

The Digital Economy and Its Impact on Achieving Sustainable Growth in Developing Countries: An Analytical Study of the Reality and Prospects

Ridha BEDDIAR

Mohamed Boudiaf University of M'sila

beddiar.ridha@univ-msila.dz

Hocine Elamine CHERIET

Faculty of Economic, Commercial and Management Sciences,
es,

University of M'sila

hocineelamine.cheriet@univ-msila.dz

Amina KHETTABET

University of Algiers 3

mina.khettabet@gmail.com

Abstract:

This study aims to analyze the impact of the digital economy on achieving sustainable growth in developing countries. The digital economy is considered a pivotal factor that contributes to enhancing economic, social, and environmental development in an integrated manner. It encompasses key components such as e-commerce, digital services, big data, artificial intelligence, and cloud computing. Together, these elements improve productivity, create new job opportunities, and promote financial inclusion. Digital indicators in developing countries show disparities in internet usage rates, infrastructure, and levels of digital inclusion, which directly affect these countries' ability to effectively leverage digital opportunities. Developing nations face multiple challenges, including weak infrastructure, lack of digital skills, the digital divide, and an inadequate legal framework. Therefore, the development of the digital economy requires policies that support investment in infrastructure, the advancement of technical education, the promotion of innovation, and the strengthening of international partnerships to ensure inclusive and sustainable growth.

Keywords: Digital economy, sustainable growth, developing countries, digital inclusion.

L'économie numérique et son impact sur la réalisation d'une croissance durable dans les pays en développement : Une étude analytique de la réalité et des perspectives

Résumé :

Cette étude vise à analyser l'impact de l'économie numérique sur la réalisation d'une croissance durable dans les pays en développement. L'économie numérique est considérée comme un facteur essentiel qui contribue à renforcer le développement économique, social et environnemental de manière intégrée. Elle englobe des éléments clés tels que le commerce électronique, les services numériques, le big data, l'intelligence artificielle et l'informatique en nuage. Ensemble, ces éléments améliorent la productivité, créent de nouvelles opportunités d'emploi et favorisent l'inclusion financière. Les indicateurs numériques dans les pays en développement montrent des disparités dans les taux d'utilisation de l'internet, les infrastructures et les niveaux d'inclusion numérique, ce qui affecte directement la capacité de ces pays à exploiter efficacement les opportunités numériques. Les pays en développement sont confrontés à de multiples défis, notamment la faiblesse des infrastructures, le manque de compétences numériques, la fracture numérique et un cadre juridique inadéquat. Par conséquent, le développement de l'économie numérique nécessite des politiques qui soutiennent l'investissement dans l'infrastructure, l'avancement de l'enseignement technique, la promotion de l'innovation et le renforcement des partenariats internationaux afin de garantir une croissance inclusive et durable.

Mots-clés : *Économie numérique, croissance durable, pays en développement, inclusion numérique.*

Introduction

Since the beginning of the third millennium, the world has witnessed a radical transformation in its economic and social structure due to the rapid advancement in information and communication technology. Digitization is no longer a technical option or an economic luxury; it has become an urgent necessity for reshaping production and consumption models and organizing societies. The digital economy has emerged as one of the most prominent outcomes of this transformation, redefining the equations of power, production, and growth. It is not merely a shift from paper to machine, but rather a comprehensive economic system based on the use of digital technologies across all stages of economic activity – from production and distribution to marketing and consumption. It relies on big data, artificial intelligence, cloud computing, blockchain, and other technological tools.

At a time when developed countries are competing to expand the scope of the digital economy and maximize its benefits, most developing countries are still struggling with a wide digital divide that hinders their effective entry into this new economic space. This makes the adoption of the digital economy a historic opportunity for these countries to make up for some of their developmental lag – especially if it is linked to the United Nations' 2030 Agenda for Sustainable Development. Digital transformation carries immense potential for promoting sustainable growth in developing nations. Thanks to digital innovations, development can be accelerated by improving productivity, reducing costs, and increasing the efficiency of delivering essential services such as healthcare, education, and transportation. Moreover, it

offers new mechanisms for financial inclusion through electronic payment technologies and digital financing, helping integrate marginalized social groups into the economic cycle. It also contributes to reducing environmental impacts through smart solutions for energy, transportation, and waste management, thereby enhancing the environmental dimension of development.

