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The Compute Divide: AI-Driven Fintech, Data Center Infrastructure and Digital Development in Emerging Markets

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Abstract

The convergence of artificial intelligence (AI), financial technology (fintech), and digital infrastructure is reshaping economic development pathways in emerging markets, with data centres emerging as strategic sovereign assets critical to this transformation. This chapter examines the interplay between AI-driven fintech innovation and data center infrastructure development across Africa, Southeast Asia, and Latin America, analysing the policy frameworks that enable or constrain this growth. Drawing on evidence from 2025-2026, the analysis reveals a stark digital divide: high-income countries host 77% of global data center capacity, while low-income countries hold less than 0.1%, directly constraining AI innovation capacity in emerging economies. Despite these disparities, significant investments—including NVIDIA's $700 million partnership in Africa, Malaysia's 690MW capacity surge, and Latin America's $7.16 billion market—signal transformative potential. The chapter argues that successful integration of AI and fintech depends on a triad of factors: robust data center infrastructure, enabling regulatory environments, and sustainable energy solutions. Policy recommendations emphasize public-private partnerships, regulatory sandboxes, renewable energy integration, and targeted international investment. The findings underscore that data centres are not merely technical infrastructure but strategic assets that determine whether emerging markets become active participants in the AI-driven digital economy or remain on its periphery.

Keywords: AI-driven fintech, data center infrastructure, emerging markets, digital divide, sustainable development

1. Introduction

The convergence of artificial intelligence (AI), financial technology (fintech), and digital infrastructure is reshaping the economic landscape of emerging markets. At the heart of this transformation lies a critical yet often underappreciated foundation: data centres. These facilities—once mere technical backbones—have evolved into strategic sovereign assets that underpin financial inclusion, economic modernization, and national competitiveness in the digital age. For emerging economies seeking to leapfrog traditional development pathways, the interplay between AI-driven fintech innovation and data center infrastructure presents both unprecedented opportunities and formidable policy challenges.

This chapter examines the development of AI-driven fintech ecosystems and their data center dependencies in emerging markets, with a focus on the policy frameworks that enable or constrain

this growth. Drawing on evidence from Africa, Southeast Asia, and Latin America, it analyses how emerging economies are navigating the complex terrain of digital infrastructure investment, regulatory innovation, and sustainable development. The chapter argues that the successful integration of AI and fintech in emerging markets depends on a triad of factors: robust data center infrastructure, enabling regulatory environments, and sustainable energy solutions—each requiring deliberate policy attention and international cooperation (Trade and Development (UNCTAD) 2025).

2. METHODOLOGY

This study adopts a qualitative, policy-oriented comparative research design, synthesizing secondary evidence from multiple sources to examine the interplay between AI-driven fintech innovation and data center infrastructure development in emerging markets. Given the rapidly evolving nature of the subject matter and the diversity of relevant data sources—ranging from academic research and institutional reports to industry announcements and government policy documents—a qualitative synthesis approach is appropriate for identifying patterns, commonalities, and differences across regions.

2.1 SOURCE TYPOLOGY AND SELECTION CRITERIA

The analysis draws on three categories of sources. First, peer-reviewed academic literature was identified through systematic searches of Web of Science, Scopus, and Google Scholar using the following keyword combinations: "AI readiness" AND "developing countries"; "compute divide" AND "artificial intelligence"; "data center infrastructure" AND "emerging markets"; "fintech" AND "digital infrastructure"; "AI policy" AND "Global South." The search was limited to publications from 2020 to 2026 to ensure currency, with priority given to sources addressing the 2025–2026 period. Second, institutional and policy reports were sourced from the World Bank, the United Nations Conference on Trade and Development (UNCTAD), the Inter-American Development Bank (IADB), the Organization for Economic Co-operation and Development (OECD), the International Telecommunication Union (ITU), and other multilateral organizations. These reports provide systematic, cross-nationally comparable data on digital infrastructure investment, AI readiness, and regulatory frameworks. Third, industry and investment data—including specific investment announcements, data center capacity figures, and market projections—were drawn from reputable industry sources and official government publications.

Inclusion criteria for sources were: (a) temporal relevance (published 2020–2026, with emphasis on 2025–2026); (b) geographic focus on Africa, Southeast Asia, or Latin America, or global coverage with disaggregated data for these regions; (c) thematic relevance to AI, fintech, data centres, digital infrastructure policy, or related topics; and (d) source credibility (peer-reviewed journals, institutional publications, official government documents, or established industry research). Sources that did not meet these criteria—including non-peer-reviewed opinion pieces, blog posts, and sources without clear methodological grounding—were excluded. In total, over 120 sources were consulted, of which 68 are cited in this chapter.

