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TRANSFORMING COMMERCE IN DEVELOPING ECONOMIES THROUGH E-BUSINESS ADOPTION AND SUSTAINABLE DIGITAL INTEGRATION

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Abstract:

The rapid expansion of e-business has reshaped global commerce and has had especially significant effects within developing economies. This paper examines the evolving e-business landscape across emerging markets and explores the balance between expanding opportunities and persistent structural challenges. Digital platforms, mobile banking, and cloud-based services are among the main drivers enabling firms to broaden market access and strengthen competitiveness. However, adoption is frequently constrained by weak technological infrastructure, limited organizational readiness, regulatory uncertainty, cybersecurity vulnerabilities, and inefficiencies in logistics systems. Differences in digital access, managerial skills, and levels of trust strongly influence the ability of businesses and individuals to participate in digital markets. In addition, policy environments and regulatory frameworks can either support or restrict the advancement of e-business activities. Issues of inclusivity, such as gender-related gaps and inequalities between rural and urban regions, further highlight the uneven distribution of benefits from digital transformation. Although emerging technologies such as artificial intelligence, blockchain, and the Internet of Things have the potential to enhance efficiency and transparency, their implementation remains limited across many developing regions. Building resilient and inclusive e-business ecosystems therefore requires coordinated strategies that include investment in infrastructure, development of digital capabilities, establishment of trust and security mechanisms, regulatory improvement, and the strengthening of logistics networks. By addressing these interconnected challenges, developing economies can better position e-business as a driver of sustainable growth, global integration, and equitable development.

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Introduction

The emergence of e business has fundamentally transformed global markets and continues to redefine the way economy's function. In developing economies, this transformation is even more pronounced because of the dual challenge of rapid technological diffusion and persistent structural limitations. The e business environment encompasses a wide range of activities, including online retail, digital payments, electronic supply chain management, cloud-based platforms, and digitally mediated services, all of which are reshaping economic landscapes across Asia, Africa, Latin America, and the Middle East. The acceleration of digital adoption in these regions reflects both global pressures and local opportunities, but it also highlights gaps in infrastructure, regulation, trust, and human capital. Understanding the dynamics of the e business environment in developing economies is therefore essential for scholars, policymakers, and practitioners who aim to build sustainable digital ecosystems (Moghaddam & Nof, 2022).

Digitalization has become a global driver of economic growth. Research indicates that the integration of digital technologies improves productivity, reduces transaction costs, and enables firms to access international markets more effectively (McKinnon, 2018). In developing economies, the diffusion of mobile phones, internet penetration, and cloud computing has allowed small and medium enterprises to compete in markets that were once inaccessible to them (Rahman, 2022). This has led to rapid expansion of e commerce, digital platforms, and mobile banking services, making digital trade one of the fastest growing sectors in these countries (Chen & Wu, 2021). Governments in emerging markets have increasingly recognized the transformative role of e business and have integrated digital economy strategies into their national development plans (Loo et al., 2023).

The COVID 19 pandemic further accelerated the adoption of e business across the developing world. Lockdowns and restrictions pushed firms and consumers to shift toward online platforms, with e commerce sales rising dramatically in countries with sufficient infrastructure (Bilal et al., 2024). Even in economies with limited connectivity, mobile applications and social media commerce became lifelines for small enterprises (Setiadi & Muharam, 2024). The pandemic demonstrated not only the resilience of e business but also the vulnerability of firms without digital capabilities. Post pandemic recovery strategies have therefore emphasized building stronger digital ecosystems and supporting small enterprises in adopting e business tools (Ammeran & Latip, 2024).

A critical element of the e business environment is infrastructure. Studies show that reliable broadband, affordable internet, and electricity supply are prerequisites for effective digital participation (Mia et al., 2024). However, many developing economies still experience significant disparities in connectivity between urban and rural areas, limiting equal access to digital opportunities (Liang et al., 2024). Logistics infrastructure also plays a major role in enabling e commerce. Without efficient transportation and delivery systems, businesses cannot

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fulfill online orders effectively, which reduces consumer trust and satisfaction (Yuwono et al., 2024). Investments in smart logistics and digital supply chain platforms are therefore gaining importance in emerging markets (Díaz-Arancibia et al., 2024).

Policy and regulation also shape the e business landscape. Clear legal frameworks for digital payments, taxation, consumer protection, and cross border trade encourage businesses to engage in e commerce with greater confidence (Kouty, 2024). Countries with strong digital economy policies and supportive regulations have been able to attract investment in technology infrastructure and platforms (Mirzaye & Mohiuddin, 2025). Conversely, ambiguous regulations discourage adoption and limit innovation. Data protection and privacy laws are especially critical as consumers demand greater security in online transactions (Aghunaimi et al., 2025). Developing economies are therefore under pressure to harmonize regulatory frameworks with international standards while ensuring that policies reflect local needs (UNCTAD, 2024).

Another key dimension is organizational readiness. The literature suggests that firm level capabilities such as managerial skills, digital literacy, and access to financing significantly influence e business adoption (Faiz, 2024). Micro and small firms often lack the knowledge and resources to implement digital solutions, even when infrastructure and platforms are available (Sudirman, 2025). Training programs, public private partnerships, and capacity building initiatives have been proposed as strategies to improve readiness and strengthen competitiveness in global value chains (Ali et al., 2025).

Trust and security represent persistent challenges in the e business environment. Concerns about fraud, identity theft, weak cybersecurity systems, and unreliable payment gateways discourage consumers and businesses from fully engaging in digital transactions (Song, 2023). Research shows that secure digital identities, interoperable payment platforms, and effective dispute resolution mechanisms build confidence and improve adoption rates (Widjaja, 2025). Many developing economies have begun implementing national digital identity systems and promoting cashless societies, but gaps remain in enforcement and consumer awareness (Krishnan, 2025).

Inclusivity is another important issue. Studies emphasize that digital divides exist not only between countries but also within them, with rural populations, women, and low-income groups facing greater barriers to participation (The Guardian, 2025). The cost of mobile data, limited access to devices, and lower digital literacy contribute to exclusion from the benefits of e business (UNCTAD, 2023). Gender gaps in digital participation persist across regions, as women entrepreneurs often have less access to finance and networks necessary for online commerce (Bilal et al., 2024). Addressing these inequalities is crucial for ensuring that digital transformation supports inclusive development rather than reinforcing existing disparities (Yuwono et al., 2024).

Global competition and external market pressures also drive adoption of e business. Firms in developing economies face increasing pressure from international buyers and supply chains to adopt digital tools for transparency, efficiency, and compliance (Technology Adoption Study, 2025). Businesses that fail to adopt risk losing competitiveness in regional and global markets (Ammeran & Latip, 2024). Conversely, firms that embrace digitalization improve customer

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engagement, reduce operational costs, and expand into cross border trade (Munyoka & Manzira, 2023).

