

Accelerating Digital Transformation An analysis of Network Readiness Index 2020 Post Covid -19

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Abstract

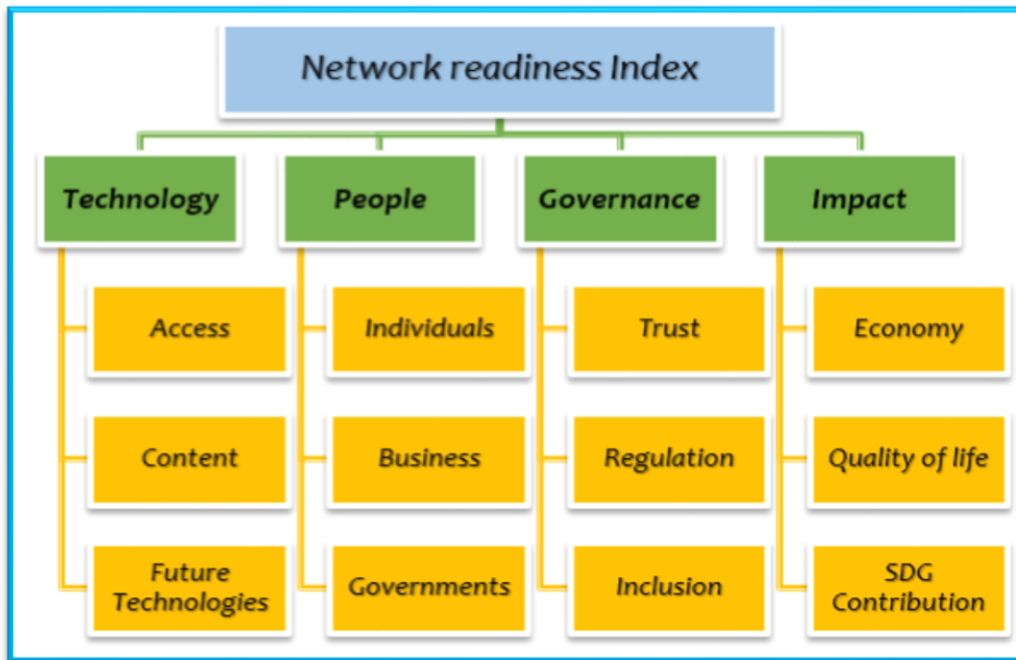
The Network Readiness Index (NRI) is calculated based on four Pillars namely, Technology, People, Governance and Impact. The first pillar is based on Access, Content and future technology. The second pillar is based on Individuals, Business and Government and Trust. Trust, Regulation and Inclusion being the third pillar and the Impact the fourth pillar is calculated based on Economy, Quality of Life and Sustainable Development Goals contribution. The NRI is that medium through which the Nations around the World can reflect upon their areas of Strengths and Weaknesses. According to the recent NRI reports, the impact of Covid -19 has accelerated digital transformation not only limited to digital tools but induced significantly the ways the Government, Business and Individuals consider digital transformation and in a very faster pace. This change, whether it is for a better World, better lives, whether it is promoting global inequality and whether technology is controlling humans or humans are controlled by technology is a matter of debate and deliberations. The Network Readiness Index provides a platform to analyze the human technology and economy's vision of digital transformation. The aim of the study is to explore the variance of the indices published in the year 2019 and 2020 by the World Economic Forum and analyze besides interpreting the post Covid 19 impact on the indices and suggest some policy recommendations. This paper used an exploratory study methodology using simple comparison tools like variance and percentage change of the Indices and scores on the various parameters taking the data provided by World Economic Forum. The paper concludes that Covid 19 has accelerated the digital transformation to a great extent but at the same time, India has to work on its Sustainable Development Goals and various other parameters to be ranked better.

Keywords: Digital Transactions, NRI, India,

1. Introduction:

The NRI 2020 model is framed on four pillars, namely Technology, People, Governance and Impact. The following figure 1, depicts the same.

Figure 1: The NRI 2020 Model:



Source: Networkreadinessindex.org (Soumitra Dutta; Bruno Lanvin, 2019)

As it can be observed from the above figure 1, each pillar has three sub pillars. The first pillar being technology is the heart and soul of a network economy. It depicts the country's participation in the global economy. Access, content and future technologies are the sub-pillars of the first pillar. People being the second pillar, which includes individuals, governments and Businesses. The governance is the third pillar which includes trust regulation and Inclusion, because the country's readiness to networking can only take place in non-vacuum environment and is the main function within which the people will operate. Lastly, the fourth pillar is the impact pillar, where the economy, quality of life and contribution to SDGs are taken as the sub pillars, which depict the economic impact, social impact and the goals which are agreed upon by United Nations for good health, education and environment. (Soumitra Dutta; Bruno Lanvin, 2019) A country's network

readiness is completely based on the twelve sub pillars. This research is an attempt to explore the NRI scores of India, with the following objectives.