However, this path is not without challenges. The lack of adequate digital infrastructure, the weakness of education and digital training systems, and the shortage of both private and public investments in the sector all pose significant obstacles to achieving a fair and effective digital transformation. Additionally, the evident digital divide between urban and rural areas, between men and women, and between wealthy and poor segments within developing countries themselves, further compounds these challenges—not to mention the deeper divide between developing and developed nations. At the institutional level, digitization presents new challenges related to governance, cybersecurity, and data protection—issues that require legislative and regulatory frameworks tailored to the specific contexts and capacities of developing countries. Furthermore, the shift in the state's role from "service provider" to "digital regulator" necessitates a smart and flexible rebuilding of state and institutional capacities.

Nonetheless, successful experiences in some developing countries—such as Kenya, which launched inclusive digital financial services through the M-Pesa platform, and India, which developed a national digital identity used to access social and financial services—highlight the potential of the digital economy as an effective development tool. However, the success of these models does not imply that they can be copied and applied universally without adaptation. Each

country has its own economic and social structure, making localization one of the key conditions for the sustainability of digital transformation.

Based on the above and in order to study the current state and future prospects of the digital economy in developing countries, we pose the central research question as follows: **To what extent can the digital economy contribute to achieving sustainable growth in developing countries? And what are the requirements and constraints for enabling this role amid the technical, social, and economic challenges these countries face?**

Studying the digital economy is of vital importance today, given the rapid technological developments that have brought about profound transformations across various economic and social fields. Digitization is no longer an option – it has become a strategic necessity dictated by the nature of the digital age, representing a qualitative shift in production, distribution, and consumption methods.

The importance of the digital economy lies in its role as a key factor in modernizing traditional economic structures by improving efficiency, accelerating performance, and providing a more transparent and effective environment for resource management.

In addition, the digital economy plays a central role in achieving financial and social inclusion, particularly in developing countries striving to expand access to financial, educational, and health services through digital means. This contributes to reducing social and geographical disparities. It also opens the door to the use of advanced technologies such as artificial intelligence, big data, and cloud computing, which support indicators of sustainable growth and enhance

the capacity to adapt to evolving environmental and economic challenges.

Moreover, the digital economy is considered one of the effective tools for bridging developmental gaps by offering innovative digital solutions in areas such as education, healthcare, transportation, and government services, thereby improving quality of life. From this perspective, adopting the path of digital transformation has become a fundamental requirement for integration into the global economy, participation in digital value chains, and enhancing national competitiveness.

Given this significance, the aim of this study is to provide a comprehensive and integrated vision of the concept of the digital economy, while highlighting its role in supporting sustainable development across its economic, social, and environmental dimensions. It also seeks to analyze the key components of this economy – including e-commerce, financial technology (FinTech), artificial intelligence, and the Internet of Things – with a focus on the structural and regulatory challenges hindering its development in developing countries.

The discussion concludes by presenting successful international models of economic digitization, such as Kenya, India, and the United Arab Emirates, as pioneering experiences that can be leveraged to develop appropriate national policies and strategies to activate the digital economy and employ it as a means to achieve inclusive and sustainable development.

1. Theoretical Framework of the Digital Economy and Sustainable Growth

This section provides a fundamental conceptual introduction to understanding the relationship between the digital

economy and sustainable growth. It clarifies the nature of the global economic shift toward digitization and the accompanying changes in the mechanisms of production, distribution, and consumption.

It also covers the definition of the digital economy and its main components and tools, highlighting how these digital transformations can contribute to achieving sustainable development that takes into account economic, social, and environmental dimensions – especially in the context of developing countries striving to overcome the limitations of traditional growth through innovation and technology.

1.1 The Concept of the Digital Economy and Its Core Components

The Concept of the Digital Economy: The term *digital economy* refers to the totality of economic activities that rely primarily on digital technologies, including the Internet, artificial intelligence, big data, and the Internet of Things. These elements contribute to creating a new technological environment that influences production, consumption, and patterns of economic and social interaction (Bukht and Heeks, 2017: 2–3). This concept emerged in response to the profound technological transformations the world has witnessed since the beginning of the third millennium, particularly with the spread of Internet and digital communication infrastructure.