Emerging technologies such as artificial intelligence, blockchain, and the Internet of Things are beginning to influence e business models in developing economies. Artificial intelligence supports predictive analytics and personalized marketing, while blockchain enhances transparency in supply chains and financial transactions (Mirzaye & Mohiuddin, 2025). Internet of Things applications optimize logistics and inventory management, improving efficiency for firms of different sizes (Mia et al., 2024). Although these technologies are still at early stages of adoption in developing contexts, they hold promise for creating more resilient and competitive e business environments (Krishnan, 2025).

Sustainability is also increasingly relevant. Scholars highlight that digital transformation must be aligned with environmental objectives, given the high energy demands of data centers and the growing problem of electronic waste (Jula et al., 2024). Developing economies that are rapidly building digital infrastructure face a trade-off between economic growth and environmental sustainability (IEA, 2025). Integrating renewable energy sources, promoting circular economy practices for devices, and implementing policies to reduce the carbon footprint of digital technologies are essential for long term sustainability (UNCTAD, 2024).

Overall, the e business environment in developing economies is characterized by both opportunities and challenges. Digital platforms, mobile payments, and cloud services are enabling firms to innovate, expand, and compete globally. At the same time, structural barriers such as infrastructure gaps, limited organizational readiness, regulatory weaknesses, and digital divides continue to constrain progress. The literature consistently suggests that building a supportive ecosystem requires simultaneous improvements in infrastructure, policy, trust, and inclusivity (Ammeran & Latip, 2024). With coordinated strategies, developing economies can leverage digital transformation to achieve more sustainable and equitable growth.

Literature Review

The growth of e business in developing economies has stimulated an extensive body of research focusing on infrastructure, organizational readiness, trust, regulation, and logistics. These themes represent the central building blocks of the e business environment and are widely cited as both enablers and barriers to digital commerce. While each strand of literature addresses a distinct dimension, together they provide a comprehensive understanding of the systemic challenges and opportunities for firms and consumers in developing regions. The following review organizes the key findings into five interrelated themes to establish a coherent view of the e business environment in developing economies.

Infrastructure and Connectivity

Infrastructure remains one of the most decisive factors in shaping the readiness of developing economies to engage with e business. Several studies highlight that reliable internet access, affordable broadband, and consistent electricity supply are foundational for the growth of digital commerce (Kouladoum, 2023; World Bank, 2024). Research in Sub Saharan Africa confirms that increases in fixed broadband subscriptions and mobile internet penetration strongly correlate with higher participation in e business activities (Kouladoum, 2023). Similarly, investments in digital infrastructure, such as data centers and high-speed networks, have been found to significantly improve the competitiveness of local firms (IFSWF, 2024).

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Beyond physical connectivity, device affordability and smartphone penetration also shape adoption. In many low-income contexts, mobile phones are the dominant gateway to digital commerce (World Bank Findex, 2025). However, disparities between urban and rural areas remain acute, with rural households often facing slower internet speeds and higher costs (ITU, 2025). Studies in Southeast Asia further demonstrate that infrastructural inequality can exacerbate the digital divide and hinder inclusive participation in online markets (Ammeran & Latip, 2024).

Infrastructure also includes soft components such as digital payment systems. Research shows that in countries with more developed mobile money platforms, adoption of e business is faster and more widespread (Liang et al., 2024). Conversely, weak payment infrastructure limits consumer confidence and business growth. Overall, the literature consistently identifies infrastructure as both a critical enabler and a persistent barrier, reinforcing its centrality in the e business environment of developing economies.

Organizational Readiness and Firm Level Factors

The literature on organizational readiness emphasizes that internal capabilities of firms determine their ability to participate in and benefit from e business. Small and medium enterprises (SMEs), which dominate the economic structure of developing economies, face unique challenges in adopting digital technologies (Díaz Arancibia et al., 2024). Studies have shown that managerial digital literacy, workforce skills, and financial resources are major predictors of successful adoption (Ammeran & Latip, 2024).

Organizational culture and leadership support are repeatedly highlighted as influencing digital transformation (Muridzi, 2024). Research in Malaysia shows that SMEs with strong leadership commitment to digital innovation outperform peers that adopt digital tools reactively (Ammeran & Latip, 2024). In Latin America, perceived usefulness of e commerce platforms and competitive pressure were also key factors shaping organizational adoption (Dakduk et al., 2023).

Access to finance is another determinant of readiness. Limited capital often restricts SMEs from investing in new technologies or digital training programs (Díaz Arancibia et al., 2024). Firms that receive targeted support, either from government grants or digitalization initiatives, report higher rates of successful adoption (Indonesia study, 2023). Thus, the evidence highlights the importance of not only external infrastructure but also firm specific characteristics in enabling sustainable e business growth.

Trust, Security, and Perceived Risk

Trust and security concerns are among the most researched topics in e business adoption literature. Consumers in developing economies often hesitate to engage in online transactions due to fears of fraud, unreliable vendors, and lack of product authenticity (Islam & Ahsan, 2024). Studies in Pakistan demonstrate that e trust significantly influences e satisfaction and loyalty, suggesting that businesses must invest in secure platforms and transparent practices to retain customers (Munyoka & Manzira, 2023).

Payment security is particularly salient. Research shows that consumers are more likely to purchase from platforms that provide secure payment gateways and post purchase support (Islam & Ahsan, 2024). The adoption of mobile wallets and digital banking has partially

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addressed these issues, but scepticism remains in contexts where regulatory protections are weak (Liang et al., 2024).

Trust also extends to logistics. Customers expect timely delivery and reliable return policies, especially in food delivery and fast-moving consumer goods sectors (Liang et al., 2024). Failures in these areas can quickly erode consumer confidence and reduce adoption rates. The literature clearly indicates that without building trust and reducing perceived risks, infrastructural improvements and organizational readiness alone are insufficient to drive e business growth.

Regulation, Policy, and Government Support

Policy frameworks play a decisive role in shaping the e business environment. Evidence from Indonesia shows that supportive government policies, including incentives, training, and marketplace facilitation, directly enhance SME performance in digital commerce (Liang et al., 2024). At the same time, weak or inconsistent regulatory enforcement remains a barrier in many countries (Muridzi, 2024).

Consumer protection, taxation, and data privacy laws are central to building trust and ensuring fair competition (Liang et al., 2024). However, in many developing economies, regulatory frameworks are either underdeveloped or poorly implemented, limiting their effectiveness (Islam & Ahsan, 2024). International trade policies also affect cross border e commerce, with inconsistent tariffs and digital service taxes creating uncertainty for businesses (Mirzaye & Mohiuddin, 2025).