2.2 GEOGRAPHICAL SCOPE AND REGIONAL SELECTION

The analysis focuses on three regions: Africa, Southeast Asia, and Latin America. These regions were selected for several reasons. First, they represent the most dynamic and diverse emerging-market contexts for AI-fintech-data center development, each exhibiting distinct patterns of investment, regulatory innovation, and infrastructure growth. Second, they face broadly comparable challenges—including infrastructure deficits, energy constraints, and data sovereignty concerns—while differing in their resource endowments, institutional capacities, and policy approaches, enabling meaningful comparative analysis. Third, each region has witnessed significant recent developments (2025–2026) that provide timely empirical material for analysis.

Within each region, the analysis focuses on countries that have emerged as leaders or significant actors in data center and AI-fintech development: in Africa, South Africa, Nigeria, Kenya, Egypt, and Morocco; in Southeast Asia, Malaysia, Indonesia, Thailand, and Vietnam; in Latin America, Brazil, Mexico, and Chile. These countries were selected based on the scale of recent data center investments, the existence of identifiable AI or fintech policy frameworks, and the availability of reliable data.

2.3 Analytical Procedures

The analysis proceeded through three stages. First, thematic coding was applied to all sources to identify recurring themes, including data center capacity and investment patterns; AI-fintech applications and their infrastructure dependencies; regulatory approaches (data sovereignty, sandboxes, investment incentives); sustainable energy integration; and institutional frameworks. Second, comparative regional analysis was conducted to identify common patterns and differences across the three regions along key dimensions: infrastructure availability, investment flows, regulatory approaches, energy resources, data sovereignty frameworks, and human capital. Third, synthesis and integration brought these findings together to develop the central argument concerning the triad of factors—infrastructure, regulation, and sustainable energy—that enable successful AI-fintech integration.

2.4 Limitations

This study has several limitations that should be acknowledged. First, the reliance on secondary sources means that the analysis is constrained by the availability, quality, and comparability of existing data—a particular challenge given the rapid pace of change in the sectors under examination. Second, investment announcements and capacity figures are often reported inconsistently across sources, and some figures represent projections rather than confirmed deployments. Third, the geographic focus on three regions necessarily excludes other emerging-market contexts—such as South Asia and the Middle East—that may offer additional insights. Fourth, the rapidly evolving nature of AI and data center technologies means that some findings may require updating as new developments occur. Despite these limitations, the analysis provides a robust and timely examination of the intersection between AI, fintech, and digital infrastructure in emerging markets.

3. Conceptual Framework

This section defines the key concepts that underpin the analysis and articulates the analytical framework that guides the study.

3.1 Defining the Compute Divide

The concept of the "compute divide" has emerged in recent policy and academic discourse to describe the unequal distribution of computing power—particularly high-performance computing (HPC) capacity, graphics processing units (GPUs), and data center infrastructure—necessary for advanced AI development and deployment. While the traditional "digital divide" focused on access to the internet and digital connectivity, the compute divide captures a more fundamental layer of digital inequality: the capacity to process, store, and analyse data at scale.

The scale of this divide is stark. Sub-Saharan Africa faces a 98% compute gap: the region is projected to need 4.2 gigawatts of capacity by 2030 to meet AI demand but is on track to have just 0.1 gigawatts. South Asia faces an 87% gap. Globally, none of the world's 100 high-performance computing clusters capable of training large language models are hosted in developing countries. Just two nations account for half of all hyperscale data center capacity worldwide. This concentration of compute capacity has direct implications for AI innovation, as only 5% of African AI practitioners currently have access to the compute power required for advanced development.

The compute divide is thus not merely a technical or economic issue but a strategic and geopolitical one. It determines which countries can develop indigenous AI capabilities, which must rely on imported AI services, and which are relegated to the status of passive consumers of AI technologies developed elsewhere. As such, the compute divide represents a new frontier of global inequality that demands deliberate policy attention.