The digital economy is defined as: "*The part of economic activity that results from billions of everyday online connections among people, businesses, devices, data, and processes.*" This definition reflects the interconnected nature of the digital economic system, which transcends geographical boundaries (Bukht and Heeks, 2017: 4).

It is also viewed as: "*An economic system based on the use of information and communication technology to facilitate and enhance economic and social processes, and to achieve efficiency and innovation across various sectors*" (Qodirova, Esonova and Usarova, 2022: 2).

The Organisation for *Economic Co-operation and Development* (OECD), in a related context, views the digital economy as encompassing **all economic, social, and cultural activities that rely on digital information technologies and their applications** (OECD, 2014: 15-16).

Meanwhile, the World Bank defines it as "*an economy based on digital connectivity among people, businesses, sensors, data, and processes,*" emphasizing the role of **big data and artificial intelligence** in reshaping global value and production chains (World Bank, 2016: 4-5).

1.2. Core Components of the Digital Economy

The digital economy is composed of several fundamental pillars that together form an integrated structure influencing various aspects of economic activity:

Digital Infrastructure: This includes communication networks, cloud computing, data centers, and digital systems that enable the fast and efficient flow of information. It is considered the backbone of any digital economy (OECD, 2014: 18).

Digital Services: These include e-commerce, digital financial services, online education, and e-government services. They represent the direct applications of technology in everyday and economic life (OECD, 2014: 22).

Digital Human Capital: This refers to the human competencies capable of using and leveraging digital tools in production and services. Therefore, investment in digital educa-

tion and training is a core element in the development of the digital economy (Bukht and Heeks, 2017: 6).

Big Data and Artificial Intelligence: Data has become the new element in the value chain, serving as the main driver for analysis, planning, and decision-making—especially with the advancement of AI and machine learning technologies (Qodirova, Esonova and Usarova, 2022: 3–4).

Innovation and Entrepreneurship: The digital economy enhances innovation opportunities through open platforms, crowdfunding, and flexible legal frameworks. This contributes to the emergence of entrepreneurial ventures that benefit from the sharing economy and digital globalization (OECD, 2014: 26).

It is worth noting that the interaction between these components occurs within a regulatory and legislative environment that governs data usage, protects privacy, and ensures cybersecurity—an essential challenge facing governments in the digital age.

1.3. The Concept of Sustainable Development: The concept of sustainable development has evolved to become a cornerstone of global development discourse. In its simplest formulation, it is defined as *“development that meets the needs of the present without compromising the ability of future generations to meet their own needs,”* a definition adopted by the Brundtland Commission in 1987. It emphasizes the balance between the present and the future in terms of resource distribution (World Commission on Environment and Development, 1987).

However, the concept goes beyond this general definition and has expanded to include administrative and environmental dimensions. Another definition describes sustainable

development as: "*The management and protection of the natural resource base, and institutional change to achieve, maintain, and satisfy human needs of present and future generations in a manner that is environmentally sound, economically viable, and socially acceptable*" (Bukht and Heeks, 2017).

Sustainable development, understood from the perspective of human well-being, is defined as "*an economy that leads to the improvement of human welfare and social equity, while simultaneously significantly reducing environmental risks,*" highlighting the social dimension of development as a tool for achieving justice and improving quality of life (Qodirova, Esonova and Usarova, 2022). Some definitions take a more comprehensive approach when describing sustainable development, viewing it as "*the process of developing land, cities, communities, as well as businesses, provided that it meets the needs of the present without compromising the ability of future generations to meet their needs.*" This definition combines economic, social, and environmental development all at once (World Commission on Environment and Development, 1987).

When comparing these definitions, the common denominator is the consideration of future generations in resource use, though there is variation in the emphasis on environmental, social, or institutional aspects. Some focus on protecting natural resources, while others highlight the importance of social equity or the integration of all three dimensions of development.

1.4.. The Relationship Between the Digital Economy and Sustainable Development

Today, the digital economy is one of the main drivers of global economic and social transformations. It represents a new development model that reshapes economic relation-

ships and changes the nature of production, labor, and services. It relies on information technology, communication, big data, digital platforms, and artificial intelligence to manage economic activities, creating new opportunities for growth and innovation, enhancing resource efficiency, and promoting transparency and global integration (Schwab, 2016, p.12).