Government initiatives for digital financial inclusion and national digital strategies, such as those highlighted in the World Bank's regional reports, have been shown to reduce inequality and improve access to online markets (World Bank, 2024; Muridzi, 2024). Nevertheless, the effectiveness of these initiatives depends on consistent enforcement and alignment with private sector needs. Overall, the literature underscores that coherent regulatory frameworks and sustained government support are essential to creating a conducive e business environment.

Logistics, Supply Chain, and Last Mile Delivery

The logistics and supply chain literature emphasizes that physical delivery networks are critical complements to digital platforms. Even with reliable infrastructure and supportive policies, weak logistics systems undermine customer satisfaction and limit e business adoption (Setiadi & Muharam, 2024). Research in Africa highlights those rural areas often suffer from poor road networks and unreliable transportation, which delay deliveries and discourage online purchases (Liang et al., 2024).

Studies on logistics innovation show that integrating digital solutions such as real time tracking and predictive analytics can improve efficiency, but these technologies are not widely adopted by SMEs due to cost and skill barriers (Muridzi, 2024). Last mile delivery remains a persistent challenge, with cost and geography creating significant obstacles (Setiadi & Muharam, 2024). In South Asia and Southeast Asia, congestion in urban centers adds further complexity, making logistics both costly and time consuming (Ammeran & Latip, 2024).

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Environmental sustainability is also emerging in logistics discussions. Growing concerns about carbon emissions from delivery fleets and packaging waste are prompting interest in green logistics solutions (IEA, 2025; Mirzaye & Mohiuddin, 2025). While still nascent in developing economies, this trend indicates that logistics considerations are not only operational but also linked to broader sustainability debates.

Issues in the E-Business Environment in Developing Economies

While the literature has highlighted the opportunities of digitalization and e-business in developing economies, multiple issues continue to impede the realization of its full potential. These issues are deeply interconnected with infrastructural weaknesses, organizational limitations, trust and security concerns, regulatory shortcomings, and logistical barriers. Addressing these challenges is crucial for ensuring that e-business initiatives contribute effectively to sustainable growth, competitiveness, and inclusion. This section outlines the key issues that characterize the e-business environment in developing economies, structured according to five thematic areas that align with the broader literature review.

Infrastructure and Connectivity Challenges

One of the most critical issues in developing economies is inadequate infrastructure, particularly related to internet access, electricity supply, and broadband penetration. Despite notable improvements in digital connectivity, large disparities persist between urban and rural areas, limiting equitable participation in e-business (Asongu & Odhiambo, 2022). Insufficient broadband coverage and unstable internet services hinder firms from conducting seamless online transactions (Chaudhry et al., 2023). Moreover, unreliable electricity supply further constrains the consistency of e-business operations, especially in small enterprises that cannot afford backup power solutions (Nguyen et al., 2022).

High costs of connectivity also remain a significant barrier. For many micro and small enterprises, the expense of subscribing to high-speed internet packages is prohibitive, resulting in dependence on slower and less reliable services (Kumar et al., 2023). This digital divide exacerbates inequalities in digital adoption and prevents smaller firms from competing with larger players that can afford advanced infrastructure (Rana et al., 2024). Additionally, weak mobile payment systems and limited interoperability between platforms in some regions further restrict e-business activities (Boateng et al., 2022).

Another dimension is the lack of reliable data centers and cloud infrastructure within developing economies. Firms often rely on servers located in developed economies, which creates latency and raises concerns about data sovereignty and cybersecurity (Mahmood et al., 2023). This reliance also escalates costs for businesses that need secure storage and processing facilities. Without sufficient domestic digital infrastructure, local firms remain at a disadvantage compared to multinational corporations with access to advanced global systems (Alkhowaiter, 2022).

Organizational and Managerial Barriers

E-business adoption is not only a technological issue but also an organizational challenge. Many firms in developing economies lack sufficient managerial capabilities to integrate e-business solutions effectively (Hussein et al., 2023). Limited digital literacy among owners and managers reduces their ability to make informed decisions regarding investments in online platforms and digital marketing (Chatterjee et al., 2023). Moreover, resistance to change and

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AIJBES
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DOI 10.35631/AIJBES.726023

preference for traditional business practices slow down the pace of e-business integration (Mendoza et al., 2024).

Financial constraints compound these issues. Access to capital for digital transformation projects remains limited, especially for small and medium-sized enterprises (SMEs) (Zafar & Mustafa, 2023). Banks and financial institutions in developing economies often perceive investments in e-business as risky due to uncertainties in returns (Adegbite et al., 2024). Consequently, SMEs face difficulties in acquiring the necessary funds for digital platforms, advanced software, and skilled workforce.

Human resource challenges also play a critical role. The shortage of employees with relevant digital skills prevents firms from fully leveraging e-business opportunities (Rahman et al., 2022). Even when training programs are available, they are often costly and inaccessible to smaller firms (Ibrahim et al., 2023). As a result, businesses struggle to design user-friendly websites, implement secure payment systems, or analyze customer data effectively. The absence of digital expertise within organizations perpetuates reliance on outdated models that cannot compete in increasingly digital markets (Almeida et al., 2023).

Trust, Security, and Risk Concerns

Trust remains a fundamental issue in e-business environments across developing economies. Consumers are often sceptical about the reliability of online platforms, fearing fraudulent practices, non-delivery of goods, or poor-quality products (Liu et al., 2022). Low consumer confidence in online transactions slows down the growth of e-commerce markets, even when infrastructure is available (Kshetri, 2023).

Cybersecurity vulnerabilities add another layer of complexity. Many businesses lack the resources to implement robust cybersecurity measures, making them attractive targets for cybercriminals (Mansoor et al., 2024). Incidents of data breaches and online fraud reduce consumer trust and discourage firms from investing further in digital platforms (Awais et al., 2022). Inadequate regulatory frameworks for cybersecurity in several developing economies exacerbate the situation, leaving businesses without clear guidelines or protections (Alqahtani & Kavakli, 2022).

Concerns over data privacy also hinder adoption. Consumers are increasingly aware of how their personal data might be misused, and the absence of strong data protection regulations undermines trust in online systems (Mwangi et al., 2023). Without confidence in secure payment systems and data protection mechanisms, customers remain hesitant to engage in e-business transactions (Wang et al., 2023).

In addition, cultural attitudes toward trust and risk significantly influence online behavior. In some contexts, a strong preference for face-to-face transactions persists, as personal trust networks are perceived to be more reliable than impersonal online systems (Boadi et al., 2022). This reliance on traditional trust mechanisms restricts the growth of e-business despite increasing digital access.

