

Conceptualizing Digital Economy: Unraveling Its Evolution and Impact in

India

Devi, Bimla

Assistant Professor, Department of Economics, Government College for Women, Hisar, Haryana

Abstract

The present study is an exploration into the historical development of digital economy and its implications in Indian context. The study adopted explorative cum analytical research approach to garner insights into the subject matter. Secondary data sources including journals, books and government reports are main stay of the research to draw the precise inferences. In this context, the key inferences of the study have outlined that the advent of technology advancements has significantly altered global socio-economic interactions. The evolution of the digital economy in India showcases a transformative journey marked by technological advancements, policy initiatives, and changing consumer behavior. India is quickly becoming the world's leading country in the digital economy. Digital technologies, industries, and services exert a substantial influence as stabilizers, lubricants, and enhancers in comparison to the physical economy. As a result, they are regarded as pivotal approaches to mitigate the crisis and drivers of economic growth. Through a number of programmes, including Made in India, Startup India, and Digital India, the Indian government has been aggressively encouraging the use of digital technologies. These programmes seek to improve the adoption of digital technology across a range of industries, including healthcare, education, and agriculture, while also fostering an atmosphere that supports the growth of start-ups. India's economy and society have been greatly impacted by the digital economy. It has increased production, produced jobs, and given more people access to opportunities and services. E-commerce, digital payments, and online education are just a few of the new industries and business models that have emerged as a result of the expansion of the digital economy.

Keywords: Development, Digital, Economy, Innovation, Technology

Introduction

In recent decades, the global economy has undergone a profound shift catalyzed by the rapid integration of digital technologies across industries. The digital economy, characterized by the pervasive use of digital technologies in economic activities, has fundamentally altered traditional business models, consumer behavior, and socio-economic landscapes. The digital economy encompasses a broad spectrum of activities, ranging from e-commerce, digital payments, and online services to the application of artificial intelligence (AI), big data analytics, and the Internet of Things (IoT) in various sectors. As highlighted by *Brynjolfsson and McAfee (2014)*, the digital economy is not solely about technology adoption but rather about reimagining business processes and creating value through digital means. The advent of digital technologies has reshaped business paradigms, fostered innovation, and enabled unprecedented connectivity between businesses, consumers, and global markets. As elucidated in the work of *Westerman et al. (2014)*, digital transformation is not merely a technological upgrade but a strategic shift that redefines how organizations operate, compete, and create value. The importance of

the digital economy spans numerous sectors and has profound implications for global growth, innovation, and societal development. Data analytics in the digital economy enables informed decision-making and targeted strategies across sectors. Research by *Davenport and Harris (2007)* emphasizes how organizations leverage data for competitive advantage in the digital era. The use of digital innovation in economic perspectives adds marvel shifts in the economy. India is no exception to the leverage of this technological innovation in the realm of economy. In this milieu, the present study explores the historical development of digital economy in India and its impact using appropriate research methods and techniques.

Research Methods and Techniques

The advent of technology advancements has significantly altered global socioeconomic interactions. In this backdrop, the current study provides insights on the historical development and impact of India's digital economy. The study's nature is explorative and analytical, and it used a qualitative research approach to get insight into the digital economy. To achieve the study's

stated objective, secondary data sources such as journals/publications, newspaper articles, government reports, and other published content were employed. All subject matter has been presented under relevant themes, with synchronization and content suitability in mind. Furthermore, while the current study is based on a literature review, the statistics derived from Reserve Bank of India (RBI), Ministry of Finance, Government of India Reports and other institutions cement the theoretical framework of the subject topic.

