

Significant Importance of Digitalization and Its Impact on Modern Economy: Issues Concerning India and Beyond

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Abstract- Imagining living in the past without the conveniences that people have today seems impossible to imagine. We live in an era where our reliance on technology for day-to-day work has led us to take for granted many of technology's benefits. Food, education, communication, transportation, entertainment, and medical care have all been revolutionized by technological advancements. Our favorite grocery stores and restaurants are open 24 hours a day, 7 days a week, to serve us with food of our choice. Education has become more accessible because to virtual courses and the vast amount of knowledge available online. Our friends and family may be far away, yet they are only a mouse click away. Instead of walking down the street to hail a cab, we book one from the comfort of our own house. We carry a whole entertainment package in our pockets and luggage at all times. Wearable technology is assisting us with medical attention and care. For emerging economies, information and communication technologies (ICTs) present new opportunities as well as new obstacles. In terms of greater efficiency and productivity, the creation of new services and vocations, and increased connectedness among agents, ICT adoption, digitalization, and automation give daunting new potential. However, a number of other social, economic, and institutional factors will determine how far developing economies can reap these potential benefits. While economic development and increased productivity are the most obvious benefits of digitization, digital gaps and other forms of exclusion and inequity are also frequent. India, as one of the world's largest economies and a leader in ICT adoption, is a good case study for studying the effects of digitalization on economic development. The current book brings together a number of fresh perspectives on this topic, examining the Indian experience from an international cross-country viewpoint. This study article discusses the main concepts on the relationships between ICTs,

socioeconomic development, and digital divides, as well as providing background information on the Indian situation. While the list continues on and on, one common thread runs through them all: digitization. The notion of digitalization and its impact on the modern economy will be explored in this article.

Indexed Terms- Digitalization, information and communication technologies (ICTs), economic development, wearable technology, modern economy

I. INTRODUCTION

Digitization has become the new buzzword in every industry. Digital business or digital transformation is one of the top three business priorities, according to the Gartner 2018 CIO Agenda Industry Insights study (Gartner, 2017). Customers are increasingly being given items and services via digital channels for their convenience, while traditional sales methods are dwindling. Manufacturing, inventory, and sales administration are all made easier by automation. Data collection, storage, and processing help businesses provide analytical insights for decision-making and steer the business in the right path for success. There are numerous reasons why every business should seriously explore digitalization at all levels. In addition, a number of digital technology firms have developed in the digital business to address the digitalization needs of end-users and industries. Every day, the digital activity of enterprises throughout the world grows, having a substantial impact on the economy, including Gross Domestic Product (GDP) per capita, employment, and labour productivity, among other things. As a result, measuring the economic impact of digital technologies and industries is critical for governments to track investments, quantify success, and design laws and regulations. Measurement of the economic impact of digital technology, on the other hand, is more difficult than it

appears. Despite the fact that we are surrounded by digital technology, it is impossible to quantify their economic impact. Physical products comprise the bulk of industrial sectors, such as food, agriculture, and automobiles, making their impact on the economy easier to trace. A significant chunk of the digital industry, on the other hand, is not physical. It is built on information, intangibles, and services, and it complements other industrial sectors by enhancing their efficiencies. Many institutions, agencies, companies, and professionals are working to develop a method for calculating the economic impact of digital technology (Edward J, Malecki B M 2007).

Information and communication technologies (ICTs) have ushered in revolutionary changes not just in the economic realm, but also in the social and personal realms. ICTs arose from rapid technological advancements in the semiconductor industry, the telecommunications sector, and, more recently, a wide range of innovative multimedia and Internet-based services (Dalum et al. 1999; Castellacci 2006). Automation and the Internet are currently the two most important technical paths in ICTs. The emergence of a new "technical paradigm" (Freeman and Louça 2001) could be attributed to the convergence of these technological breakthroughs. A technological paradigm is a collection of interconnected and pervasive technologies that boost production in a variety of industries (Dosi 1988; Freeman et al. 1982). In the near future, the new technology paradigm based on ICTs may have significant economic implications on growth, prosperity, and welfare and it may result in dramatic changes in firm production structures and organisations, consumption patterns, and institutional settings. The emergence and dissemination of ICTs have been extensively explored in innovation studies, with a particular focus on the ubiquitous economic implications that these general-purpose technologies have on various sectors of the economy (Castellacci 2006, 2008). One of the most frequently debated topics in this sector is the impact of ICT diffusion on catching up and emerging countries. Is the new technology paradigm based on ICTs opening new doors for catching-up countries or creating new barriers? Because of the underlying features of ambiguity, complexity, and unpredictability that it entails, the answer to this question is a source of substantial disagreement in the literature on

