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Expanding the Digital Economy for Africa (DE4A) Model Into Bangladesh and Southeast Asia Toward Achieving SDG 8

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Abstract

Digital transformation has become a critical issue of SME resilience in developing economies. However, countries such as Bangladesh and several Southeast Asian states continue to face digital inequality, inadequate infrastructure, limited financial accessibility, and low digital literacy, particularly among rural and women-owned enterprises. This study evaluates the potential expansion of the World Bank's Digital Economy for Africa (DE4A) framework into Bangladesh and Southeast Asian developing countries toward achieving Sustainable Development Goal (SDG) 8 on decent work and economic growth. Using a qualitative descriptive method with a literature review approach, this study analyzes World Bank reports, academic journals, government publications, and international organization documents. Findings indicate that the DE4A framework holds significant potential to strengthen SME digital transformation through rural infrastructure development, affordable internet access, fintech-based financial inclusion, and regional digital cooperation. Nevertheless, structural weaknesses persist, including limited rural outreach, unequal technological readiness, insufficient long-term monitoring, adaptation of the DE4A model in Bangladesh and Southeast Asia requires gender-responsive financing, targeted digital literacy programs, rural-centered infrastructure policies, and strengthened regional collaboration.

Keywords: Bangladesh; DE4A; Digital Economy; SDG 8; SMEs;

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INTRODUCTION

Digital transformation has increasingly emerged as one of the primary engines of economic growth and business resilience in developing countries. The rapid expansion of digital technology, internet accessibility, and financial technology platforms has fundamentally transformed the operational patterns of Small and Medium Enterprises (SMEs), enhancing productivity, market reach, and financial inclusion (Demirguc-Kunt et al., 2018) . SMEs are globally recognized as essential contributors to employment generation and poverty reduction, accounting for approximately 90% of all businesses and more than 50% of global employment (Ayyagari et al., 2007). In many developing economies, SMEs serve as critical instruments for economic recovery, particularly in the aftermath of post-pandemic disruptions and sustained global economic instability (IMF, 2024).

Despite the growing importance of digital transformation, significant digital

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inequality persists across developing countries. Limited internet infrastructure, low digital literacy, financial exclusion, and uneven technological readiness continue to prevent SMEs from fully participating in the digital economy. These structural barriers are disproportionately concentrated in rural communities and women-owned enterprises. In countries such as Bangladesh, Indonesia, Cambodia, and the Philippines, digital development remains predominantly urban, leaving rural entrepreneurs with restricted access to digital services and online commerce opportunities (Gyamerah et al., 2025). In Bangladesh specifically, SMEs contribute approximately 25% of national GDP, yet many enterprises remain constrained by limited credit access, low digital literacy, and inadequate financial infrastructure (ADB, 2023).

In response to these challenges, the World Bank launched the Digital Economy for Africa (DE4A) initiative as a comprehensive framework to accelerate digital transformation and expand digital participation across African developing economies (World Bank, 2020). The DE4A framework operates through five principal pillars: digital infrastructure, digital platforms, digital financial services, digital entrepreneurship, and digital skills development. Although originally designed for the African context, the structural barriers prevalent in South Asian and Southeast Asian developing economies demonstrate strong similarities with those targeted by the DE4A model.

Therefore, evaluating the potential expansion of the DE4A framework into Bangladesh and Southeast Asia has become increasingly relevant for advancing inclusive economic growth and supporting SDG 8 (Decent Work and Economic Growth). Nevertheless, a critical assessment of the DE4A model's structural weaknesses must precede any implementation effort to ensure that adaptive policies effectively address regional inequalities. This study contributes to this gap by systematically analyzing the DE4A framework's applicability, limitations, and necessary adaptations for the Bangladesh and Southeast Asian contexts.

METHOD

This study employs a qualitative descriptive method with a literature review approach to evaluate the applicability of the DE4A framework in Bangladesh and Southeast Asian developing countries. The qualitative method enables interpretative analysis of digital transformation policies, implementation challenges, and the effectiveness of digital inclusion programs within their socio-economic contexts.

Secondary data were obtained from World Bank reports, peer-reviewed academic journals, government publications, OECD reports, IMF publications, and SDG-related documents addressing digital economy development and SME resilience. Data collection was conducted through systematic documentation study, classifying information related to digital infrastructure, digital literacy, SME development, and financial inclusion.