This radical transformation has made it essential to study the extent of its contribution to achieving sustainable development goals, such as eradicating poverty, boosting economic growth, reducing social disparities, and ensuring environmental sustainability and good governance. One of the most notable contributions of the digital economy to sustainable development is its role in promoting inclusive economic growth by reducing costs and increasing productivity. Companies have been able to improve value chains, reduce waste, and enhance operational efficiency (Manyika et al., 2016, p.21).

Digital platforms also provide new opportunities for entrepreneurs and small- and medium-sized enterprises to enter global markets, creating a more flexible and responsive economic environment. Moreover, the digital economy enhances financial inclusion, which is a fundamental pillar of sustainable development. Digital financial services, such as e-wallets and mobile payment systems, offer the chance to integrate millions of people in rural and marginalized areas into the economic system, thus promoting financial independence and supporting poverty reduction (World Bank, 2020, p.9).

The relationship between the digital economy and sustainable development is clearly evident in the field of education and capacity building. Information technology has revo-

lutionized learning methods through educational platforms and open online courses (UNESCO, 2021, p.15), contributing to reducing educational gaps and building human capital. On another front, the digital economy serves as an effective tool for good governance and combating corruption through digital tools for monitoring government performance, facilitating community participation, and delivering services electronically. This enhances trust in institutions and improves the effectiveness of public policies (United Nations, 2022, p.33). From an environmental perspective, it can support the transition to sustainable production and consumption patterns through technologies such as artificial intelligence and the Internet of Things, which enable monitoring resource consumption and reducing waste (OECD, 2020, p.18). However, this digitalization requires environmental awareness to avoid its negative effects, such as electronic waste or energy.

On the other hand, there are real challenges to realizing the benefits of the digital economy for development, especially in developing countries. The most prominent of these is the digital divide, as more than 2.7 billion people remain unconnected to the internet, most of them in Africa and South Asia (ITU, 2022, p.5). Moreover, technological dependence on technology providers in developed countries raises concerns related to digital sovereignty, privacy protection, and fairness of digital rules (Zuboff, 2019, p.65). To optimally benefit from the digital economy in supporting sustainable development, integrated public policies should be adopted, including building digital infrastructure, developing education, protecting data, and encouraging entrepreneurship. Strengthening cooperation between the public and private sectors, international organizations, and research centers is also a fundamental pillar for the success of sustainable digital transformation (UNCTAD, 2021, p.27). This

is confirmed by the experiences of countries such as Estonia, Kenya through "M-Pesa," and Madagascar with digital education programs, demonstrating the possibility of achieving developmental leaps despite limited resources, provided there is political vision and investment in human capital (World Bank, 2018, p.32).

The relationship between the digital economy and sustainable development is a complex, interactive one that requires a comprehensive understanding integrating technical, social, environmental, and political dimensions. It calls for fair global governance, innovative developmental approaches, and long-term investment in human capital and knowledge (Schwab, 2016, p.16; Zuboff, 2019, p.108).

2. The Reality of the Digital Economy in Developing Countries and Its Impact on Growth

Today, the digital economy represents a fundamental lever for growth and transformation worldwide. Developing countries aspire to strengthen their competitive capacities and achieve inclusive and sustainable development through it. However, this transformation is not limited to providing smartphones or internet infrastructure; it requires a precise understanding of digital reality indicators and their direct connection to economic and social performance metrics. In this section, we review the key indicators of the digital reality in developing countries and then analyze the impact of the digital economy on promoting sustainable growth by improving productivity, creating job opportunities, enhancing financial inclusion, and reducing social disparities.

2.1 Digital Reality Indicators in Developing Countries Internet Usage Rates:

Internet access rates in developing countries remain lower than those in advanced economies, despite significant progress in mobile phone networks. According to the International Telecommunication Union's 2024 report, the average percentage of internet users in these countries is about 36% of the total population, compared to approximately 87% in developed countries (International Telecommunication Union, 2024). This gap is attributed to several factors, most notably the high cost of data services in rural areas and the lack of investment incentives to expand networks beyond major cities, leading to a persistent "digital divide."

