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Research Article

Digital Transformation and Economic Growth in Emerging Economies

Shylaja N[1], Dr. Sanjay Kumar[2], Dr. Pradeep Mamgain[3], Dr. K. Dhanalakshmi[4], Dr. S. Theerthamalai[5] and Sushree Sangeeta Mukhi[6]

[1]Assistant Professor, Department of Commerce and Management, Dayananda Sagar College of Arts Science and Commerce

[2]Assistant Professor, Department of Economics, Government Degree College, Multhan, HP-451335

[3]Assistant Professor, Department of Business Management, HNBGU Chauras Campus-249161

[4]Assistant Professor, Department of Business Administration, Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi, 626 124

[5]Assistant Professor, Department of Commerce, Vel Tech Ranga Sanku Arts College, Avadi 600062

[6]Assistant Professor, Department of Commerce, New Horizon College, Kasturinagar, Bangalore

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Corresponding author: Shylaja N *(shylaja.yrs@gmail.com)

Abstract: Digital transformation has emerged as one of the major promoters of economic growth especially in emerging economies whereby technological revolution is transforming industries, governance and social systems. The article discusses the connection between digital transformation and economic growth through the lens of significant variables like development of infrastructure, digital financial systems, e-governance, smart industry practices, development of human capital, policy and regulatory support and mobile connectivity. In the study, 250 respondents were sampled under a convenient sampling technique and the statistics were assessed with descriptive statistics and inferential statistics, such as independent t-tests and chi-square tests. Results indicate that digital financial systems, e-governance and policy support is seen as the most impactful force of economic transformation, with infrastructure gaps, skills shortages, cyber security issues, and digital divides being perceived to slow progress. There were observed gender differences in the perceptions of some challenges, but none of them were significant. The findings indicate that long-term economic development in emerging economies is not only based on the use of technology, but also on the reinforcement of human capital and policies. This research highlights the importance of governments, enterprises, and institutions to spend strategically on digital infrastructure and skills training in order to reap the most out of the digital transformation towards inclusive and sustainable growth.

Keywords: Digital Transformation, Economic Growth, Emerging Economies, E-Governance, Digital Financial Systems, Human Capital and Policy Support.

INTRODUCTION

The digital revolution and the spread of innovations all over the world has characterized the twenty-first century. Digital transformation is transforming all areas of the economy, artificial intelligence and cloud computing, to big data analytics, block chain, and the Internet of Things (IoT). The transformation is especially relevant to emerging economies, i.e. the ones that are typified by fast industrialization, gradually expanding their integration into the world market. Emerging economies, in contrast to developed ones, where digital ecosystems are already well-established, usually assume a different starting point digitalization: weaker infrastructure, limited resources, and institutional barriers. However, the same limitations form peculiar opportunities of leaping into the digital era. This article discusses the nexus of digital transformation and economic growth in emerging economies, the drivers, opportunities, challenges and the implications on sustainable development. It further brings to the fore local case studies to demonstrate varied practices and ends with policy suggestions so that digital transformation can be used to promote inclusive, resilient and sustainable growth.

Understanding Digital Transformation

Digital transformation means the use of digital technologies in every domain of economic and social life. It is not just about taking up new tools, but redefining business models, governance forms and service delivery in a manner that embraces digital innovation. In the case of emerging economies, digital transformation runs in: The combination of various factors interrelates in a significant way to create the digital transformation and economic growth in emerging economies. Digital progress highly depends on infrastructure development that includes broadband networks, data centers, and effective electricity, which are fundamental components of the digital progress without which the latter will not be viable. Also crucial are digital financial systems, which allow financial inclusion through mobile banking and online transactions and fintech innovations that increase the economic participation of various people. E-governance is of critical importance to enhance the transparency, efficiency, and accountability of the public services thus creating trust and boosting the use of digital tools. On an industrial level, the emergence of smart industry, which is supported by automation, artificial intelligence is increasing productivity, innovation, and

competitiveness and is preparing the economies to Industry 4.0. The need to develop human capital has been the backbone of all these developments as it has enabled the workforce to have the required digital skills and competencies to succeed in a fast changing and ever changing technological environment. Investments on technology and infrastructure might not produce long-term positive results without talented and flexible human resources. Altogether, the five factors can be considered major enablers that are able to spur digital transformation and place emerging economies on the path of inclusive and long-term economic development.

