Leveraging Technology for Inclusive and Sustainable Development

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Abstract: **India is a known powerhouse of software. Its share in global IT services outsourcing is 56 percent and growing every year. But the availability of electronic government services to citizens is still comparatively low. The National e-Governance Plan approved in 2006, made steady progress but it has been slow and greater thrust was required. In this background, Digital India was launched by the Prime Minister on 1st July 2015 with an aim to transform India into a digitally empowered society and knowledge economy. The program would go a long way in wiping out the digital divide besides offering a slew of digital solutions in almost all sectors to help in sustainable development including education, health, agriculture, and administration.**

The processes of social integration, disintegration, and reintegration work themselves out through a wide range of organizations and other structured arrangements or "institutions" from the international level to that of the family. These institutions embody apart from traditions, rules using science and technology extensively for the social integration process. An equally wide range of social actors tries to make use of these institutions for purposes of self-protection and advancement, and for stabilization, reform, or transformation of the system. This paper is a conceptual attempt to explore the roles of technology in social integration which has increasingly connected people at the national level, global level, in particular, the changing the whole structure of every society as well and leverage the underlying potential to achieve global leadership status.

This paper also examines the literature on how integrating science and technology can promote development. We adopt the framework in World Bank (2016).[8] which identifies the mechanisms through which the developmental process unfolds namely innovation, inclusion, and sustainable development. The subsequent sections argue that these mechanisms have been integral to inclusive development by using science, technology and innovation to promote development through these mechanisms.

Keywords: **Digital technologies, innovation, Inclusion, sustainable development.**

I.   INTRODUCTION

In simple words, technology is the application of scientific knowledge. It means the production of such machinery, arrangements, and procedures meant to achieve a certain goal or perform a function. Today every field of human work, from industry to medicine, is affected by and improved with technology. The first stone tool created by man was a technological production at that time since it was a product of man's knowledge.

In an approach to bridge the digital divide, it is necessary to get affordable, equitable, and quality access to Information & Communication Technology (ICT). It is estimated that two-thirds of the world's population is still offline so there is a need to provide affordable access to the internet for all. For developing countries, it has become a priority area to alleviate poverty by promoting access to ICT. At the same time, tremendous growth in the use of ICT devices and services, faster change of technology, and frequent innovations in the ICT sector had left the world with a threat of deterioration in environmental conditions and human health as the waste of electronic and electrical equipment, which contain hazardous components, is still handled in an environmentally unfriendly manner mainly in developing nations. It is a huge challenge for nations to handle e-waste in a responsible manner and protect the environment.

Digital India Program started by the Government of India is an attempt to use technology for the benefit of people in order to overcome some of the challenges facing the country. The program charts a roadmap to a digital India where a digitally literal population can leverage technology for endless possibilities. Our political leaders have made it clear that broadband highways are as important as national highways and that the end goal is to offer better services, foster innovation, and generate more jobs. The critical enabler is going to be the technology and the foundation to a digital nation will be the laying of a pan India network.

Digital technologies have a profound impact on economies and societies and are changing the way we work, communicate, engage in social activities and enjoy ourselves. They also drive innovation in many different spheres of life. The innovative capacity of technology is very much conditioned by the level of digital skills of the population. No wonder there is a very strong correlation between education and skills and the uptake and use of digital technologies in various spheres of life. The role of education and skills in promoting innovation is critical.

In a nutshell, digitalization is a new wave of innovation and can be compared with the innovation in the form of mechanization and electricity in the 19th century. Technological development is evolutionary, however, its impact on change in society is revolutionary. The seventeen Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda have been called a gift to humanity.[1] While much worthwhile effort has occurred since the world's political leadership arrived at this consensus in 2015, much work remains to be done.

The SDGs represent an aspirational and practical definition of sustainable development applying to all countries. This broad set of interdependent social, economic, and environmental goals reflects value judgments made specifically through the establishment of an array of targets and indicators. The 2030 Agenda aims for synergistic progress by focusing on all the SDGs together. It seeks to mobilize funding and ensure that no one is left behind. To help achieve the goals, it promotes multi-stakeholder engagement, national action plans, and public-private partnerships. And it strives to harness science, technology, and innovation (STI) to accelerate progress.[2]

Sustainable livelihoods are an approach to eradicating poverty that applies environmental, economic, and social equity principles to access and consumption of resources. A livelihood can be said to be sustainable if it can cope with and recover from stresses and shocks. Labour in India refers to employment in the economy of India in 2020, there were around 501 million workers in India, the second largest after China. As per the latest report estimate, unemployment is rising steadily, and to meet the demand for jobs, 8 or 9 million new jobs should be created every year. To date, sustainable livelihood efforts have largely been centered around agriculture and allied sectors; to meet these numbers, however, we will now need to shift emphasis to other avenues-skill development, entrepreneurship, and innovation.

II.   ROLE OF SCIENCE, TECHNOLOGY AND INNOVATION

The use of technology, in my view, helps drive progress on the SDGs in multiple ways, first advising on challenges, second providing indicators for monitoring progress, third advising on policies and actions, fourth searching for innovative solutions and fifth ensuring every country and the UN have a robust science-policy interface. Science, Technology, and Innovation (STI) help to accelerate progress by promoting better use of evidence in policymaking and by addressing knowledge and implementation gaps. Meaningful interaction of science advice across the different levels of governance -from local to global increases the likelihood of significant impact.