The data were analyzed through thematic classification, comparative analysis, and interpretive synthesis. The analytical framework focuses on three dimensions: (1) the structural strengths of the DE4A model relevant to Bangladesh and Southeast Asia; (2) the identified weaknesses that may constrain effective implementation; and (3) policy adaptation recommendations to ensure inclusive and sustainable digital

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transformation.

RESULTS AND DISCUSSION

The Digital Economy for Africa (DE4A) Framework and Its Five Pillars

The DE4A initiative represents the World Bank's comprehensive strategy to accelerate digital transformation and improve economic participation in African developing economies (World Bank, 2020). The framework is structured around five major pillars, each targeting a distinct dimension of the digital divide. Table 1 presents a comparative analysis of each pillar's key components and their direct applicability to Bangladesh and Southeast Asian developing countries.

Table 1. DE4A Framework Pillars and Applicability to Bangladesh and Southeast Asia

DE4A Pillar	Key Component	Applicability to Bangladesh & SEA
Digital Infrastructure	Broadband grants, rural connectivity	Relevant; rural gaps in Bangladesh & SEA
Digital Platforms	E-commerce & government portals	Highly applicable; strong mobile base in Bangladesh
Digital Financial Services	Fintech, mobile money integration	Strong fit; bKash/Nagad already operational
Digital Entrepreneurship	Startup support, incubators	Applicable; limited in rural areas of SEA
Digital Skills Development	Training programs, capacity building	Critical need; low literacy in rural SEA

Source: Adapted from World Bank (2020); Author Analysis (2026)

As demonstrated in Table 1, all five DE4A pillars exhibit meaningful applicability to the Bangladesh and Southeast Asian contexts. The digital financial services pillar demonstrates a strong implementation foundation given Bangladesh's advanced mobile money ecosystem through platforms such as bKash and Nagad, which have significantly widened financial access for underserved populations (Datta, 2024). Similarly, the digital infrastructure pillar directly addresses the rural connectivity deficits documented across Cambodia, Laos, and the Philippines (OECD, 2024).

Potential Application of the DE4A Model in Bangladesh

The implementation of the DE4A framework in Bangladesh presents significant potential, anchored by the country's expanding digital economy and mobile financial services infrastructure. Bangladesh's experience with bKash and Nagad demonstrates that fintech-based financial inclusion can meaningfully reduce barriers for underserved SMEs (Datta, 2024) . However, despite this progress, persistent limitations in rural internet accessibility, technological infrastructure, and digital literacy continue to restrict SME participation in the digital economy.

From a policy perspective, the DE4A framework could support Bangladesh

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through four targeted strategies. First, digital infrastructure grants could expand affordable internet access and connectivity to rural SMEs currently excluded from ecommerce opportunities. Second, regional digital support centers could provide structured training in e-commerce, digital marketing, and online financial systems.

Third, fintech-based financing mechanisms could strengthen financial inclusion for underserved enterprises, particularly women-owned SMEs (World Bank, 2024) . Fourth, the framework could anchor Bangladesh's long-term digital transformation strategy by fostering multi-stakeholder collaboration among governments, educational institutions, financial institutions, and international organizations.

Applicability of the DE4A Model in Southeast Asia

The DE4A framework is similarly applicable to several Southeast Asian developing economies, particularly Indonesia, Cambodia, Laos, Myanmar, and the Philippines, which continue to experience uneven digital development between urban and rural regions. In Indonesia, for instance, digital financial systems and e-commerce have expanded rapidly in major metropolitan areas, yet rural communities still face significant technological limitations and weak digital literacy (ADB, 2023). Comparable conditions prevail in Cambodia and Laos, where internet accessibility and SME digital readiness remain critically low.

Regional application of the DE4A model could strengthen SME competitiveness by promoting digital entrepreneurship, improving infrastructure, and expanding financial inclusion across ASEAN developing members. Furthermore, regional cooperation could facilitate knowledge-sharing, digital policy coordination, and cross-border SME market integration. The establishment of regional digital support hubs could provide technology-sharing platforms and facilitate adaptation to international digital market standards.

Structural Weaknesses of the DE4A Framework

Despite its considerable potential, the DE4A framework contains several structural weaknesses that may constrain its effectiveness if implemented without contextual adaptation. Table 2 presents a systematic analysis of each weakness alongside corresponding adaptation recommendations.