3.2 AI Readiness and the Four Cs Framework

The World Bank has identified four critical elements—the "Four Cs"—that countries must invest in to fully realize AI's potential:

- **Connectivity**: affordable, reliable internet access and energy infrastructure
- **Compute**: computing resources, data centres, and cloud technologies

- **Context**: locally relevant data, training resources, models, and applications
- **Competency**: digital literacy and advanced skills

These four elements are interdependent: improving connectivity or increasing computing power alone is insufficient for AI development if locally relevant data and human capital are lacking. The "Compute" dimension—encompassing data centres, GPU availability, and cloud infrastructure—is the focus of this chapter, but it is analysed in relation to the other three Cs, recognizing that AI readiness requires a holistic approach.

3.3 AI-Driven Fintech and Infrastructure Dependency

Financial technology has been one of the most dynamic sectors in emerging markets, driven by mobile penetration, unbanked populations, and innovative business models. The integration of AI into fintech operations represents the next frontier of this evolution, enabling applications such as AI-powered credit scoring using alternative data, fraud detection through machine learning, and robo-advisory services.

Critically, these AI-driven fintech applications depend on robust digital infrastructure. The viability of AI integration in financial services presupposes the existence of data centres capable of delivering the compute power, storage, and low-latency connectivity that AI applications require. This dependency runs in both directions: fintech growth drives data centre demand, while data centre availability enables fintech innovation. The relationship is thus co-evolutionary: the development of each reinforces the other.

3.4 Data Sovereignty

Data sovereignty—the principle that data generated within a country's borders should be subject to that country's laws and governance frameworks—has emerged as a defining policy issue for emerging markets. As digital financial services expand and AI systems process increasingly sensitive data, governments are asserting control over data generated within their territories. Forty-five African countries have now enacted data protection laws, and countries such as Indonesia are committing to developing domestic data centres to ensure strategic data remains within national borders.

The tension between data sovereignty and the benefits of cross-border data flows and global cloud services presents a key policy challenge. Emerging markets must balance the desire for local control with the need to access global AI capabilities and attract international investment.

3.5 Analytical Framework: The Infrastructure-Regulation-Sustainability Triad

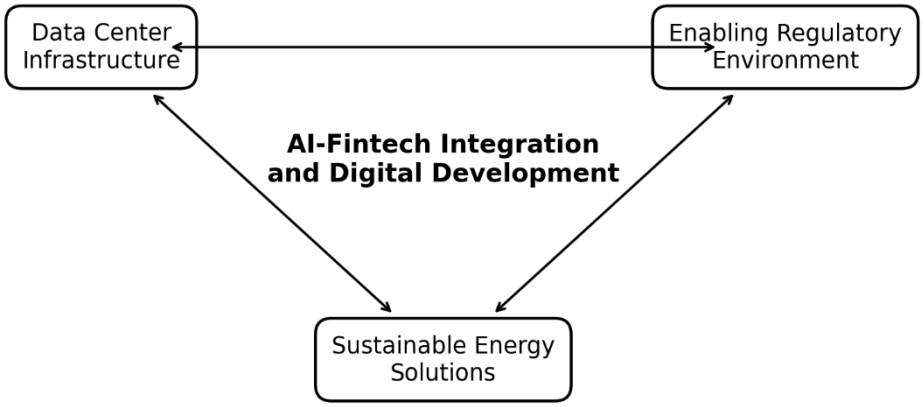
Building on these concepts, this chapter proposes an analytical framework centred on three interdependent factors that determine the success of AI-fintech integration in emerging markets:

1. **Data centre infrastructure**: The physical and technical foundation that provides compute capacity, storage, and connectivity
2. **Enabling regulatory environments**: Policy frameworks that facilitate investment, protect consumers, ensure data sovereignty, and foster innovation
3. **Sustainable energy solutions**: Renewable energy integration that addresses the energy intensity of data centres while advancing sustainable development goals

These three factors are mutually reinforcing: infrastructure investment depends on regulatory certainty; regulatory effectiveness depends on infrastructure availability; and sustainability depends on both. The framework guides the analysis of regional dynamics and the formulation of policy recommendations.

Contextually, figure, summarizes the proposed Infrastructure-Regulation-Sustainability triad and its relationship to AI-fintech integration and digital development.

Figure 1 - Infrastructure-Regulation-Sustainability triad for AI-fintech integration in emerging markets.



4. The Digital Infrastructure Imperative

4.1 The Data Centre Gap

The global distribution of data centre capacity reveals a stark digital divide. As of June 2025, high-income countries hosted 77% of global co-location data centre capacity, while upper-middle-income countries held just 18%, lower-middle-income countries 5%, and low-income countries less than 0.1%. This disparity is not merely a matter of infrastructure statistics—it directly translates into differential capacity for AI innovation, fintech development, and digital economic participation (Vergara et al. 2025).