innovation and economic development. There are, in general, two different locations that can be identified. The first is a more upbeat viewpoint, emphasizing the new doors of opportunity that have opened up for developing economies as a result of the creation and spread of new information and communication technology. This position is based on the traditional "penalty of taking the lead" argument from the catching-up literature (Veblen 1915). According to this theory, developing countries can take advantage of their technological disadvantages by mimicking and implementing advanced foreign technology developed by advanced economies, as well as swiftly investing in new technologies. Less developed nations in the new age are less committed to the mass production technical paradigm that prevailed in earlier decades (in terms of investments in physical capital, machineries, and infrastructures), making the transition to the new technological system based on ICTs easier. The rapid catching-up process of Asian NICs (Newly Industrialized Countries, such as Korea, Singapore, and Taiwan) over the last few decades demonstrates that the opportunities created by the diffusion of the ICT-based paradigm can be successfully exploited by catching-up countries, provided that their development strategy emphasises the need to actively invest in new technologies, as well as related infrastructure and skills.

These successful situations, on the other hand, contrast with the global economy's general trend of increasing income and technology disparities over the last few decades (Parayil 2005; Castellacci 2011). A huge group of developing countries, primarily in Africa, Asia, and Latin America, have been growing at a snail's pace, resulting in a major widening of the technology and income divide for many of them. Several countries have very low technological capabilities, infrastructure, and education, making it difficult for them to leverage their backwardness by copying ICT-related advanced technology from other countries. As a result, there is a second viewpoint in development research that is less positive about current and future growth possibilities based on innovation and imitation. This is based on a body of historical research on technical advancement, growth, and catch-up (Abramovitz 1986, 1994). Economic development is not an automatic or simple process, but rather one that is exceedingly demanding and costly,

according to historical evidence. As a result, this second stance is more concerned with the social and institutional elements that may stymie the catching-up process. In this regard, it is suggested that the new paradigm based on information and communication technology is posing as many new development challenges as it is posing new opportunities. Due to the greater requirement in terms of skills, competencies, and capabilities that modern ICT-based global competition requires (Fagerberg and Godinho 2005), the process of creating new technologies and their international diffusion is currently more difficult to exploit for catching-up countries. In example, international technology diffusion, which had previously been a major role in catching up, appears to have become more "difficult" and demanding over time (Fagerberg and Verspagen 2002). As they look at distinct relevant components of the development process, the authors of this book see these two ideas as substantially complementary to each other, rather than diametrically opposed. The book analyses the new opportunities and further hurdles that the rise of the new ICT-based technological paradigm offers for developing countries, with a specific focus on India, utilising these two preceding perspectives as a general starting point.

India, as one of the world's largest economies and a leader in ICT adoption, is a good case study for studying the effects of digitalization on economic development. India has not only become the world's largest exporter of ICT-related services, but it has also made ICTs a key policy strategy for the Indian government. In July 2015, the Indian government started the "Digital India" project, a major reform aimed at accelerating digitalization. The initiative, which has a total cost of nearly 14 billion dollars (about Rs. 1 lakh crores), aims to transform the country into a knowledge economy by providing individuals with simple access to technology, infrastructure, and government services. The Ministry of Communications and Information Technology aimed to generate \$1 trillion in economic prospects through reshaping the IT/ITES, electronic, manufacturing, and telecom industries. The "Digital India" initiative aimed to (i) deliver high-speed Internet to the general public, (ii) make all government services available to the general public, and (iii) ensure citizens' digital empowerment. In addition, in January 2009, the

"Aadhaar Scheme" was established with the goal of integrating all people through the distribution of biometric identification cards. Attempts were also made to provide direct benefits (such as unemployment benefits, subsidies, and public utilities) using ICT to bypass intermediaries, avoid informality, detect cybercrime, control border security, and encourage online transactions so that the government could effectively pursue redistributing policies, preserve security, and provide efficient public service delivery. Other programmes have been added to target and provide specialised programmes to certain groups of people. These current policy and development activities pose a number of relevant questions. To begin, to what extent does access to ICT services improve India's economic outcomes and performance? Second, how far has this gone across different social groups and regions of the country, and how has it impacted the country's economic and social inequalities? Third, what is the success rate in terms of governance, corruption control, and social welfare and well-being contribution? These are critical issues, and this book will analyse them by looking at the Indian experience from a cross-country international viewpoint.

- The Digital Economy

It is necessary to have a digital economy understanding in order to be able to measure the influence of digital technology on the economy. Don Tapscott was the first to coin the term "digital economy," which he defined as "the creation and use of digital technologies with an economic consequence" (Tapscott D 1995). The concept of digital economy arose as digital technologies advanced and its influence grew in the hemisphere. Researchers suggested that e-commerce, business processes, data size, IT infrastructure, and price behaviour be used as markers of the digital economy during this phase (Mohamed E, Gumah Z J).