Theoretical Underpinnings

Structural Change theory perceives economic development as a sequence of interrelated alterations in the fundamental framework of an economy. This is mostly attributed to the shift from a developing nation to an advanced economy. According to *Chenery (1982)*, in order to ensure a consistent growth in income and social welfare, it is necessary to make a series of structural changes. In this context, the UN working paper outlines that technological innovation is driving the increase in productivity. According to the study, technological success is defined as achieving outcomes that lead to subsequent accomplishments. Dynamic processes of

technical and economic transformation are set in motion by these processes, and once they are underway, they activate and mobilize fresh resources and skills, leading to further progress (*Szirmai, 2008*). Moreover, the structural transformation had a significant impact on the transition from an agrarian to an industrial economy. One of them is the growth in productivity, which has a substantial impact on workers. As a result, these two industries generate more revenue than agriculture and operate in an open market economy. From an employment standpoint, the agriculture industry often underemployed workers and has zero labor productivity. Workers have naturally relocated to the more productive industrial sector as a result. Increased work eventually leads to a self-sustaining economy, which has a significant impact on earnings. In the view of *Lin (2009)*, the evolution of current economics is genuinely astonishing; it has gone from subsistence farming to heavy industry, post-industry, high tech industry, and eventually a post-industrialization age noted for its constant expansion. The digital economy is built on the spread of information and communication technology (ICT) to boost productivity across all business sectors.

The Internet of Things (IoT) is a growing phenomenon as digital services and gadgets become more integrated into consumer goods. Innovations have made it possible for companies to set themselves apart, which has led to imperfect competition and expanded the market sharing economy. It makes sense to concentrate on how automation and artificial intelligence can help developing countries' economies since these technologies have been pushed by the current technological environment (*Zalewski and Skawinska, 2009*).

India Economy: An Overview

Indian economy is a multifaceted and swiftly changing terrain that includes many sectors, policy, and demographic factors. India, being one of the rapidly expanding economies worldwide, experiences swings in its growth rates caused by several internal and external causes. Sectors including services, manufacturing and agriculture make substantial contributions to the GDP. Because of a greater emphasis on the hereafter, the Indian economic performance during the first three decades after

independence was termed as '*Hindu rate of growth*' a termed that created disappointment but was not disastrous outcome and playing to the cliché of the acquiescence in the present that religion supposedly imbues. That cliché, of course, is progressively falling out of favor as a result of India's tremendous development over the previous two decades. From 1950-1980, the per-capita economic growth rate of this entity increased by more than two-fold, rising from 1.7 percent to 3.8 percent in the period of 1980-2000. India was formerly hindered by socialist policies and the burdensome "license-permit-quota raj" (as coined by Rajaji), which served as a prime example of unsuccessful economic development strategies. It has now become the newest poster child for how free markets and open trade can unleash economic growth. Moreover, India's growth rates have not yet reached the level of China's, nor has its income. However, India's robust democratic institutions and remarkable achievements in information technology have contributed to its progress (*Angus & Dreze, 2002*). For further consideration, the year wise GDP Growth of India is presented below chart

Chart 1: Year Wise GDP Growth of India



Source: Data Compilation from IMF, World Bank and Govt. of India Reports

Moreover, during the initial years of the twenty-first century and prior, the Indian economy saw remarkable growth, ranking among the swiftest globally. However, it had difficulties throughout the initial years of the twenty-first century, and the situation deteriorated further with the occurrence of the global financial crisis in 2008 and the COVID-19 pandemic. Under the guise of

liberal reforms, major corporations caused the destruction of forests and rural land, leading to the displacement of impoverished individuals and marginalized communities involved in agriculture and the informal sector. The economic expansion of the previous decade has been termed as "*predatory growth*". Before the economy regained its prior rapid growth rate, the issue

lasted until the recent onset of the COVID-19 pandemic, which caused the economy to become precarious. Currently, it is displaying a conspicuous sign of an economic deceleration. Indian economy has experienced consecutive contractions for six quarters, resulting in a decline in growth to 4.5% during the second quarter of 2019–20. Both an increase in unemployment and a decline in the labor force participation rate are part of the negative trend. In addition, there has been a reduction in production in core industries, a slower rate of capital creation, a loss in rural consumption, a slower rate of growth in exports, and a notable shortfall in advance tax collection relative to the fiscal year's target (*Bhagat & Mallick, 2023*).

