

India the Next Hub for Technological Innovation: Scope and Challenges

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Abstract

Technological progress and innovation is correlated with country's growth and development. It enhances its productivity, increases output and reduces poverty. This paper aims to look at the scope and challenges to India for becoming the next technological and industrial hub. The paper highlights the role of quality education, skill building, government and the banking sector in addressing the challenges for India to be the next innovation hub. It highlights the features that are conducive for technological advancements as well as the limitations that need to be addressed.

Keywords: Technological innovation, Growth, Skill, Education

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I. INTRODUCTION

The growth and development of a country is positively associated with its technological progress. Technological innovation and advancements leads to greater productivity and better utilization of the resources which leads to increase in the level of output, creates better investment opportunities and then through trickle down effects targets poverty and other socio and economic evils. This way it contributes to the country's growth and development. The developed nations of the west significantly relied on the technological and industrial advancements which lead to tremendous rate of growth of the western economies. Significant changes were brought in the assembly lines and manner in which economic activities were performed. This change in the history was termed as Industrial Revolution. Today, the world is looking at South Asia as a next hub of technological innovation which is then termed as being on the verge of making wonders through industrial revolution 4.

The developments in internet, big data, artificial intelligence, machine learning, nanotechnology etc are the major drivers to the expected Fourth industrial revolution. According to World Bank South Asia is expected to be a next hub of techno advancements and innovations. India is undergoing a technological transformation. According to Mc Kinsey Global institute report (2019) India is the second most connected nation in the world in terms of internet usage. Owing to the fact that India has higher number of young people who are well versed with the new technological changes and also has a good market of educated workforce in the service and techno industry, It possess a great opportunity to become a big player in the next phase of revolution in the world. Through technological advancements large scale productions can be handled in a systematic and more efficient manner thereby targeting the challenges faced in large scale productions.

Challenges Ahead

A high adoption rate of Information and Communication Technology (ICT) in India is one of the most favourable factor for the country in its process of technological advancement .However the expected Fourth industrial revolution is not without challenges. The first and foremost challenge associated with technological advancement is more political and economic in nature. A vast populous country like India has job creation not just as one of the most important political objective but also a major economic goal. Technological advancements will bring along job displacements and disturb the present labour market structure. Thus it is bound to face opposition from the masses for political and economic reasons. Secondly, the lack of understanding of the new technology creates the environment of fear and resilience in its adoption and application. Research and Development has never been the priority among Indian industries and firms. Up gradation of workforce through training and workshops has been limited and firms largely under invest in creating knowledge through training process. India though is among the best performers in South Asia in terms of its investment in Research and Development (R&D) but invests only one percent of its GDP on R &D. the investment is low both in public and private sectors and also in comparison to other countries in East Asian and Latin American. Advancements of techno and knowledge capital have a large variance and majorly limited to

foreign owned big firms. Innovation and adoption of new technology is majorly the act of imitation by the local firms. India's economic structure is different than the countries in the west or South East Asia and therefore it is very important to understand some ground realities that will come over the way of next expected Industrial revolution through technological advancements.

To become the new world economy government also needs to play a very important role in terms of framing the amicable and favourable policies for adoption of the new technologies of IR4. The role of the government is of utmost importance to let the country compete in the world market and to prevent it from being an outdated economy structured on old and obsolete technology. Economic Theories suggests that open economies always promote greater growth than closed economies. The government also needs to make sure that the adoption process is smooth and the disruption caused in the labour market is minimized. According to experts, 40% of job loss is expected in the next fifteen years that are attributed to technological innovations. Provided the positives of technological advancements the government needs to ensure that the country prepare itself for the change rather than adjusting its pace of adoption. By preparing itself at the nascent stage and focusing on right type of skills and training there can be better job creations and more expected gains than losses that the labour market will have to face.

Addressing the Challenges

India has improved its ranking in the world as shown by the ease of doing business Index where India has taken a jump to 63rd position in 2020 among 190 nations and is among the top ten performing countries in the list for three consecutive years. The Global innovation index also shows encouraging culture of innovation and start ups in India as India moves up from 81 rank in 2015 to 52 rank in 2019.

