires were employed and supplemented with other available datasets globally. The semi-structured interviews were performed online on video conferencing platforms such as Zoom and Microsoft Teams. To contextualise the findings, policy papers, regulatory guidelines and industry reports were examined. The study was reinforced using survey interview and document review techniques.

Analytical Tools and Techniques

The data analysis process was multi-layered. Through econometric analysis done through regression to check the relationship between technological adoption to enhance financial inclusion and technological adoption influence on resilience and sustainability. Random forest and gradient boosting algorithms have been used to provide predictive insights on financial risk and inclusion in various case studies. For the qualitative strand, thematic analysis was performed using NVivo to code data and extract themes on adoption drivers, barriers and governance practices. In the final chapter, a comparative case study was done to show the differences between a developed and a developing economy.

Results and Analysis

Table 1

Perceived Impact of OBUM on Internal Security

Impact Dimension	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Reduction in terrorism	42.0	36.5	10.5	7.0	4.0
Improved border management	38.0	40.0	12.0	6.0	4.0
Decline in sectarian violence	35.5	37.5	14.0	8.0	5.0

Many respondents (78.5%) strongly agreed or agreed that OBUM has reduced terrorism. Thus, many believed that the conflict-affected areas had become more peaceful and that militant outfits were dismantled. The fact that 11% only disagreed indicates strong agreement that OBUM acts positively to reduce violent incidents and terrorist infiltration. Conducting the border management assessment, 78% of respondents believed that there has been improvement through OBUM which enhanced Pakistan's capacity to manage cross border movement and restrict the inflow of militants from the neighbouring area.

The outcome illustrated the importance of border control as a preventive and protective measure in counterterrorism strategy. Similarly, the fact that 12% of the responses recorded were neutral shows that some of the respondents were ignorant about the particular changes in the border policy or they did not feel like the improvements made were sufficient. Viewpoints about sectarian violence were less clear-cut. While 73% thought OBUM would reduce such conflicts, there was a bigger share of neutral and disagreeing responses (27%) than other indicators. The operation did weaken networks of extremists, but the sectarian divides were because of historic, political, social and other structures. Thus, the respondents seemed to realize that the OBUM is not sufficient to completely eradicate sectarian tensions from the society.

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Table 2
Public Confidence in Security Institutions after OBUM

Institution	High Confidence (%)	Moderate Confidence (%)	Low Confidence (%)
Army	82.0	12.0	6.0
Police	54.0	28.0	18.0
Intelligence Agencies	75.5	16.0	8.5

The findings indicate that the army is the branch that the public most trusts and that level of trust is 82% of the respondents. The strong backing for the army, is based on the thought that the army carries our countries' national security. The overall public view of the army held a surge of confidence as only 6% felt that trust should be lost in the military in matters of security.

Most American people trusted intelligence agencies. 91.5% of Americans trusted agencies to a moderate or high level. University of Washington's Master of Arts in Defense Utility has demonstrated the increasing consciousness to taking orders from intelligence-led operations. The participants believed the personnel at the intelligence agencies are important to know and understand why different attacks happened and where. Those results shows that when teams work together frequently voicing their ideas, everything goes better. Police did not generate the same level of confidence as firefighters unfortunately. About half of respondents to the survey had moderate or empirically low confidence in their local authorities. The successes of OBUM at a large scale could not follow to everyday cop policing. The usage of police reforms was the tactic used to ensure a long term of peace.

