

A Research Study on the priorities for Sustainable innovation for the future of the Indian IT Industry and the impact on CSR (global social impact)

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Abstract: The research studies on the priorities for the Government to invest to create an ecosystem for the Indian IT Industry to help innovate and build a value chain to build sustainability in the competitive environment. Since India has emerged to be the most competitive nation with the Information technology sector, it is very important to innovate to build in an era when industrie 4.0 is taking shape post the new normal. The paper studies how the rise of industrial growth could support the role of corporate social responsibility thereby improvising the global social impact.

Keywords: Innovation, strategy, competitiveness and sustainability, value assertion.

1. Introduction

Objectives:

- Studying the industrie 4.0 and the subsequent changes in the IT Sector's growth
- Analysing the need for innovation and competitiveness using the different frameworks and its value in sustainable growth.

Introduction and Literature Review:

Innovation is the fundamental factor behind a change and the change is the only thing that is permanent. Industries, firms, nations fight for existence and are able to sustain only when they prioritize innovativeness in their resources. As (Karol, 2013) cites Joseph Alois Schumpeter for the first to give an explanation for Innovation and support it with entrepreneurship in his book Theory of Economic Development, 1912. Schumpeter's work of Capitalism, Socialism and Democracy, 1942, explains about his term "creative destruction". Innovation according to Schumpeter is the "industrial mutation which incessantly revolutionises the economic structure from within, incessantly destroying the old one, incessantly creating a new one" which could be called as creative destruction as cited in (Thomas, 2010).

Competitive Advantage is defined as the superior ability or an advantage that a firm possesses over its rivals. It can be applied an individual, a firm, a sector or a nation. Many researches have been conducted in the area of competitiveness and sustainable growth. Sustainable competitive advantage is defined as the prolonged competitiveness which is able to be enforced in a firm or a nation over its rivals. This sustainability can be possible only with constant innovation and encouraging an environment of competitiveness. A firm that innovates is able to be more successful than its rivals and when a firm is able to sustain, it also helps in building the value chain of the industrial sectors. A sector when it is successful, it helps in contributing the growth of a nation which helps in building the nation to be competitive amongst the rest (Vivek, 2017). As Porter suggests that every firm should know its environment, resources, customers, suppliers, economic environment and supporting industries since they are the factors that help in building a firm to help sustain (Porter M., 1980). Firms have realised to analyse their competitive strengths and there by improvise on them to be successful. Innovation has always remained the key for survival and those firms that failed to innovate to the disruptive changes have always perished.

Firms that are able to sustain are the firms that are able to possess the four characteristics 1) the product has to be valuable such that it is better than any of its rivals 2) rare such that the product can hold its own monopoly which will help the firm create an advantage over the rest 3) an inability to imitated will help the product in achieving SCA 4) inability to be substituted will help in being a dominant leader (Barney, 1991). Thereby the research says that firms that develop these abilities are able to achieve a SCA.

These are not only applicable to firms but also nations to improvise their competency. Since trade between nations is growing competitively, every nation tries to invest on its own competitiveness by creating resources and environment for outstanding innovation. Developed nations have long had the advantage of investing in their own science and technology and are competitively ahead of the emerging nations. (Porter M., 1990) explains about the competitiveness of the nations and how they need to invest in new patterns of business to support their economic progress. Nations need to aggressively improvise their business and innovative standards and be more competitive. Protectionism and not encouraging competitive trade policies would affect the nations in the long terms. Though the research emphasises on selective nations majorly from the west, it does not highlight on the new emerging nations from the east. He also different nations like Germany have developed competitiveness in science and technology and have produced products with differential advantage.

Since competitiveness has grown with the advent of globalisation after the trade liberation of India and China, major patterns of trade have changes globally. Emerging nations are aggressively working to build their industrial

infrastructures, business clusters and start up enterprises, creating an availability of easy capital, supply chain infrastructure, helping firms in value creation through various policies, strengthening free trade and thereby encouraging in creating a favourable climate for business. (Pitelis, 2009) suggests that there is a relationship between FDI and clusters of industries in emerging economies. Emerging economies face a big challenge of capital squeeze and with banks being more cautious affects tremendously on MSMEs. This leads to nations to depend on foreign capital for supporting the domestic industrial clusters.

Competitiveness and product development also has a good impact due to industrial accreditation and environment friendliness (Walker, 2008). Thereby firms should also emphasise on product development with environment friendly measures. They have a good impact on the branding and quality image which reflect on profit generation.

Nations that are big have an advantage of division of labour and specialisation of work. This helps them in utilising the resources to produce more and thereby resulting in economies of scale (Penrose, 1959). Nations like India and China have an advantage of huge labour force and with specialisation or skill development, it has been able to produce more than a nation with limited human resource.