There was a direct link between the introduction of the Internet and economic growth in the 1990s. The situation changed in the 2000s and 2010s, when a direct link was discovered between economic growth and the use of information and communication technologies (ICTs) (Rumana Bukht R H 2017). The quantification of digital services has been cited as a

fundamental difficulty in quantifying the economic impact of digital technology (Harbhajan S, Kehal V P S 2005). The Organization for Economic Co-operation and Development (OECD) released a set of digital economic growth indicators in 2014, which basically cover digital infrastructure, societal adoption of digital technology, and ICT investments. According to the German Federal Ministry of Economic Affairs and Energy in 2014, the general economy is made up of the ICT industry and the Internet economy (Simon C, Mueller 2017). Because ICTs are at the heart of the digitalization process, producing and expanding prospects for company growth, their use is regarded as a fundamental factor in economic growth. However, it varies by nation; in some, there is a strong link between ICT updating and economic progress (for example, the United States of America (USA), China), whereas in others (for example, the Philippines, Senegal), the link is weaker (Kevin Hernandez, November 2016). Digitalization contributes to economic progress through promoting inclusivity, connecting various enterprises, facilitating international trade, and removing information barriers (Heiner Lasi 2014). Digital technology enables businesses to expand in ways that would be impossible to achieve using traditional marketing and sales methods. A company that manufactures products in one region of the world can advertise those things on its own websites and mobile apps, as well as on the websites of other e-commerce enterprises. The traditional flow of commodities, services, and finance has slowed, while e-commerce now accounts for around 12% of global goods (MGI March 2016). These products can be reviewed and ordered by a buyer in another area of the world. The ecommerce industry has established a global retail network to facilitate the distribution of items between sellers and customers. This creates a chain connecting many enterprises from diverse industries, with interdependency in terms of commercial expansion (WBG 2016 Digital Dividends, 2016).

- The impact of digitalization on the businesses: Digital technologies improve a company's efficiency by supplementing current factors and maximizing capital and labour use (Kagermann H, 2014). Automation can help to improve the manufacturing

process of items. Companies can better plan their manufacturing processes and manage their inventories by using real-time ordering data. The use of the Internet of Things to receive real-time data enables organisations to deploy their personnel in the appropriate domain and make fast business choices. Big data and current data analysis technologies give decision makers with accurate and up-to-date business intelligence, allowing them to divide and implement their company's strategy effectively. Furthermore, adopting digital technologies to enhance business processes is an innovative way to speed up completion in the industrial sector [WBG Digital Dividends 2016] (MIT, 2006).

- India's Growth, Development and Well-Being: Despite the global financial crisis, India has maintained a steady growth rate for the past two decades. With an average annual GDP growth rate of around 7% in recent years, China's present slowdown has propelled India from second to first place. Due to the robust performance of the manufacturing and agriculture sectors, India's growth rate in the first quarter of this fiscal year was an astounding 8.2 percent. This resulted in an increase in its advantage over China, allowing it to maintain its position as the world's fastest-growing major economy. According to a survey by Harvard University's Center for International Development, India is likely to lead the list of the world's fastest expanding economies over the next decade, with an annual growth rate of 7.9%. Figure 1 depicts India's remarkable GDP growth rate, which outperforms both Brazil and China. Despite India's impressive growth rate, the country's economic prosperity is marred by certain harsh realities. According to the World Bank, one out of every five Indians is still impoverished. According to the most recent government numbers from 2012, the poverty rate in urban areas is 14%, while it is 25% in rural areas. More than 60% of the country's poverty is concentrated in seven states. According to the International Food Research Institute's 2012 Global Hunger Index Report, India is ranked 97th in the world. This shows that the advantages of economic expansion have not been distributed evenly throughout the income spectrum.