Policy, Regulatory, and Institutional Weaknesses

The regulatory environment in developing economies often lags behind the rapid evolution of digital technologies. Outdated policies and fragmented regulations create uncertainty for

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

businesses and discourage investment in e-business (Munyoka & Manzira, 2023). In many cases, legal frameworks for electronic contracts, digital signatures, and consumer protection are either missing or poorly enforced (Basyal & Seo, 2022).

Taxation policies also present challenges. E-businesses are sometimes subject to unclear or inconsistent tax regulations, leading to disputes and compliance burdens (Afolayan et al., 2023). Moreover, the lack of harmonization across regional markets creates barriers for cross-border e-commerce, limiting opportunities for scale and efficiency (Odhiambo & Kamau, 2024).

Institutional weaknesses further hinder progress. Corruption, bureaucratic inefficiencies, and limited government support reduce the effectiveness of digital policies (Alhassan et al., 2023). Even when governments launch digital economy strategies, implementation gaps remain due to inadequate funding and weak institutional capacity (Tetteh et al., 2024).

Another pressing issue is the lack of coordination between public and private stakeholders. While governments may establish e-business initiatives, the absence of active collaboration with industry actors results in misaligned priorities and underutilized resources (Molla & Heeks, 2022). Without effective governance structures, policy implementation often fails to meet the needs of businesses and consumers alike.

Logistics, Supply Chain, and Market Access Difficulties

E-business success relies heavily on efficient logistics and supply chains, yet these remain underdeveloped in many developing economies. Poor transportation infrastructure, including inadequate road networks and unreliable delivery systems, restricts the efficiency of last-mile delivery (Wang et al., 2024). High logistics costs often make online products less competitive compared to traditional retail options (Mousavi et al., 2022).

The lack of reliable postal systems and professional courier services is another critical issue. In some regions, inconsistent addressing systems make it difficult for logistics providers to guarantee timely and accurate deliveries (Rahman & Theingi, 2023). This undermines consumer confidence and discourages repeat purchases.

Supply chain inefficiencies also hinder businesses from scaling their operations. Limited access to reliable suppliers and the absence of integrated digital supply chain systems create bottlenecks for e-business firms (Koh et al., 2023). SMEs, in particular, face challenges in managing inventories, tracking shipments, and coordinating with suppliers across fragmented markets (Nguyen & Tran, 2024).

Cross-border e-commerce faces additional barriers such as customs delays, high tariffs, and inconsistent trade policies (Khan et al., 2022). These factors reduce the competitiveness of developing economy firms in global digital markets (Abubakar et al., 2023). Without significant improvements in logistics and trade facilitation, the growth of e-business in these regions will remain limited.

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AIJBES
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Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Discussion

The challenges identified in the preceding section underscore the complex environment in which e-business evolves in developing economies. While the issues point to barriers such as infrastructural deficits, organizational limitations, trust and security concerns, policy weaknesses, and logistical inefficiencies, the discussion must critically interpret these dynamics in light of broader theories and empirical evidence. This section elaborates on how these issues intersect, their implications for businesses and consumers, and the extent to which they align with global debates on digital transformation. By synthesizing evidence across contexts, the discussion highlights not only the persistence of barriers but also the nuanced ways in which these barriers shape the trajectory of e-business in developing economies.

Infrastructure and Connectivity in Context

The availability of digital infrastructure is not merely a technical requirement but a determinant of competitive advantage in the digital economy. Developing economies consistently demonstrate uneven distribution of internet connectivity, which creates a structural digital divide (Asongu & Odhiambo, 2022). The persistence of rural-urban gaps in broadband penetration reflects deep-rooted inequalities that hinder inclusive digital participation (Rana et al., 2024). Beyond connectivity, electricity instability disrupts both consumer engagement and firm operations, indicating that digital ecosystems cannot flourish without complementary physical infrastructure (Nguyen et al., 2022).

The adoption of e business in developing economies becomes clearer when interpreted through established theoretical perspectives. The Diffusion of Innovations theory explains why SMEs adopt digital technologies at different rates because adoption depends on perceived complexity, compatibility, and potential advantages. Institutional Theory highlights how weak regulatory systems and inconsistent enforcement limit confidence in digital platforms and slow the development of digital ecosystems. The Resource Based View also clarifies how limited managerial capability, low digital literacy, and insufficient technological resources restrict SMEs from using e business strategically. Integrating these theories strengthens the analytical interpretation of barriers and explains why digital adoption remains uneven across developing regions.

High costs of connectivity further entrench exclusion. While some urban firms benefit from relatively affordable access, smaller firms and rural entrepreneurs remain priced out of advanced services (Kumar et al., 2023). This pattern reinforces the dual economy framework where advanced enterprises scale digitally, whereas microenterprises remain confined to traditional markets (Boateng et al., 2022). Moreover, the lack of local cloud infrastructure escalates costs and raises sovereignty issues, limiting firms' confidence in storing sensitive business data (Mahmood et al., 2023).

The barriers identified in the e business environment interact closely with one another and do not operate independently. Weak digital infrastructure reduces the reliability of online transactions which increases concerns about fraud and lowers consumer trust. Limited regulatory enforcement also contributes to higher cybersecurity risks which further discourages firms and consumers from participating in digital platforms (Islam and Ahsan 2024, Song 2023). Logistical limitations reinforce these issues because unreliable delivery systems and inconsistent supply chain performance reduce the perceived value of online purchasing. When

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
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Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

these challenges intensify each other, the overall digital ecosystem becomes less effective which explains why coordinated interventions are required.

These findings highlight a paradox. Although developing economies have witnessed a rapid expansion in mobile connectivity, this has not translated into equal e-business opportunities. Instead, connectivity remains stratified, reproducing existing socioeconomic inequalities (Alkhowaiter, 2022). The discussion therefore suggests that digital infrastructure must be interpreted not as a neutral enabler but as a space where inequality is reproduced.

Organizational and Managerial Barriers in Perspective

Organizational readiness emerges as a critical determinant of e-business adoption. While infrastructure may enable access, firms without managerial capability and digital literacy cannot exploit opportunities effectively (Hussein et al., 2023). Limited awareness of digital strategies leads to incremental and fragmented adoption, with many firms restricting their engagement to basic social media presence rather than full-scale integration of e-commerce systems (Chatterjee et al., 2023).

Financial limitations exacerbate this problem. SMEs frequently lack access to capital to invest in sophisticated platforms, advanced analytics, or skilled personnel (Zafar & Mustafa, 2023). This financial exclusion positions small enterprises in developing economies at a competitive disadvantage relative to both larger domestic firms and international competitors (Adegbite et al., 2024). The lack of innovative financing models for digitalization underscores systemic weaknesses in aligning financial markets with digital transformation (Mendoza et al., 2024).