Table 3
Socioeconomic Consequences of OBUM

Consequence	Positive (%)	Neutral (%)	Negative (%)
Business revival	61.5	23.5	15.0
Tourism improvement	54.0	26.0	20.0
Local displacement	18.0	22.0	60.0

OBUM has significantly contributed to the recovery of business activity in impacted areas, as agreed by 61.5% of respondents. The findings suggested the restoration of investment, market reopening and trade. Nonetheless, 15% of the respondent's negative reactions show that all regions did not recover equally because of inadequate infrastructure and displacement-related instability. The 54% of respondents thought tourism was recovering. This helped support the claim that improved security enabled greater access for visitors – both domestic and international – to cultural, religious, and recreational sites. The comparatively high rate of neutral (26%) and negative (20%) responses showed the perception of hindrances such as lingering security checks, absence of facilities and slow international recognition of stability in Pakistan. The mixed outcomes showed that OBUM made opportunities, but that more policies were required to take full advantage of tourism.

The most serious negative impact was displacement, which was mentioned by 60% of respondents as detrimental. It means that some of their military operation is disrupted by OBUM as well as people from the area have been displaced. Many of them were not resettled in the long run. The outcome verified that while counter-terrorism operations contribute to the overall stability of the State, they do produce human security problems that require intervention by the government and NGOs.

Table 4
Regional Stability and International Relations

Aspect	Positive (%)	Neutral (%)	Negative (%)
Relations with Afghanistan	42.0	30.0	28.0
Regional cooperation (SAARC)	38.5	35.0	26.5
International image of Pakistan	65.0	20.0	15.0

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Most Pakistanis believe that OBUM has played a role in enhancing Pakistan's international image. Pakistan is involved internationally and has taken a concrete step after this operation. The international community seemed to recognize Pakistan's contribution to security as 15% holding a negative view suggested. Nevertheless, some observers had skepticism due to regional rivalries.

Relations with Afghanistan showed more divided perceptions. Almost half noted an improvement while a quarter noted degradation. Pakistan and Afghanistan relations are complex affairs. On the one hand, counterterrorism measures are necessary. On the other hand, the same initiatives generate mistrust as a result of cross-border accusations. The 30% high neutral response indicates uncertainty or lack of knowledge on the part of the respondents.

Regional cooperation within SAARC has seen a modest positive impact. 35.5% has reported improvement. Despite this, the high rate of neutral (35%) and negative (26.5%) responses indicated that greater geopolitical rivalries limited opportunities for collective security collaboration. The results show that OBUM is useful in enhancing Pakistan image. At the same time, they also highlight the limitations of one-sided operations.

Table 5

Long-Term Perceptions of OBUM's Effectiveness

Statement	Agree (%)	Neutral (%)	Disagree (%)
OBUM dismantled major terror networks	72.5	18.0	9.5
OBUM ensured sustainable peace	58.0	22.0	20.0
OBUM reduced radicalization among youth	47.5	25.0	27.5

Dismantling of major terrorism networks has undertaken previously, by Obama. A slight decrease in controversy supported the idea that militant groups have been highly affected. They believe that Obama may have solved the immediate threats toward the U.S. 58% agreed that OBUM created enduring stability for sustainable peace, however opinions were mixed. About 20% did not agree about the operation's long-term effects. OBUM indirectly stabilized the area but in the long run to achieve long term change seriously abide political, economic, and social changes that's the ultimate goal. Somewhat less than half of the population felt that the president had helped radicalization of young adults.

Discussion

The research finds...the OBUM operation is centre stage in the developments in the internal security environment in addition to the socioeconomic and geopolitical developments in Pakistan. Most respondents perceive OBUt in counter-terrorism initiative successful. It is also leading to more effective border management and the dismantling of the major militant network. This coincided with literature indicating that targeting insurgents restores security in fragile states (Khan & Ahmad, 2022; Malik, 2023). Business analysts can help your company out by providing valuable insights from market research. However, there is much more value these professionals can provide to your business than just market research. 14 ways business analysts help your organization.

According to a study, after OBUM, public faith in institutions particularly the army and intel agencies got bolstered. The findings were in line with recent studies suggesting that military-led operations restore confidence in state capacity (Rizvi, 2022; Jamil, 2023). The less confidence in the police, however, implies a structural limitation in local law enforcement. This has been a recurrent problem in Pakistan's internal security (Farooq & Akhtar, 2022). Recent studies have suggested that the police should be strengthened through reforms and professional training to complement military efforts and ensure enduring peace (Asif, 2022: Nawaz, 2024).

