

## DIGITALIZATION AND E-COMMERCE IN INDIA: AN EMPLOYMENT GENERATION INITIATIVE

---

**Dr. Saba Siddiqui\* & Dr. Rakesh Singh\*\***

\*Assistant Professor, Indian School of Management and Entrepreneurship (ISME) College,  
Mahipalpur, New Delhi

\*\*Assistant Professor, Shri Ram Swaroop Memorial University, Lucknow

### **Abstract**

*Technology provides new innovations and inventions that shape the style of the lives of people across the world. It helps integrate new techniques and scientific discoveries into everyday life, which increases the world's standard of living. Moreover, technology is an ever-changing concept, offering fresh breakthroughs and applications frequently. One form of technology that has taken the world by storm is digitalization, which creates the binary electronic digital systems used in electronics and computing. Digitalization affects nearly every aspect of our lives today. According to the Business Dictionary, digitalization is defined as the integration of digital technologies into everyday life. Modern cameras, television, phones and computers are all examples of digital technology. Prior to the digital system, most technologies ran on the analog system. An analog system uses a continuous signal that varies in amplitude to represent a variable, such as voice or data, rather than having a limited range of steps like a digital system. A digital system uses a binary numeric system in which electronic pulses are represented by either 1 for a high pulse or 0 for a low pulse. Digital systems can more easily represent symbols, such as alphanumeric characters that represent real-world data, than the analog system. Digital technology has led to a process known as convergence. Convergence is the merging of all types of information into one common digital form. Converting all electrical impulses to digital has led to digitalization, as digital technology is used more and more in everyday life. The computer is one of the biggest factors contributing to digitalization. A computer and an Internet connection allow us to send email, share files and connect with other people all over the world through online social communities. In addition, a seemingly endless stream of information is available to us by way of digital technology over the Internet.*

*Digitalization allows people to have access to information instantly. Moreover, it presents opportunities that were unheard of in the past. People from various countries can communicate instantly online or over the telephones. Television broadcasts allow people access to news about what is happening in various locations around the world. Plus, digitalization serves many practical purposes, such as aiding law enforcement in finding and convicting criminals.*

*Digitalization increasingly offers employees the opportunity to work from home and thus creating better employment opportunities in the society. It allows singles to meet and date online. It is implemented in the classroom at schools across the world. It could lead to a completely virtual classroom that requires no teacher. It may lead to the elimination of cash tender. New uses for digital technology are being developed every day.*

*The objective of the paper is to investigate the impact of digitalization on economic growth and its potential for creating employment opportunities. Digitalization being a key economic driver in the present world it is important to integrate the economy by creating digital markets. Firms, prices and productivity are the three benefits derived by an economy. It is found in large economies internet accounts for about 3.4% of GDP on average along with stable employment generation.*

*During global downturn 6 million jobs were created worldwide by the digitalization effects and 94% were from emerging economies and 6% from North America and Western Europe. This showcases the potential of the digitalization in creating employment opportunities. Researches show developing economies has more possibilities of gaining advantages of e-commerce than the developed economies as developing economies have wider scope of reducing inefficiencies and increase production. In India, increasing internet penetration, rapid technology adoption and high sale of technical gadgets like smart phones, tablets, etc, have led to an attractive online customer base and unprecedented growth of e-commerce. Domestic policies regarding telecommunication, financial services and distribution and delivery would provide inputs for e-commerce trade related negotiations. Studies show that 2.6 jobs are created by internet for every job lost for internet. The paper discusses the different countries' digital contribution and the employment created with the e-commerce growth. Impact of internet is evaluated around two components: consumption & expenditure and supply.*

*The consumption and expenditure is the usage by individuals, companies and government. The supply side includes the industries like telecommunication, hardware manufacturers, software*

*and services that shape the internet world. The use of internet in business showed profitability is increased by 10% on an average across countries.*

*Internet related business contributes 3.2% towards Indian GDP. The trade balance component contributes maximum to this share. On the other hand, McKinsey Internet Supply Leadership Index is used to understand the supply side of the internet business in India. It has been found that there is ample scope to develop the supply side by building digital infrastructure and capabilities. In order to take advantage of e-commerce business, there has to be a proper business model as well as other strategies so that the business is sustainable and provides economic growth.*

*A digital market maker model has been proposed which speaks about identification of selective sectors to be digitalized and the tradeoffs from the same in terms of job creation and profitability. Following this capacity building requirement are explained along with the role of the government and private sectors. The estimation of the internet business shows that it would be contributing 4.8% of GDP by 2018. The development of SMEs would be major source of employment and important contributor for internet business. The digitalization would help India to compete with the matured economies, generate employment and have a steady increase in GDP providing socio-economic growth to the nation as a whole.*

**Keywords:** *digitalization, economic growth, e-commerce, employment*

## **INTRODUCTION**

Emergence of digitization followed by proliferation of e-commerce has profound impact on the productivity and socio economic standard of the society. Evolution of technology and associated information and knowledge help establish society's production capacity and standard of living which are decisive to the economic growth of the nation. Being a global concept, digitalization has prominent impact on economic growth and employment of any nation.

In a study, digitalization index have been linked to higher growth and employment with increasing returns to scale. Human capital is a key component to the impact of digitalization. In order to take advantage of e-commerce business, there has to be a proper business model as well as other strategies so that the business is sustainable and provides economic growth. Domestic policies regarding telecommunication, financial services, distribution and delivery would provide inputs for e-commerce trade related negotiations.

Researches show developing economies has more possibilities of gaining advantages of e-commerce than the developed economies as developing economies have wider scope of reducing inefficiencies and increase production. Indian economy has seen unprecedented growth of e-commerce in the last 5 years. Increasing internet penetration, rapid technology adoption and high sale of technical gadgets like smart phones, tablets, etc, have led to an attractive online customer base.

Digitalization has brought social transformation in the life of common Indians. The present government has taken up an initiative called “Digital India” for modernization of the society that will connect every corner of the country. However the effect of digitalization at macro level in Indian economy is yet to be revealed. With the enormous benefits of digitalization come political challenges for the policymakers to set the stage for seamless digitalization. Studies reveal that use of internet by Indian SMEs would fetch 32% more revenue and 37% higher employment.

The objective of the paper is to seek answers to how digitalization is fostering economic growth of the nations, what is the contribution of internet and e-commerce towards the GDP of a country, what type of employment opportunities are created by digitalization and e-commerce in particular and how these opportunities could be leveraged in India. Research Foundation and Background Digitalization, from societal perspective, has been defined as “the economic and social transformation triggered by the massive adoption of digital technologies to generate, process, share and transact information.”

It is emerging to be the key economic driver of recent time as it provides economic growth and helps in job creation. Few years back when the world economy was sluggish, digitalization boosted it with \$193 billion output and were able to create 6 million jobs round the globe. World Economic Forum mentioned in its report that 10% increase in digitalization score of any country would bring 0.75% growth in its GDP per capita. Other studies confirm that its impact is 4.7 times more than the average impact of 0.16% on the per capita GDP for broadband deployment.

The world economy has been changed since the development of information and communications technology (ICT). The major portion of business world has been transformed to e-business with the dramatic penetration of internet and its acceptance by the backend supply chain partners and end consumers. E-commerce or E-business can be referred to be the activity that occurs within the electronic market. Various researches have explored the benefits of ICT in the e-business arena.

Enhancement of efficiency along with cost cutback, improvement in business performance and responsiveness and increased competitiveness are among the few boons of ICT that has been prominently visible in e-commerce since last decade. Economy is able to derive three folded benefits from e-commerce in terms of firms, prices and productivity. E-commerce companies have mastered the art of electronic transactions and overcome the inefficiencies of coordination among supply chain partners to optimize their operation and streamlined their production process by incorporating third parties to become more competitive. The empirical evidences on price give a mixed review of high and low price elasticity of demand. It has been found that development of ICT provides sustainable escalation in productivity. Studies found that contribution of ICT towards economic growth of OECD countries rose from 0.5% to 0.9% in late 90s and grew consistently over the years. The maximum effect of ICT was in United States followed by Australia, Finland and Canada.

In a report of a research firm McKinsey it has been found in large economies internet accounts for about 3.4% of GDP on average. These economies constitute 70% of the world economy. Internet consumption and expenditure is found to be more than agricultural sector, if considered as separate sector. Global contribution of Internet equals the GDP of Spain and Canada.

From several researches it has been found that United States was able to improve labour efficiency and capital with the help of ICT. In an empirical study it was found that development of e-commerce of China let the development of Chinese logistics industry. Both these industries together in turn contributed to the economic growth of the country. Another empirical research studied B2B e-commerce and GDP of U.S., Japan, Germany, Britain and France to find 0.25% annual increase in GDP (basis 2000-2010) in all these countries for B2B e-commerce.

Another research proposed from microscopic point that with the ability to reduce transaction cost and improve economic efficiency, e-commerce can contribute to economic growth. In 2002 Cisco Systems study showed that popularity of e-commerce resulted in average productivity growth of 2.1% from 1.2% in the US in between 1995 to 2000. Again in EU, e-commerce helped productivity grew from 0.3% to 1.7% in the period 2000-2010.

**Effect of Digitalization: E-commerce boom and Employment opportunities**

Both developed and developing economies are reaping benefits for digitalization. Researchers say developed countries are trading higher economic benefits from digitization; although job creation is more in the developing countries. The developed countries have measurable effects of growth for digitalization as they depend on domestic consumption making non tradable sectors important. However they outsource lower skilled work to emerging markets for cheaper labor. Developing countries, on the other hand, focuses more on exports and tradable sectors. Thus, for them gains come from the effect of digitalization on employment rather than from its influence on growth.

The 6 million jobs that were created by the digitalization effects were found to be 94% from emerging economies and 6% from North America and Western Europe. According to the World Economic Forum (2013) a country which gains 10 digitization score, reduces unemployment by 1.02 per cent. Studies have shown that a complex set of interactive forces would determine the effect of e-commerce on employment and wages.

E-commerce provides opportunity for direct and indirect employment on one hand and on other it is also responsible for job losses. ICT related jobs would be boosted as demands for computers and information system managers, computer system analysts, computer engineers, computer support specialists, database administrators, computer scientists and computer programmers would increase. In addition to this artist and commercial artists, designers and writers and editors would also be in demand.

Internet has been able to create 3.6 million jobs in the United States. This is more than the workforce engaged in agriculture and construction combined in the country. In a European Commission press release, it mentions that 500000 jobs were created in the US in last 5 years for the development of mobile application and IT related. British business has been equally influenced by the digital wave. A recent study in Britain reported that 7,45,000 more digitally skilled workers are required to let the economy grow. The digital space is creating more jobs for UK than they can fill it. With the thriving digital ecosystem, UK has been able to employ 1.46 million people in digital companies.

In addition to this, it has been forecasted that digital employment would grow by 5.4% by 2020. An extensive study in France showed that 2.6 jobs are created on every job destroyed by internet. Analyzing 15 years, the report found that 1.2 million jobs were created by the internet and there was a loss of 5, 00,000 jobs. In Nigeria, a developing country, where e-commerce is at a nascent stage generated 50000 jobs. As the e-commerce industry expands in Nigeria, opportunities are increasing for web designers, logistics personnel and affiliated services. Nigerian Ministry of Communications Technology quoted in 2012 e-commerce has created 12000 jobs for the country. As the e-commerce rise steeply there, 60% of the jobs advertised online comes from the e-commerce category. In a press release by European Commission it is mentioned that online business is expected to contribute to 20% growth and net job creation for European Union. In 2013 there were 650,000 websites of B2C online shops in Europe and was expected to grow by 15-20% based on the present online penetration. It has been estimated that this would create 2 million jobs directly and indirectly.

With the growth of digital industries, the demand for digital skills would also increase.

Companies would be looking out for coders, web developers, product managers and data scientists who would be steering the business to grow. There would also be requirement of online marketing managers, product developers and user-experience experts also. Continuous innovation and creative thinking would be required for facing the challenges of the digital business world.

### **Implications and suggested strategies for Digitalization of Indian Economy**

Digitalization of the economy is the future. There is no looking back on that. In order to make the economic growth move through an upward trajectory, it is important for the government, business fraternity, education system and the people to realize that embracing the changing technology would help the country and its people to grow and remain competitive. Studies show that in last five years internet contributed 21% to the economic growth of the matured economy. However internet's contribution toward GDP growth of India was 5%.

Globally, usage of internet was found to grow businesses across sectors in double the speed compared to the non users. SME Enterprises that use internet were able to create more jobs and earned more revenue. The McKinsey survey (2011) showed profitability is increased by 3.2% of GDP of India Private Consumption (20%) Private Investment (28%) Public Expenditure (5%) Trade Balance (47%) 10% on an average across countries due to internet. Higher

penetration of internet has manifold impact on any country's economy. Its impact primarily moves around two components: consumption & expenditure and supply. The consumption and expenditure is the usage by individuals, companies and government. The supply side includes the industries like telecommunication, hardware manufacturers, software and services that shape the internet world.

The trade balance is the maximum contributor to the GDP which involves business over internet. This provides an opportunity for the Indian economy to earn more revenue by expanding exports and boost economic growth which in turn would create employment opportunities. Public expenditure towards internet spending is relatively low as compared to the mature digital markets of the world.

The improvement of supply side would help in increasing the economic output. Research firm McKinsey created McKinsey Internet Supply Leadership Index to understand how countries contribute to the global internet ecosystem. The four sub indices help understand the overall framework of internet business of a country.

India is leading the growth component in the McKinsey Internet Supply Leadership Index.

This is because of the continuous growth of internet related Indian companies among top 250 companies of the world. However the importance and preparation for future indices show a very low score.

In comparison to the Western countries of the world, Internet is a new phenomenon in Indian society. Also compared to other developing countries of the world, India has been a laggard in internet penetration. This provides a scope for the state for further developments. As the emergence of internet has been slow, the effect gets reflected in the share of internet related Indian companies at the global stage.

As digitalization is taking up a major role as economic growth driver, it is essential to steer it as a source of national competitive advantage. Better access and affordability of ICT services is now a minor part of the bigger picture. For creating a thriving presence in the increasingly digitalized globe, India needs to be a digital market maker. To unlock the potential of internet in the Indian economy, in broader sense, accessibility, awareness and regulatory framework for internet has to be improved. This throws a challenge to the policymakers for designing sector digitization plans, building capabilities and enablers, and jump-start and monitoring ecosystem.

Digitalization of sectors related to manufacturing and services would lead to productivity gain and job creation. Manufacturing and financial sector faces job losses for digitalization because productivity gains surpass output gains. Retail and hospitality sectors provide rising employment opportunities with output and productivity growth. Also, increased online shopping boosts logistic sectors recruitment. Thus key sectors are to be identified for digitalization that would provide with maximum trade-off. For instance, ports are important for an export driven economy like Singapore. Several digitalization initiatives like the world's first port Wi Max (a fast wireless standard) network, intelligent bunker management system, a secure global satellite tracking system, etc. are being taken by the Government.

In order to build capacities, research and development should be encouraged. Critical digital infrastructure is required to be developed by the public bodies or through public – private partnership. VTT Technical Research Centre of Finland provides R&D services to public and private sectors. My Health initiative of Malaysia provides online health services to entire population of the country. Small and medium sized enterprises should be encouraged for digital participation. Financial help from the state would help them set up their business. Private sectors may collaborate with the public to provide digital services where public bodies can facilitate by stimulating demand or regulating the market. Thus government would need to play a crucial role of developer, financier and facilitator to help build the capacities for digital market.

Basic facilities like high speed network coverage and safe and easy online payment system are pertinent to the success of e-commerce. State's support for vernacular content development, digital education, promotion of entrepreneurial development and development of digital workforce are primarily essential for strong foundation of digital market. However the government can only play these roles successfully when there is availability of capital, highly skilled thinking power and digital infrastructure.

The most challenging part of this model is the jump-start and monitoring. With every rupee spent in the development of digital market it becomes highly essential to track and monitor the execution of the plan. Report says even developed countries are gripped by extremely strict financial measures. Due to unavailability of any theoretical benchmarks or measure to judge digital growth, it is important for the policymakers to invest time and effort to make consistent

matrices to cover all sectors for digitalization. To ensure all stakeholders are able to function effectively, a strict governance mechanism is required.

### **Conclusion**

Impact of digitalization is increasingly helping Indian GDP to grow. Along with economic benefit, the unquestionable viability of Indian internet economy is also transforming the social life of the Indians whose benefits are challenging to quantify. Economic benefit of Internet is expected to contribute 4.6% of GDP of India by 2018. It is also predicted that there is enormous opportunity to grow the SME sector through the e-commerce. The increase of SME business would also generate employment in the country. E-commerce is considered to be an important channel of job creation which is estimated to create 15-20 lacs job by 2018 in India.

The proposed idea of digital market would help India increase output and create jobs. Government spending in the infrastructure building and capacity building would also be a source of employment generation. The upcoming new technologies like virtual mirror and virtual wall would push Indian e-commerce in the next gear. With already 910 million mobile subscribers, 58% rural internet users, over 300 million smart phone sale and growing 3G subscribers, Indian economy is all set to jump for ideal digitization (PWC, 2015). Effective planning and regulation of digitalization would help Indian economy to compete with the mature economies in the coming years.

### **References:**

- Blili, S., & Raymond, L. (1993). Information Technology: Threats & Opportunities for Small and Medium sized Enterprises. *International Journal of Information*, 13, 439-448.
- 98th Annual of Conference of Indian Economic Association, December, 2015
- Brookes, M., & Wahhaj, Z. (2000). *The Shocking Economic Effect of B2B*. Goldman, Sachs & Co. Global Economics.
- Degeratu, A., Rangaswamy, A., & Wu., J. (1998). Consumer choice behavior in online and regular stores: the effects of brand name price and other search attributes. *Marketing Science and the Internet*, INFORM College on Marketing Mini-Conference. Massachusetts: Cambridge.
- Europe E-commerce. (2014, June). European E-commerce Grew by 16% to €363 Billion in 2013. Retrieved August 2015, from Europe E-commerce: <http://www.ecommerce-europe.eu/press/european-e-commerce-grew-by-16-to-363-billion-in-2013>
- European Commission. (2012, January). *Stimulating growth and employment: an action plan for doubling the volume of e-commerce in Europe by 2015*.

- FICCI & Nathan Associates Inc. (2013). Unleashing the Potential - Internet's role in the performance India's Small and Medium Enterprises. FICCI ; Nathan Associates Inc.
- Fink, D. (1998). Guidelines for the Successful Adoption of Information Technology in Small & Medium Enterprises. *International Journal of Information Management* , 16 (4), 243-253.
- Goolsbee, A. (1998). In a world without borders: the impact of taxes on Internet commerce. Working Paper, University of Chicago .
- 98th Annual of Conference of Indian Economic Association, December, 2015
- Grech, G. (2014). The UK is creating digital jobs faster than we can fill them.
- Hart, M. (2015, February). NEF Launches 2 Programs To Improve Digital Skills of U.S. Students and Workers.
- <http://thejournal.com/articles/2015/02/19/nef-initiates-2-programs-to-improve-digital-skills-of-u.s.-students-and-workers.aspx>
- Huirong, J. (2014). The Study of Dynamic Effect Relationships between the E-Commerce,
- ITIF. (2013). The Economic Benefits of Information and Communication Technology. Washington DC: Information Technology & Innovation Foundation.
- Jehangir, M., Dominic, P., Naseebullah, & Khan, A. (2011). Towards Digital Economy: The Development of ICT and E-Commerce in Malaysia. *Modern Applied Science* , 5 (2), 171-178.
- Jones, P., Beynon-Davies, P., & Muir, E. (2003). Ebusiness barriers to growth within the SME sector. *Journal of Systems and Information Technology* , 7 (1/2), 1-25.
- Katz, R., Koutroumpis, P., & Callorda, F. M. (2014). Using a digitization index to measure the economic and social impact of digital agendas. *Info* , 16 (1), 32-44.
- 98th Annual of Conference of Indian Economic Association, December, 2015
- M. Castells, s. e. (2000). *The Rise of the Network Society* (2nd ed.). London, UK: Blackwell Publishers.
- Mafe, C. R., & Blas, S. S. (2006). Explaining Internet Dependency. *Internet research* , 16 (4), 380-397.