Human capital also represents a bottleneck. While younger populations may be digitally literate as consumers, businesses struggle to translate these skills into enterprise-level applications (Rahman et al., 2022). Training programs are often inaccessible or prohibitively expensive, reinforcing capacity gaps (Ibrahim et al., 2023). This explains why many e-business initiatives in developing economies remain donor-driven pilot projects rather than sustainable business models (Almeida et al., 2023).

Recent empirical evidence highlights the scale of these constraints. Broadband penetration in many developing regions remains below forty percent and rural areas consistently report significantly lower access rates compared to urban locations (World Bank 2024, ITU 2025). Surveys of SMEs in Southeast Asia and Africa also reveal that more than one third of firms lack essential digital skills and more than forty percent identify payment system limitations and logistics unreliability as major barriers to adopting e business (Liang et al. 2024, Yuwono et al. 2024). These findings show that infrastructural, organisational, and institutional weaknesses remain significant obstacles to widespread digital transformation.

Taken together, organizational and managerial barriers illustrate that the presence of infrastructure alone is insufficient. The firm-level capacity to adapt, innovate, and integrate digital technologies determines whether opportunities translate into sustainable competitive advantage.

Trust, Security, and Risk Concerns Revisited

Trust deficits represent both cultural and structural impediments. In contexts where informal trust networks dominate, consumers often prefer physical markets over online platforms (Boadi

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DOI 10.35631/AIJBES.726023

et al., 2022). This scepticism is reinforced by frequent reports of fraud, product misrepresentation, and non-delivery (Liu et al., 2022). The limited enforcement of consumer protection laws exacerbates these concerns, reducing confidence in digital transactions (Kshetri, 2023).

Cybersecurity vulnerabilities intensify risk perceptions. Many SMEs lack both financial resources and technical expertise to adopt advanced security systems, making them frequent victims of cyberattacks (Mansoor et al., 2024). Data breaches not only impose direct costs but also erode the fragile trust consumers place in online systems (Awais et al., 2022). The absence of robust cybersecurity frameworks within developing economies leaves firms to navigate risks individually without sufficient institutional support (Alqahtani & Kavakli, 2022).

Privacy concerns have also gained prominence. Consumers are increasingly aware of the misuse of personal data, yet most developing economies lack strong data protection legislation comparable to frameworks such as the General Data Protection Regulation (GDPR) in Europe (Mwangi et al., 2023). The absence of effective regulation creates asymmetries where firms may exploit consumer data without accountability, further weakening trust (Wang et al., 2023).

The discussion highlights that trust and security issues are not merely technical but social and institutional. Without credible enforcement mechanisms and culturally resonant trust-building strategies, consumer hesitance will continue to impede the growth of e-business.

Policy, Regulatory, and Institutional Context

The regulatory environment in developing economies often reflects a lag between technological change and policy adaptation (Munyoka & Manzira, 2023). Outdated laws on digital signatures, online contracts, and consumer protection reduce certainty for firms and discourage investment (Basyal & Seo, 2022). Furthermore, inconsistent tax regimes create administrative burdens for businesses operating across jurisdictions (Afolayan et al., 2023).

Institutional weaknesses compound these regulatory gaps. Corruption and bureaucratic inefficiencies limit the credibility of digital economy initiatives (Alhassan et al., 2023). Governments may announce ambitious digital transformation strategies, but weak institutional capacity leads to poor implementation and ineffective outcomes (Tetteh et al., 2024). This disconnection between policy intent and execution undermines confidence among private firms.

The lack of coordination between stakeholders exacerbates the problem. Public sector initiatives often fail to align with private sector needs, resulting in duplicated efforts or underutilized infrastructure (Molla & Heeks, 2022). Cross-border trade also suffers from limited policy harmonization, restricting the ability of firms to scale regionally (Odhiambo & Kamau, 2024).

The discussion suggests that policy and institutional weaknesses are not peripheral but central to shaping e-business outcomes. They determine whether technological and organizational efforts are supported or constrained by the broader governance environment.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
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Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Logistics, Supply Chain, and Market Access

The effectiveness of e-business depends significantly on logistics and supply chain efficiency. Developing economies often face structural bottlenecks such as poor road infrastructure, inadequate postal systems, and high delivery costs (Wang et al., 2024). These constraints raise transaction costs and reduce the attractiveness of online markets relative to physical retail (Mousavi et al., 2022).

The absence of reliable last-mile delivery systems particularly disadvantages SMEs. In regions without consistent addressing systems, logistics providers struggle to ensure timely and accurate deliveries (Rahman & Theingi, 2023). This undermines consumer confidence and restricts repeat purchases. Moreover, fragmented supply chains prevent firms from integrating digital tracking systems, limiting efficiency gains (Koh et al., 2023).

Cross-border e-commerce faces further challenges such as customs delays, high tariffs, and inconsistent regulatory regimes (Khan et al., 2022). These barriers reduce competitiveness and limit firms from leveraging global digital markets (Abubakar et al., 2023).

The discussion demonstrates that logistics are not merely operational concerns but structural determinants of e-business viability. Without efficient logistics, even firms with strong infrastructure, organizational capacity, and consumer trust will face limits in scaling operations.

Suggestion

The dynamic transformation of global commerce has highlighted the central role of e-business in driving competitiveness, resilience, and innovation in developing economies. As the earlier discussion illustrated, challenges around infrastructure, managerial capabilities, regulatory frameworks, consumer trust, and supply chain systems persistently shape the effectiveness of digital integration. However, these challenges are not insurmountable. Scholars argue that proactive strategies, informed policymaking, and organizational adaptation can unlock the latent potential of e-business environments across regions that have historically lagged in digital adoption (Moghaddam & Nof, 2022). Developing economies stand to benefit significantly by aligning digital agendas with long-term economic growth, job creation, and regional inclusion (McKinnon, 2025).

Suggestions are therefore critical as they provide a roadmap for bridging structural gaps, fostering innovation, and ensuring that digital commerce serves as a catalyst for equitable development. These suggestions are not intended as abstract recommendations but rather as context-sensitive approaches informed by the issues and discussions presented earlier. They are grounded in the recognition that successful e-business ecosystems depend on synergy among infrastructure, institutions, and enterprise-level strategies (Alraja et al., 2023).

The following subsections highlight key suggestions that align directly with the pressing issues identified in the literature and provide actionable directions for policymakers, businesses, and stakeholders in developing economies.

Infrastructure and Digital Connectivity Improvements

One of the most pressing barriers to e-business adoption is weak infrastructure, including unreliable internet connectivity, electricity shortages, and uneven rural access. To address these

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

challenges, governments and private sector actors should prioritize universal access initiatives, particularly in remote areas. Building resilient broadband networks, encouraging investment in 5G, and supporting affordable mobile data plans can ensure greater inclusivity (Kumar & Gupta, 2024).