The consequences are tangible. According to the United Nations Development Programme, only 5% of African AI practitioners currently have access to the compute power required for advanced development, and just one-fifth of those have on-premises GPU access. This compute gap constrains the continent's ability to move from being a consumer of AI technologies to a creator of indigenous AI solutions. Similarly, despite a 40% compound annual growth rate in mobile data use, Africa accounts for less than 1% of global data center capacity, underscoring the acute need for facility development (Pearl et al. 2026).

4.2 AI as a Demand Driver

The explosive growth of AI has fundamentally altered the data centre investment landscape. Artificial intelligence and machine learning are responsible for nearly 90% of incremental demand for new data centres worldwide. This demand surge has driven record-breaking investment: in 2025, data centres captured more than one-fifth of global greenfield investment, with new data centre investments surpassing $270 billion globally. The Asia-Pacific region alone saw data center investment reach $116 billion in 2025, a historic high driven by AI demand (Liu 2026).

For emerging markets, this global investment wave presents a critical window of opportunity. However, the concentration of investment remains uneven. According to UNCTAD, data center investment in 2025 was concentrated in a handful of host countries led by France, the United States, and the Republic of Korea, with only a few emerging markets among the top recipients. The challenge for emerging economies is not merely to attract investment but to create the conditions—policy, regulatory, and infrastructural—that make such investment sustainable and developmentally beneficial.

5. AI-Driven Fintech: Transforming Financial Inclusion

5.1 The Fintech-AI Nexus

Financial technology has been one of the most dynamic sectors in emerging markets over the past decade, driven by mobile penetration, unbanked populations, and innovative business models. The integration of AI into fintech operations represents the next frontier of this evolution. AI-enabled financial platforms have demonstrated substantial developmental impacts, particularly in regions like

sub-Saharan Africa, where mobile money and AI-based microfinance solutions have improved household welfare (Choi 2026).

The applications are diverse and expanding. AI-powered credit scoring enables lenders to assess risk using alternative data—telecommunications records, mobile usage patterns, and digital footprints—reaching customers without formal credit histories. Fraud detection systems powered by machine learning protect digital payment ecosystems. Robo-advisory services democratize investment advice. In Egypt, AI-assisted risk assessment tools have been introduced to help establish more robust regulatory and supervisory frameworks. Indonesia's government is formulating an AI roadmap designed to enhance digital financial services through automation, intelligent analytics, fraud detection, and alternative credit scoring, enabling broader financial inclusion.

5.2 The Infrastructure Dependency

Critically, these AI-driven fintech applications depend on robust digital infrastructure. As the World Bank has observed, it is now increasingly commercially viable for emerging market financial service providers to begin integrating AI technologies into their service offerings, driven by advances in data storage, computing power, energy reliability, and analytic techniques. Yet this viability presupposes the existence of data centres capable of delivering the compute power, storage, and low-latency connectivity that AI applications require (Zaballos et al. 2025).

The dependency runs in both directions: fintech growth drives data centre demand, while data centre availability enables fintech innovation. In Bangkok, cloud services account for 38% of data centre capacity, while AI-driven demand has grown from 20% in 2024 to 28% in early 2025. In Malaysia, data centre capacity surged from 120 megawatts to 690 megawatts in the first half of 2025 alone, with future expansions set to increase capacity by an additional 350%, positioning the country as a Southeast Asian AI and cloud computing hub.

6. Regional Dynamics: Three Emerging Market Clusters

6.1 Africa: The Compute Frontier

Africa represents both the greatest challenge and the greatest opportunity in the emerging market digital infrastructure landscape. The continent's data centre deficit is acute, but recent investments signal a transformative shift.

The most significant development is NVIDIA's landmark $700 million partnership with Cassava Technologies to build AI-ready data centres across Africa—marking NVIDIA's first direct infrastructure investment on the continent. The initiative began with the delivery of 3,000 NVIDIA GPUs to a Cassava-built facility in South Africa, with a further 12,000 GPUs to be deployed across Egypt, Nigeria, Kenya, and Morocco over the next three to four years. The partnership targets AI adoption in healthcare, agriculture, and fintech sectors.

This investment reflects a broader geopolitical shift in tech strategy, positioning private investment as a counterbalance to China's Belt and Road and Digital Silk Road initiatives. Cassava Technologies and Accenture have also partnered to deploy sovereign AI infrastructure across Africa, beginning in South Africa before expanding to Egypt, Kenya, Morocco, and Nigeria (Asongu et al. 2026).