Digital Economy in India: Historical Perspective

The digital economy will play a pivotal role in the future society built on knowledge. The growth rate of the information and communications technology (ICT) sector surpasses that of the traditional industrial economy, eventually overtaking it. *Lyotard (1984)* contends that advancements in information technology and the accessibility of knowledge have facilitated the

commercialization of knowledge in the market. The advancement of information technology (IT) is viewed as a critical factor in expanding the digital economy. According to the *Organisation for Economic Cooperation and Development (OECD)*, the digital economy involves integrating digital technologies into economic and social advancement. This encompasses transforming conventional industries into digital formats and linking them through a network. The incorporation of digital technologies like the Internet, big data, 5G, and artificial intelligence accelerates the consolidation of numerous businesses, leading to the rise of the digital economy (*Afonasova et al., 2019*).

The policymakers' implementation of rigorous measures aimed at diminishing social mobility also exerts an adverse influence on macroeconomic activity. On the contrary, the digital economy offers a novel opportunity for sectors to experience digital transformation by virtue of its technological prowess and ability to integrate with other industries (*Sun, et al., 2021*). Digital technologies, industries, and services exert a substantial influence as stabilizers, lubricants, and enhancers in comparison to

the physical economy. As a result, they are regarded as pivotal approaches to mitigate the crisis and drivers of economic growth. Moreover, emerging technologies like big data, cloud computing, and the Internet of Things have led to the recognition of ICT as a crucial driver of economic progress (Vu, M. K., 2011). India is no exception to leverage the dividends of digital economy. Over the past 20 years, India's digital economy has grown at an exponential rate. Information and communication technology (ICT) has brought about a transformative process that has resulted in the digital economy. ICT has made technologies more affordable, powerful, and standardized, hence enhancing corporate processes and fostering innovation in many economic sectors. Increased connectedness, linkages, and networks are the outcome of the ICT sector's exponential expansion throughout the preceding ten years (Vasal, V., 2018).

The evolution of the digital economy in India showcases a transformative journey marked by technological advancements, policy initiatives, and changing consumer behavior. India is quickly becoming the world's leading country in the digital economy. The digital

economy of the nation has expanded quickly in recent years. In the early 2000s, India witnessed the initial adoption of digital technologies, particularly with the growth of the IT sector (Bagchi, S., 1999). Subsequently, the expansion of internet connectivity, mobile penetration, and government initiatives like Digital India have led to further expansion of economic avenues (Mittal & Damle, 2020). The mid-2010s saw a surge in e-commerce platforms and a flourishing startup ecosystem. This phase led to the rise of e-commerce giants that have exerted fundamental impact of digital marketplaces on the economy (Rajeshwari and Leela, 2022). The era was further led by the evolution of Fintech and digital payment systems. These digital payments have led to the economic expansion and financial inclusion at large (Dhore, et al., 2023). Government-led initiatives like Aadhaar, UPI (Unified Payments Interface), and Digital India have shaped the digital economy landscape

However, the success of this wonder can be attributed to a number of causes, including the role of the government, private companies, India's technological golden age,

government digital initiatives, market shifts, made in India and Digital India programmes, and the Indian population's eagerness to adapt swiftly. To encourage the expansion of the digital economy, the Indian government has introduced a number of digital projects. The BharatNet project is one of the biggest, with the goal of providing high-speed internet to every hamlet in India by 2023. Additionally, the government has started the Startup India initiative, which aims to encourage entrepreneurship and develop an environment that is favorable for companies. Launched in 2016, the Digital Saksharta Abhiyan (DISHA) programme seeks to provide at least one household member with digital literacy (*Chandwani, 2023*).