The NASSCOM is very positive of the Indian IT Industry and predicts it has tremendous potential in many verticals of business (NASSCOM L., 2019). Even though there are many challenges such as macroeconomic risks, the industry is continuing to do the internal transformations in the domestic market and global transformations in the global market. As per the NASSCOM report.

The Indian IT firms especially the larger firms have to incorporate new technologies for achieving a sustainable competitive advantage. Smaller firms have challenges such as cost and resources in order to implement. For the sector to achieve superiority over its competitors, the Government of India should also create favourable policies and investments to support the growth.

Technology upgradation and Process innovations for competitiveness:

Cloud and Data Technologies:

India wants to build itself into a global hub for data localisation. Since data is analysed to be most vital for the future of technology based business, India has all the potential to become the shore for storing global data. Even though the industry looks forward for building the competitiveness in the Indian Cloud Industry, the data set up cost in India is 10% higher than countries like Singapore and Japan. The cost of EU service providers are costing higher and thereby purchasing from EU seem expensive and when the cost of purchase is expensive, the production and cost to the consumer are also high. The higher prices of these data keeps the competitiveness in the industry also very low and only meant for larger firms who could afford. Even though the short term investments are higher, the long term benefits are more in the area of cloud computing. Investments in India have to be with long term focus though India should also build its capacities and support its policies to encourage creating. The long term focus on investments would boost the competitiveness in the industry. As data is considered the most valuable for the future of businesses, the data policies and security also have to be given high priority importance. Especially when data is pertaining to national security, a lot of smaller firms find this to be very vulnerable to risks. One of the big challenges of data is the access to foreign based innovative solutions. Thus there is a big challenge as data localisation impact on accessibility to foreign resources and solutions (NASSCOM, 2019).

Agile Development

The research on large scale agile development (Torgeir, Nils, Tor, & Eva, 2018) cite that there is a change in the traditional development to agile development. The managements during the traditional development was to command and control whereas in the agile development it is leadership and collaborating. Knowledge management is tacit than being explicit in agile development and communication informal which brings in togetherness. The development model of the projects are evolutionary- delivery models compared to the lifecycle model. The organisational structure is organic, participative, flexible and encouraging social action though could be in micro and small firms whereas in the traditional style it is bureaucratic with high formalisation especially in larger firms. The quality control has heavy planning in traditional style and in agile style it is a continuous testing.

The diffusion of innovation has supported every sector and benefitted every industrial growth. The supply chain ecosystem is one of the most important in order to create a value chain. (Vicky, Marc J, & Qing, 2015) suggest that one of the main factors that support the diffusion of innovation is incorporating Task Technology Fit theory with a network externalities model which would help in customer relationship model with software adoption. Customer Relationship Management Model Software helps in implementing a direct or indirect externality because of its ease of use and system of reliability and helps such that other moderating network externalities would adopt to this model.

Task Characteristics, Technology Technology and Task Fit Theory:

Task technology task fit theory is applicable when utilisation of technologies are compared with the user performance. There are times when technologies which are invented are under utilised by the users. This leads to the failure on the improvement of performance. Firms many times develop products which have very good features, however when the clients are not able to utilise to the fullest of the performance due to various reasons such as not easy interface or because the client does not understand the usage will lead to the failure of the product.

Thereby technologies need to be well utilised by the user in order to be escalated to improvise on innovation (Michael, 2008). The TTF is measured based on 8 factors (Goodhue & Thompson, 1995):

- Quality
- Locality
- Authorisation
- Compatibility
- Ease of Use
- Production Timelines
- System Reliability
- Relationship with Users.