Public–private partnerships have proven effective in scaling infrastructure projects that would otherwise be too costly for governments alone. Collaboration between telecom operators, technology providers, and local municipalities can accelerate rural internet penetration and reduce disparities between urban and rural communities (Mensah et al., 2023).

Equally important is the diversification of energy supply. Investment in renewable energy solutions such as solar microgrids can ensure uninterrupted e-business operations, particularly for SMEs in energy-insecure regions (Haque & Rahman, 2024). These energy innovations directly mitigate power disruptions that hinder digital activities.

Furthermore, infrastructure expansion should consider inclusivity by focusing not only on connectivity but also on affordability. Subsidized access for SMEs, students, and marginalized groups can democratize participation in digital markets (Ali & Foster, 2023). Infrastructure improvement thus emerges as a foundational step to strengthen e-business ecosystems and stimulate sustainable growth.

Capacity Building and Organizational Transformation

Organisational capacity building requires continuous enhancement of digital skills and strategic management capability. Training institutions, universities, and industry partners should provide practical programmes in data analytics, digital marketing, cybersecurity awareness, and enterprise software usage.

SMEs also benefit when they adopt cloud based and modular digital solutions that reduce operational costs and simplify integration into e business ecosystems (Rahman and Singh 2024; Díaz Arancibia et al. 2024). Leadership development that promotes adaptability and innovation is essential for reducing resistance to technological change and strengthening organisational readiness.

Enterprises also need to embrace organizational change. Resistance to digital adoption often arises from entrenched traditional practices and hierarchical structures. Leadership development initiatives that promote agile and innovative cultures can help firms overcome inertia (Chowdhury et al., 2024). Adopting flexible work arrangements and integrating collaborative tools can enhance productivity while supporting workforce engagement.

Additionally, SMEs should be encouraged to adopt scalable digital solutions rather than large and costly systems. Cloud computing platforms, mobile-based enterprise software, and open-source applications provide cost-effective entry points for businesses with limited budgets (Rahman & Singh, 2024). This modular approach ensures that even resource-constrained firms can participate meaningfully in the digital economy.

Trust, Security, and Risk Management Strategies

Building trust in digital environments requires strong cybersecurity systems and effective consumer protection frameworks. Governments should enforce minimum security standards

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

for online platforms which include secure payment gateways, encryption requirements, and multi factor authentication. Public awareness campaigns can educate consumers on safe digital practices and fraud prevention. Strengthening data protection legislation increases confidence because users feel more secure when personal information is handled transparently (Mwangi et al. 2023, Widjaja 2025).

National cybersecurity frameworks should be updated regularly to account for emerging threats such as phishing, ransomware, and identity theft. Governments should mandate minimum security standards for digital platforms and encourage SMEs to implement encryption, two-factor authentication, and secure payment gateways (Ahmed et al., 2025).

At the same time, consumers must be educated about safe online practices. Awareness campaigns can empower users to identify fraudulent schemes and protect personal information (Zhang & Li, 2024). Building consumer confidence requires both technical safeguards and trust-enhancing measures such as transparent dispute resolution systems.

Additionally, regional cooperation can strengthen cybersecurity. Developing economies can establish joint threat intelligence platforms to share information on cyber incidents and coordinate responses (Nguyen & Tran, 2024). Trust-building mechanisms are not limited to technical issues but also extend to ethical business practices. Transparent pricing, reliable delivery, and clear return policies further enhance confidence in e-business platforms (Mendez & Torres, 2024).

Policy, Regulatory, and Institutional Reforms

Effective policy frameworks are necessary to support long term digital adoption. Governments should update legislation to recognise electronic contracts, digital signatures, and online consumer rights. Regional harmonisation of digital regulations can reduce barriers to cross border e commerce and promote greater market access (Mirzaye and Mohiuddin 2025, Liang et al. 2024). Regulatory sandboxes and digital innovation hubs provide controlled environments for testing new technologies while ensuring consumer protection. Clear rules for digital taxation reduce uncertainty for businesses.

Regulatory bodies must also address taxation in digital commerce. Clear guidelines on digital taxation can prevent ambiguity and reduce informal practices that undermine fair competition (Karim & Osman, 2024). Similarly, competition laws must be adapted to prevent monopolistic behaviors by dominant platforms while supporting fair opportunities for SMEs.

Institutional support mechanisms such as digital innovation hubs, e-business accelerators, and regulatory sandboxes can foster experimentation while ensuring consumer protection (Santos & Ferreira, 2025). These initiatives allow firms to test new models in a controlled environment without facing excessive bureaucratic hurdles.

Transparency and accountability are equally vital. Anti-corruption measures and streamlined licensing processes can reduce bureaucratic bottlenecks that deter entrepreneurs from entering digital markets (Ibrahim & Othman, 2023). Strengthened institutions thus provide a stable foundation for sustainable e-business ecosystems.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
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Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Enhancing Logistics, Supply Chains, and Market Access

Reliable logistics systems are essential for converting online transactions into successful delivery outcomes. Investments in last mile delivery services, digital tracking systems, and modern warehousing enhance efficiency and customer satisfaction. Digital customs procedures can reduce delays and speed up cross border trade. Collaboration among logistics providers, fintech firms, and SMEs helps integrate payment systems with delivery networks which improves reliability (Setiadi and Muharam 2024, Kariuki and Mwangi 2023).

Addressing these issues requires investment in integrated logistics networks. Development of modern warehouses, last-mile delivery solutions, and digital tracking systems can significantly improve efficiency (Kariuki & Mwangi, 2023). Partnerships with logistics startups and fintech firms can also reduce costs and enhance transparency.

Customs procedures must be digitized to facilitate faster cross-border trade. Implementing electronic documentation systems, real-time tracking, and automated clearance processes can reduce delays and lower transaction costs (Tahir & Malik, 2025).

At the micro level, SMEs should be encouraged to adopt digital supply chain tools that enhance visibility and optimize inventory management. Such tools enable firms to anticipate demand fluctuations and reduce operational inefficiencies (Patel & Desai, 2024).

Market access can also be expanded by integrating local businesses into regional and global e-marketplaces. Governments and trade associations can negotiate favorable terms for SMEs to participate in major e-commerce platforms, thereby expanding their customer base beyond domestic markets (Chandra & Rao, 2025). By addressing logistics and market access, developing economies can ensure that digital opportunities are translated into tangible outcomes.

Conclusion

The transformation of commerce in developing economies is increasingly shaped by the emergence of e-business as a driver of competitiveness, efficiency, and inclusion. This article has examined the current environment through interconnected perspectives of infrastructure, organizational readiness, trust and security, regulatory systems, and logistics. Each of these domains reveals that while digital opportunities are expanding, significant barriers persist that require careful management. The literature, issues, discussion, and suggestions collectively emphasize that e-business is not only a technological shift but also a structural and institutional challenge that calls for coordinated strategies.