Mobile Network Coverage: Although the overall usage rate is low, mobile network coverage reaches about 83% of inhabited areas in developing countries (ITU, 2024b). However, this coverage does not necessarily guarantee actual service access due to the high prices of smart devices, low incomes, and a lack of technical skills.

Technological Infrastructure and Energy: Stable electricity availability is a fundamental requirement for operating data centers and communication networks. Yet, frequent power outages remain common in many developing countries, weakening their readiness to invest in digital solutions. According to the World Bank report, 15% of data centers in these countries face the risk of shutdown due to weak energy sources (World Bank, 2021, p. 169).

Digital Inclusion Rate: The United Nations Development Programme (UNDP) 2023 report shows that only 28% of households in developing countries have a mobile account for digital financial transactions (UNDP, 2024, p. 17). Kenya's experience with the "M-Pesa" service demonstrates that

appropriate local investment can raise financial inclusion rates to more than 90% within five years (Jack & Suri, 2016).

2.2 Human Capacities and Digital Skills:

According to the World Bank 2023 report, less than 20% of the workforce in developing countries possess the basic skills needed to use digital economy tools, reflecting a weak integration between education and the labor market. This highlights the importance of developing qualification programs through cooperation between universities and the private sector (World Bank, 2023, pp. 5–7).

3. The Impact of the Digital Economy on Growth in Developing Countries

3.1 Increasing Economic Productivity:

The digital economy effectively contributes to enhancing productivity by employing advanced technologies such as artificial intelligence, big data analytics, and the Internet of Things. A study by the McKinsey Global Institute revealed that integrating digital tools in the agricultural sector led to a crop productivity increase of up to 25%, thanks to the adoption of precision farming systems, environmental sensing technologies, and the Internet of Things (McKinsey Global Institute, 2016, p. 17). Additionally, a report by PwC indicated that automation and advanced data analytics could add approximately \$15.7 trillion to the global GDP by 2030 by improving efficiency and reducing waste (PricewaterhouseCoopers, 2017, p. 8).

3.2 Creating New Job Opportunities:

Despite concerns about the loss of some traditional jobs due to automation, the digital economy creates new job op-

portunities in areas such as software development, network management, data analysis, and digital design. The World Economic Forum highlighted that digitalization could contribute to the creation of approximately 133 million new jobs by 2025, a number that far exceeds the jobs that may be replaced by new technologies (World Economic Forum, 2023, p. 12).

3.3 Enhancing Financial and Social Inclusion:

Financial technology (FinTech) has revolutionized access to financial services, especially in remote areas. World Bank data indicates that the use of mobile payment services has reduced transaction costs by between 30% and 40% compared to traditional banking systems, enabling individuals to open savings accounts, obtain microfinance, and even access agricultural insurance (World Bank, 2020, pp. 5–6).

3.4 Reducing Social and Economic Gaps:

The digital economy helps bridge social gaps by providing digital education and remote healthcare services. UNESCO reported that more than 200 million students in developing countries benefited from open educational platforms during the COVID-19 pandemic, contributing to reducing educational disparities between urban and rural areas. In healthcare, telemedicine helped deliver care services to remote regions, improving health indicators (UNESCO, 2021, p. 9).

3.5 Supporting Environmental Goals:

The digital economy offers tangible possibilities to achieve environmental sustainability goals, such as monitoring air and water quality, waste management, and energy conservation, through technologies like the Internet of

Things and big data. A report by the Organisation for Economic Co-operation and Development (OECD) stated that some cities adopting smart environmental monitoring technologies reduced energy consumption by up to 20% over three years (OECD, 2020, p. 22).

3.6 Enhancing Governance and Transparency:

E-government tools such as blockchain and open digital platforms contribute to increasing transparency levels and combating corruption. A United Nations report on digital government showed that some developing countries that adopted electronic portals for public procurement witnessed a reduction in corruption indicators by up to 15% within two years (UN DESA, 2022, p. 34).

4- Policies and Challenges of the Digital Economy in Developing Countries

The digital economy is a key driver of growth and development in the modern era, capable of improving services, increasing productivity, and creating new job opportunities. However, developing countries face unique challenges in adopting and developing the digital economy, requiring effective and integrated policies to overcome these obstacles. This section reviews the policies followed by some developing countries to develop the digital economy, the main challenges they face, as well as the expected prospects for the digital economy.