Impact Analysis of Digital Economy in India

With the launch of the Digital India programme, the country has joined other allies in the digital transformation of their economies and governments. The country's education, transport, communication, employment, healthcare, and retail sectors have all been positively impacted by the Digital India project. Digital reach refers to gauging the extent of mobile phone usage,

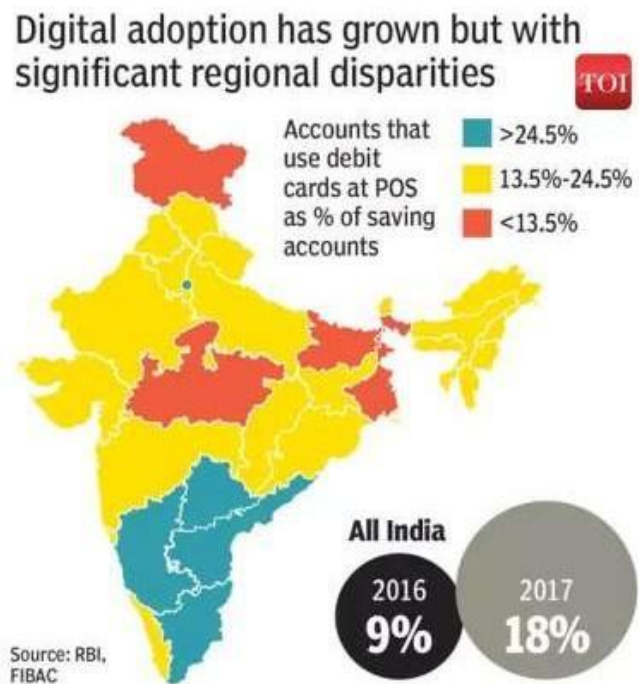
app downloads, and overall data consumption. Meanwhile, the digital foundation evaluates the reliability, speed, and affordability of internet services. On the other hand, digital value represents the level of online consumer interaction involving activities like online shopping, messaging, and video streaming. These three factors make up India's Digital Adoption Index (*Kaka et al., 2019*). Through a number of programmes, including Made in India, Startup India, and Digital India, the Indian government has been aggressively encouraging the use of digital technologies. These initiatives aim to enhance the implementation of digital technology across various sectors such as healthcare, education, and agriculture. Simultaneously, they strive to create an environment conducive to nurturing the development of startup ventures.

The digital landscape in India has expanded notably due to the surge in internet and smartphone utilization. As per a survey conducted by the *Internet and Mobile Association of India*, it's projected that India will boast 800 million internet users by 2023. Additionally, the prevalence of mobile wallets among Indians has surged alongside

increased internet usage, with an anticipated 900 million users by 2025. India's move toward digital payments was notably accelerated by the country's demonetization initiative, which not only significantly impacted the economy but also expedited the shift toward digital transactions. Prior to demonetization, digital payments constituted merely 10% of all transactions in India, but since then, this figure has risen to nearly 20% (Chitra, R., 2017). Due to a mix of government initiatives, rising internet and smartphone usage, and the growth of e-commerce, the digital payments ecosystem in India has also expanded dramatically in recent years. The introduction of the Bharat Interface for Money (BHIM) app, which streamlines digital transaction processing, and the Unified Payments Interface (UPI), which enables real-time interbank transactions, are two important projects. According to the Reserve Bank of India (RBI) data, the digital adoption in the financial context was 9% in 2016 that subsequently increased to 18% in 2017. Therefore, the digital adoption has gained momentum and helped to achieve the inclusive and rapid economic growth. The said development is presented in below

figure:

Figure 1: Digital Adoption in Indi



India having digital economy with enormous untapped potential, thanks to its almost 46 million internet users and its rapid growth rate of 7 to 8 percent. Over the next 30–40 years, this digital revolution—sometimes called "*the Internet economy*" will likely provide new employment, expand existing markets, and pose the greatest opportunity for companies. For the last ten years, India has been at the forefront of digital technology, demonstrating both potential and leadership. With the advent of Digital India, an initiative to improve digital literacy and link rural areas

to high-speed Internet networks, India has begun to undergo a digital revolution. The central government's digital India plan has brought about widespread expansion in the electronic service and product industries as well as manufacturing and employment prospects. The key areas that have been positively altered while ensuring digital economy include (Guha, R., 2017):

- Digital infrastructure as a utility to every citizen of India
- Governance and services on demand
- Holistic and Inclusive Digital empowerment of citizens
- Demonetization helped in paving the way for digital payments