Table 2. DE4A Structural Weaknesses and Recommended Adaptations

Weakness	Key Problem	Recommended Adaptation
Limited Rural Outreach	Programs concentrate in urban centers	Prioritize rural-first infrastructure grants
Unequal Technological Readiness	Varying digital capacity across countries	Country-specific readiness assessments
Low Digital Literacy	SME owners lack basic digital skills	Mandatory digital literacy components
Financial Access Barriers	Collateral & banking requirements	Fintech-assisted microcredit systems

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Weak Monitoring Systems	Short-term targets; no long-term metrics	SDG-aligned sustainability indicators
Socio-Cultural & Gender Gaps	Patriarchal norms restrict women SMEs	Gender-responsive financing & training

Source: Author Analysis (2026)

Among the six weaknesses identified in Table 2, the limited rural outreach and socio-cultural gender gaps represent the most structurally entrenched barriers in Bangladesh and Southeast Asia. Patriarchal norms, restricted mobility, and unequal educational opportunities continue to reduce digital participation among women entrepreneurs in rural regions (Gyamerah et al., 2025). Without gender-responsive adaptations, digital transformation programs risk replicating and deepening existing inequalities.

The absence of robust long-term monitoring mechanisms also constitutes a critical weakness. Many digital transformation initiatives focus on short-term access metrics rather than evaluating structural economic transformation and SME resilience over time. Wang et at demonstrate that digital literacy improvements generate meaningful economic and social outcomes only when sustained over the long term, reinforcing the need for SDG-aligned evaluation frameworks (Wang et al., 2022) .

Policy Recommendations for Adapting the DE4A Model

Based on the analysis of the DE4A framework's applicability and weaknesses, six policy adaptations are recommended to ensure effective implementation in Bangladesh and Southeast Asia.

1) Governments and international organizations should prioritize rural internet expansion and affordable digital infrastructure development to systematically reduce urban-rural digital divides. Rural-first grant programs, modeled on the DE4A digital infrastructure pillar, should be adapted to local connectivity conditions in Bangladesh and lower-income Southeast Asian states.
2) Gender-responsive digital policies should be integrated into DE4A implementation, prioritizing women-owned SMEs through targeted digital entrepreneurship training, flexible financing systems, and community-based digital support programs accessible to women in rural regions.
3) Digital literacy training should be elevated as a central, mandatory component of DE4A implementation. Programs should encompass e-commerce education, digital marketing, online financial management, and cybersecurity awareness, as digital skills function as human capital enabling entrepreneurs to identify market opportunities and participate more effectively in the digital economy (Wang, Liu, & Cai, 2022).
4) Regional digital support hubs should be established across Southeast Asia to assist SMEs in adapting to digital business systems and accessing international markets. These hubs could facilitate regional technology-sharing and cross-border SME cooperation aligned with ASEAN digital economy frameworks.

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5) long-term monitoring and evaluation systems aligned with SDG 8 indicators should be strengthened within the DE4A framework. Evaluation metrics should assess not only digital access rates but also long-term economic empowerment, SME resilience, and inclusive growth outcomes.
6) Multilateral collaboration among regional organizations, national governments, educational institutions, and international financial institutions should be formalized to support coordinated inclusive digital transformation policies. Stronger collaboration would improve funding accessibility, policy alignment, and digital innovation capacity across developing countries.

CONCLUSION

The Digital Economy for Africa (DE4A) framework possesses significant potential to strengthen SME resilience and support inclusive economic growth in Bangladesh and Southeast Asian developing countries. Through digital infrastructure development, financial inclusion mechanisms, digital entrepreneurship support, and digital literacy programs, the framework can contribute positively toward achieving SDG 8 (Decent Work and Economic Growth). The alignment between DE4A's five pillars and the structural digital deficits prevalent in Bangladesh and Southeast Asia demonstrates that geographical expansion of the framework is both feasible and strategically relevant.

Nevertheless, the framework's structural weaknesses, including limited rural outreach, unequal technological readiness, low digital literacy, financial accessibility barriers, weak monitoring systems, and socio-cultural gender inequalities must be systematically addressed through adaptive and inclusive policy approaches. Implementing the DE4A model in Bangladesh and Southeast Asia therefore requires country-specific adaptations that reflect local structural conditions, cultural contexts, and institutional capacities.

Ultimately, strengthening regional and multilateral collaboration, expanding rural digital infrastructure, improving digital literacy, developing gender-responsive digital policies, and establishing long-term SDG-aligned monitoring systems are essential to ensure that digital transformation contributes to sustainable, inclusive economic development across developing countries.

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