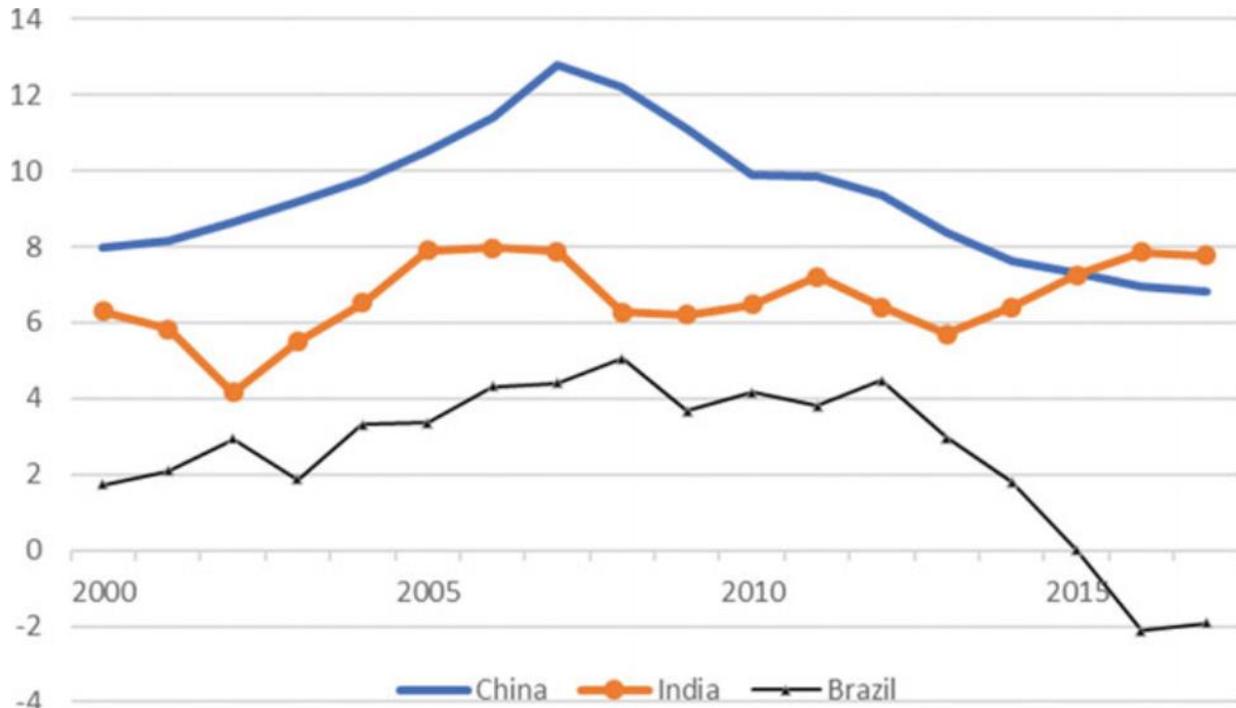


Fig. 1 GDP growth in India, China and Brazil, 2000–2017 (average of past 3 years). *Source* World Development Indicators, World Bank

Gainful and decent work is the country's most pressing issue. According to the most recent National Sample Survey Organization (NSSO) report, more than 80% of the working population continues to operate in the informal and unorganised sector, with no right to receive social security benefits. Unemployment remains a serious concern in both rural and urban areas, particularly among unskilled workers, and as a result, India's growth storey has been dubbed "jobless growth." In 2017, the official unemployment rate was just under 5%, but an OECD report revealed that over 30% of persons aged 15–29 was unemployed, underemployed, or out of school. This is hampered by high illiteracy rates and inadequate infrastructure. The rate of economic expansion has not been consistent across all states and areas. Technological and corporate hubs such as Delhi, Bangalore, and Mumbai have attracted the greatest number of skilled and mobile workers, resulting in overcrowding and congestion, while other cities and rural areas have lagged behind in terms of job creation and skill

development. Given the development of ICT in India, how the ICT sector performs in terms of employment and pay is a critical issue. This book discusses how India's ICT businesses have created a large number of jobs, as well as the obstacles that lie ahead, such as the fact that rapid technological progress leads to a growing demand for sophisticated skills. The extraordinarily low female-to-male labour force participation rate in India is also a severe worry for the Indian labour market. Gender inequality patterns reveal that women do not yet play a significant role in the labour force when compared to males, especially in comparison to China and Brazil, and the ratio of female-to-male participation has even been declining (see Fig. 2). Despite good growth rates, this can be interpreted as a symptom of India's low human progress. Increased female labour participation has great development potential, not only for women but also for India as a whole, because it taps into the vast untapped potential of women.