The Intergovernmental Authority on Development (IGAD) region, however, still faces significant regulatory barriers and institutional constraints that limit AI-ready data centre development. Policy recommendations emphasize regulatory harmonization, regional coordination, and investment incentives. The fragmentation of the regulatory landscape across Africa remains a significant challenge, though the African Union has established various initiatives aimed at harmonizing policies and regulations across the continent (Yusuf 2024).

6.2 Southeast Asia: The Emerging Hub

Southeast Asia has emerged as perhaps the most dynamic region for data centre growth, driven by a combination of AI demand, data sovereignty concerns, and strategic investment.

The ASEAN region's digital economy is projected to exceed $300 billion, with data centre capacity expected to grow by 180%—higher than the projected growth for the rest of Asia and the Pacific. This

growth is being driven by investments from global players including Amazon Web Services (AWS), which is investing $5 billion in Thailand, and significant projects across Malaysia, Indonesia, and Vietnam (Cong Tung 2025).

Malaysia has become a particular focal point. The World Bank Group's International Finance Corporation (IFC) partnered with hyperscale operator Yondr to de-risk the construction of a new data centre in Johor Baru through early-stage financing that was not available from commercial lenders. The 300MW, 72.5-acre campus will be among the largest in emerging markets, positioning Malaysia as a regional digital infrastructure hub. Once operational, the campus is expected to attract further digital investment, create local jobs, strengthen Malaysia's data sovereignty, and generate spillover benefits across Southeast Asia.

Indonesia is also positioning itself strategically. The government is preparing a roadmap to serve as the legal foundation for developing AI, semiconductors, and technology ecosystems that support financial product innovation. Importantly, alongside AI and technology roadmaps, the government will promote the development of domestic data centres to ensure that strategic data related to public services and digital transactions remain within Indonesia, guaranteeing data sovereignty while ensuring responsible data sharing.

Vietnam is accelerating its transition toward a digital and inclusive financial ecosystem, aiming to attract more foreign investment and align with international regulatory standards as it develops an international financial hub in Ho Chi Minh City. The country's data centre capacity is projected to grow from 525 megawatts in 2025 to 1,000 megawatts by 2030, with the cloud computing market expected to reach $2.5 billion by 2029 (Nga and Tam 2026).

6.3 Latin America: From Emerging to Core

Latin America's data centre sector is moving from an emerging market story to a core digital infrastructure investment theme. The Latin America data centre market reached $7.16 billion in 2024 and is projected to grow to $14.30 billion by 2030 at a 12.22% compound annual growth rate. Colocation inventory has nearly tripled from 384 MW in 2019 to 1,105 MW in 2025 (Sass et al. 2026).

Brazil remains the dominant market, benefiting from its large population, mature digital economy, extensive fibre connectivity, and growing renewable energy capacity. Approximately 75% of Brazil's energy comes from clean sources, making the country especially attractive to hyperscalers that require massive-scale operations. Programs such as Redata (Special Taxation Regime for Data Centres) and PNDC (National Data Centre Development Program) make Brazil more competitive by offering tax incentives and encouraging new project implementation (Perez 2025; Zaballos et al. 2025).

Mexico has become increasingly attractive due to nearshoring trends and proximity to the United States. In January 2025, AWS announced a $5 billion investment in Queretaro state. Brazilian company ODATA plans to invest $3 billion in colocation and connectivity services, while CloudHQ announced a $4.8 billion investment to develop a regional data centre platform in Queretaro. The year ended with UK-based Actis announcing a $1.5 billion investment plan for data centre development across Latin America.

Chile has emerged as a strategic market for hyperscale development due to its stable regulatory environment, strong renewable energy resources, and extensive submarine cable connectivity. AWS announced a $4 billion investment to establish cloud infrastructure and its first data centre region in Chile (Villasana-Ramos and Vargas-González, n.d.).

7. Policy Frameworks and Regulatory Challenges

7.1 The Four Cs of AI Readiness

The World Bank has identified four critical elements—the "Four Cs"—that countries must invest in to fully realize AI's potential: Connectivity (affordable, reliable internet access), Compute (computing resources and data centres), Context (AI that reflects local languages, data, and realities), and Competency (digital literacy and advanced skills). Many countries lack these elements, and as a result, promising AI pilots rarely scale responsibly.