4.1. Policies Followed in Developing the Digital Economy

India's Experience – The "Digital India" Initiative : The Indian government launched the "Digital India" initiative in 2015 with the goal of transforming the country into an inclu-

sive digital economy. The initiative focused on three main pillars: developing digital infrastructure, delivering government services electronically, and promoting digital literacy among citizens.

Regarding infrastructure development, the "BharatNet" project was implemented, aiming to connect more than 250,000 villages with high-speed internet by 2021. Over 150,000 villages were connected with fiber-optic networks, helping to reduce the digital divide between urban and rural areas (Bharat Broadband Network, 2021).

On the service delivery front, Common Service Centers (CSCs) were established, providing more than 400 government and non-government services to citizens, especially in rural areas. The number of these centers exceeded 500,000, facilitating access to essential services such as government registrations, financial services, and education (CSC SPV, 2021). In the field of promoting digital literacy, programs like "DigiLocker," which offers a platform for electronically storing official documents, and "UMANG," which consolidates many government services into one app, were launched. Additionally, training programs were implemented to enhance citizens' digital skills, thereby raising digital awareness among the population (OpenGov Asia, 2024).

However, despite these achievements, the initiative faced challenges such as frequent internet outages and concerns related to privacy and cybersecurity. Some digital policies also sparked debates about freedom of expression and human rights (Dark Reading, 2024).

Uzbekistan's Experience - The "Digital Integration" Project: Uzbekistan is seeking to strengthen its digital economy through the "Digital Integration" project launched in cooperation with the World Bank. This project aims to develop digital infrastructure and create job opportunities in the infor-

mation technology sector, especially for youth and women in rural areas. Among the project's goals is training more than 6,000 young men and women aged between 18 and 30 in digital skills and foreign languages. The project also aims to create 25,000 new jobs in the IT services sector and provide incentives for companies to hire trained youth (World Bank, 2023). Regional IT service centers (ITES) have been established across the country, which has helped attract more than 240 local and international companies to operate in Uzbekistan (Qalampir.uz, 2024). Additionally, the necessary infrastructure to support these companies has been developed, including modern offices and high-speed internet networks (Qalampir.uz). Through these efforts, the government aims to increase IT service exports to 5 billion dollars by 2030, attract 1,000 foreign companies to work in the country, and provide 300,000 jobs in the IT sector, thereby enhancing Uzbekistan's position as a regional technology hub (bne IntelliNews, 2024).

However, despite these efforts, Uzbekistan faces challenges such as the need to develop legal and regulatory frameworks and ensure sustainable financing for digital projects. There is also a need to enhance digital skills among the population to ensure they benefit from available opportunities (UNDP, 2025).

Ghana's Experience - The "Ghana Open Data Initiative" (GODI): In 2012, Ghana launched the "Ghana Open Data Initiative" aimed at enhancing government transparency and accountability, and stimulating economic growth by providing government data to citizens and developers. The initiative was implemented in cooperation with the Web Foundation and aims to create an open data community that includes the government, civil society, academia, media, and

citizens (Ghana Open Data Initiative, 2012). An electronic portal was developed providing more than 100 datasets in various fields such as politics, economy, health, and education. Additionally, over 150 government employees from 20 ministries and agencies were trained on data management, dissemination, and understanding the legal issues related to open data (Open Government Partnership, 2019).

Despite these efforts, the initiative faced challenges such as lack of funding, the need for regular data updates, and ensuring the quality of available data. Furthermore, enhancing cooperation among different government entities is necessary to ensure the provision of comprehensive and up-to-date data (Open Government Partnership, 2019).

4.2- Major Challenges in Developing the Digital Economy **Weak Digital Infrastructure:**

Weak digital infrastructure is one of the most prominent challenges facing developing countries in advancing the digital economy. Many of these countries suffer from a lack of high-speed internet networks and frequent power outages, which hinder access to digital services. For example, in the least developed countries, the fixed internet subscription rate is only 1.6 per 100 people, and the cost of a 2 GB mobile internet package amounts to about 6% of the average monthly income, which is considered high compared to the global average (ITU, 2024).