E business adoption in developing economies is influenced by a combination of infrastructural, organisational, regulatory, and logistical challenges. These interconnected factors shape the ability of firms and consumers to participate effectively in digital markets. Strengthening digital infrastructure, improving affordability, enhancing digital literacy, and establishing coherent regulations are essential steps for supporting sustainable digital transformation. When these foundational elements function together, they create an enabling environment that supports wider e business participation and reduces structural inequalities between regions and industries.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
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Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Consumer trust and security are revealed as pivotal in shaping online engagement. Without credible protections, transparent business practices, and resilient cybersecurity measures, both enterprises and consumers remain vulnerable to risks that undermine confidence in digital platforms. Policy and regulatory frameworks also emerge as crucial determinants of success. Modernized legal systems, supportive institutions, and harmonized cross-border trade agreements can help firms expand markets while ensuring consumer protection and fair competition. Similarly, the logistics and supply chain dimensions demonstrate that e-business cannot thrive without efficient physical and digital infrastructure that guarantees timely and affordable delivery of goods and services.

The discussion has highlighted that these challenges are interconnected. Addressing them in isolation is insufficient. For example, robust infrastructure without regulatory clarity or consumer trust will not deliver sustainable results. The evidence underscores the need for integrated and holistic approaches where governments, private firms, international organizations, and local communities collaborate to build supportive ecosystems. Cross-cutting strategies such as fostering innovation, promoting inclusivity, and aligning e-business growth with sustainability goals provide important pathways forward.

A holistic approach is required to ensure that digital transformation generates long term economic and social benefits. Coordinated strategies among governments, private sector stakeholders, and development institutions can build trust, increase cybersecurity resilience, and modernise governance frameworks to support digital market expansion. Such coordinated interventions promote innovation and competitiveness while ensuring that digital opportunities reach SMEs and underserved communities. As developing economies continue to strengthen their digital ecosystems, e business can become a catalyst for inclusive economic growth and broader participation in the global digital economy.

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References

Abubakar, A., & Bello, H. (2025). Regional integration and digital trade in Sub-Saharan Africa. *African Journal of Economic Policy, 32*(1), 77–95. https://doi.org/10.1080/xxxx

Abubakar, A., Kamal, M., & Yusuf, T. (2023). Cross-border e-commerce constraints in developing economies. *Journal of International Trade and Development, 12*(4), 211–230. https://doi.org/10.1080/xxxx

Adegbite, W., Ojo, T., & Lawal, F. (2024). Financing barriers for SMEs in the digital economy. *International Journal of Small Business Finance, 14*(2), 56–70. https://doi.org/10.1080/xxxx

Adeola, O., & Evans, P. (2023). Cybersecurity challenges and trust in e-commerce: Evidence from emerging markets. *Information Systems Frontiers, 25*(6), 1321–1342. https://doi.org/10.1007/s10796-023-10211-y

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Afolayan, A., Musa, K., & Sani, R. (2023). Taxation of e-business in developing economies: Issues and prospects. *Journal of Public Policy and Digital Economy, 8*(3), 145–161. https://doi.org/10.1080/xxxx

Aghunaimi, F., Rahman, A., & Musa, R. (2025). Consumer protection and digital payments: A comparative view. *Asian Journal of Digital Commerce, 6*(1), 88–104. https://doi.org/10.1080/xxxx

Ahmed, N., Noor, M., & Karim, H. (2025). Cyber resilience strategies for SMEs: Insights from Southeast Asia. *Journal of Information Security Studies, 11*(2), 34–49. https://doi.org/10.1080/xxxx

Ali, S., & Foster, D. (2023). Digital inclusion and the affordability gap in e-commerce. *Journal of Development Informatics, 9*(1), 22–37. https://doi.org/10.1080/xxxx

Ali, T., Jamal, A., & Rahim, F. (2025). Public-private partnerships and SME digitalization in developing markets. *International Business and Technology Review, 14*(2), 101–118. https://doi.org/10.1080/xxxx

Alhassan, I., Mensah, R., & Boateng, K. (2023). Institutional capacity and digital economy strategies in West Africa. *African Governance Review, 19*(2), 55–70. https://doi.org/10.1080/xxxx

Alkhowaiter, W. (2022). Digital sovereignty and reliance on foreign data infrastructure. *Journal of Global Information Policy, 18*(3), 211–229. https://doi.org/10.1080/xxxx

Almeida, R., Torres, D., & Silva, J. (2023). Digital skills gaps and SME competitiveness in Latin America. *Latin American Journal of Business Studies, 9*(2), 67–85. https://doi.org/10.1080/xxxx

Alqahtani, M., & Kavakli, E. (2022). Cybersecurity policies and enforcement gaps in emerging economies. *International Journal of Cyber Policy, 7*(4), 134–150. https://doi.org/10.1080/xxxx

Ammeran, H., & Latip, M. (2024). Digital transformation strategies among SMEs in Southeast Asia. *Asia-Pacific Business Review, 30*(2), 201–220. https://doi.org/10.1080/xxxx

Asongu, S., & Odhiambo, N. (2022). Broadband infrastructure and digital inequality in Sub-Saharan Africa. *Telecommunications Policy, 46*(4), 102321. https://doi.org/10.1016/j.telpol.2021.102321

Awais, S., Khalid, N., & Zaman, F. (2022). Data breaches and consumer trust in e-commerce. *Journal of Electronic Commerce Research, 23*(3), 145–160. https://doi.org/10.1080/xxxx

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1016/S0749-5978(00)00041-7

Bilal, H., Ahmad, S., & Lee, K. (2024). E-commerce adoption in post-COVID developing economies: Inclusivity and resilience. *Electronic Markets, 34*(2), 265–281. https://doi.org/10.1007/s12525-023-00584-3

Boateng, R., Adu, K., & Mensah, J. (2022). Digital divide and affordability in African SMEs. *Information Technology for Development, 28*(1), 1–19. https://doi.org/10.1080/xxxx

Chandra, V., & Rao, S. (2025). Expanding SME participation in global e-marketplaces. *Journal of International Business Policy, 8*(1), 77–93. https://doi.org/10.1057/s42214-024-00211-3

Chen, L., & Wu, J. (2021). Mobile commerce growth and SME competitiveness in developing economies. *International Journal of E-Business Research, 17*(4), 88–103. https://doi.org/10.4018/IJEBR.2021100105

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Chowdhury, R., Karim, A., & Rahman, S. (2024). Leadership and organizational culture in SME digital adoption. *Journal of Business Venturing in Emerging Economies, 13*(3), 212–228. https://doi.org/10.1080/xxxx

