



The Silicon Route

India is at a vantage point geographically situated between East and West and having a rich legacy of knowledge in science, mathematics, astronomy and traditional medicine. It must learn from China, Israel and South Korea to utilize its strategic and competitive strengths to its advantage.



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Innovation is a growth engine and is a comprehensive phenomenon. It is not merely developing new ideas and getting them to fruition. Innovation covers many aspects like improved communication, efficiency in implementation of policies, looking for new ways to solve problems among others. These aspects have been visible in the ways we use social media networks, IT tools to make lives better, to name a few. Innovation need not be always disruptive, even incremental developments that enable betterment of lives matter.

COVID-19 has clearly emphasized the importance of innovation, which is visible in the design of face coverings, face shields, ventilators in service of the world. Additionally, it has made the public understand the need for investments in science, technology, engineering and mathematics (STEM) disciplines. Public support for science has been growing and in fact strengthened during these stressful times. Nations have been utilizing taxpayer monies to support basic and mission-linked research, which are paying off. Many life changing technologies such as vaccines, cancer therapies, and internet have evolved out of such public support.

Innovation and Modern Economy

China, the most populous nation has become a serious competitor to the United States, world's number one economy, because of its scientific prowess. While the mode of governance is north and south poles apart in these nations, tension exists due to one nation's edge over



the other in terms of technological advancements. In fact, the recent trade war has been primarily justified based on issues related to intellectual property protections. Nations are realizing the critical need to guard intellectual property as they have broader impacts such as developing products and tools that is of service to humankind and enable economic growth. These are certainly signaling that our society is knowledge-based.

Innovation and Growth

There is no second guessing regarding the positive contributions of innovation towards economic prosperity and growth. One such innovation is the opening-up of many private engineering institutions in the 1980s, which created technically qualified personnel to cater to the needs of the information technology and engineering sectors during Y2K period and beyond. Not only such incremental developments have raised the profile of India in the international stage, but also, has had tangible benefits, say the flow of foreign currency to India. In the past decades, such outcomes have been possible due to investments and developments in technical education and allied sectors.

In most nations in Asia and Africa, there is a steady rise of middle-income population—a necessity for the growth of nations. Disruptive technological advancements such as 'Internet,' and subsequent incremental advancements such as social media



platforms have enabled the masses to be aware of things and be empowered. These innovations have certainly enhanced lifestyle, skill sets enabling personal and economic growth. In other words, such advancements have created demand for goods and services and hence drive growth.

Nobel laureate Professor Joseph Stiglitz, a keen China observer, in a lecture articulated the reasons for the development of China and moving millions of Chinese out of poverty. Comparing the poverty in China in 1977 and 2017, he observed that the positive development has been possible due to factors such as: 1) Education; 2) Innovation; 3) Infrastructure investments and 4) Transformation in governance. Highly visible growth and improvement in people's lifestyles are visible in Israel, which is attributed to huge investments in research and development. The government's support is leading to many innovations and Israel is known as the 'Start-up' nation, where the investment in R & D is about 4.95% of its GDP. Such investments have richly paid in countries such as China, South Korea, Finland, to name a few.

India is at a better vantage point in terms of its geographical location—between West and the East and some recently advanced nations to its East and West. Most importantly, India could use the lessons learnt by China, South Korea, and Israel in moving the nations forward utilizing their competitive and strategic strengths. Observing these nations will speed-up India's growth and



Professor Joseph Stiglitz

development—again focusing on the importance of innovation, 360 degrees all the way through.

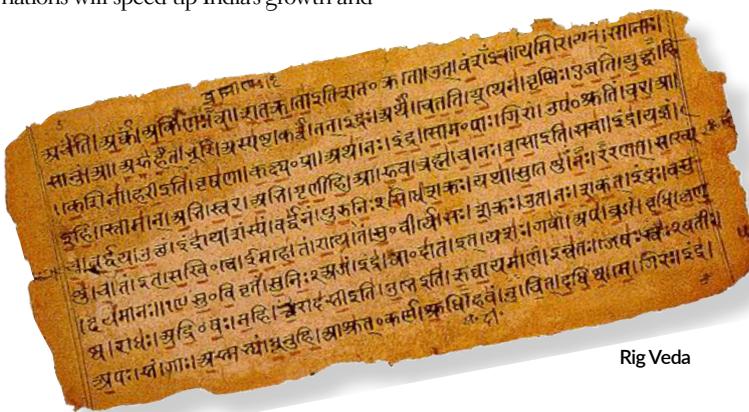
Advantage India

Indians for ages have gathered great knowledge from all over the world and utilized those for the development of humankind. This is evident from RigVeda, which articulates, "Let noble thoughts come to us from all sides." While Israel is a high-tech economy with heavy investments in R & D in high-tech products and technologies, China is focused heavily on manufacturing. Observing these strategic growth initiatives, India could focus on its strengths and analyze its weak links. However, India has edge over some nations

as it already has an established presence in the IT and service sectors. By enhancing skills and investing in skill development in advanced manufacturing such as agile and 3D manufacturing, etc., we can surely provide access and bring some sort of equity. In other words, while upper and middle-class populations gather necessary skill sets for employability in technology, finance, and high-end service sectors, growing the agriculture and manufacturing sectors will lift the rural population.

The emphasis of mother tongue in primary schools is a great strength, which helps with better understanding of basic concepts—this will cement strong foundation in different disciplines. Multiple language skills such as English certainly give edge in connecting with the global population. University graduates in India have this advantage compared to Chinese students who enter higher education institutions in English speaking western nations. Such language advantage has been a competitive strength to Indian techies and one of the many factors that have pushed India ahead of China in the IT sector.

The most important asset for India is its large proportion of youth population. India has about 53% of its population who are less than 25



Rig Veda



years and about 80% of population less than 45 years. China and advanced nations like Japan are at a disadvantage in this aspect. Timely investments in education and programs to boost innovation will provide quick returns and reap the benefits of demographic dividend.

NEP and Innovation

The New Education Policy (NEP) 2020 is in the right direction and forward looking to spearhead the growth of the country. As it is a framework, its focus is to enable the realization of the full potential of India, particularly, the youth. In my opinion, the policy focuses on: 1) Access; 2) Equity; 3) Flexibility and 4) Focus.

While access and equity have been the pillars of education policies, this new policy has added two vital aspects. Focusing those forward-looking attributes that are needed for growth and flexibility. Flexibility in

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the educational system is indeed an innovation, which will help students to realize their potential and utilize their talents to fullest extent. The concept of majors and minors, which has been the bed rock of higher education in the United States in fact helps the workforce and the employers to have a society with broad based knowledge and skill sets. This is basically a form of comprehensive education which is needed to train 'citizen scholars.'

Moving Forward

In a knowledge-based economy, analogous to a train running on two parallel lines, it is important to exercise shared governance in devising policies, laws and engage in shared responsibility. Policies developed need citizens' buy in to reap their benefits. A better education that trains future citizens is the need of the hour, which can cultivate thinking, infuse curiosity—these are important for growth and development. It is indeed pleasing to note the India Budget for 2021-22 has recognized importance of innovation, which has been cited as one of its pillars. While it is difficult to create innovators, but strategies to reach this goal can be rightly planned with proper investments in education and overall personal development. All stakeholders have a stake in this noble exercise! 