The data centre dimension of "Compute" is particularly challenging. Persistent gaps in infrastructure, talent, and data, coupled with weak data protection, cybersecurity, and regulation, amplify risks of privacy breaches, bias, and misuse—threatening to widen the digital divide rather than close it.

7.2 Data Sovereignty and Localization

Data sovereignty has emerged as a defining policy issue for emerging markets. As digital financial services expand and AI systems process increasingly sensitive data, governments are asserting control over data generated within their borders.

Indonesia's commitment to developing domestic data centres to ensure strategic data remains within the country reflects a broader trend. The tension between calls for technology-neutral frameworks and national data-residency requirements limits deployment, especially in emerging markets facing compute constraints. Forty-five African countries have now enacted data protection laws, with the convergence of data protection and AI governance emerging as a defining factor for banks, fintechs, and payment service providers expanding across emerging markets.

The challenge lies in balancing sovereignty with the benefits of cross-border data flows and global cloud services. As one analysis notes, "the intersection of national regulation and AI-driven data network effects has emerged as the definitive new frontier for African fintechs".

7.3 Regulatory Innovation and Sandboxes

Emerging markets are experimenting with regulatory approaches to foster fintech and AI innovation while managing risks. Egypt has introduced AI-related provisions in the financial sector through its 2022 Fintech Law, which regulates the use of AI in finance. The law promotes AI-driven innovations such as credit scoring, fraud detection, and personalized financial services, aiming to strengthen the digital economy and support regulatory compliance.

Kenya released its first National Artificial Intelligence Strategy (2025–2030), which envisages expanded digital infrastructure, data centres, and cloud resources, as well as national research hubs. The strategy promotes financial inclusion and leverages AI in banking and fintech, though it does not include provisions specific to AI in finance. South Africa advanced a national AI framework and strengthened cybersecurity obligations.

Regulatory sandboxes have become a popular tool. Vietnam is implementing a regulatory sandbox for fintech, electronic Know Your Customer (eKYC), and legal recognition of digital assets to foster innovation. The Caribbean Digital Transformation Project includes a comparative gap analysis for AI, fintech, cloud computing, and data sovereignty.

7.4 The Role of International Institutions

International financial institutions are playing an increasingly active role in supporting data centre development in emerging markets. The World Bank Group uses the comparative advantages of its three institutions—IBRD, IFC, and MIGA—to develop reliable, affordable data infrastructure.

IFC catalyses market development through debt and equity for data centre operators, capital market transactions, and advisory services to crowd in investment. IBRD enables governments to become strong demand anchors, supporting policy and regulatory reforms while providing concessional financing for commercial data centres and cloud services. MIGA mitigates risk via political risk insurance and guarantees.

Recent IFC investments include a $371 million package for Sify Infinit Spaces in India to promote AI-ready, energy-efficient data centre infrastructure, and $100 million in financing for Raxio Group to accelerate data centre expansion across sub-Saharan Africa, powering key technologies including AI, cloud computing, and digital financial services.

The OECD has also been active, with the G20/OECD High-Level Principles on Financial Consumer Protection and the OECD-African Union AI Dialogue promoting best practices, consumer protection, cross-border regulatory alignment, and risk mitigation.

8. Sustainable Development: The Green Data Centre Imperative

8.1 Energy Intensity and Climate Impact

Data centres are notoriously energy-intensive. As emerging markets scale up their digital infrastructure, the environmental implications are significant. The International Energy Agency estimates that data centres and data transmission networks account for 1-1.5% of global electricity use, a figure that is rising with AI adoption. For emerging markets, this presents a dual challenge: meeting growing compute demand while advancing sustainable development goals.

8.2 Renewable Energy as a Competitive Advantage

Some emerging markets are turning their renewable energy endowments into competitive advantages for data centre development. Brazil, where approximately 75% of energy comes from clean sources, has attracted hyperscalers seeking stable, predictable, and efficient operations. Markets with a high share of renewable sources—such as Brazil, Chile, and Colombia—tend to attract larger projects.

Botswana is developing a 250MW solar PV project with battery energy storage to power a new data centre campus, combining renewable energy with natural gas projects to create a unique value proposition for global technology companies seeking to expand into Africa. Paraguay is hosting a $9 million off-grid data centre powered entirely by solar and batteries to deliver high-performance computing services for international clients, with a focus on AI (Thirawat 2022).