Gender Digital Divide: Studies show a significant digital gender gap in developing countries, where women face greater challenges in accessing and using the internet. For instance, a report by the Cherie Blair Foundation revealed that 45% of women entrepreneurs in developing countries lack regular internet access due to high costs and connectivity issues. Moreover, women are more vulnerable to online

harassment, limiting their participation in the digital economy (Cherie Blair Foundation, 2024).

Lack of Digital Skills: A lack of digital skills is a major challenge for developing countries in developing the digital economy. Many of these countries suffer from a shortage of a workforce trained in basic digital skills, limiting their ability to benefit from the opportunities provided by the digital economy (UNDP, 2023).

Weak Legal and Regulatory Frameworks: Many developing countries suffer from weak legal and regulatory frameworks related to the digital economy, which obstruct the development of this sector. This includes a lack of policies that enhance affordability, protect privacy, and ensure cybersecurity. Additionally, many of these countries impose high tariffs on ICT products, increasing the cost of accessing technology (UNDP, 2025).

4.3 Prospects of the Digital Economy in Developing Countries:

Previous experiences indicate that the digital economy holds great potential for achieving sustainable development in developing countries. This can be realized through developing digital infrastructure, providing government services electronically, and enhancing digital skills among the population. Developing countries can improve the quality of life for their citizens, increase productivity, and create new job opportunities. However, achieving these goals requires addressing challenges related to financing, developing legal and regulatory frameworks, and ensuring digital inclusion for all segments of society. Additionally, cooperation between the public and private sectors should be strengthened,

and international partnerships leveraged to exchange expertise and secure technical and financial support.

In the future, developing countries can focus on advancing sectors such as artificial intelligence, big data analytics, and e-commerce to strengthen their position in the global digital economy. They can also benefit from the successful experiences of countries like India, Uzbekistan, and Ghana to design effective digital policies tailored to their specific needs and circumstances.

Conclusion

The rapid development of the digital economy is no longer a luxury choice in our current era but has become an inevitable necessity imposed by the accelerating transformations in the global economy and the intertwining of technological dimensions with various fields of development. The current study has shown that the digital economy represents a genuine lever for achieving sustainable growth in developing countries, provided it is well-invested and utilized within sound and comprehensive public policies. Through analyzing the reality of the digital economy in several developing country experiences such as India, Uzbekistan, and Ghana, the contours of digital transformation have become clear as an effective tool for addressing some traditional development challenges. These include weak infrastructure, limited financial inclusion, gender disparities in access to technology, and restricted access to public services. Digital innovations have enabled flexible and rapid solutions that reduce costs and expand the circle of beneficiaries, especially in vital sectors such as health, education, and administrative services.

"Despite the varying degrees of success achieved by some developing countries in this field, challenges remain. The digital divide between countries—and even within individual countries—is still deep. There is a weakness in the legislative and regulatory frameworks that keep pace with and govern digital transformation, in addition to the fragility of cybersecurity and high rates of digital illiteracy. Furthermore, limited funding and low political awareness of the importance of the digital economy constitute major obstacles to embedding this new economic model. The future prospects of the digital economy in developing countries are promising, provided these countries adopt clear strategic visions that take into account their social and economic specificities. These visions should be based on the principles of partnership, openness to successful experiences, and the promotion of scientific research and innovation. Additionally, moving toward the use of artificial intelligence, big data, and blockchain technologies could create a new generation of digital opportunities, enhancing the capacity of developing countries to achieve more inclusive and sustainable economic growth.

Overall, it can be said that the digital economy, if adopted as a comprehensive strategic choice, has the potential to bring about a qualitative leap in the path toward sustainable development—not only in terms of improving growth indicators but also in building more just, open, and resilient societies in the face of future challenges. The responsibility for enabling this transformation is a collective one, involving governments, the private sector, civil society, and international organizations."

