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## Fostering India's Economic Growth: The Digital Way

<sup>1</sup>Amrut Dabir, <sup>2</sup>Shubham Khairnar

<sup>1</sup>Student, <sup>2</sup>Student

<sup>1</sup>PGDM 2021-2023

<sup>1</sup>IESMCRC, Bandra, India

<sup>2</sup>MMS 2020 -2022

<sup>2</sup>NIT-Agartala, Agartala, India

**Abstract:** In the everyday world, we see governments, businesses, service providers, and households use digital technology to make decisions, to make products or perform their tasks quicker and more accurately. The term Digital Economy is inclusive. It means both, having access to digital technology and using digital technology for commercial purposes. Technology has taken over most workplaces and has begun to revolutionize the way businesses operate. This significantly affects the economy and society as a whole. Annually, \$200 billion of economic value is generated by the digital economy in India. This comes largely from the existing digital ecosystem which includes Information Technology and Business Process Management (IT-BPM), digital communication services, e-commerce, digital payment transactions, and direct subsidy payments. Digital Economy is a new platform to boost the productivity and sustainability of businesses, due to which, some experts regard it as the fourth industrial revolution. There has been a significant rise in digital payments since demonetization and nearly a billion debit cards have been issued by the banks. Still many people rely only on cash transactions. A single move cannot transform a large country like India, cashless, overnight. However, this move has been able to significantly reduce the anonymity and lack of traceability in the Indian economy. This is descriptive research. The research paper uses primary and secondary sources of data. The sum has been collected with the help of a questionnaire method, books, research papers in journals, and articles from newspapers and magazines sources of data collected are appropriately mentioned in the bibliography wherever necessary, pickersels, graph, charts and statistics have been used to facilitate explanations. This research will be validated by using primary data. The analytical tools will be applied accordingly but suggest to apply descriptive statistics, ANOVA, Percentage Analysis, and regression analysis or any tools as fit. In this research, we study the penetration and effect of the Digital India movement and its impact on various sections of the society. We also study the scope and future opportunities for digitalization to achieve rising economic growth in India.

**IndexTerms - Digital Economy, Sustainability, Technology, Digitalization, Fourth Industrial Revolution**

### I. Introduction

Bukht and Heeks define the digital economy as that part of economic output that is derived solely or primarily from digital technologies with a business model that is based on digital goods and services (United Nations, 2019). Technological advancement keeps upgrading our life and it becomes an important part of our lives. While data flows are growing almost exponentially, global trade goods and financial flows appear to possess peaked in terms of their share of GDP. Consistent with McKinsey, between 2005 and 2014 the flow of worldwide data grew by an element of 45 and is projected to grow by another nine over subsequent five years. Additionally, data flows added \$2.2 trillion to global GDP directly and another \$2.8 trillion indirectly in 2014. Deregulation of digital markets is accelerating the adoption and use of digital technologies and enabling the emergence of an entirely new generation of investment and business models due to the expansion of connectivity, infrastructure, network-effects, falling computing and sensor costs, open software architectures (Arbache, 2018). Over 40 percent of the population in India has an active internet subscription. The activities are digitizing at a faster pace than several other mature and emerging economies of the world. In recent years, India's internet user base has grown drastically; which was accelerated by the lowering cost and growing availability of smartphones and high-speed connectivity. India had 560 million subscribers in September 2018, (Telecom Regulatory Authority of India, 2018). India is in terms of the number of digital consumers, one of the top three global economies in the world. India had 238.71 million internet subscriptions

in 2013 which increased by 560 million in 2018. This made India the second-largest internet subscription market in the world. India also has the second-fastest rate of growth of digital adoption within the comparison set, which considered 17 mature and emerging digital economies. India's digital index score, moved from 17 in 2014 to 32 in 2017 (on a scale of 0 to 100) measured on digital foundation, digital reach, and digital value. India performed well on e-governance and digital identity, the expansion rate of mobile internet access, and therefore the uptake of digital media by online consumers. The Minister for Communications, Electronics & Information Technology and Law & Justice, Government of India, Shri Ravi Shankar Prasad, acknowledged how the government had set the stage for digital maturity by fixing place policies like the one on electronics, the info protection law, which was being fine-tuned and a software package policy which is probably going to be introduced soon. India's digital divide is narrowing fast, said the report, as less affluent states catch up with more affluent states. Between 2014 and 2018, of the ten states with the very best rate of growth in internet subscriptions, seven had per capita GDP less than India's average. The minister urged industry bodies to consider more ways to enhance access and connectivity to rural areas. (Business Standard, 2019).

In IMD World Competitiveness Center ranking India's rank shifted from 48<sup>th</sup> to 44<sup>th</sup> from the year 2018 to 2019 respectively. Improvement in terms of knowledge, resources, and future-readiness to adopt and explore digital technologies are prime reasons behind the progress. In past years, India has been seen joining hands with digital technology. India has improved overall in all factors such as knowledge, technology, and infrastructure for the future as compared to the previous year's ranking (The Economic Times, 2019). According to McKinsey Global Institute, the number of smartphones per 100 people in India increased from 5.4 in the year 2014 to 26.2 by the year 2018. Also, the total number of internet users increased from 239m in the year 2014 to 560m in the year 2018. India also made significant growth in the number of transactions per person; it grew from 2.2 in the year 2014, to 18 by the year 2018. India witnessed a giant leap in the monthly consumption of data per unique connection. It rose from 86mb to 8320mb from the year 2014 to 2018. Data prices expressed as monthly data price per 1gb as % of monthly GDP went down from 6.1% in the year 2014 to 0.1% in 2018. India stands number 1 globally with 1.2b people enrolled in the world's largest unique digital identity program. Whereas India also stands number 2 globally for 1.2b app downloads in 2018, 1.17b wireless phone subscribers, 560m internet subscribers and 294m users engaged in Social media. There is a 95% decline in data costs from 2013 in India. All transactions involving about 10.3 million indirect taxpaying businesses were brought onto one digital platform, creating a powerful incentive for businesses to digitize their operations, due to the Goods and Services Tax Network in the year 2013.

One of the strong catalysts for India's rapid digitization has been the public sector. In this, the national biometric digital identity program, Aadhaar, has played a major role. Meanwhile, innovation by the private sector has significantly contributed to bringing internet-enabled services to millions of consumers and making online usage more accessible to people. Between 2014 and 2017, the average fixed-line download speed quadrupled. Due to this, the consumption of mobile data per user per month is rising by 152 percent annually, which is almost more than twice as in the United States and China (McKinsey Global Institute, 2019).

## II. Objective of the study:

- 1) To study the concept of digitalization in India.
- 2) To learn the problems of digitalization in India.
- 3) To find out solutions and innovative ideas to accomplish the vision of the digitalization of India.

## III. Research Methodology

The study is descriptive research. The quota sampling method was used in this research study. The study is based on primary as well as secondary data collected with the help of a questionnaire. The secondary data was collected from books, reports, journals, and research papers throughout the period of this study. Based on a review of the literature variables were finalized for this research. After verification as to the completeness of the collected questionnaire, 100 samples were finalized from 163 responses. The data corresponding to the values in the Lickert Scale was entered for each statement in the questionnaire. The statistical analytical tools applied include 1) ANOVA, 2) Correlation Analysis, 3) Regression Analysis, 4) Percentage analysis. The Study is limited to Time, Cost, and Scope in analyzing the data.

## IV. Review of Literature

India's economic development and security will be driven by adopting technology rapidly. It is necessary to aggressively kick-start the digitization process by quickly and legally tapping into what has been invented

elsewhere, to promote an eco-system of technical know-how with demand and skill creation. It is crucial for both the uses, commercial as well as technical capabilities. India's hardware and system design capabilities are the missing piece in achieving overall technology leadership and domestic capabilities. India must provide lucrative incentives like free land, subsidized electricity and tax breaks, etc. to attract such leaders who will set up shops in India for building hardware and software systems, for both, meeting domestic needs (by labeling products) and producing cost-effective exports for the global market. It executed precisely, technology shall transform India into the twenty-first-century digital giant and help to elevate tens and millions of people from poverty through technology-driven economic growth (Dham, 2019). While being one of the top delivery centers, the country's Information Technology- Business Process Management Process (IT-BPM) exports have grown exponentially in the last few years. With over 2,500 firms with more than 1.1 million people engaged in it, the IT-BPM industry is one of the biggest employers. At a compound annual growth rate of 9.5 percent, the Indian IT-BPM sector is estimated to expand to US\$ 300 billion by 2020, says the Indian Ministry of Electronics and Information Technology. Several software solutions are available in the market today, that effectively manage the business processes. It provides much ease and saves time as compared to the manual effort required in BPM. Businesses are largely increasing their focus on both, BPM and Robotic Process Automation (RPA). The result of this ongoing evolution is the creation of 60-65 percent substantially new jobs, while 10-20 percent of the current workforce will be positioned in new jobs. Therefore, there is a dire need to upgrade the country's skill set. The President of NASSCOM, R. Chandrasekhar says that the reports present the picture of 2022, where one cannot rest on one's laurels but they have to constantly keep updating their skills (India Brand Equity Foundation, 2018).

For the vulnerable segments, merely having an online presence can be a source of risk. Generally, children and women are more exposed to online bullying and defamation than compared to adult men. Internet users with low digital literacy will be incapable to make use of protection tools available for them to stay safe on the internet. Over 50,000 cybersecurity cases in the fiscal year ending March 31, 2016, were handled by the Computer Emergency Response Team India (CERT-IN). India was ranked 23rd among 195 countries in the commitment to cybersecurity in 2017 by The International Telecommunication Union, however, there is greater scope for improvement. Cybersecurity is becoming as essential as physical security as the role of digital technology keeps growing. Though the end goal is to become a cashless economy, it is necessary to understand that a sudden push to 'go digital' may be challenged by the current level of security and fraud control framework. India as a country is in a very nascent stage as of now in some areas and will evolve and innovate substantially in years to come, especially due to increased convergence of sectors like finance, telecom and IT. The change is expected to come at a significant share of challenges in the short as well as long term (Gupta, 2020). According to an NGO named Save the Children, at least 60% of infant deaths are caused due to pneumonia and diarrhea. This horrifying number is of the infants, numbering in millions, who could've been saved if there was access to a better healthcare system. The failure of current healthcare systems is due to low funding, gross misallocation, and inefficiency of resource deployment. A World Health Organization found that in rural India, only one out of five doctors is eligible and qualified to practice medicine (Bobba, 2018). The life expectancy for adults has increased by more than 10 years in the past three decades. According to World Health Organization's World Statistics Report 2016, the average life expectancy breaks down to 66.9 years for men and 69.9 for women, which leads to an average life expectancy of 68.3 years (World Health Organization, 2016). India ranks 131 among 188 countries globally (United Nations Development Program, 2016). India's healthcare system is extensive but isn't accessible for all, particularly in poor states and rural areas of India. There are more than one million doctors and nearly two million midwives and nurses. However, they are too less compared to India's population. The number is 2.2 for every 1,000 civilians as compared to China which is 2.8. There is also a rural-urban divide as 60% of hospitals are located in cities that merely hold 32% of the country's population (McKinsey Global Institute, 2019). The Indian education system is one of the largest in the world with 1.5 million schools, 8.7 million teaching staff, 260 million school-going children, around 800 universities, 41,000 colleges and about 30 million students in higher education (University Grant Commission, 2017) (National University of Educational Planning and Administration, 2016). Although enrollment rates show a rise, the learning outcomes need to improvise. In the National Achievement Survey, Class V students could only offer an answer to 45 percent of reading comprehension items, 46 percent of mathematics items, and 50 percent of environmental studies (National Council of Educational Research and Training, 2016) (National Council of Educational Research and Training, 2015). IT graduates, that are employable in the IT service sector are only about 17.9% while, 3.7% in IT products (Aspiring Minds, 2016). The apex body which represents India's IT hardware expressed the challenges faced by the government's e-marketplace (GeM) by pointing out that the focus of the government has been to implement rather than incorporate the views of stakeholders. There have been several cases of delay in payments by government departments. Also, currently, there is a provision of only one user ID for

each company which creates multiple complications and generates a high risk. The major issue remains that the GeM was implemented in a very short time and hence various versions like GeM 1.0, GeM 2.0 and so on were being brought (Sarkhel, 2018). Startups in India do not receive proper funding, due to which they tend to close before they even fully start. A proper launchpad is missing for young entrepreneurs to experiment without the fear of failure. Also, the Indian curriculum lacks to teach the students about technology as a whole. India has been teaching about technology rather than teaching through technology (Khairnar & others, 2019). 'Digital India', despite being the flagship campaign of the government of India, is challenged by the digital divide due to poor connectivity in rural India. Poor internet connectivity is one of the major hurdles in using financial services in India. While technology is one of the greatest enablers of accessing financial services, certain parts of the country have lacked behind in the use of financial services causing a digital divide, said RBI. It also highlighted the dire need to resolve the connectivity issues in the rural and distant areas of the country to achieve complete connectivity throughout the country. Pointing out other challenges, it showed that poor physical infrastructure, limited transport provision, unskilled staff, etc. in rural hinterlands and far-off areas of Himalayas and North-East regions create a barrier for customers to access financial services (Sharma, 2020). A lot of Indian farmers have to face the risk of greater price volatility due to the over and under-production of certain crops. The result of this supply-demand imbalance is the price volatility, which leads to an increase in failure in the total production of many crops. There is an even greater risk for small farmers who do not have access to early weather warnings. Perishable commodities such as vegetables and fruits, which cannot be stored, are under greater threat. Also, the majority of farmers do not have insurance for their crops to protect them against sudden and complete losses (Bouton, 2019).

## V. Data Analysis

### ❖ ANOVA

Statistical technique, Analysis of Variance (ANOVA) is used to see if the means of two or more groups are significantly different from each other.

**Null Hypothesis:** The Gender/Age/Profession of the respondents does not influence their perception towards digitalization of Indian economy.

**Table 1 Digitalization of economy and independent variables**

<i>Source of Variation (Gender of the respondents)</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	457.66	9	50.85111	40.09957	3.59769E-61	1.889321
Within Groups	1255.44	990	1.268121			
Total	1713.1	999				
<i>Source of Variation (Age of the respondents)</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	239.064	9	26.56267	19.97345	4.71855E-31	1.889321
Within Groups	1316.6	990	1.329899			
Total	1555.664	999				
<i>Source of Variation (Profession of respondents)</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	113.624	9	12.62489	8.736642	1.03571E-12	1.889321
Within Groups	1430.6	990	1.445051			
Total	1544.224	999				

*Source: Primary Data* S – Significant at 5% level ( $p \text{ value} \leq 0.05$ ); NS – Not Significant

The Table above describes the results of ANOVA in terms of independent variables, sources of variations, degrees of freedom, the sum of squares, mean sum of squares, F value, p-value, and its significance.

- It is found from the table above that the null hypothesis is rejected in all cases, which establishes the significance of the studied variables. It is concluded that the Gender/Age/Profession of the respondents significantly influence their perception towards digitization of Indian economy.

### ❖ Correlation Analysis

Correlation analysis is a method of statistical evaluation used to study the strength of a relationship between two, numerically measured, continuous variables. This particular type of analysis is useful when a researcher wants to establish if there are possible connections between variables.

Table 2 Correlation Matrix of need of digitization in India

	V01	V02	V03	V04	V05	V06	V07	V08	V09
V01	1								
V02	0.433137	1							
V03	0.30633	0.342209	1						
V04	0.460447	0.48274	0.550206	1					
V05	0.29418	0.522894	0.412636	0.524437	1				
V06	0.285656	0.131269	-0.00299	0.000822	0.055734	1			
V07	0.385851	0.29105	0.016429	0.031281	0.133283	0.547526	1		
V08	0.274727	0.396121	0.257459	0.230587	0.305669	-0.04506	-0.00659	1	
V09	0.276129	0.322158	0.234835	0.396933	0.35074	-0.12402	0.0413	0.45596	1

Source: Primary Data

From the above Correlation Matrix table, we found that Healthcare and Education are positively correlated to each other (0.550206). Also, Digital Payments and Digital Resources are negatively correlated to each other (-0.12402).

❖ **Regression Analysis**

Regression analysis is a form of inferential statistics. The p-values help determine whether the relationships that you observe in your sample also exist in the larger population. The p-value for each independent variable tests the null hypothesis that the variable has no correlation with the dependent variable.

**Null Hypothesis:** The Gender of the respondents’ has no correlation with their perception towards the digitalization of the Indian economy.

Table 3 Regression Table with gender of the respondents

Dep. Var.	Std. Error	r <sup>2</sup>	r	n	k	ANOVA					Regression Output							
						Source	SS	df	MS	F	p-value	Variables	Coefficients	std. error	t (df=98)	p-value	95% lower	95% upper
V01	1.190	0.001	-0.034	100	1	Regression	0.161031	1	0.161031	0.113664	0.736732	Intercept	3.6176	0.3684	9.819	2.99E-16	2.8864	4.3487
						Residual	138.839	98	1.416724			Gender	-0.0805	0.2388	-0.337	.7367	-0.5544	0.3934
						Total	139	99										
V02	1.145	0.005	0.067	100	1	Regression	0.58132	1	0.58132	0.443622	0.506944	Intercept	3.4767	0.3543	9.812	3.10E-16	2.7735	4.1798
						Residual	128.4187	98	1.310395			Gender	0.1530	0.2297	0.666	.5069	-0.3028	0.6088
						Total	129	99										
V03	1.170	0.008	-0.087	100	1	Regression	1.022609	1	1.022609	0.746667	0.389644	Intercept	4.0362	0.3622	11.142	4.10E-19	3.3174	4.7551
						Residual	134.2174	98	1.369565			Gender	-0.2029	0.2348	-0.864	.3896	-0.6689	0.2631
						Total	135.24	99										
V04	1.107	0.017	-0.129	100	1	Regression	2.040837	1	2.040837	1.66503	0.199962	Intercept	4.1385	0.3427	12.076	4.13E-21	3.4584	4.8186
						Residual	120.1192	98	1.225706			Gender	-0.2866	0.2221	-1.290	.2000	-0.7275	0.1542
						Total	122.16	99										
V05	1.063	0.001	-0.029	100	1	Regression	0.09058	1	0.09058	0.080217	0.7776	Intercept	3.8382	0.3289	11.669	3.04E-20	3.1854	4.4909
						Residual	110.6594	98	1.129178			Gender	-0.0604	0.2132	-0.283	.7776	-0.4835	0.3627
						Total	110.75	99										
V06	1.330	0.007	0.086	100	1	Regression	1.289678	1	1.289678	0.728303	0.395192	Intercept	2.4573	0.4116	5.970	3.80E-08	1.6405	3.2742
						Residual	173.3003	98	1.768371			Gender	0.2279	0.2668	0.854	.3952	-0.3016	0.7573
						Total	174.59	99										
V07	1.306	0.040	0.199	100	1	Regression	6.887536	1	6.887536	4.040035	0.047182	Intercept	2.2512	0.4042	5.570	2.23E-07	1.4492	3.0532
						Residual	167.0725	98	1.704821			Gender	0.5266	0.2620	2.010	.0472	0.0067	1.0465
						Total	173.96	99										
V08	1.138	0.000	0.008	100	1	Regression	0.008519	1	0.008519	0.006574	0.935542	Intercept	3.4630	0.3523	9.828	2.85E-16	2.7637	4.1622
						Residual	126.9815	98	1.295729			Gender	0.0185	0.2284	0.081	.9355	-0.4347	0.4718
						Total	126.99	99										
V09	1.100	0.002	0.048	100	1	Regression	0.276345	1	0.276345	0.228281	0.633866	Intercept	3.3760	0.3406	9.913	1.87E-16	2.7002	4.0519
						Residual	118.6337	98	1.210548			Gender	0.1055	0.2208	0.478	.6339	-0.3326	0.5436
						Total	118.91	99										

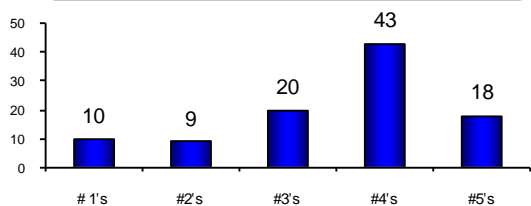
Source: Primary Data S – Significant at 5% level (p value<= 0.05); NS – Not Significant

- It is found from the table above that the null hypothesis is rejected in all cases, which establishes the significance of the studied variables. It is concluded that the Gender of the respondents is correlated with their perception towards digitization of Indian economy.

❖ **Percentage Analysis**

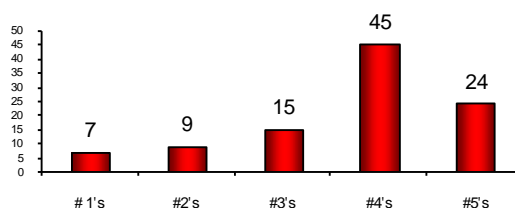
**Figure 1: V01**

**1. Q. 1 India has major scope for improvement in Information Technology infrastructure and software capabilities.**



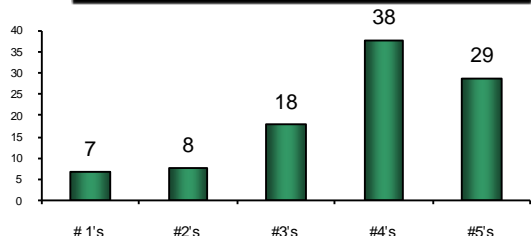
**Figure 2: V02**

**2. Q. 2 There is a need for delivering an end-to-end digital transformation of the way the government spends money and delivers services.**



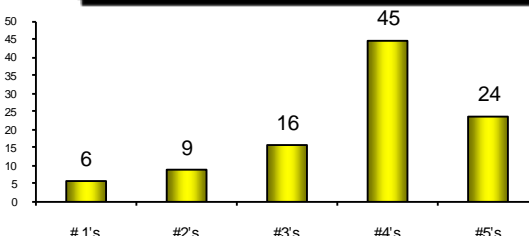
**Figure 3: V03**

**3. Q. 3 By digitalizing healthcare for all, India can attend the highest level of health and well being for its citizens**



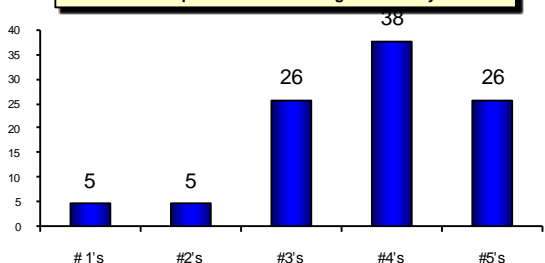
**Figure 4: V04**

**4. Q. 4 Digitalization of education sector India can improve India's quality of education, thus, improving learning outcomes.**



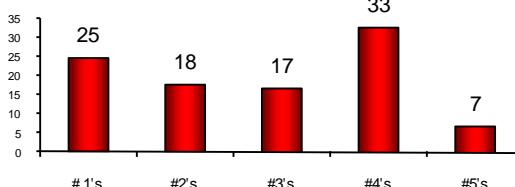
**Figure 5: V05**

**5. Q.5 Assuring the reliable delivery of affordable power with the help of technologies like smart grid to every Indian citizen will help to modernize the digital economy.**



**Figure 6: V06**

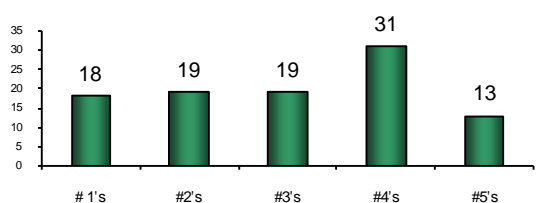
**6. Q.6 Prioritizing digital payments over cash payments will help to deliver faster and quality financial services.**



Source: Primary Data

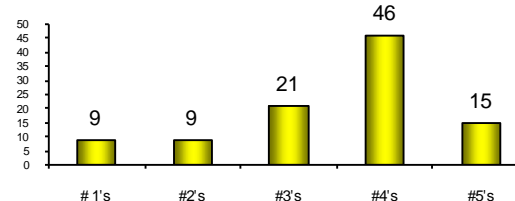
**Figure 7: V07**

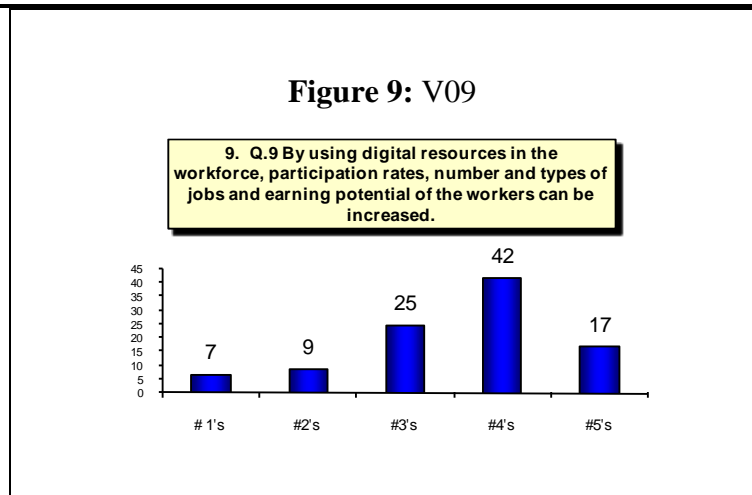
**7. Q.7 Through digitalization, equipping every farmer with access to institutional finance, knowledge to boost crop and animal yields, will increase their ability to capture maximum value from production.**



**Figure 8: V08**

**8. Q.8 By making manufacturing trade, transportation and services globally competitive through business automation, digital platforms and advanced analytics will greatly benefit e-enabled trade and e-commerce.**





*Source: Primary Data*

From the above percentage analysis, we found that:

- Respondents gave the highest opinion towards V02 (E-governance) followed by V04 (Quality Education for all).
- V02 (E-governance): 69% of the respondents opined that there is a need for delivering an end-to-end digital transformation of the way the government spends money and delivers services.
- V04 (Quality Education for all): 69% of the respondents felt that digitization of the education sector in India can improve India's quality of education, thus, improving learning outcomes. V01 (IT Infrastructure): 61% of the respondents opined that there is a major scope for India in terms of IT infrastructure and capabilities development.
- V03 (Healthcare Sector): 67% of the respondents felt that the digitization of the health sector in India can provide the highest level of healthcare and well-being for its citizens.
- V05 (Energy Sector): 64% of the respondents opined that the smart grid will assure reliable delivery of affordable power.
- V06 (Financial Services): 43% of the respondents felt that prioritizing digital payments over cash transactions will not deliver faster and quality services.
- V07 (Agriculture Sector): 44% of the respondents opined that equipping every farmer with access to institutional finance and knowledge to boost crops and animal yields will increase their ability to capture from agriculture production.
- V08 (Make in India): 61% of the respondents felt that business automation and digital platforms along with advanced analytics will greatly benefit e-enabled trade and commerce.
- V09 (Jobs and Skills): 59% of the respondents opined that by introducing digital resources in the workforce, participation rates, number and types of jobs and earning potential of the workers can be increased.

## VI. Summary of Findings

We learn from the above analysis of data, that India has major scope for development in terms of IT structure. The major barrier is the infrastructure required for the digitalization of the economy. There also exists a large infrastructure gap between urban and rural populations. The process relating to documentation is very time-consuming in India. Such processes can be digitalized to save time and improve convenience. The government can bring e-Governance into practice but the major hurdle remains to be the digital illiteracy of the majority of the population in India. Without this, they might lead themselves to cybersecurity risks. The growing infant mortality rate and poor healthcare facilities can be overcome by digitizing the health sector. Also, in the field of education, there is a vast urban-rural divide and disparity in teaching practices throughout the country. Hence, the digitization of the education sector will be essential to make quality education reachable to all. The traditional power sector can be replaced by the digitalized and made affordable for all with a smart grid. Prioritizing digital transactions will ease the speed and convenience of the transaction. However, there are gaps in the spread of financial services across the country. The situation of farmers in India can improve with the digitization of the rural economy and agro-industry. However, the rural-urban gap has led

to a disparity of digital literacy in rural areas. Digitization of the manufacturing sector will benefit e-commerce and widespread digital startups. Lastly, with the digitization of the Indian economy, there will be vast job potential and availability of resources along with a dire need for skill updating to match the global standards.

## VII. Suggestions

### ❖ Healthcare Services

Luxembourg has made progress towards achieving the aim of electronic health record implementation and connectivity. eHealth agency connects the health care organizations in Luxembourg using the telematics platform known as HealthNet. HealthNet includes telemedicine, databases, prescribing and patient files, and new initiatives to improve patient communication and data access. The governmental eHealth agency strides towards interoperability, coordination of data, and improving patient access to information by creating a version of an electronic health record for shared data that is known as a shared health record known as DSP (données de soins partagés). Telemetric platforms are used to function as DSP (Mantravadi & Snider, 2017).

DSP helps to better coordinate paperless medical records, coordination between the medical centers, easy process for patients for organizing follow-ups, increases transparency in the process, improving the quality of communication between the doctors. By the year 2020 Luxembourg wants the DSP to be fully functioning, free for all, and secure (ABEYWICKRAMA, 2019)

Luxembourg follows the eHealth action plan. The infrastructure components in the eHealth action plans include a technical (interoperability) platform that will help in secure exchange and sharing of healthcare data. A citizen eCard that is used to authenticate the user, encrypt data and sign documents in the context of eHealth services. A healthcare professional Card, those have biometric security mechanisms. This will provide eHealth services like:

- a) Standardized messages, secure exchange of healthcare data.
- b) Online verification of a patient's social security affiliation.
- c) An electronic billing system for healthcare services
- d) Electronic prescription of medication
- e) An electronic health record for citizens containing essential healthcare information

(Krippes, Schwebag, Benzschawel, & Artmann, 2010 )

The digitalization of healthcare is undertaken by the Luxemburg Doctor's and Dentist's Association in which they launched an app that includes the patient's overall medical needs which are fulfilled at one destination. Actions like booking doctor's appointments, receiving the prescription, pharmaceutical contact, medical insurance to the bank intervention for necessary payments accordingly (Fronczak, 2019). The app has also maintained a thorough security check as it contains sensitive medical information of the individual. It provides a secure and patient-centric atmosphere. This initiative attracts many start-ups, big-scale pharmaceutical institutions that would give their innovative inputs or would give useful outputs through the medical centers' prerequisite capacities. This kind of initiative initially requires a public-private partnership to further strengthen the activities (Deloitte, 2019) .

### Impact:

By taking lessons from Luxembourg, India can adopt the Electronic Health Record (EHR) system, which will require reducing the cost of procuring health care providers, to offer an incentive for the widespread acceptance of the EHR system. India could also adopt a digitalized healthcare system. It includes e-health centers, e-hospitals, and voice-over-internet systems or high-quality video calling to consult doctors. The shortage in the supply of healthcare professionals will be tackled by online learning and training courses along with additional digital infrastructure. Along with this, a digital health platform is essential to root out the rid of the false claim, processing of claims and settlements and onboarding of insurers. Each patient will have a digital dashboard and he can claim his insurance online.

### ❖ Education Sector

The Digital Education action, a unique method launched by the Luxembourg Government in 2015 focuses on the young people in the primary and secondary sections of education. The Digital Education Program comprises an innovative future hub that was initiated in 2017. In this, the schools develop their IT infrastructure and their method of teaching accordingly. These also provide opportunities for regional



participants to explore traditional science streams. These IT Hubs include maker spaces that allow young people to explore different dimensions of robotics, coding, game development, and other such tech facilities. This method is unlike the classical classroom method and also in the ICT method, youngsters learn by practical experiments and experiences boosting their intrapersonal skills. Also, the Luxembourg Tech School with high-speed internet and trending technology implements digital knowledge in contemporary real scenario projects (European Commission, 2019).

The Luxembourg Tech School is an innovative extracurricular school model for the development of students aged 15 to 20 years who are keen on the digital realm and are passionate to learn to apply technology in a contemporary business context. This Tech School provides them with personalized coaching and projects assigned to them with weekly follow-ups so that they can reflect on their work done and reflect on their solutions to the problems. This improves their software development, entrepreneurship, and presentation skills (CEDEFOP, 2017).

Indian curriculum lacks in inculcating technical teachings to the students which gives Global exposure to students. In the case of developing technological skills, Denmark has established technological up-gradation as per the global standards. Technological skills should be developed in Indian students. These skills need to percolate to all students which is difficult in a country like India due to its population. Therefore, though the task is steep actions need to be taken accordingly.

In the educational sector, Denmark has introduced smart grid models for developing smart universities. These universities are based on renewable energy. The government scheme is to encourage such types of universities while providing them grants. This type of system lacks in India due to which the students are unable to compete on the global platform and flourish to their utmost. Merging of Education and Technology at the very basic level in Denmark has benefited the student's interpersonal and intrapersonal skills. Due to the lack of these techniques and modern technological methods India lags on the world platform (Khairnar & others, 2019).

#### **Impact:**

It will help to bridge gaps in access to education and it will significantly improve the learning outcomes. Customized digital education will improve the learning outcome of students and improve their retention. Introducing digital channels will benefit the reach of knowledge in rural areas and unsafe areas, especially for girls. Growing digitalization will create more jobs, and also make students more employable. Teachers will be more effective as well as productive after putting them through training sessions to use digital content, instructional videos, rich infographics, etc. This will go a long way in reducing the learning gap in students due to differences in the quality of teachers. More advanced teaching techniques through technology like artificial intelligence will allow students to learn even with lower participation of the teacher.

### **VIII. Conclusion**

India is absolutely a country with huge potential and vast human capital. India has stepped into the league of digitalized economies with some developed nations. India has a long way to go before it can completely digitalize itself. There are major reforms to be initiated to bridge the urban-rural divide and increase digital literacy on a mass scale. After bridging this gap, India can have a highly skilled and digitally-enabled population. Just the proper implementation of plans and efforts in the right direction and intensity, digitalization of the Indian economy is definitely within reach.

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