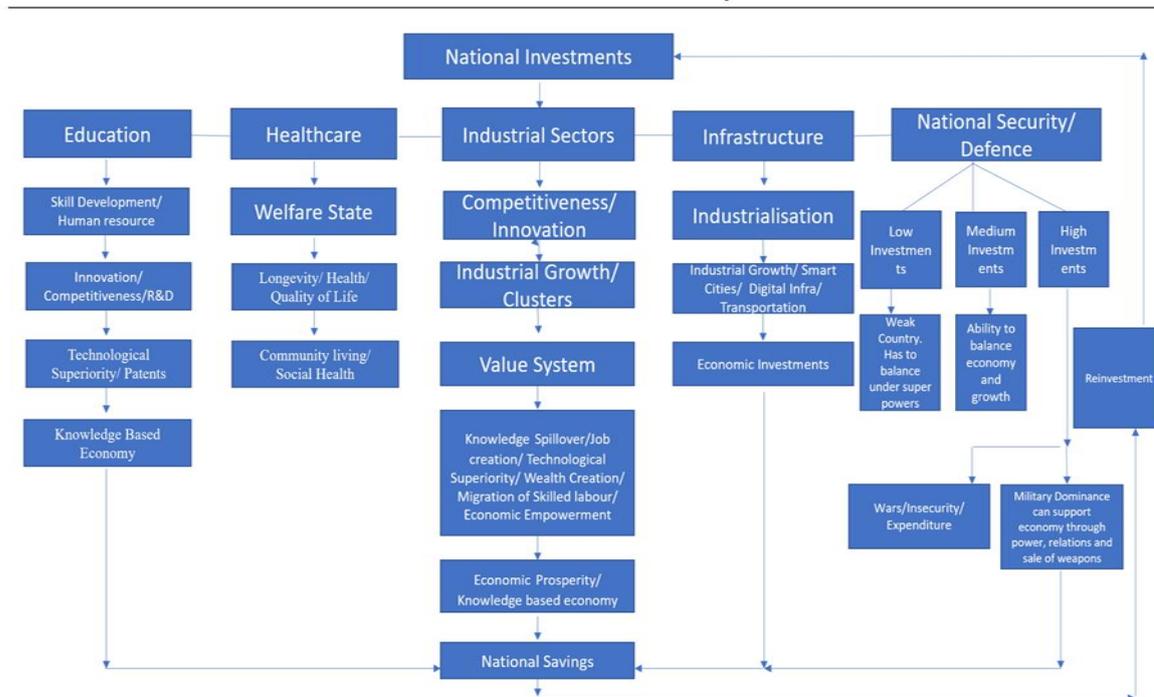
2. Analytics and Data:

The analytics initiative would be very important for industries in future in creating a value chain. The research (Tino, 2019) states that there is a dire need to improvise the infrastructure necessary for building the data analytics especially in the areas of Logistics Supply Chain Management. This would help in building the competitive advantage of firms. Since analytics is about program and solutions it requires skilled professionals to use them and skill development is very vital to improvise. Data analytics helps firms in building a competitive advantage especially the small and medium enterprises and would definitely be the future and IT firms should analyse the value proposition and begin to innovate on the same.

Role of Government in Supporting Competitiveness and Creating Favourable Investment Climate:

The government has to create favourable investment climate, build a strong ecosystem with cluster of industries, upgrading the necessary infrastructure, open new markets in tier 2 and tier 3 cities helping in geographically expanding inside the country, skill development with government facilitation in industry academic partnership, rise the bar of research standard to global expectations, increase of the value of educational institutions and attract foreign students to study which would help migration and circulation of talents, independent institutions to watch on transparency and governance, flourishing economy with strong demand and entrepreneurship driven encouraging exports.

Fig 1.1). National Investments for Sustainable Economic Growth and Security Framework



Source: Vivek Arunachalam, 2020 ("Sustainable Economic Development, Modernisation and as rising Power centre in South Asia" published in the Journal "International Conference on SAARC Countries Relationship with India, Policies, Challenges and Strategies"

The mentioned chart explains about the role of government in creating an environment for a sustainable economic development. It could be created when the government invests in the mentioned factors as a priority. Investing in Education by building world class institutes in tie up with industries. The industries partnership is very much required in the areas of research and development as the industries need skilled talent and many academic institutes do not have academicians to teach in latest technologies like Artificial Intelligence, Cloud etc as they prefer to work in research along with the firms and there is a brain drain of Professors and researchers. Thereby the government has to create a supportive environment to hold them and invest on the requirements. This could be done only with a academic industry partnership. The industry gains as they need not spend heavily on poaching the few skilled talents and also helps in creating a pool from the base. The academia is benefitted as

they are able to utilise the industry funded researches for patent and other rights. The government is benefitted as it is able to retain the industries and the talent capital. Investing in research helps in building new technologies, patents/ copyrights and helps in creating a knowledge based economy. This would help a nation create jobs and it results in tax and other revenue to the government.