Theoretical Linkages: Digital Transformation and Economic Growth

Several theoretical perspectives help explain how digital transformation fosters economic growth:

Endogenous Growth Theory and Network Effects

Endogenous Growth Theory focuses on the fact that economic growth is not caused by outside factors, but internal factors within an economy are the key factors in economic growth. This theory suggests that human capital, innovation and creation of knowledge are investments that result in a sustained growth through the creation of increasing returns. Network effects are important in maximizing these returns in the context of digital transformation. Network effects are effects in which the more people use a product or a service the higher the value of that product or service, this is the case with social media networks, e-commerce and digital platforms. Network effects can be used in emerging economies to stimulate growth through the connection of consumers, businesses, and financial systems to accelerate technology adoption and diffusion of innovations and to spread economic activity. As an example, mobile banking is more valuable when more customers are involved in its use, and it enhances financial inclusion and efficiency. Digital adoption, through the integration of endogenous growth modes and the network effects, does not only lead to productivity gains but also to the creation of knowledge-intensive industries which gives rise to a virtuous cycle of innovation and growth. This theory emphasizes the role of development of innovation, education, and digital connectivity as internal processes that help emerging economies to sustainably, self-accelerating economic growth..

INSTITUTIONAL ECONOMICS

Institutional Economics deals with the importance of institutions, formal rules, and regulations, and social norms, in the economic performance. It argues that powerful institutions lower transaction-costs, facilitate trust and generate predictable environments that stimulate investment, innovation and entrepreneurship. Institutional structures are essential in the context of digital transformation in facilitating the elegant application and use of technology. Laws and policies on digital payments, data privacy, cybersecurity and e-governance define how successful the digital systems can be. Weak or patchy institutions on the other hand can be barriers to digital adoption and drag economic growth. Bureaucratic inefficiencies, regulatory ambiguity, and the absence of governance in emerging economies can be obstacles to the advantages of digitalization. With the principles of institutional economics, policymakers will be able to find solutions that can be used to reform the institutions, increase transparency, and create enabling legal and regulatory frameworks. This helps the businesses and individuals embrace more digital technologies with greater confidence, which encourages productivity, inclusiveness and sustainability. Institutional economics, therefore, points out the fundamental nature of the interaction between governance and economic performance to create digital transformation.

Leapfrogging Theory

Leapfrogging Theory suggests that developing or emerging economies can bypass intermediate stages of technological development and move directly to advanced technologies, skipping traditional stages that developed countries experienced. This concept is particularly relevant in the digital era, where mobile technology, fintech, cloud computing, and renewable energy systems allow countries to implement state-of-the-art solutions without extensive legacy infrastructure. For example, many emerging economies have adopted mobile banking and digital payment systems without widespread traditional banking networks. Leapfrogging can accelerate economic growth by reducing time, cost, and resource barriers associated with gradual technological adoption. However, successful leapfrogging requires supportive policies, skilled human capital, and institutional readiness to absorb and scale new technologies. When effectively implemented, it enables emerging economies to close developmental gaps, increase productivity, and compete globally in knowledge-intensive sectors. The theory emphasizes that digital transformation offers a unique opportunity for these economies to achieve rapid modernization, inclusivity, and economic advancement without replicating the incremental paths followed by developed nations. Leapfrogging underscores the strategic potential of technology as a catalyst for accelerated growth.

Drivers of Digital Transformation in Emerging Economies

Mobile Connectivity and Internet Penetration

Mobile telephony and internet access are essential facilitators of digital transformation and economic development especially in the emerging economies. The pervasive availability of mobile networks and fast internet connections enables people, companies, and governments to engage in digital ecosystems, which enable communication, e-commerce, online banking, and e-governance. Mobile technologies geographically decrease distances, which allows rural and underserved communities to have access to financial services, education and health. The large internet penetration also promotes the innovation as it links businesses to the world and promotes knowledge and exchange of ideas. Moreover, it enhances the use of digital platforms, which makes it possible to achieve network effects that increase economic value. Nation states that have a well-developed infrastructure of connectivity have an opportunity to use data-based decision-making,

create an efficient supply chain, and become more productive. Disparities in access, however, may constrain these benefits, which are commonly known as the digital divide. Thus, the mobile coverage alongside cheap internet access is necessary to grow inclusively. Mobile connectivity and internet penetration serves as the pillars through which economies in the emerging economies can rapidly enhance their economic growth and technology assimilation by ensuring that every section of the society is able to access the digital economy.

Demographic Dividend

Demographic dividend is the growth potential of the economy caused by a relatively high number of working age population. Young and talented workforce in the emerging economies offers a promise of fast tracking productivity, innovation and technological uptake. With the right utilization of this demographic benefit in education, training and employment policy, it has the potential to become the engine of digital transformation as it provides the human capital required to work in technology-based industries such as IT, fintech and e-governance. The rising workforce also leads to more consumption and market demand in the domestic market that provides reasons why the business may implement digital solutions and grow digitally enabled services. Nevertheless, in order to make the most out of the demographic dividend, emerging economies have to invest in skill levels, digital literacy and entrepreneurial programs. The prospective advantages can be spent in vain in the absence of such interventions, through unemployment, or underemployment. Embracing the demographic dividend coupled with the digital infrastructure, connectivity, and friendly policies can help the countries boost economic growth and competitiveness.
Policy and Regulatory Support

Digital transformation in emerging economies depends on policy and regulatory support to facilitate and maintain. Clearly, consistent, and future-oriented policies decrease uncertainty, secure stakeholders, and open the way to investment in digital infrastructure and innovation. Policymaking on cybersecurity, data protection, e-government and e-finance is of particular significance, as it lays the groundwork of trust and enables the mass application of technology. Research and development, entrepreneurship, and skill development can also be stimulated with positive policies that will produce an ecosystem where technology can thrive. On the other hand, weak or incoherent regulatory frameworks may delay the adoption of digital, deter investment and worsen such issues as the digital divide or cyber security risks. Governments therefore, need to develop integrated digital policies that are responsive to the overall economic objectives, and which are also equitable and sustainable. Not only does effective policy and regulatory support accelerate digital adoption but also increases institutional capacity, lowers transaction costs and enhances innovation-led economic growth.

Global Integration

Global integration refers to the participation of emerging economies in international trade, investment, and technology flows. Digital transformation is closely linked to global integration, as access to global markets, international best practices, and cross-border knowledge transfer enhances economic growth and competitiveness. By adopting global standards, emerging economies can attract foreign investment, foster innovation, and accelerate technological diffusion. Integration into global value chains enables local businesses to leverage digital platforms for exports, supply chain optimization, and enhanced productivity. Additionally, global collaboration provides access to expertise in areas such as cyber security, fintech, and smart industry solutions. However, successful integration requires robust digital infrastructure, policy alignment, and a skilled workforce capable of interacting with global systems. Emerging economies that effectively combine global integration with domestic digital transformation initiatives can achieve accelerated economic development, increased innovation capacity, and sustainable competitiveness in the global economy.

India: Digital Transformation as a Growth Catalyst

Impact on Economic Growth

Empirical studies indicate that digitalization correlates strongly with GDP growth in emerging economies. A 10% increase in broadband penetration is estimated to boost GDP growth by 1–1.5% in developing countries. Digital transformation enhances productivity, reduces transaction costs, and fosters new industries, directly contributing to economic expansion. Moreover, digital economies foster inclusivity by integrating marginalized groups into markets, enhancing social mobility. At the same time, countries that fail to invest in digital infrastructure risk lagging further behind in the global economy.

Research Gap

Digital transformation has become one of the most important economic growth drivers, especially in the emerging economies that are attempting to compete in the global digital age. Much of the role of technology in economic development has already been discussed in the existing literature, but the literature focuses on developed countries, where infrastructure, governance, and access to digital technology are better developed. Infrastructure gaps, deficient digital inclusion, cyber security issues, and inefficient regulation are some of the challenges that face emerging economies but there is little empirical literature that discusses that dynamics in totality. In spite of the fact that some research is devoted to particular components of e-governance or the involvement of mobile connectivity, very few of them combine multiple variables, including digital financial systems, the development of human capital, and policy frameworks, in the one analysis of their influence on economic growth. In addition, less often are demographic views, in terms of the perception of various populations of challenges and opportunities in digital transformation. This leaves a knowledge gap in terms of how enabling factors, barriers interact with socio-economic outcomes within the emerging economies. It is essential to fill this gap to create a policy and strategies that can optimize the potential of digital transformation and overcome its risks. The current article aims to address this gap and provide an empirically based exploration in a

comprehensive way.