References

- Bharat Broadband Network. (2021). *BharatNet Project*. <https://bbtnl.nic.in>
- bne IntelliNews. (2024). *Uzbekistan's ambitious IT sector goals*. <https://intellinews.com>
- Bukht, R., & Heeks, R. (2017). *Defining, conceptualising and measuring the digital economy*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3431732
- Cherie Blair Foundation for Women. (2024). *Women entrepreneurs and digital access*. <https://cherieblairfoundation.org>
- CSC SPV. (2021). *Common Services Centers Scheme*. <https://csc.gov.in>
- Dark Reading. (2024). *India's cybersecurity and digital rights concerns*. <https://www.darkreading.com>
- Ghana Open Data Initiative. (2012). *GODI overview*. <https://data.gov.gh>
- International Telecommunication Union. (2022). *Measuring digital development: Facts and figures 2022*. ITU.
- International Telecommunication Union. (2024a). *Facts and figures 2024: Measuring digital development*. <https://www.itu.int>
- International Telecommunication Union. (2024b, November 27). *Global internet use continues to rise but disparities remain*. <https://www.itu.int/en/mediacentre/Pages/PR-2024-11-27-facts-and-figures.aspx>
- Jack, W., & Suri, T. (2016). *M-Pesa: Financial inclusion in Kenya*. Harvard Business School. <https://www.hbs.edu/faculty/Pages/item.aspx?num=50788>

- Manyika, J., Lund, S., Bughin, J., Woetzel, J., Stamenov, K., & Dhingra, D. (2016). *Digital globalization: The new era of global flows*. McKinsey Global Institute.
- McKinsey Global Institute. (2016). *Digital globalization: The new era of global flows*. McKinsey & Company.
- Organisation for Economic Co-operation and Development. (2014). *Measuring the digital economy: A new perspective*. OECD Publishing.
<https://doi.org/10.1787/9789264221796-en>
- Organisation for Economic Co-operation and Development. (2020). *Digitalisation and the environment: Opportunities and challenges*. OECD Publishing.
- Open Government Partnership. (2019). *Ghana's open data progress report*. <https://www.opengovpartnership.org>
- OpenGov Asia. (2024). *India's digital transformation and citizen services*. <https://opengovasia.com>
- PricewaterhouseCoopers. (2017). *The macroeconomic impact of artificial intelligence*. PwC.
- Qalampir.uz. (2024). *Digital Uzbekistan: Exporting IT services*. <https://qalampir.uz/en/news>
- Qodirova, O., Esonova, S., & Usarova, M. (2022). *Digital economy and its components: A brief overview and analysis* (MPRA Paper No. 116110). <https://mpra.ub.uni-muenchen.de/116110/>
- Schwab, K. (2016). *The fourth industrial revolution*. World Economic Forum.
- United Nations Conference on Trade and Development. (2021). *Technology and innovation report 2021: Catching technological waves*. UNCTAD.
- United Nations Development Programme. (2023). *Digital literacy and skills in least developed countries*. <https://www.undp.org>

- United Nations Development Programme. (2024). *Digital inclusion in a dynamic world*. https://www.undp.org/sites/g/files/zskgke326/files/2024-05/undp_digital_inclusion_in_a_dynamic_world.pdf
- United Nations Development Programme. (2025). *The future of digital economies in the Global South*. <https://www.undp.org>
- UNESCO. (2021). *Education in a post-COVID world: Nine ideas for public action*. UNESCO.
- United Nations Department of Economic and Social Affairs. (2022). *E-government survey 2022: The future of digital government*. UN DESA.
- World Bank. (2016). *World development report 2016: Digital dividends*. <https://www.worldbank.org/en/publication/wdr2016>
- World Bank. (2018). *Disruptive technologies in the transport sector*. World Bank Group.
- World Bank. (2020). *Digital financial services*. World Bank Group.
- World Bank. (2021). *Advancing cloud and data infrastructure markets*. <https://thedocs.worldbank.org/en/doc/61714f214ed04bcd6e9623ad0e215897-0400012021/related/9781464820656-ch6.pdf>
- World Bank. (2023a). *Demand for digital skills in Sub-Saharan Africa: Key findings from a five-country study*. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099614312152318607/idu0b36e9e030767f0417e0afb806e2ffdf1e8bf>

- World Bank. (2023b). *Uzbekistan digital inclusion project*.
<https://www.worldbank.org>
- World Bank. (2024). *Digital transformation overview*.
<https://www.worldbank.org/en/topic/digital/overview>
- World Commission on Environment and Development. (1987). *Our common future*. Oxford University Press.
<https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>
- World Economic Forum. (2023). *The future of jobs report 2023*. WEF.
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs.