International Conference on "Recent Trends in Technology and its Impact on Economy of India"
Guru Nanak College for Girls, Sri Mukstar Sahib, Punjab (India) (ICRTTIEI-17)
24th October 2017, www.conferenceworld.in ISBN: 978-93-86171-74-0

Advancement in Technology vis-a-vis Advancement in Indian Economy

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Technology can be regarded as primary source in economic development and the various technological changes contribute significantly in the development of underdeveloped countries. Technological advancement and economic growth are truly related to each other. The level of technology is also an important determinant of economic growth. The rapid rate of growth can be achieved through high level of technology. Schumpeter observed that innovation or technological progSress is the only determinant of economic progress .But if the level of technology becomes constant the process of growth stops. Thus, it is the technological progress which keeps the economy moving. Inventions and innovations have been largely responsible for rapid economic growth in developed countries.

According to India's National Association of Software and Services Companies (NASSCOM), call centres, business process jobs, and data entry contributed $100 billion to the economy in 2013. The software sector, which contributed $80 billion, according to NASSCOM, is about to make a splash, as the new start-up scene matures.[6]In addition, Gartner notes software-defined applications and infrastructure as one of the top ten technology trends for Indian companies.[7] To deal with the rapidly changing demands of digital business and scale systems up or down rapidly, computing has to move away from static to dynamic models. The outsourcing market is vital, as India is in a challenging economic environment. While the country grapples with economic uncertainties and the increasingly competitive outsourcing market, its start-ups have slowly and steadily gone on to carve a niche – especially in the software realm. For example, in 2014, Facebook acquired Little Eye Labs, an Indian start-up that makes a software tool for analysing the performance of Android apps, for more than $10 million. The acquisition was the social networking giant's first Indian acquisition in more than ten years of its existence. Facebook's acquisition of Little Eye Labs was a transformative deal for the Indian start-up ecosystem, validating that Indian product start-ups are ready for global play. This growth will continue, and ultimately, create new developments and jobs within the country, potentially luring greater business investment and an increase in relocations.

India ranks third among the most attractive investment destinations for technology transactions in the world. Modern India has had a strong focus on science and technology, realising that it is a key element of economic growth. India is among the topmost countries in the world in the field of scientific research, positioned as one of the top five nations in the field of space exploration.

India ranks second in terms of contribution to high-quality scientific research. It is among the world's top 10 nations in the number of scientific publications. India has been ranked as the top exporter of information and

ISBN: 978-93-86171-74-0

communication technology (ICT) services and second in innovation quality in 2017. Information Communications Technology (ICT) is not only one of the fastest growing industries – directly creating millions of jobs – but it is also an important enabler of innovation and development.

The number of mobile subscriptions (6.8 billion) is approaching global population figures, with 40% of people in the world already online. Among all mobile phones, the fastest growth rates are in India and China, which gained 18 million and 12 million net new mobile subscriptions just in Q3 of 2014. It is estimated that there are more than 180 million people in India accessing the internet through mobile phones today, an increase of 50 million over the past year. This rapid growth has led to a shift in business focus from a presence on a web platform to the mobile space. In this new environment, the competitiveness of economies depends on their ability to leverage new technologies. Here are some of the common economic effects of ICT:-

I. DIRECT JOB CREATION

The ICT sector is, and is expected to remain, one of the largest employers. In 2013, the global tech market grew by 8%, creating jobs, salaries and a widening range of services and products. Out of this 8%, 3.5% growth was seen in India itself. These statistics itself show us the scenario of job creation in India and it has been made possible due to the advancements in the communications sector itself.

II. EMERGENCE OF NEW SERVICES AND INDUSTRIES

Numerous public services have become available online and through mobile phones. With the advent of 'Digital India' program by our prime minister sh. Narender Modi , various e-services has gained popularity with the masses and eased the way for many government offices and also helped the common man to save his precious time and money. ICT has also enabled the emergence of a completely new sector: the app industry. The application industry is another booming area where a lot of money has been invested and the creations of user friendly apps have actually made the life of the masses easy.

III. WORKFORCE TRANSFORMATION

New “micro work” platforms, developed by companies like Amazon and Flipkart, help to divide tasks into small components that can then be outsourced to contract workers. The contractors are often based in emerging economies. Micro work platforms allow entrepreneurs to significantly cut costs and get access to qualified workers. ICT has also contributed to the rise of entrepreneurship, making it much easier for self-starters to access best practices, legal and regulatory information, and marketing and investment resources.

IV. BUSINESS INNOVATION

In India, more than 70% of new businesses have an online presence. The Internet provides them with new ways of reaching out to customers and competing for market share. Over the past few years, social media has established itself as a powerful marketing tool. ICT tools employed within companies help to streamline

ISBN: 978-93-86171-74-0

business processes and improve efficiency. The unprecedented explosion of connected devices throughout the world has created new ways for businesses to serve their customers.

In an ever-changing world of technology, expatriates can properly prepare for successful assignments by understanding trends and changes in the industry. As India's technology scene continues to advance, so will the influx of professionals coming to the country. According to HSBC Expat, India is ranked ninth in terms of overall experience for expats, making it a hotspot for relocation.[16] Companies planning to transfer individuals into the country can benefit from working with a relocation partner that understands the technology trends and changes, and has an on-the-ground presence with proven partners, including destination service providers. By doing so, they can be prepared for successful short- or long-term assignments as companies invest in expanding their operations within the country.

For all India's prowess in IT, large parts of its economy have yet to benefit from new technologies. That could be about to change. There have been identified 12 technologies, ranging from the mobile Internet to cloud computing to advanced genomics that could have a profound impact on growth and social progress and add $550 billion to a trillion dollars a year of economic value in India by 2025.These 12 technologies have further been grouped into three areas:-

Technologies that digitize life and work: the mobile Internet, the cloud, the automation of knowledge work, digital payments, and verifiable digital identity.

Smart physical systems: the Internet of Things, intelligent transportation and distribution systems, advanced geographic information systems (GIS), and next- generation genomics.

Technologies for rethinking energy: unconventional oil and gas (horizontal drilling and hydraulic fracturing), renewable energy, and advanced energy storage.

Used together, these technologies could account for 20-30 percent of India's GDP growth between 2012 and 2025 and help millions achieve a better quality of life. Often, these technologies will be used in combination, generating a greater impact than any one of them when used alone. For example, Internet of Things sensors in medical devices can be combined with the mobile Internet and intelligent systems (the automation of knowledge work) hosted on the cloud to monitor patients with chronic disease remotely and to alert medical workers automatically when the system detects a potentially dangerous situation.

They can contribute as high a share of the national economy and their application includes:-

Financial services. Disruptive technologies offer an opportunity to address persistent challenges such as lack of financial inclusion; just 36 percent of Indians have a bank account. Technology applications such as mobile payments apps like BHIM, TEZ etc, can help as many as 300 million Indians gain access to banking services and could raise their incomes by 5 to 30 percent due to better access to credit and the ability to save and make remittances.

Education and skills. Technology can transform education. School performance can be improved through e-administration, digital identity-based attendance systems, and online teacher certification and training. Blended learning with MOOCs (massive open online courses) can bring high-quality courses to students. India could

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have about 24 million more high school- and college-educated workers and 18 million to 33 million more vocationally trained workers by 2025 due to use of digital technologies in the education sector.

Health care. Disruptive technologies could transform delivery of public health services by 2025, extending care through remote health services--delivering expert consultations via the mobile Internet and using tablets and other digital tools to enable health-care workers with modest skills to carry out basic protocols, and low-cost diagnostic devices. Using Internet of Things tracking systems to curb counterfeit drugs could be a great step towards a healthier India.

Agriculture and food. Hybrid and genetically modified crops, precision farming (using sensors and GIS-based soil, weather, and water data to guide farming decisions), and mobile Internet-based farm extension and market information services can help the farmers of India in a great way. These improvements could raise the income of as many as 10 crore farmers and bring better nutrition to the consumers.

Infrastructure. Use of radio frequency identification (RFID) tags and other tracking technologies can automate terminal and warehouse management, raising efficiency by 50 percent. Using sensors, leakage in water systems can cut by 15 to 20 percent, helping reduce water shortages. Project-management systems and next-generation building technologies (extensive use of factory-made prefabricated parts, for example) can help India deliver ten million affordable homes by 2025.

It is my considered view that when the neural capabilities of touch, voice and gesture and the capable hardware that's available to process these inputs (at consumer prices to boot) are coupled with the large scale APIs to leverage these NUI opportunities, a new age of platforms which can redesign and revolutionize our experience will dawn.2017 shall be a year when the increasing clamour for experience by consumers and the Omni-experience transformation needs of enterprises shall see a scaling up of investments towards this aim. As this technology transformation evolves, so too will its impact on consumer experience and the digital business ecosystem.

To sum up, 2017 will see the next technological revolution reshaping Indian society, business and the government landscape. Recent events have already triggered the digitalization of the payments ecosystem at warp speed. The five technologies described above, individually and in combination, will herald the dawn of the next technological age.

Internet-of-things (IoT) software and solutions: IoT will be driving new levels of customer insight and engagement for some by 2021, but technology diversity and the need for organizational changes will still stymie or delay many firms.

Intelligent agents: Intelligent agents and related robots will have eliminated a net 6% of jobs by 2021.

Augmented reality (AR) and virtual reality (VR): By 2021, AR will be commonplace, while VR will remain niche.

Artificial intelligence (AI) and cognitive technology: Solutions powered by AI/cognitive technology will displace jobs with the biggest impact felt in transportation, logistics, customer service, and consumer services.

Hybrid wireless: 5G will be rolling out by 2021, creating a high-bandwidth cellular backbone to support IoT devices. In addition, Bluetooth and Wi-Fi will expand their capabilities to support IoT devices.

ISBN: 978-93-86171-74-0

V.CONCLUSION

India is aggressively working towards establishing itself as a leader in industrialisation and technological development. Significant developments in the nuclear energy sector are likely as India looks to expand its nuclear capacity. Moreover, nanotechnology is expected to transform the Indian pharmaceutical industry. The agriculture sector is also likely to undergo a major revamp, with the government investing heavily for the technology-driven Green Revolution. Also, several automobile manufacturers, from global majors such as Audi to Indian companies such as Maruti Suzuki and Mahindra & Mahindra, are exploring the possibilities of introducing driverless self-driven cars for India. The Government of India, through the Science, Technology and Innovation (STI) Policy-2013, among other things, aspires to position India among the world's top five scientific powers.

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