India is leading the world in the evolution of payment systems as well. Incentives such as Aadhaar, Jan Dhan, cellphone penetration, and, more recently, demonetization have made it easier for digital payment methods to be widely adopted in India. It is anticipated that the nation will have the most sophisticated financial systems in the world, surpassing plastic payment systems, thanks to the widespread use of digital and biometric systems (*ibid*). Moreover, India's economy and society have been greatly impacted by

the digital economy. It has increased production, produced jobs, and given more people access to opportunities and services. E-commerce, digital payments, and online education are just a few of the new industries and business models that have emerged as a result of the expansion of the digital economy (Chandwani, 2023). The number of digital transactions also gained momentum as mentioned in the below table:

Table 1: Total Number of Digital Transactions (in crore)

<i>Financial Year</i>	Total Number of Digital Transactions (in crore)#
2017-18	2071
2018-19	3134
2019-20	4572
2020-21	5554
2021-22	8840

Source: PIB (Release ID: 1897272), Dated 08-Feb-2023

In context to digital payments, in the financial year 2017-18, 2071 crore digital transactions have taken place in India; while as in the year 2018-19, same has increased to 3134 crores. In the year 2019-20, the number of digital transactions increased to 4572

crores and 5554 crores respectively in 2020-21. Also, the financial year 2021-22 witnessed 8840 crores of digital transactions. Therefore, it can be envisioned from the above data that India is witnessing increasing trend of digital payments and same is increasing gradually from year to year. Although, the number of digital transactions has increased from 2071 crore in 2017-18 to 8840 in 2021-22. The amount thereby also witnessed the increase in the same time period. The dynamics of amount of digital transactions from 2017-18 to 2021-22 is presented in the below table:

Table 2: Total Value of Digital

<i>Financial Year</i>	Total Value of Digital Transactions (in lakh crores)#
2017-18	1962
2018-19	2482
2019-20	2953
2020-21	3000
2021-22	3021

Transactions (in lakh crores)

Source: PIB (Release ID: 1897272), Dated 08-Feb-2023

According to *Ravikimar et al. (2019)*, the rising use of mobile phones, the internet, and technology among individuals, along with the rising digitalization of payments and public awareness of the "Digital India" project, are all contributing to the rising popularity of both the payment method and the technology. The research conducted in 2019 indicates that the average growth rate (CAGR) for electronic payments in India is around 58.9% for volume and 28.4% for value. India has the world's fastest-growing economy and financial industry. As a result of e- governance, which allows citizens to monitor and assess the performance of their government, corruption has been reduced to a minimum in India. An increase from 6.46 million in 2013 to 86.8 million in 2018 is indicative of the growth in this domain. As stated by *Raju et al. (2017)*, the lack of physical infrastructure in rural and distant areas of India contributes to a low literacy rate. Here is where services like M-education may reach populations that are far away. Digital India Projects are enhancing real-time education through virtual and smart classrooms. Virtual learning initiatives and services, such massive open online courses (MOOCs), rely on reliable, high-speed

internet connections (*Luvvy, 2019*).

Challenges and Way Forward

The digital economy has, nevertheless, not been without its difficulties. The digital divide is a major issue since many individuals in rural areas still do not have access to digital services. Inequality has also taken on new forms in the digital economy, where some people have benefited more than others. The expansion of the digital economy has sparked worries about data security and privacy, with many individuals fearing that their personal data may be misused (*Chandwani, 2023*). India is rapidly emerging as a frontrunner in the worldwide digital economy due to several factors. These include the governments and private sector's investments, India's technological heyday, government digital initiatives, market fluctuations, the Made in India and Digital India initiatives, and the populace's eagerness to quickly adapt. India's economy and society have benefited tremendously from the expansion of the digital economy, which has increased productivity, generated employment, and made services and opportunities accessible to a broader audience. But the rise of the digital economy has also brought with it certain

difficulties, such as the inequality and digital gap, as well as worries about data security and privacy. As India advances in its digital transformation, it is critical to take into account how the digital economy will affect every sphere of society and to strive towards building a sustainable and inclusive digital

environment. Furthermore, products like the BHIM app and platforms like UPI integration are praiseworthy steps in this approach.

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