Tajikistan is building its first hydropower green data centre in the Darvoz district, powered entirely by renewable hydroelectricity, positioning the country as a regional data storage and processing hub in Central Asia (Lee et al. 2025). Regional momentum for renewable-powered data centres is also emerging in Brazil, Chile, and Uruguay, where developers are pairing solar projects with long-term supply contracts.

8.3 ESG Integration in Fintech

The integration of environmental, social, and governance (ESG) principles into AI-driven fintech is gaining traction. In Nigeria, Stanbic IBTC Holdings has unveiled AI-powered climate risk assessment tools designed by Nigerian fintech companies. Financial professionals are being exposed to AI-driven ESG tools that can reshape investment decisions. Research indicates that AI-enabled tools support green financing, improve ESG disclosure, and facilitate consumer engagement with sustainable products.

The FinTech AI and ESG Innovation Group at Kazakhstan-British Technical University focuses on integrating AI technologies and sustainable finance principles into digital wealth management solutions. These developments suggest that the intersection of AI, fintech, and sustainability is not merely aspirational but increasingly operational.

8.4 Trade-offs and Development Risks

The expansion of AI-ready data centre infrastructure also creates important trade-offs. Greater compute availability can support fintech innovation and digital inclusion, but it simultaneously increases pressure on electricity systems and, depending on facility design and location, can intensify wider environmental resource demands. The sustainability benefits identified in renewable-rich markets therefore depend on whether new capacity is paired with credible efficiency standards, clean-energy procurement, and locally appropriate environmental safeguards.

Infrastructure investment should also not be treated as an automatic proxy for domestic AI or fintech capability. Where advanced hardware, cloud services, technical expertise, or platform ownership remain concentrated in foreign providers, new data centre capacity may coexist with continuing technological dependency. Similarly, strict data-localization requirements may strengthen sovereignty while increasing costs or limiting access to cross-border cloud and AI services. The developmental value of data centre investment therefore depends on complementary policies for skills, local innovation ecosystems, regulatory capacity, competition, and effective links between infrastructure deployment and domestic firms.

9. Policy Recommendations

9.1 Building the Compute Foundation

Emerging market policymakers should prioritize data centre development as a strategic national infrastructure priority. This requires:

- **Public-private partnerships**: Governments can serve as anchor tenants, signalling credible market demand that de-risks and catalyses private investment. Long-term service purchase commitments provide predictable demand and reduce entry risk for investors.
- **Investment incentives**: Tax incentives, such as Brazil's Redata program, can make markets more competitive. Uzbekistan's special economic zone for AI and data centre projects offers exemptions from value-added tax, profit, property, and land taxes until 2040.
- **Regulatory streamlining**: Reducing bureaucratic barriers to data centre construction and operation can accelerate development. Saudi Arabia's proposed Global AI Hub Law introduces three types of data hubs—Private, Extended, and Virtual Hubs—allowing foreign entities to host data under their own legal jurisdictions.

9.2 Fostering AI-Fintech Innovation

Regulatory frameworks should balance innovation with consumer protection:

- **Regulatory sandboxes**: These allow fintech innovations to be tested in controlled environments, as seen in Vietnam and the Caribbean.
- **Principle-based regulation**: Technology-neutral, principle-based frameworks can accommodate rapid technological change while maintaining consumer protections.
- **Cross-border coordination**: Given the transnational nature of digital finance, regulatory harmonization is essential. The OECD-African Union AI Dialogue and similar initiatives can promote best practices and cross-border alignment.

9.3 Advancing Sustainability

The environmental footprint of digital infrastructure requires deliberate policy attention:

- **Renewable energy integration**: Governments should facilitate direct power purchase agreements between data centres and renewable energy providers.
- **Energy efficiency standards**: Building codes and operational standards for data centres can drive efficiency improvements.
- **Circular economy approaches**: Policies that encourage equipment reuse, recycling, and responsible disposal can reduce the environmental impact of data centre operations.

9.4 Addressing the Digital Divide

The concentration of data centre capacity in high-income countries risks entrenching global digital inequalities. Policymakers and international institutions should:

- **Targeted investment**: Development finance institutions should prioritize data centre investments in underserved regions. IFC's catalytic role in Malaysia and Africa provides a model.
- **Capacity building**: Investments in digital skills and AI literacy are essential complements to infrastructure development. Less than 5% of the population in low-income countries have basic digital skills, compared with 66% in high-income countries.
- **"Small AI" approaches**: Affordable, accessible AI applications that run on everyday devices can deliver impact without requiring major underlying infrastructure. These ground-up innovations can allow countries to leapfrog traditional barriers.