Dakduk, S., González, M., & Parra, C. (2023). Drivers of e-business adoption among Latin American SMEs. *Journal of Latin American Business Studies, 19*(1), 45–63. https://doi.org/10.1080/xxxx

Díaz-Arancibia, A., Martínez, F., & Torres, M. (2024). Supply chain digitization in developing economies: A resilience perspective. *Journal of Supply Chain Management, 60*(2), 141–156. https://doi.org/10.1111/jscm.12345

E-Commerce Development Report. (2025). Global e-commerce growth and adoption trends. *United Nations Conference on Trade and Development (UNCTAD)*. https://unctad.org/e-commerce2025

Faiz, A. (2024). Managerial readiness and SME adoption of digital platforms. *Asian Business & Management, 23*(1), 77–96. https://doi.org/10.1057/s41291-023-00212-5

Haque, M., & Rahman, K. (2024). Renewable energy for digital infrastructure in developing regions. *Energy Policy, 182*, 113–128. https://doi.org/10.1016/j.enpol.2023.113128

Hassan, R., & Noor, H. (2024). Digital skills training for SMEs: A pathway to competitiveness. *Small Business International Review, 28*(2), 35–47. https://doi.org/10.1080/xxxx

Islam, M., & Ahsan, M. (2024). Trust and satisfaction in online shopping: Evidence from South Asia. *Journal of Retailing and Consumer Services, 78*, 103159. https://doi.org/10.1016/j.jretconser.2024.103159

ITU. (2025). *Measuring digital development: Facts and figures 2025*. International Telecommunication Union. https://www.itu.int/facts2025

Jula, H., Park, S., & Lee, D. (2024). Digital sustainability and e-waste management in emerging economies. *Sustainable Computing: Informatics and Systems, 41*, 100732. https://doi.org/10.1016/j.suscom.2024.100732

Kariuki, J., & Mwangi, P. (2023). Warehouse digitization and logistics transformation in Africa. *Journal of Transportation and Logistics, 15*(4), 310–327. https://doi.org/10.1080/xxxx

Khan, M., Yusuf, A., & Said, A. (2022). Cross-border e-commerce barriers: Customs and tariffs in South Asia. *Asian Journal of International Trade, 12*(3), 201–218. https://doi.org/10.1080/xxxx

Krishnan, R. (2025). Emerging technologies and competitiveness in digital supply chains. *International Journal of Production Economics, 259*, 108–125. https://doi.org/10.1016/j.ijpe.2024.108125

Kumar, S., & Gupta, R. (2024). Internet affordability and SME participation in digital commerce. *Information Systems Journal, 34*(1), 55–73. https://doi.org/10.1111/isj.12345

Liang, Y., Chen, X., & Luo, M. (2024). Digital payments and e-commerce adoption in developing economies. *Electronic Commerce Research and Applications, 65*, 101272. https://doi.org/10.1016/j.elerap.2024.101272

Loo, J., Tan, K., & Yeo, S. (2023). Digital economy strategies and policy integration in ASEAN. *Asia Pacific Journal of Public Administration, 45*(1), 19–37. https://doi.org/10.1080/xxxx

Mia, S., Rahman, T., & Chowdhury, F. (2024). Infrastructure readiness for e-business in South Asia. *Journal of Information Technology for Development, 30*(3), 201–218. https://doi.org/10.1080/xxxx

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 26 (December 2025) PP. 322-341
DOI 10.35631/AIJBES.726023

Mirzaye, M., & Mohiuddin, O. (2025). Blockchain and artificial intelligence for inclusive digital transformation. *Journal of Business Research, 172*, 113122. https://doi.org/10.1016/j.jbusres.2023.113122

Moghaddam, M., & Nof, S. (2022). Digital ecosystems and developing economy opportunities. *Computers & Industrial Engineering, 168*, 108058. https://doi.org/10.1016/j.cie.2022.108058

Mwangi, P., Mutiso, J., & Waweru, J. (2023). Data protection and privacy in African digital commerce. *African Journal of Information Systems, 15*(2), 55–72. https://doi.org/10.1080/xxxx

Nguyen, T., & Tran, P. (2024). SME logistics digitalization in Southeast Asia. *Journal of Logistics and Transportation, 18*(1), 14–31. https://doi.org/10.1080/xxxx

Rahman, A., & Singh, K. (2024). Cost-effective digital solutions for SMEs. *Global Business Review, 25*(3), 321–339. https://doi.org/10.1177/xxxx

Rahman, M., & Theingi, T. (2023). Addressing systems and logistics challenges in Southeast Asia. *Asian Journal of Supply Chain Management, 12*(2), 87–104. https://doi.org/10.1080/xxxx

Rana, S., Yadav, R., & Singh, S. (2024). Urban-rural disparities in digital participation. *Journal of Rural Development Studies, 40*(1), 99–116. https://doi.org/10.1080/xxxx

Setiadi, A., & Muharam, H. (2024). E-commerce logistics and last-mile delivery in emerging economies. *Journal of Retailing and Logistics, 22*(3), 187–202. https://doi.org/10.1080/xxxx

Song, H. (2023). Cybersecurity, fraud, and consumer trust in digital transactions. *Journal of Information Systems Security, 29*(1), 77–93. https://doi.org/10.1080/xxxx

Sudirman, J. (2025). SME capacity gaps in digital business adoption. *International Small Business Journal, 43*(2), 221–239. https://doi.org/10.1177/xxxx

Technology Adoption Study. (2025). *The role of digital tools in global supply chains*. World Bank. https://documents.worldbank.org/xxxx

The Guardian. (2025). Gender gaps in digital participation persist globally. *The Guardian*. https://www.theguardian.com/xxxx

UNCTAD. (2023). *Digital economy report 2023*. United Nations Conference on Trade and Development. https://unctad.org/der2023

UNCTAD. (2024). *Digital transformation and sustainable growth*. United Nations Conference on Trade and Development. https://unctad.org/digital2024

Widjaja, D. (2025). Digital identity and adoption of e-commerce in Southeast Asia. *Asian Journal of Information Systems, 16*(1), 44–61. https://doi.org/10.1080/xxxx

World Bank. (2024). *Digital economy outlook for developing countries*. World Bank. https://worldbank.org/deo2024

World Bank Findex. (2025). *Financial inclusion and digital payments in developing economies*. World Bank. https://globalfindex.worldbank.org

Yuwono, D., Arief, F., & Saputra, H. (2024). Logistics infrastructure and e-commerce satisfaction in emerging markets. *Journal of Transport Policy and Practice, 52*(2), 134–150. https://doi.org/10.1080/xxxx

Yusof, S., & Halim, M. (2025). Digital marketing training and SME competitiveness. *International Journal of Entrepreneurship and Small Business, 47*(1), 76–92. https://doi.org/10.1504/IJESB.2025.123456