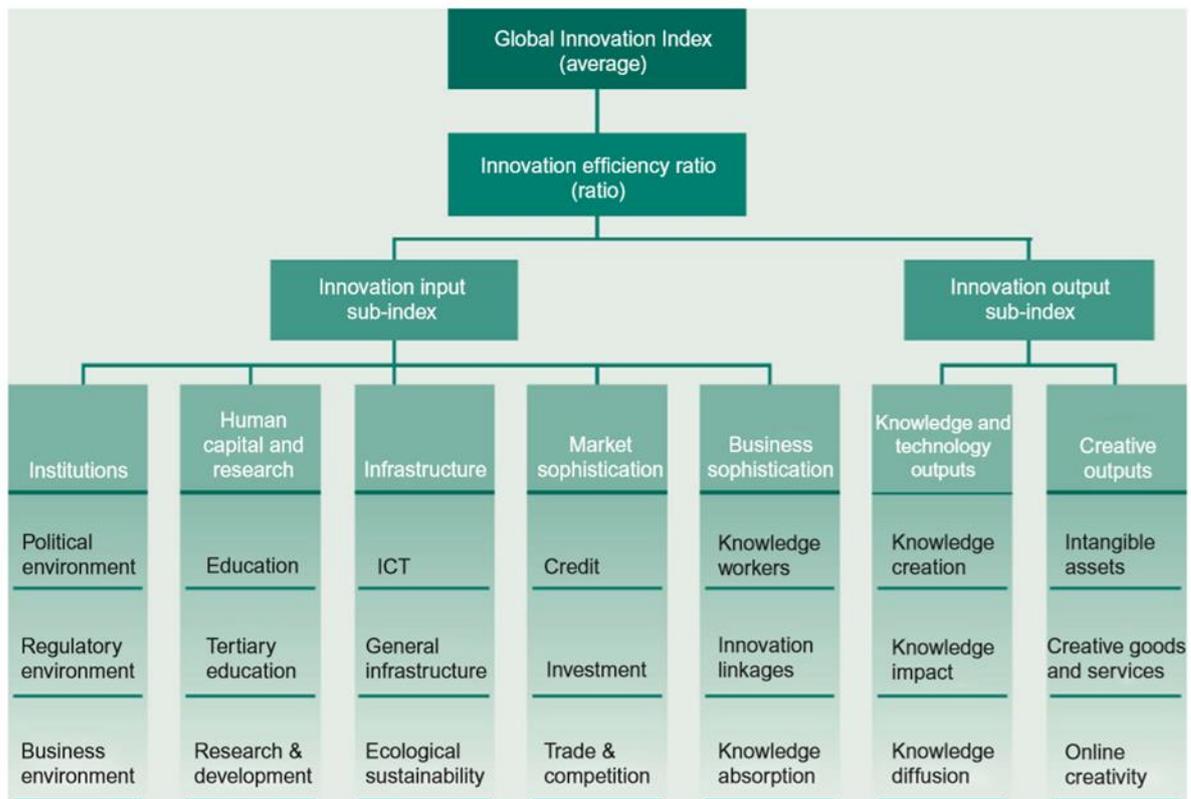
Investing in healthcare is another vital investment as it is able to create a quality of life and in creating society welfare. This would help in attracting investments and people preferring to return back to the country and result in investors preferring the country due to the good quality of life.

Investing in industrial sectors is very important as it helps to create an ecosystem with a strong value chain in all sectors. Investments in industrial sectors with subsidies and policies encourages enterprises to expand, foreign direct investment (FDI) and thereby creating industrial clusters throughout the country. This creates competitiveness in industries and a value system which will result in micro, small and medium enterprises growing. Technology spillover, job creation, global migration of skilled labour will result in economic empowerment. Thus an economic prosperity is created due to industrial growth and wealth creation increases which helps the government to increase its revenue from the growth and taxation.

Investing in infrastructure is the spine for a nation as it leads to industrialisation and as a preferred city. Infrastructure includes transportation, digital, communication, smart cities with eco friendly and sustainable features. This would make a country more preferred amongst the rest for both investors and people.

Investing in national security is profitable if a nation is exporting the weapons such as Israel, US, Russia etc. If nations consumer more weapons it leads to an expenditure which could be rather invested in the other four of the graph. The nations that invest medium and low depending on their geographic presence and other objectives are at a higher advantage of developing their socio economy than investing in weapons and arms, ammunition.

Fig 1.2). Framework of Global Innovation Index (GII) by World Intellectual Property Organisation and INSEAD (2013).



Source: (Rajiv, Zhijie, & Mittal, 2015)

The above figure explain the framework of measuring the Global Innovation Index for nations.

Therefore nations depending on their requirements have to prioritise the necessary investments as proper investments would help a nation in economic growth and industrial competency making it superior than the rest and therefore help sustain.

3. Conclusions:

1. Competitiveness and Sustainability in the IT firms have to constantly be encouraged to create a value for the firm. The following are a few observations from the conducted research. The nations’ political and economic policies should be created to favour a supporting environment for industries to innovate. Due to the increase in costs and complications in technical utilisation of the products, most firms prefer to offshore the IT activities and cut down their staff. Most IT firms also work on collaboration of technologies in order to cut down the costs and

unnecessary profitless diversification. Firms prefer Radical vision or innovation over incremental investments. As firms grow large, the problems of silos in organisation creates failure of coordination and this affects transformation. Thereby most clients prefer consulting of all the activities through a single firm and single software that covers marketing, promotion, analysis, design, operation, retailing. This gives users a better experience. Firms are competitively prepared for the 4.0 technological disruptions, however the requirements in the markets is also very less compared to the number of firms and therefore firms are forced to offer discounts to push the products. The sustainable framework shows how the rise of competitiveness improves the standards of economic prosperity for a nation and this rise could contribute to overall global social impact.

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