10. CONCLUSION

The convergence of AI-driven fintech and data centre development in emerging markets represents one of the most consequential economic transformations of the twenty-first century. The stakes are high: the countries that successfully build the digital infrastructure, regulatory frameworks, and human capital necessary for AI-powered financial innovation will be positioned to leapfrog traditional development pathways and participate fully in the digital economy.

Yet the risks of exclusion are equally significant. The concentration of data centre capacity, AI innovation, and venture capital in high-income countries threatens to widen rather than narrow the digital divide. Emerging markets that fail to attract data centre investment, develop AI capabilities, and create enabling regulatory environments risk being relegated to the status of digital consumers rather than digital creators.

The evidence from Africa, Southeast Asia, and Latin America suggests that a combination of factors is driving success: strategic government policy, private sector investment, international financial institution support, and sustainable energy solutions. The NVIDIA-Cassava partnership in Africa, Malaysia's emergence as a regional digital hub, and Latin America's renewable energy advantage all illustrate different pathways to digital infrastructure development.

For policymakers, the imperative is clear: data centres are not merely technical infrastructure but strategic assets that enable financial inclusion, economic growth, and sustainable development. The policy frameworks that govern their development—from investment incentives and data sovereignty regulations to renewable energy standards and consumer protection rules—will shape the trajectory of AI-driven fintech in emerging markets for decades to come.

The challenge is not simply to build more data centres, but to build them in ways that are sustainable, inclusive, and aligned with national development priorities. This requires a holistic approach that integrates digital infrastructure, financial innovation, environmental sustainability, and human capacity building. It requires international cooperation that respects national sovereignty while enabling cross-border digital commerce. And it requires a vision of development that sees AI and fintech not as ends in themselves but as tools for achieving broader social and economic goals.

The original contribution of this study is threefold. First, it positions the compute divide as a distinct analytical lens through which digital inequality in emerging markets can be understood beyond connectivity alone. Second, it provides a comparative cross-regional reading of AI-fintech-data centre ecosystems across Africa, Southeast Asia, and Latin America. Third, it integrates infrastructure, regulatory, and sustainability dimensions within a single analytical framework, showing that compute capacity creates developmental value only when it is accompanied by enabling institutions, appropriate governance, and sustainable energy strategies.

These conclusions should be interpreted in light of the study's limitations. The analysis relies on secondary evidence whose availability, definitions, and comparability vary across countries and regions, while several investment and capacity figures refer to announced or projected developments rather than completed deployments. The rapid evolution of AI technologies, data centre markets, and regulatory frameworks also means that specific figures and policy conditions may change quickly. Accordingly, the framework is intended as a comparative analytical synthesis rather than a causal test of the relationship between compute capacity and fintech outcomes.

Future research should test these relationships at greater empirical depth. Priority directions include country-level case studies that distinguish announced investment from operational capacity; quantitative analysis of the relationship between data centre capacity, AI innovation, and fintech adoption; longitudinal assessment of regulatory and data-sovereignty reforms; and comparative evaluation of the energy, water, and broader environmental impacts associated with different data centre development pathways. Such work would help establish when infrastructure expansion generates local innovation and inclusion, and when it primarily reinforces external technological dependence.

As the World Bank has observed, AI is gaining momentum in developing countries and driving opportunities for growth, but progress remains uneven, with gaps in access and capacity that demand urgent attention. The time for that attention is now. The decisions made by policymakers, investors, and international institutions in the coming years will determine whether emerging markets become active participants in the AI-driven digital economy or remain on its periphery. The opportunity—and the responsibility—is immense.

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AUTHORS' CONTRIBUTIONS (CREDIT)

Conceptualization, RAC; methodology, SY, RAC, and RDO; software, KK; validation, RDO; formal analysis, KK and RAC; investigation, KK and RAC; resources, SY and RDO; writing—original draft preparation, KK and RAC; writing—review and editing, SY, RAC, and RDO; supervision, SY, RAC, and RDO; project administration, SY, RAC, and RDO; visualization, RAC. All authors have read and agreed to the published version of the manuscript.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data supporting the findings of this study are available upon reasonable request.

ETHICS STATEMENT

This study did not involve human participants, animals, or the collection of personal data. It was based exclusively on the analysis and synthesis of secondary sources, including academic literature, institutional and policy reports, industry data, and government publications. Therefore, ethical approval was not required.

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