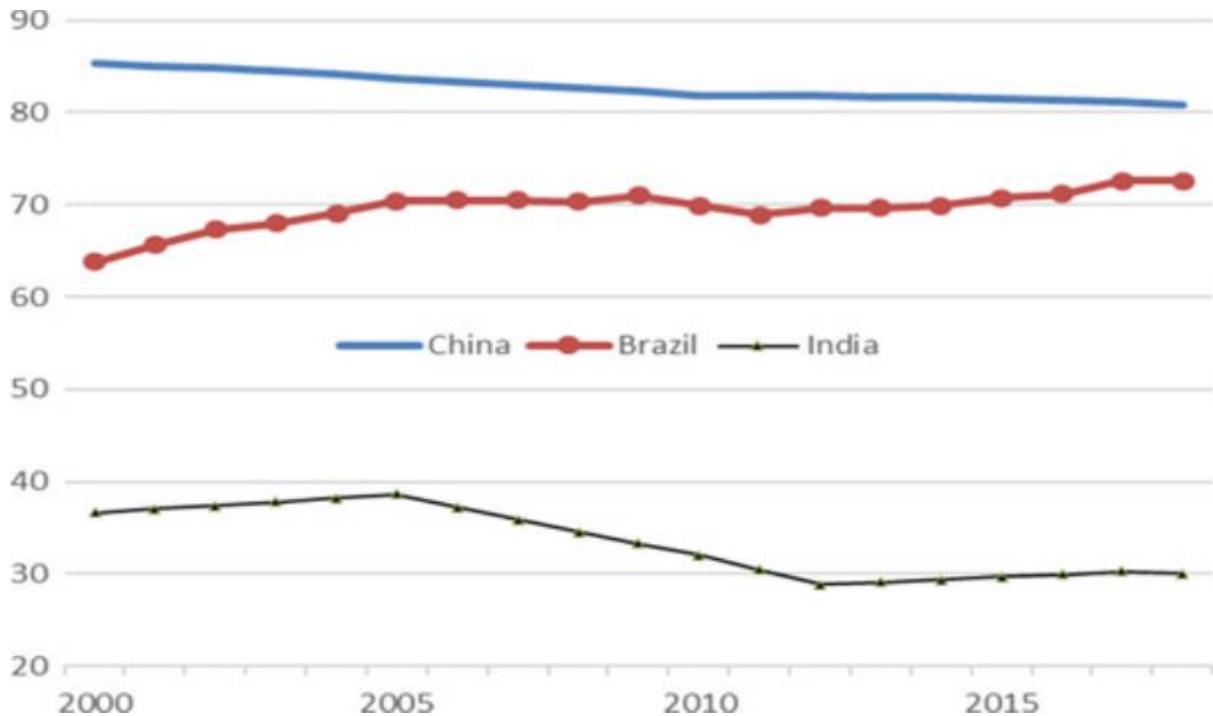


Fig. 2 Ratio of female-to-male labour force participation rate 2000–2018 (% , ILOestimate). *Source:* World Development Indicators, World Bank

Inequality exists in India not only on a national level, but also on a personal level. The spectacular economic growth has only narrowed the gap between the haves and the have-nots to a limited level, as many of India's impoverished have yet to reap the benefits of the country's progress. According to recent research by Oxfam (quoted in Business Today on January 30, 2019), India's wealthiest 1% owned 58 percent of the country's total wealth, which was greater than the global proportion of around 50%. During the time under review, the wealth of this wealthy group surged by about 293 billion USD (or Rs. 20.9 lakh crore), which is close to the total expenditure predicted in the Union Budget 2017. The richest 1% of India's population now owns 73 percent of the country's wealth, while the poorest half of the population, 67 crore people, saw their wealth rise by only 1%. As a result, India's economic progress has not been pro-poor, and the projected role of trickle-down economics has not materialized. In light of India's current situation, it may be concluded that inequality not only harms individuals but also has a negative impact on growth prospects and general wellbeing.

Corruption and a lack of institutional transparency have also afflicted India. The Corruption Perception Index score is one indicator of this. According to the World Bank's World Governance Indicators, numbers on corruption control have improved in both India and China in recent years, whereas Brazil has shown the reverse trend. Nonetheless, China and India have significantly lower levels of corruption than the global average. This has resulted in ineffective institutions that are unable to fully benefit the people and are harming India's reputation as a desirable economic destination. As a result, economic activity and job creation in India have been hindered, thus exacerbating inequality. Development fees are another form of corruption, especially when monies allotted to various social welfare and development programmes, such as those meant for building roads, schools, and increasing infrastructure for the public distribution system (PDS) in villages, are misappropriated. Anecdotal evidence abounds that corruption in the PDS system results in grains not reaching the intended recipients owing to leakages. There has been significant debate and discussion about how to handle these concerns, and one solution that has gained traction is to replace in-kind donations with monetary

payments. Only well-developed digital channels capable of seamlessly sending money to bank accounts make this possible and plausible, emphasizing the importance of ICT for development and welfare enhancement.

- Digitalization and Development in India: Patterns and Questions:

The ICT sector has been quickly developing around the world in recent years, as evidenced by its percentage of GDP and contribution to GDP capital. Over 3 billion people are already online, according to a recent report by the International Telecommunication Union, and ICT growth is strong in all countries. According to the most recent data, global Internet usage increased by 6.6 percent in 2014 (3.3 percent in developed countries, 8.7 percent in the developing world). In just five years (2009–2014), the number of Internet users in developing countries doubled, with the developing world currently accounting for two-thirds of all Internet users. In 104 nations, more than 80% of the youth population is online. 94 percent of young people aged 15–24 in

industrialised nations use the Internet, compared to 67 percent in developing countries and only 30% in Least Developed Countries (LDCs). China and India account for 320 million (39%) of the 830 million young people who are online (Fig. 6). Nearly nine out of ten young people who do not use the Internet reside in Africa, Asia, or the Pacific. This underlines the importance of information and communication technology (ICT) and the role it can play in influencing economic results. UNCTAD (2017) highlights in a report on the new digital economy and development that measuring the impact of ICT growth on development is difficult due to its rapidly changing nature and the intricate network of areas that are influenced by ICT expansion.

Nonetheless, the study takes into account a wide range of factors, including economic success, employment, innovation (including R&D), privacy and security, education, health, citizen involvement, persons and communities, and the environment.

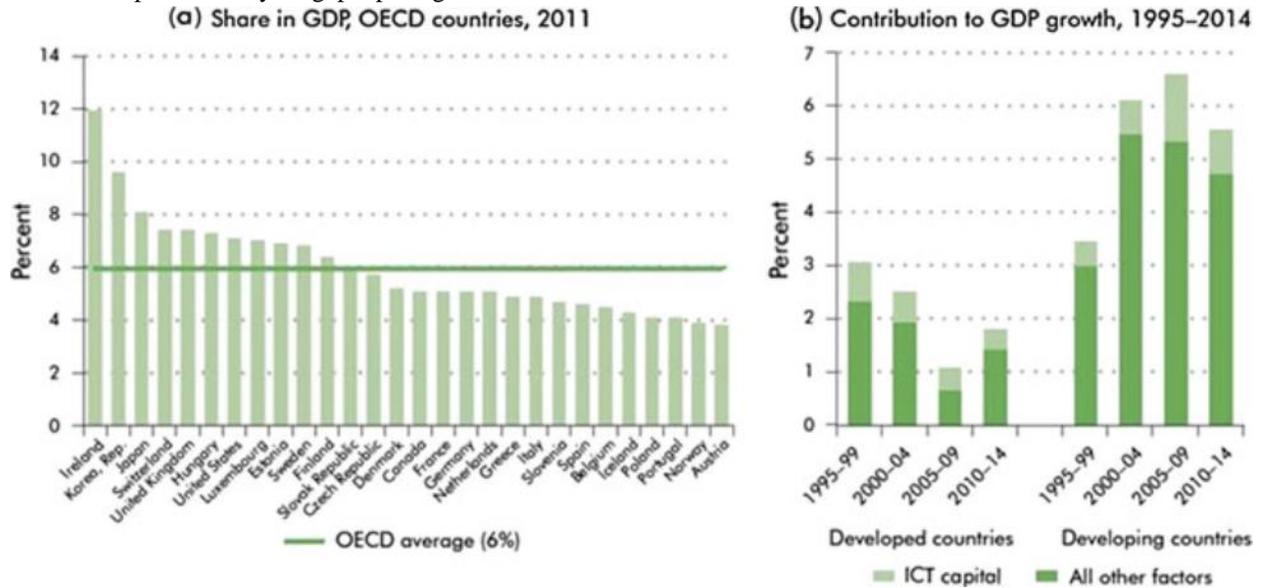


Fig. 5 ICT Sector as a share of GDP and contribution to GDP growth. *Source* ICT-centric economic growth, innovation and job creation, ITU

- ICTS And Economic Performance:

Exposure to ICT enhances efficiency and production, saves time, alleviates poverty, eliminates information distortions, and promotes communication, among other benefits (Oulton 2012; Castellacci and Tveito

2018). As a result, ICT adoption has benefited economic outcomes such as capital formation, exports, and government finances. The impact of ICTs has been considered as a driving force that contributes to an economy's GDP through increasing TFP and labour productivity. Crafts (2004) stated that ICTs have had a greater impact on labour productivity in modern

society than the steam engine, which first debuted in the mid-nineteenth century. During the period 1850–70, this technology had a maximum influence on labour productivity of 0.41 percent per year, but the projected effect of ICTs on US labour productivity growth between 1974 and 1990 was 0.68 percent per year. In recent research, the OECD (2018) focuses on promoting growth in Southeast Asia, China, and India through digitization. It suggests that ICT services embedded in manufacturing and services make for a significant portion of the value of these Asian countries' exports. According to a report to the G20 Global Partnership for Financial Inclusion by the World Bank Development Research Group, the Better Than Cash Alliance, and the Bill & Melinda Gates Foundation, digitizing payments and remittances is critical to achieving G20 Goals, contributing to the core goal of achieving strong, sustainable, and balanced growth. The paper demonstrates how widespread use of digital payments in all forms, including international and domestic remittances, may help the G20 achieve its objectives. Digitization has the potential to help overcome the costs and physical barriers that have hampered valuable financial inclusion efforts, as well as to rapidly scale up access to financial services and to promote women's economic empowerment by facilitating greater account ownership and asset accumulation.

An even more recent trend is the rise in automation trends, as well as the implications for labour wages and employment in developing nations. Furthermore, digital communication technologies may have an economic impact through increasing the productivity of businesses and their ability to participate in international trade. While these recent patterns encourage hopes of significant economic gains for developing economies, current research has yet to give analysis and evidence to back up these hopeful predictions. Has the Indian corporate sector's recent digitalization tendencies boosted the country's economic development, employment, and international competitiveness?

- Digital Divide and Inequalities:

Despite the government's efforts to increase ICT goods and services in the economy, data from the ICE 360° survey (2016), which provides insights into households' economic and social well-being,

normative measures of social, political, and financial inclusion, and a degree of access to public goods, infrastructure, and welfare measures, reveals a clear digital divide in the country. According to a survey conducted by the People's Research on Indian Economy (PRICE 2016), which included 60,360 households and looked into digital networking by delving into Internet usage, patterns, mode, and purpose of access, ten percent (27 million) of households have an Internet connection at home. However, at least one member of 22 percent (62 million) of Indian homes has access to the Internet (either at work or home or elsewhere and either through a computer or mobile). It also revealed that while every tenth undeveloped rural home has Internet connectivity, including those in districts like Kalahandi (Odisha) and Bastar (Chhattisgarh), every second household in metros has Internet access, demonstrating the rural–urban divide in access to ICT commodities. Furthermore, the study findings revealed that education and Internet access are substantially connected, with every second graduate home having at least one member who uses the Internet compared to every hundredth illiterate household. Between the privileged and the poor, the digital divide widens. In comparison to only 4% of poor homes, nearly 47% of rich households (top quintile) have at least one member with Internet connection (bottom quintile). This demonstrates that, despite the government's attempts to improve Internet access in India, the impact has not been uniform across all segments of society. Fewer than half of the people in 12 of the 22 emerging and developing countries polled said they own a smartphone, with India and Tanzania reporting the lowest rates of smartphone ownership among the countries polled. Because most Indians use the Internet through their mobile phones, the delayed adoption of smartphones has slowed the expansion of the Internet in the country. In addition to the rural–urban, rich–poor, and regional digital divides, India lags behind other rising economies in terms of Internet usage (see Fig. 8), as indicated by Poushter et al (2018). The central government has allocated Rs. 34,000 crores to connect 150,000 villages to high-speed Internet by 2019, but just roughly 70,000 villages have been covered so far.

In India, more than 70% of the population still lives in rural areas. There is growing worry that rural areas'

access to ICT is growing at a far slower rate than urban areas', resulting in a growing digital divide in India. Tele-density, or the number of telephones per 100 people, is an important metric of a country's telecom penetration. In urban areas, tele-density in India surged dramatically from 10.37 percent in 2001 to 167.17 percent at the end of 2012, before declining to 154.18 percent in 2016. In rural areas, however, tele-density was 0.93 percent in 2001, which is far lower than the urban share. However, the percentage has gradually increased to 51.26 percent. The tele-density gap has grown tenfold during this time, indicating a growing digital divide in India.

- ICTs, Governance and Users' Well-Being:

However, the consequences of ICTs on welfare go far beyond their influence on economic growth and wealth disparities. The increased usage of digital technology can affect ICT users and citizens in a variety of ways. The socio-institutional context that defines our society, such as governing systems, citizen trust, safety, and security, is particularly important for well-being (Dolan et al. 2008). According to Helliwell (2006), governments' ability to offer a trustworthy environment is critical for well-being, especially in nations with bad governance and low absolute income. Internet apps that improve the socio-institutional environment in some way can have a positive impact on citizens' welfare. As a result, if governments commit to offering more online public services, well-being will certainly rise as well. Three unique channel mechanisms are relevant in this case (Castellacci and Tveito 2018). For starters, putting some government services online can save residents time and effort that was previously spent on repetitive (and sometimes stressful) tasks. Second, improved access to information allows individuals to get a better understanding of their culture, enhancing their sense of community as well as their safety. Citizens in India, for example, can register instances in which they were asked to bribe government officials, and their reports are sent to government officials and the media to increase transparency and the quality of life among citizens, who can learn where to go to avoid having to bribe someone (Ramanna and Tahilyani 2012). This can help to reduce bribery and corruption, boost trust, and hence promote happiness. Third, digital communication tools allow citizens and government officials to interact more quickly and transparently, for

example, through online portals for e-government services or through increasing citizen civic engagement. In the Indian context, the problem that is probably most pressing is how ICTs may help to reduce corruption and improve the country's governance quality. The existence of a parallel economy based on cash-based enterprises and entities may be jeopardized as a result of digitalization. The majority of those involved in the parallel economy lack proper bank accounts and do not pay taxes to the government. Digitalization measures such as bringing taxation online and demonetization can help the government rid our system of corruption. These can be big game-changers if administered and handled appropriately and efficiently. ICTs are meant to assist minimise activities that come under the informal sector's purview and hence enhance growth and development in India, which is why the Indian government has placed a greater emphasis on them in recent years.