Importance of the Study

The relevance of the study is also important as it presents the most important challenges such as the digital divide, cyber security risks, and lack of skills, which should be considered to achieve equitable and inclusive growth. To the policymakers, the findings will provide evidence based on the areas of special interest with regard to investments and policy interventions. In the case of organizations and businesses, the findings highlight the need to embrace the digital change in order to be competitive within the international markets. In the case of academics, the study contributes to the expanding body of research of digital transformation, especially in under-researched settings. All in all, this article points out that digital transformation, when used in a strategic manner, can be the driver behind sustainable development and socio-economic progress.

Statement of the Problem

The increasing pressure on emerging economies to hasten the process of digital transformation to become competitive in the global setting and ensure sustainable economic growth is associated with globalization. Though digital technologies include mobile banking, e-governance platforms, and smart industries have high efficiency and inclusivity, they are not used successfully. A lack of digital infrastructure, insufficient internet access, poorly developed regulatory frameworks, cyber security threats, and workforce talent gaps continue to be the most common problems in many emerging economies. These are the obstacles to the full potential of digital transformation. Whereas studies have examined the advantages of digital technologies in the advanced economies, less focus has been made on the particular barriers and facilitating trends in the emerging countries. Besides, empirical data on the perceptions of the stakeholders in these economies regarding the drivers and barriers of digital transformation and its effect on growth are limited. In the absence of a clear understanding of these dynamics, governments, policymakers and organizations might find it difficult to formulate effective strategies resulting to unequal growth and the inability to take up opportunities. Thus, the gap mentioned in this study is that no comprehensive research that incorporates the facilitating factors and issues of digital transformation with the consequences of the latter on economic development in emerging economies has been conducted, which restricts informed decision-making and policy-making.

Objectives of the Study:

- To identify the key factors influencing digital transformation and economic growth in emerging economies.
- To examine demographic differences, such as gender, in perceptions of digital transformation factors and challenges.
- To provide recommendations for policymakers and organizations to leverage digital transformation for sustainable growth.

RESEARCH METHODOLOGY

The analysis has given important details about the correlation between digital transformation and economic growth in the developing economies, but some constraints must be admitted. To begin with, the research used a convenient sampling method of 250 participants, thus restricting the application of the results in other wider groups. The sample is not necessarily representative of the variety of industries, regions or socio-economic groups in bustling economies. Second, the structured questionnaire to collect the data is based on self-reporting answers. These responses are likely to be biased, such as social desirability bias and subjective opinions by the respondents that can impact accuracy. Third, the study has a cross-sectional design, as it records the perceptions at only one instance in time, as opposed to studying the long-term movements of the digital transformation and the economic consequences of the latter. Also, the study mainly concentrated on the chosen factors, which included infrastructure, financial systems, e-governance, and human capital, whereas there are other important aspects such as cultural attitudes to technology, political stability, and pressures of the global economy were left out. Lastly, even though the study evaluated the challenges, including the digital divide and cyber security, it failed to examine the interaction of the challenges with each other to determine how they influence the economic growth. Such constraints indicate a need to take care when inferring the findings to the general population.

FINDINGS AND RESULTS

The significance of the work is that it addresses the nexus between digital transformation and economic growth in the emerging economies. The relevance of digital tools, platforms, and innovations has become a necessity in the age of Industry 4.0 to realize competitiveness and sustainability. Nevertheless, the rate and influence of digital change are unevenly distributed across the countries, where new economies experience a high level of limitations and opportunities. The systematic analysis of such issues as infrastructure development, digital financial systems, e-governance, and human capital allows comprehending the factors that have the most promising potential to initiate economic progress in this study.

Results of descriptive statistics of factors influencing Digital Transformation and Economic Growth in Emerging Economies

Factors	N	Mean	SD
Infrastructure Development	250	3.87	1.687
Digital Financial Systems	250	4.32	1.701
E-Governance	250	4.21	1.683
Smart Industry	250	3.65	1.851

Human Capital Development	250	4.09	1.730
Policy and Regulatory Support	250	4.11	1.921
Mobile Connectivity and Internet Penetration	250	3.55	1.659

Descriptive statistics results:

The descriptive analysis provides insights into the factors influencing digital transformation and economic growth in emerging economies. Among the identified factors, Digital Financial Systems recorded the highest mean score (M = 4.32, SD = 1.701), indicating that respondents strongly perceive financial digitization—such as mobile banking, online payments, and fintech innovations—as a major driver of transformation and growth. This is followed by E-Governance (M = 4.21, SD = 1.683) and Policy and Regulatory Support (M = 4.11, SD = 1.921), highlighting the importance of effective governance structures, supportive regulations, and transparent policies in enabling digital adoption. Human Capital Development (M = 4.09, SD = 1.730) also scored highly, suggesting that skill enhancement and workforce readiness are critical in sustaining digital-driven growth.

On the other hand, factors such as Infrastructure Development (M = 3.87, SD = 1.687) and Smart Industry (M = 3.65, SD = 1.851) received moderate ratings, indicating progress but also room for improvement in physical and technological infrastructure, as well as in the integration of Industry 4.0 practices. Mobile Connectivity and Internet Penetration scored the lowest (M = 3.55, SD = 1.659), suggesting that digital access gaps remain a significant challenge in emerging economies.
Overall, the results emphasize that while financial digitization, governance, and supportive policies are perceived as key enablers, infrastructure and digital inclusion need greater focus to accelerate digital transformation and economic growth.

Results of Independent t-test for Challenges to Digital Transformation

Challenges	Gender	N	Mean	SD	t	p
Digital Divide	Male	125	3.67	1.099	.657	.765
	Female	125	3.42	1.211		
Infrastructure Gaps	Male	125	4.23	1.427	.210	.841
	Female	125	4.56	1.399		
Cyber security and Data Privacy	Male	125	4.82	1.269	.339	.767
	Female	125	3.20	1.753		
Risk of Job Displacement	Male	125	3.14	1.540	-.455	.650
	Female	125	4.28	1.522		
Institutional and Policy Limitations	Male	125	4.54	1.548	-.321	.729
	Female	125	4.37	1.438		
Skills Gap	Male	125	4.10	1.721	.436	.533
	Female	125	3.51	1.659		

The independent samples t-test was conducted to examine whether perceptions of challenges to digital transformation differ significantly between male and female respondents. For the factor Digital Divide, males (M = 3.67, SD = 1.099) and females (M = 3.42, SD = 1.211) reported similar mean scores, with a t-value of 0.657 and p = 0.765, indicating no significant difference. Similarly, for Infrastructure Gaps, both males (M = 4.23, SD = 1.427) and females (M = 4.56, SD = 1.399) perceived this as a critical challenge, but the difference was statistically insignificant (t = 0.210, p = 0.841).

In the case of Cyber security and Data Privacy, males reported a higher mean (M = 4.82, SD = 1.269) compared to females (M = 3.20, SD = 1.753). However, the observed difference was not statistically significant (t = 0.339, p = 0.767). For Risk of Job Displacement, females (M = 4.28, SD = 1.522) expressed higher concern compared to males (M = 3.14, SD = 1.540), but the t-value (-0.455, p = 0.650) again suggests no significant difference. Similarly, no meaningful gender differences were found for Institutional and Policy Limitations (p = 0.729) or Skills Gap (p = 0.533).

Overall, the results show that although mean differences exist between male and female respondents across different challenges; none of these differences are statistically significant (p > 0.05). This implies that both genders broadly share similar views on the barriers to digital transformation in emerging economies.

IMPLICATIONS FOR THE STUDY

The results of this research have strong implications to policymakers, organizations and society in general. The focus on the digital financial systems and e-government is a sign that technology can promote the transparency, efficiency and financial inclusiveness that are imperative to sustainable development. To organizations and industries, the research highlights the importance of moving towards the use of digital tools and platforms to stay competitive, and also to anticipate the challenges that come with the practice, including cyber security threats and displacement of the workforce. The study further indicates that skills development interventions play a critical role in closing the gaps that exist as well as ensuring that employees can survive in digitally empowered settings. In terms of the society, the study identifies the significance of providing fair access to digital technologies in order to reduce the digital divide and enhance growth inclusively. In academic

terms, the research contributes to the paucity of research on digital transformation in the emerging economies with empirical data on both facilitating aspects and obstacles. The implications therefore go not just to the economic performance but on the issues of social equity, readiness of the workforce, and sustainable development.