2. Objectives:

- To conceptualize the NRI Model and the indicators of Network Readiness Index.
- To explore and analyze the variance of the indices published in the year 2019 and 2020
- To compare and analyze the scores of India in the year 2019 and 2020.
- To identify and recommend where the improvement is required for policy measures for the future.

3. Methodology:

An exploratory study methodology using simple comparison tools like variance and percentage change of the Indices and scores on the various parameters taking the data provided by World Economic Forum. Both 2019 and 2020 data published by World economic Forum is taken for the analysis. Microsoft Excel is used to prepare the line and radar charts. There are 190 economies which are being ranked by network readiness index organization, for this research, India's scores are extracted from the database and analysis is done to arrive at the conclusions.

4. Review of Literature:

A research paper on ICT analysis and Applications by **(Bharatula S., Murthy B.S. In: Fong S., Dey N., Joshi A., 2020)** on Digital Readiness index explored the important aspects of NDCP for making India digitally sovereign and the also the parameters for making the country 'Digital India'. This work discussed the benefits of the people, the state and the Nation as a whole.

A Global Information Technology Readiness report of 2016, **(Silja Baller, Soumitra Dutta, and Bruno Lanvin, 2016)** states that, India slips down two positions to an overall rank of 91, although India's absolute score has changed only marginally. The report also confirms the importance of Digital India Program in 2015, which aims to close the gap of fostering investment in digital infrastructure, improving digital literacy and increasingly providing online services to citizens. The report also states that India's performance in terms providing online services and allowing e-participation has been in line with that of the peer countries. But far from the global best (57th and 20th respectively) .

A research paper report by Cisco, named “Country Digital Readiness: Research to Determine a Country’s (Tae Yoo, Mary de Wysocki, and Amanda Cumberland,, 2018), Digital Readiness and Key Interventions “discussed that many of the indices of network technologies readiness focused on technology measure, but there are many other factors that can indicate a country’s level of digital readiness which include the availability of skilled Labour. They proposed seven components technology, infrastructure and technology adoption, ease of doing business, human capital deployment, business and government investment, basic human needs and start-up environment. The report also states India’s score is 10.54 on a scale of 0-25 and categorizes the country in the Accelerating category among the three categories Activate, Accelerate and Amplify. This report is an effort to measure the digital readiness of a country. Similarly, the network readiness index is published every year to show the readiness of a country for technology.

5. Need for the Study:

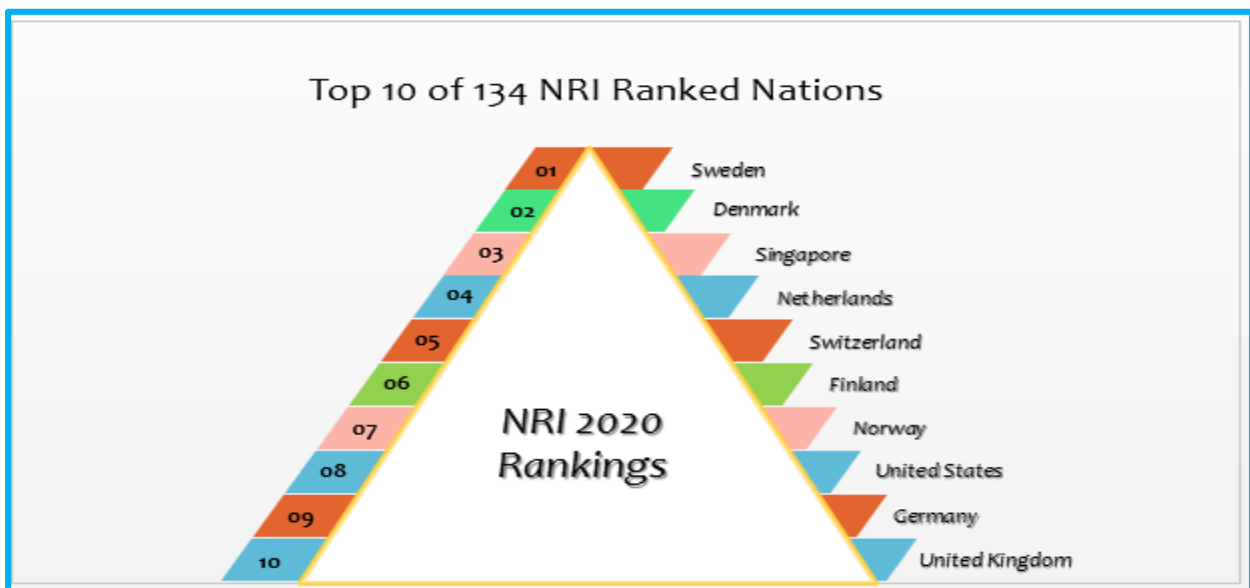
According International Labour Organization, 344 million jobs need to be created by 2030, in addition to the 190 million jobs needed to address unemployment today, and the 2 billion jobs in the informal economy (ILO, 2020) According to U.S Consumer behavior during the pandemic, 58% of the consumers are spending more online, 38% are buying more groceries online, 42% made more purchases through their mobile device, 33% reported buying things they didn’t need during lockdown to ‘stay safe’,42% are choosing to buy from more local/independent small Businesses., 35% of the consumers are offered frequently loyalty rewards, 58% are ordering more restaurant take-out, pickup and delivery, 26% of consumers tried for a new form of delivery service, 27% subscribed to at least some digital streaming service and 58 % of the consumers postponed their big trips and would not re-book for at least 6 months more. (Forbes, 2020)These statistics show the increase or the acceleration of digital technologies and transformation in the way people behaved during the pandemic and the future need of technological ready job requirements. The latest report of NRI, 2019 and 2020 are based on the new model and which is different from the earlier models of the world economic forum on the network readiness index. There is a necessity for every country to explore and analyze upon their scores as most of indices have been added and also some of the indices were changed. Also during the end of 2019, the Covid 19 pandemic has exploded around the world and the digital technologies have helped the mankind to survive during the challenging times of the pandemic. In this context, there is a greater

necessity to explore and do research on the NRI model especially for India as an emerging economy, we need to know where the country stands and what are the hindrances for the country to be placed in an amplify position rather than accelerate position. There are three reasons why we need this type of study, primarily, Covid 19 has accelerated the digital technology usage. Did it affect the NRI model for a country? Secondly, worldwide consumers have increased the technological application usage that is the people pillar, did it affect the country's score on this pillar? Thirdly, the most populous country like India second to China, need to provide jobs for its young generation, how far the Nation can create or accelerate its technologies and make the inclusions reforms as a third pillar in the NRI model , keeping all these research questions the study has been conducted.

6. Analysis and Findings:

The following paragraphs confer the analysis and findings:

Figure 2: The Top Ten NRI Ranked Nations:

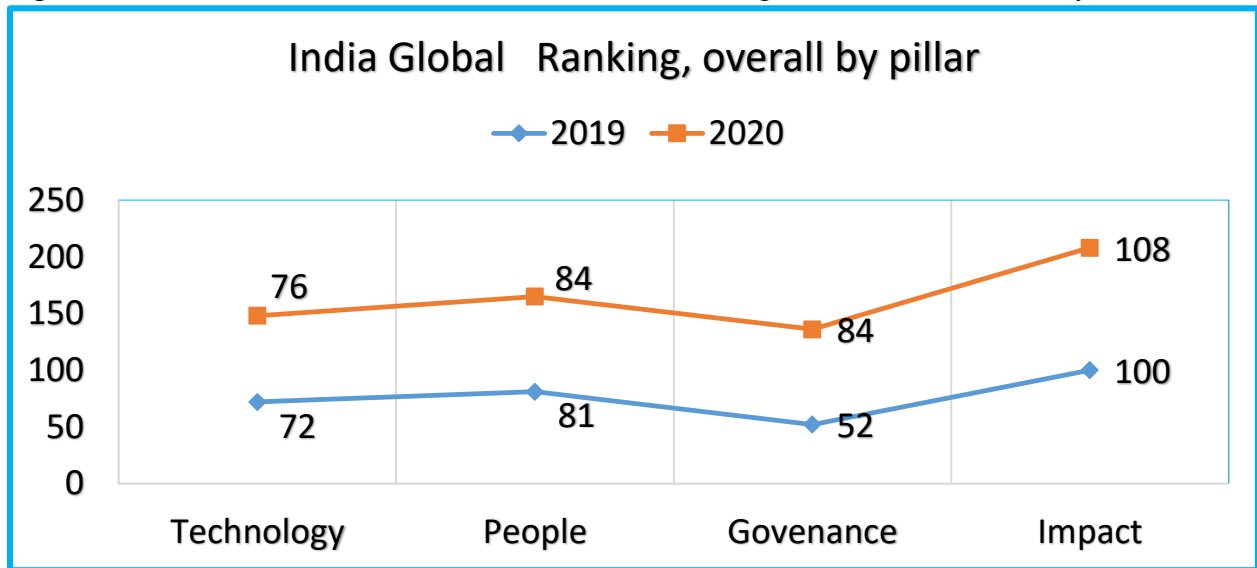


Source: Own Computation data from NRI, 2019 and 2020

From the above figure it can be observed that the top ranked countries in the NRI 2020 are Sweden, Denmark, Singapore, Netherlands, Switzerland, Finland, Norway, United States, Germany and United Kingdom.

The bottom 10 ranked countries are Madagascar, Burkinfaso, Zimbabwe, Malawi, Mozambique, Ethiopia, Burundi, Angola, Yemen, Congo and Chad. These countries are ranked from 124 to 134 respectively.

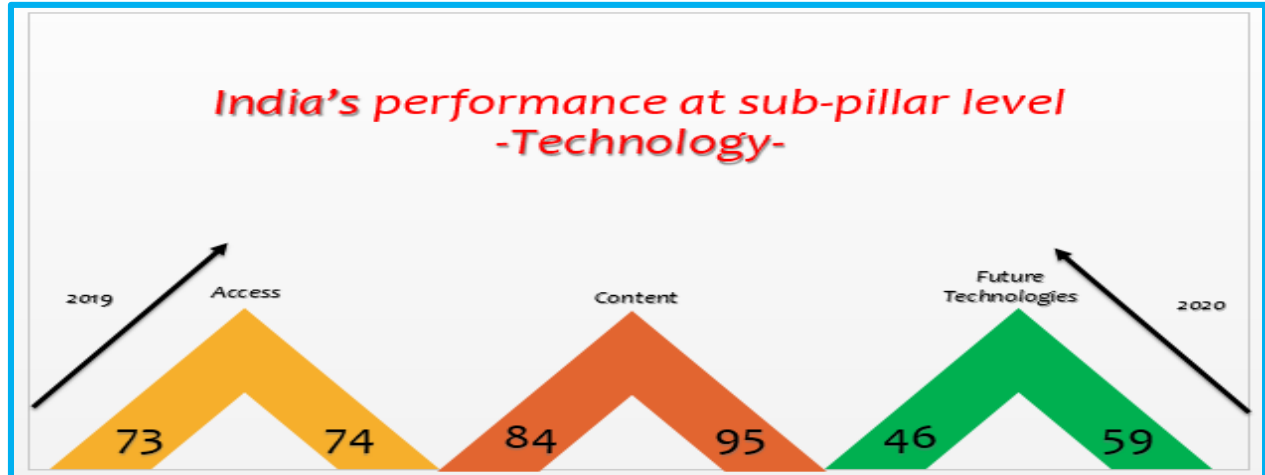
Figure 3: India's Global Ranking, overall by Pillar



Source: Own Computation data from NRI, 2019 and 2020

From the above figure 3, it can be observed that in almost all pillars, the rank of the country has increased, that means the Covid 19 impact has been there in all the pillars. Among all the pillars, the third pillar has greater impact than others. People pillar' variance is better than the technology pillar variance.

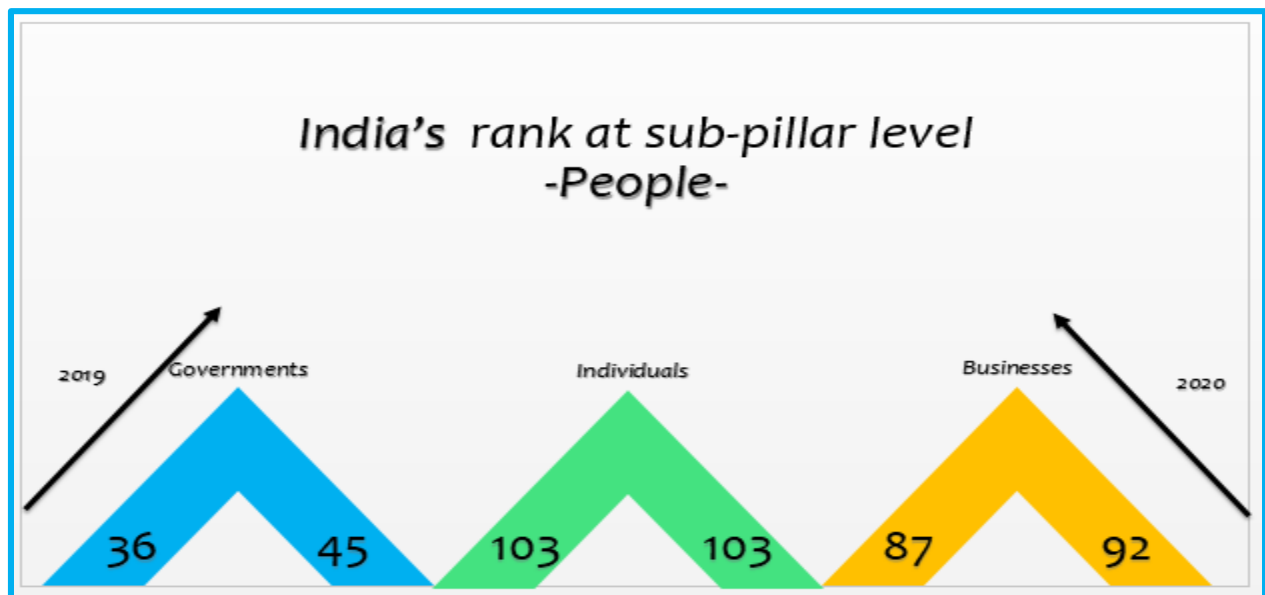
Figure 4: India's Performance at the sub-pillar level - Technology



Source: Own Computation data from NRI, 2019 and 2020

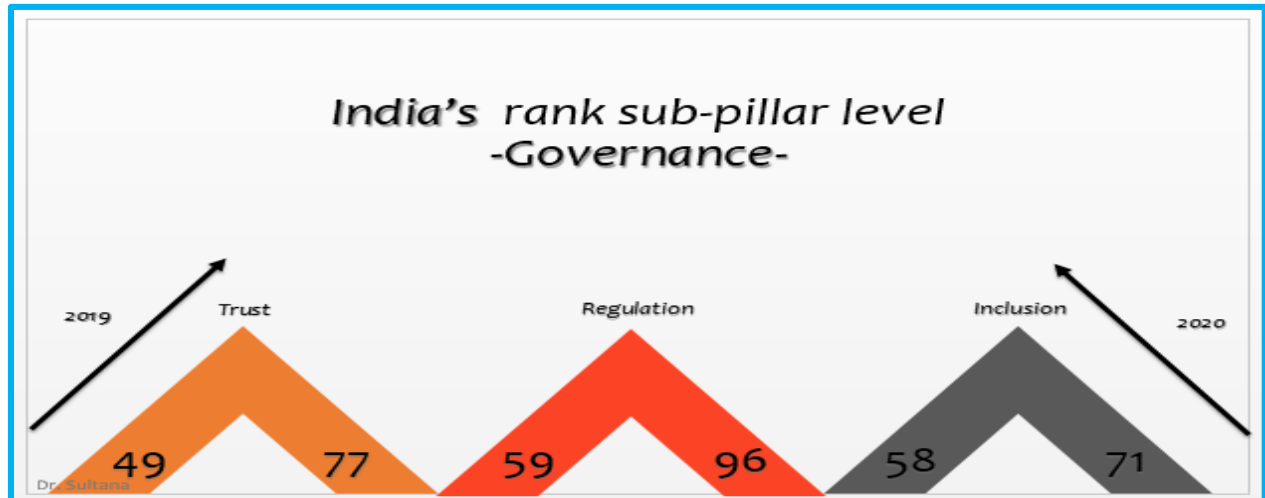
From the above figure 4, it can be observed India's performance in the ranks of first pillar technology in access has changed from 73 to 74, content 84 to 95 and future technologies from 46 to 59.

Figure 5: India's rank at the sub-pillar level - People



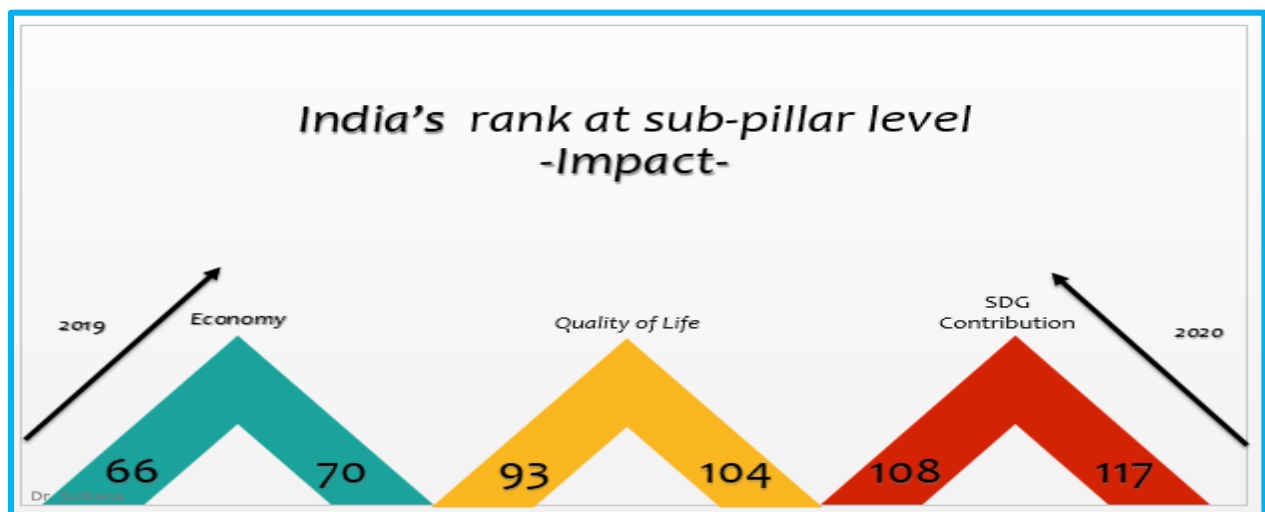
Source: Own Computation data from NRI, 2019 and 2020

Figure 6: India's rank at the sub-pillar level - Governance



Source: Own Computation data from NRI, 2019 and 2020

Figure 7: India's Rank at the sub-pillar level - Impact



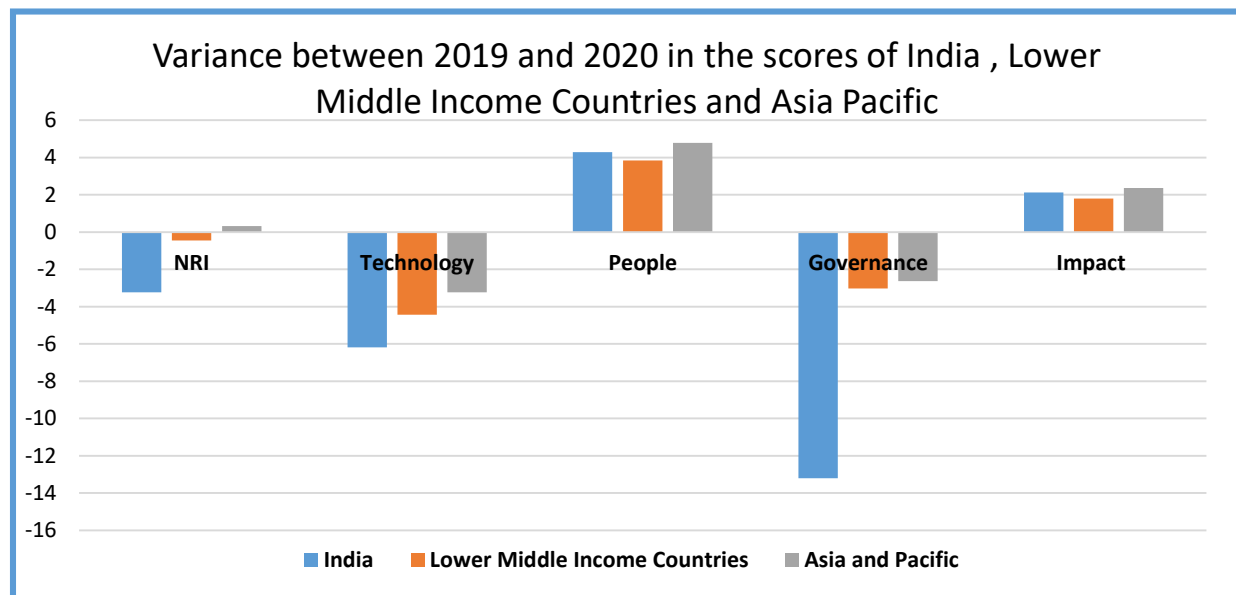
Source: Own Computation data from NRI, 2019 and 2020

Table 1: Comparative table of India with lower Middle Income and Asia Pacific

Parameter	India		Variance	Lower Middle Income Countries		Variance	Asia Pacific and		Variance
	2019	2020		2019	2020		2019	2020	
NRI	44.81	41.57	-3.24	37.18	36.72	-0.46	52.44	52.76	0.32
Technology	42.76	36.58	-6.18	32.15	27.72	-4.43	48.56	45.33	-3.23
People	35.87	40.15	4.28	30.04	33.88	3.84	44.85	49.64	4.79
Governance	63.66	50.45	-13.21	46.17	43.15	-3.02	61.84	59.2	-2.64
Impact	36.96	39.08	2.12	40.35	42.15	1.8	54.5	56.86	3.36

Source: Own Computation data from NRI, 2019 and 2020

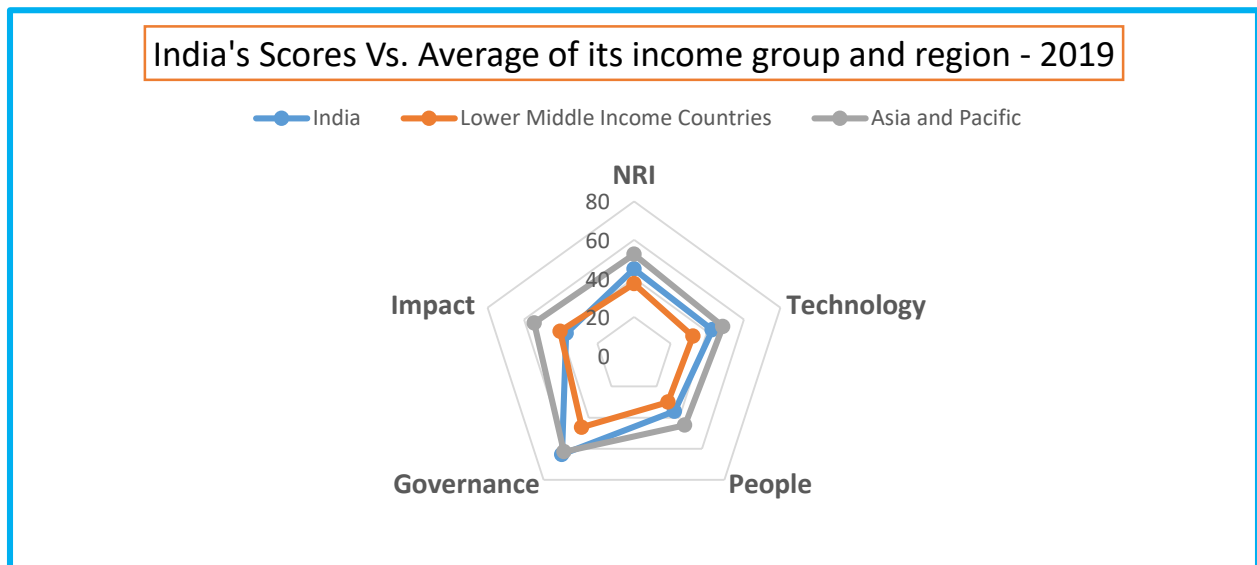
Figure 8: Variance between 2019 and 2020



From the above figure 8, it can be observed that the positive and negative variance occurred in the same pace among the lower income countries apart from India and Asia Pacific, That is, a positive variance or negative variance is same across these groups, but India's variance is more in almost

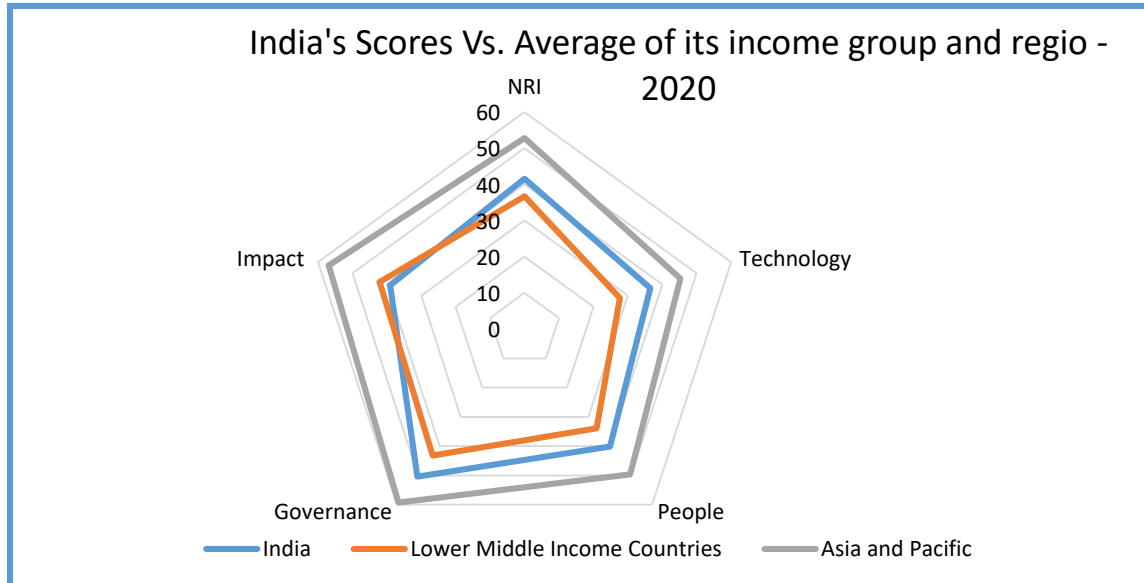
all the sub pillar parameters, especially for the Governance pillar the negative variance is more compared to the lower income countries and Asia Pacific. (Soumitra Dutta; Bruno Lanvin, 2019).

Figure 9: India's Scores Vs Average of its income group and region; 2019



From the above figure 9, it can be observed that in 2019, India was ranked 6th in the group of lower-middle- income countries. India also it ranked 13th within Asia and Pacific. It had a score above the regional average in of the four pillars which is Governance. In the sub pillars, it outperforms the average of Asia and Pacific in four of the twelve sub-pillar namely Government, Trust, Regulation and inclusion.

Figure 10: India's Scores Vs Average of its income group and region 2020



From the above figure 10, it can be observed that in 2020, India ranked 9th in the group of lower-middle income countries. India is ranked 15th within Asia and Pacific. The country lags behind its region in each of the four pillars, making evident the post covid-19 impact. For the sub-pillars, it trails the regional average in each of sub pillar. (Soumitra Dutta and Bruno Lanvin., 2020)

7. Findings:

- In 2019, the indicators where India performs particularly well include online trust and safety, Government procurement of advanced technology products, and Government online services. By contrast, the economy's weakest indicators include Happiness, Pollution, and Active mobile-broadband subscriptions. **(Soumitra Dutta; Bruno Lanvin, 2019)**
- Whereas in 2020, the indicators where India performs particularly well include Government online services, Investment in emerging technologies, and E-Participation. By contrast, the economy's weakest indicators include Happiness, SDG 5: Gender Equality, and SDG 11: Sustainable Cities and Communities. **(Soumitra Dutta and Bruno Lanvin., 2020)**

8. Conclusions:

- It is concluded that Covid 19 has accelerated the digital transformation to a moderate extent for instance, India has accelerated the scores and ranks in the indicators like Government procurement of advanced technology products (Rank - 8), E-Participation (Rank - 15), Government online services (Rank 9), Online trust and Safety (Rank - 5), Legal framework's adaptability to digital business models (Rank -26), medium and high-tech industry (Rank -33) and publication and use of open data (Rank -33). But at the same time, India has to work on Network Readiness score especially, its Sustainable Development Goals where there is lot of scope for improvement like Good health and wellbeing (Rank - 103), Quality Education, (No rank available) Gender Equality (Rank -127), Affordable and Clean Energy (Rank -68), Sustainable cities and communities (Rank 124) and the other parameters like increase the households with internet access(Rank- 100), GitHub commits (Rank - 85) Active mobile broadband subscription (Rank -111).

9. Suggestions and Recommendations:

- Covid -19 has made an impact on almost all areas especially on health and wellbeing, it is strongly recommended to work on this major third sustainable development goal (Good Health and Well Being) where India's score is 103 among 134 nations with a NRI score of 41.57. The percentage of investment on the health has to be increased in the budgets.
- Quality Education is one area where India is working like recent reforms where National Education Policy 2020 is introduced to transform the regulatory system of higher education where the education is moving towards less content and more towards how to think critically and solve problems and experiential learning, but the impact of the same takes some time to reflect on this score, it is strongly recommended for transparency of the data on this parameter.
- Gender Equality and affordable clean energy are the other SDGs where India has to concentrate more for a better score in the NRI. The researcher strongly recommend for bringing in good reforms for a better score in Network Readiness Index for India. As a research paper entitled "The impact of reforms on the scores of ease of doing business" (Sultana Begum, 2019), findings include a positive correlation between the number of

reforms and increase in the score of ‘ease of doing businesses. Hence good reforms in the required arena will increase the scores.

- The researcher strongly recommend for automation in increase the electronic platforms as we can observe in a research paper entitled “ The ease of doing Business, a case study of Iraq”, (Sultana, Begum, 2019), recommends that automation and creating electronic platforms for the government services will increase the score and better rank for a country.
- India has to work on the Weakest indicators like Internet Access, Pollution, Access to basic services, Internet Shopping, Active mobile Band Subscriptions and above all on the happiness index score.

10.Future Study and Limitations:

India as a vast country is in the process of accelerating the digital technologies, it is too early to conclude how far the Covid 19 has impacted in accelerating the technology usage in the country, The Network readiness index 2019 and 2021 the data was collected before the pandemic’s true impact, hence once NRI 2021 report is published, the analysis will be done to know the impact.

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