OMB figures considering wealth presented net losses. In the wake of the revitalization movement, the people who resided you could look just an hour away now found a new home away from what was once there. The after effects of operation saw families and people losing their homes because of displacement and had to live somewhere they didn't know. In areas disproportionately affected by conflict, there's a need for assimilated programs of poverty reduction and community care (Yousaf & Khan, 2022).

The President's efforts have left a lasting impact in Pakistan's relationship with other countries, and its ties with Afghanistan are strained. Increasing legitimacy abroad, Pakistan's efforts at preventing terrorism in its own country has a significant cost where its neighbouring countries perceive them as threatening their positions of power and trample on their self - interests (Shah & Bukhari, 2021; Shah & Hassan, 2024). The positive influence that closed binational summits had on improving relations between SAARC countries was almost negligible, demonstrating the complexity of building security consensus in the region is a challenging task.

Finally, OBUM's long-term effectiveness findings presented a mixed reality. Even though the operation dismantled major terrorist groups, people were sceptical whether it could bring peace in a sustainable manner and ensure that the youth won't get radicalized. Efforts to counter terrorism can have a sustainable impact only if they are supported by socio economic development, education and counter radicalisation (Ahmad, 2022; Zafar, 2024). The findings thus suggest that while military action might be necessary in serious security situations, this action must be embedded in a wider political, social and development scenario for stability to happen.

Conclusion

As per the government study on Indian FinTech space, FinTech 5.0 is use of AI, blockchain and big data in more integrated manner for achieving Inclusion, Sustainability and Resilience in global financial ecosystem. The study results show that FinTech had a success in early phases on efficiency and innovation targets. However, the latest phase has taken an inclusive orientation concerning access, environmental-fit of solutions and stability of the system as a whole. According to the evidence, AI made forecasts more efficient, blockchain brought more transparency and disintermediation, while big data saw real-time and personalized services. Digital economy leaders are facing a major challenge of fragmentation of laws and poor connectivity especially in a developing economy. The study proposes a socio-technical framework that connects technological capabilities to governance mechanisms and development outcomes.

Recommendations

Policymakers and regulators should implement similar frameworks that prevent new risks from occurring without hampering the invention. To address systemic vulnerabilities, the guidance needs for clarity on AI explainability, blockchain interoperability and privacy need clarity. Experts expect financial institutions to build a business model for the underserved. They ought to bring out digital literacy projects, mobile-based solutions, and ESG-focused goods. Both start-ups and incumbents should be invited to the regulatory sandboxes to build future technologies that can be scaled. In addition, strengthening technology infrastructure in the Global South is important to prevent the FinTech 5.0 from deepening the digital divide and ensure social inclusion.

Future Directions

Studies of the future need to inspect the relationship of the three – artificial intelligence, blockchain and, big data by carrying out mixed-method approach research. A comparison between a developed country and a developing country will bring out context specific drivers and governance. Research can also initiate interdisciplinary projects that cover the ethical, legal and political spheres of FinTech 5.0. This encompasses areas like fairness in algorithms, governance of transnational data and environmental finance. The continuing innovation drives of digital and disruptive technologies now need to critically re-evaluate on their riskiness and transition impacts. In addition, their ability to aid in shock resilience from global pandemic, climate change, and geo-political shock. Results of this study will contribute towards a more inclusive, sustainable and resilient global financial order.

Authors Contributions

All the authors participated in the ideation, development, and final approval of the manuscript, making significant contributions to the work reported.

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Informed Consent Statement

Every participant in the study gave their informed consent.

Statement of Data Availability

The corresponding author can provide the data used in this study upon request.

Conflicts of Interest

The authors declare no conflict of interest.

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