Recommendations and Suggestions

Governments must put greater investments on digital infrastructure i.e. broadband connectivity, data centers and smart technologies to lower access obstacles. Second, there should be an update of policy and regulatory frameworks to cope with issues such as cybersecurity, privacy concerns, and digital ethics as well as to promote innovation and investment. Third, human capital should be strengthened more, and training sessions, upskilling courses, and digital literacy should be implemented to equip the staff with Industry 4.0. Organizations must be proactive and employ digital tools in its workflow and introduce the culture of innovation and flexibility. In order to overcome the digital divide, special programs have to provide equitable access in rural and underserved regions, thereby making it possible to involve everyone in the digital economy. Moreover, the partnership between government, academia and industry is essential in the creation of ecosystems that encourage innovation and transfer of knowledge. Lastly, digital initiatives should be monitored and evaluated on a continuous basis to oversee the progress and make prompt changes. Taken together, these recommendations can enable the rising economies to embrace the transformative nature of digitalization in order to attain sustainable and inclusive economic development.

Policy Recommendations

To harness the full potential of digital transformation, emerging economies must adopt holistic strategies:

Expand Infrastructure Investments – Prioritize universal broadband access, 5G networks, and reliable electricity. Public-private partnerships can help bridge financing gaps. Promote Digital Literacy and Skills Training – Invest in STEM education, vocational training, and lifelong learning to address skill mismatches.

Strengthen Governance and Regulation – Develop clear policies on cybersecurity, data privacy, and intellectual property protection. Transparent regulations encourage innovation and investor confidence.

Foster Innovation Ecosystems – Support start-ups through incubators, accelerators, and venture funding. Encourage collaboration between universities, governments, and businesses.

Encourage Inclusive Digitalization – Address gender and rural-urban divides through targeted subsidies, digital literacy programs, and localized solutions.

Regional and International Cooperation – Emerging economies can share best practices and harmonize digital trade policies to participate in global value chains.

The Future of Digital Transformation in Emerging Economies

It is expected that the following decade will see increased digital uptake in the emerging economies with the help of artificial intelligence, blockchain, 5G, and green technologies. Digitalization and sustainability (including smart energy grids, green fintech, and digital agriculture) will be important in ensuring that growth will be sustainable, both environmentally and socially. There is a unique chance in the emerging economies: by being strategic in adopting digital transformation, the countries can jump a level of development, decrease inequality, and get higher levels of productivity. Nevertheless, the unavoidable consequence of digital transformation is increasing inequalities and deepening structural vulnerability without inclusive policies and robust institutions to back them up.

Future Research Scope

On top of the limitations, a number of future research opportunities are suggested. First, the longitudinal design would be the method of future research as it would help to capture dynamic nature of digital transformation and its cumulative effect on economic growth, especially in emerging economies that are rapidly evolving. The sample size may be increased and probability-based sampling techniques may be implemented to increase the representativeness and reliability of results. Researchers can also contemplate a cross-country comparative study to determine what is common and what is different across various economic, cultural and political settings in regards to the effects of digital transformation on growth. Still, qualitative methods like interviews or case studies might help people get more in-depth information regarding the way particular industries or organizations are deploying the strategy of digital transformation and addressing the obstacles. Digital transformation and its interaction with the wider socio-economic variables (employment patterns, income inequality, and rural-urban disparities) should be studied in the future as well. Moreover, the impact of the new technologies, such as artificial intelligence, blockchain, and the Internet of Things, might also be discussed since they influence economic models more and more. Finally, the research of policy interventions and governance mechanisms further would be beneficial to determine the best practices to enhance inclusive and sustainable digital growth. This kind of research would add value to both theoretical and practical knowledge of digital transformation in the emerging economies.

CONCLUSION

Digital transformation represents both a challenge and an unprecedented opportunity for emerging economies. It offers pathways to financial inclusion, industrial competitiveness, improved governance, and social development. At the same time, infrastructure gaps, digital divides, and institutional weaknesses must be addressed to ensure equitable benefits. If managed strategically, digital transformation can act as a powerful driver of economic growth, positioning emerging economies at the forefront of global innovation. The key lies in aligning digital policies

with broader development goals—building resilient infrastructure, investing in human capital, and ensuring that digital progress translates into inclusive prosperity for all.

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