Despite the fact that the government made the linking essential in order to eliminate leakages and digitalize the process, many individuals found greater difficulties in obtaining food, so jeopardizing their well-being despite a well-functioning digital set-up. Pensioners who are unable to link their pensions to Aadhaar have suffered similar problems. Many people had to pay bribes in order to receive their pensions, and many real retirees were left out when 300,000 "fake" retirees were removed from the list of beneficiaries (Biswas 2018). This occurred as a result of data operators' errors, which resulted in name and age inconsistencies, underlining the perils of depending solely on the provision of ICT goods and services without a supporting institutional mechanism in place to mitigate the risks associated with their provision. Policymakers must pay considerably more attention to these potentially harmful channels that have opened up as a result of the increased usage of ICT. The government has made several attempts to minimise informality and corruption by incorporating ICT into its processes. Despite the significant steps taken by the government to clean up the system, India's rating in Transparency International's global Corruption Perceptions Index fell two places to 81st in 2017 (Transparency International 2017). According to the survey, India is one of the "worst offenders" in the Asia-Pacific region when it comes to corruption and

press freedom, both of which are markers of happiness. It was placed 79th out of 176 countries in the ranking in 2016. India was ranked 81st out of 180 countries in 2017, with a score of 40. All of the data points to poor institutions that are limiting people's otherwise bright prospects. There is an urgent need to change the focus away from simply increasing the use of ICT goods and services and toward building India's governance and institutional structures, so that ICT can improve well-being through the channels identified in existing studies. Without a robust institutional framework to support them, the evils of corruption, informality, and mismanagement would continue to stifle growth and well-being, preventing the positive impacts of ICT from spreading throughout the economy.

How ICTs connect to sectoral growth patterns is also a key problem for India. The so-called Baumols disease predicts that ICTs will be progressive at first, but will be linked to stagnating industries or service sectors in the long run. The long-term growth potential of services is a major topic in light of India's services-driven economy. Problems with measurement could be one cause for the contradictory evidence on the influence of ICT. Standard metrics fail to represent the enormous change in computer performance as ICTs change technologies and products. Counting the number of computers will not capture the enormous change in computer performance. These measurement issues affect both production and consumption, and they may be especially problematic for ICT products. When it comes to consumption, one challenge is determining how to quantify well-being: can ICTs have an impact on well-being that goes beyond what typical measures like income or income per capita can capture? Because there is a positive and logarithmic link between income levels and subjective well-being, ICT may have an indirect impact on well-being via income.

- **ICTs and Economic Performance:**

The authors estimate aggregate and sector-level ICT investments in India across time using a variety of data sources and overcoming challenges relating to data availability, consistency, and measurement. This shows that while ICT investments have increased, their share of GDP has decreased, and India continues to lag behind more developed nations. The authors

then expand the India KLEMS database to include information and communication technology capital. KLEMS (capital-labour-energy-materials services) is a global database for analysing growth and productivity at the sector level, containing data that can be compared across nations. The authors find that the contribution of ICT investment to India's growth has increased marginally, but that the manufacturing sector continues to lag behind the overall economy. The sector will most certainly need significant re-skilling and up-skilling as a result of the transformation, and the authors suggest that a paradigm shift is required for the industry to move up the value chain and maintain its leadership position. The new advancements bring with them both opportunities and challenges. If the Indian IT sector wants to maintain its leadership, it will need to innovate, improve IT infrastructure, and eliminate legal and administrative barriers.

CONCLUSION

Every day brings new problems for the global digital market's leaders, followers, and late adopters. Because market dynamics are changing as a result of digitalization, businesses, industries, and countries are working hard to keep up with and catch up with the speed of digitalization's emergency for their own success. The United States now leads the digital market (MGI, March 2016), while other countries are developing strong digitalization efforts. In 2018, the Russian digital economy was valued at USD 61 billion, up 11% from 2017. In 2018, the relevant share of Russia's GRP was at 3.8 percent. The Russian government has designed a 5-year national digital economy growth programme, with plans to invest approximately USD 1.8 billion yearly in the country's digital industrial sector through 2025. Ordinary men's and businesses' lives are being dominated by digital technology. The digital industry is not merely a support system for other industries, but it is also a world unto itself. The ICT and ICT-enabled services sector is predicted to continue to grow as the world becomes more digital. The economies of countries that invest in and promote digital products and services on their own soil are bound to expand — both directly and indirectly, as ICTs support other industries. This could have major consequences for their physical and emotional health, as well as their academic

performance. There are few studies in this area in the literature, and the results are controversial, indicating that more research is needed.

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