However we must analyse the challenges that exists for India to be the next technological hub. Foremost the skill gap that exists and needs to be addressed in a systematic manner for smooth transition in the era of technological innovation. The country is blessed with the best of demographic structure for the next three decades .The correct style and inculcation of skills will result in maximum demographic dividend that country can reap to produce higher rate of growth in coming years. The workforce needs up gradation in their skills to cater to the changing technological requirements with IR4. India has primarily focused on increased accessibility to education but now the requirement is to focus not just on reach but the quality of education. According to a UNICEF (2019) report more than half of Indian youth will not be skilled enough to get decent jobs by the year 2030 and will leave secondary school without gaining the required skills for 21st century jobs.

If the skills are put right then not just the individual but also all other associated with him are benefited and many can enjoy greater income levels. Reforms in education and the New Education policy is a welcome move in this direction. Along with skill advancements initiatives like Skill India, Make in India and Start up India puts India on track but there is still a way to go. According to a recent employability report (2016) less than 4% of engineers have necessary skills to begin a technological start-ups and only 3% have skills in areas like artificial intelligence , machine learning and data sciences and mobile development. In this regard primary and secondary schools shall play a vital role in improving the cognitive and non cognitive soft skills which can be better gained at a young age. Government must increase its budget to improve the quality of education as well as on research and development. Encouraging academic collaboration with countries that are doing well in the field of techno developments and thus internationalization of country's R&D can help in a big way to promote techno innovations and advancements. The World Economic Forum also highlighted the need of stronger linkages between countries governments to nurture new technologies and industries that build technology.

Innovation and Investment goes hand in hand. The innovative ideas through R&D then need to be put in the market. In this process banks plays a crucial role through promoting the investments through advancing loans to firms, entrepreneurs and industries who will be using the latest IR4 technologies in production of goods and services. Encouraging new production ideas and promoting start-ups can then help recovering the losses of the labour markets that are associated with new technology replacing the old jobs. Youth with right blend of skills and availability of investment resources makes a perfect model to accelerate growth and development. India has a huge potential to be the next innovation and start-ups hub since It consists of large number of youth, has already entered the process of tremendous urbanisation and advancement and can therefore definitely reap the benefits of these favourable set of factors.

The role of Government is also equally important in addressing the challenges. The education system needs to be revived towards promoting creativity and innovation. The start up culture should be encouraged and the youths should be motivated towards risk taking behaviour rather than a simplistic approach of getting a secured job. Tax structures must be revived to encourage young entrepreneurs and investment. Special economic zones should be created for small and medium enterprises and start-ups and tax concessions should be provided. With strong technological innovation and advancements and promotion of start ups and young

entrepreneurs one can expect large pool of job creation that can ensure that millions can be lifted from the poverty and can be put on the trajectory of growth.

Covid 19 times have posed negative impacts on all sectors of the economy but have also opened new avenues for technology and innovation sectors. The technology use has increased tremendously in many sectors be it health care, education or service providing industries. Technology has played a very important role in proper functioning of many sectors while ensuring of social distancing. This conveys the story of success of technological innovation that has the power to positively impact and drive people's lifestyles and the economies. It is must that this reach out is not limited to a particular section and an inclusive approach covering those at the bottom is adopted so that the benefits of the change reaches all sections of the society.

II. CONCLUSION

India definitely has a huge potential to be the next technological innovation and advancement hub. The widespread use of technology in covid 19 times strongly supports this argument. However, this is possible only if it addresses the challenges ahead with complete dedication. The Government must play a facilitating role to ensure the smooth transition of the economy in this phase of technological advancement. It should create appropriate incentives to remove the roadblocks and encourage new entrepreneurs and start-ups. The quality and nature of education should be in focus and needs to reorient towards building new entrepreneurs and risk takers young individuals. Banks play a crucial role in supporting the markets through investment. Healthy competition and internationalization of R&D and investment flows should be encouraged. Fears among the masses regarding changing technologies should be well addressed at the physiological level. With perfect blend of innovative youth and support of government and quality oriented education system India can surely become the next hub for technological innovation

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