Innovative solutions are often seen as coming primarily from technological advances. Certainly, the world is counting on innovations in clean energy technologies to reduce costs and accelerate the displacement of fossil fuels, with the goal of mitigating anthropogenic climate change. But important advances can also come from innovations in our policies, financing, and thinking, as well as from an enhanced understanding of consumer needs and creative deployment of existing technologies.[3]

Digital India

The digital economy is growing quickly.[4] It permeates the world economy from retail (e-commerce) to transportation (automated vehicles), health (electronic records and personalized medicine), social interactions and personal relationships (social networks), and also education. Information and communications technology (ICT) is integral to people's professional and personal lives; individuals, businesses, and governments are increasingly interconnected via a host of devices at home and at work, in public spaces, and on the move. These exchanges are routed through millions of

individual networks ranging from residential consumer networks to networks that span the globe. The convergence of fixed, mobile and broadcast networks, combined with the use of machine-to-machine communication, the cloud, data analytics, sensors, actuators, and people, is paving the way for machine learning, remote control, and autonomous machines and systems. Devices and objects are becoming increasingly connected to the Internet of Things, leading to a convergence between ICT and the economy on a grand scale.

In order to transform the entire ecosystem of public services through the use of information, Technology, the Government of India has launched the 'Digital India' program in 2015 with the vision to transform India into a digitally empowered society and knowledge economy. Today's knowledge society is totally dependent on digital connectivity. Geo stationary satellites always provided solutions for this. The recent launch of GSAT11 is a clear example of how space is supporting the needs of the country in this area of high digital connectivity. Such resources will have to be multiplied. Advanced satellites with higher data throughput and coverage to every nook and corner of the country need new ideas and techniques.

Innovative Digital Education Initiative

The government is targeting digitally educating one crore rural citizens, which implies that people are trained as a consumer to use all payment options are available to them and what is best suited for them. More than 40 lakh rural citizens and around 1.2 lakh merchants have already enrolled for digital payments.

We have already moved from the awareness creation stage to one where people work towards it by being part of a 'less-cash' society immediately, "learn how this digital economy works. Learn the different ways you can use your bank accounts and internet banking. Learn how to effectively use the apps of various banks on your phones. Learn how to run your business without cash," the Prime Minister had stated. Going by the progress so far, it seems that a sound beginning has been made for making rural India a less-cash economy.[5]

It is needless to repeat that 'India lives in her villages' and 'real India is rural India'. Further, the Kothari Commission is worth mentioning for highlighting 'the destiny of India is being built in her classrooms'. All these make us realize the need of joining hands in the nation-building process by strengthening urban and rural India through the diverse intervention of 'Digital India' including 'Digital Education' and 'Virtual Learning'. Their other program government of India has started i.e., Diksha Digital Infrastructure for Knowledge sharing, e-Pathashala, Swayam Prabha Channels, NROER-National Repository of Open Educational Resource, ICT Scheme under Samagra Shiksha, Shaala Darpan, E-Granthalaya, Digital Saksharta Abhiyaan, and Pradhan Mantri Gramin Digital Saksharta Abhiyan, etc.[6]

Nine Pillars of Digital India

Digital literacy is widely recognized as a key element necessary to successfully implement the e-Government initiatives under the Digital India program. Digital India stands on the foundation of nine pillars which are briefly described below[7], along with the challenges that each of these pillars face-

1. **Broadband Highways**: Under this broadband connectivity for all is planned. By December 2016, 2.5 lakh Panchayats would be connected by broadband. Urban areas and the new urban building would have ICT infrastructure. All networks would be integrated under the National information infrastructure.

2. **Universal Access to Phones**: Still, there are more than 40,000 villages that do not have mobile connectivity. This initiative is to fill this gap. Laudable though, a challenge is to ensure the quality of service in these remotest places. Even in metro cities like Delhi and Mumbai, users face the problems of call drops and network accessibility, so we can imagine the situation in a remote village of Arunachal Pradesh. Also, with the increase in the number of mobile broadband users, the present network may not be able to keep up. Digital India will need more spectrum, for this government is taking spare spectrum from Defense Ministry.

3. **Public Internet Access**: though our teledensity is quite high, not everyone in India can buy a Smartphone or laptop. Large numbers of people in rural areas do not have any access to the internet. Govt plans to solve this problem by ensuring public internet access through Common Service Centres (CSC) and Post Offices. The plan is to establish one CSC in each Gram Panchayat where all government schemes would be accessible to all.

4. **E-Governance**: Reforming Government through Technology: ICT can be leveraged effectively through e-governance to bring government at the doorsteps of the citizen. Under this pillar, govt is laying emphasis on online applications and

tracking of their status, simplifying the forms by asking for the minimum and necessary information only. Making all databases and information in electronic form also use of online repositories e.g., school certificates, voter ID cards, etc and integrating the platforms such as –Aadhaar, Payment Gateway, Mobile Platform, etc.

5. **E-Kranti-Electronic Delivery of Services**: E-Kranti comprises 41 large e-governance initiatives, called 'mission mode projects" which include-e-Education, e-Healthcare, Farmers, Security, Technology for Justice and Technology for Cyber Security.
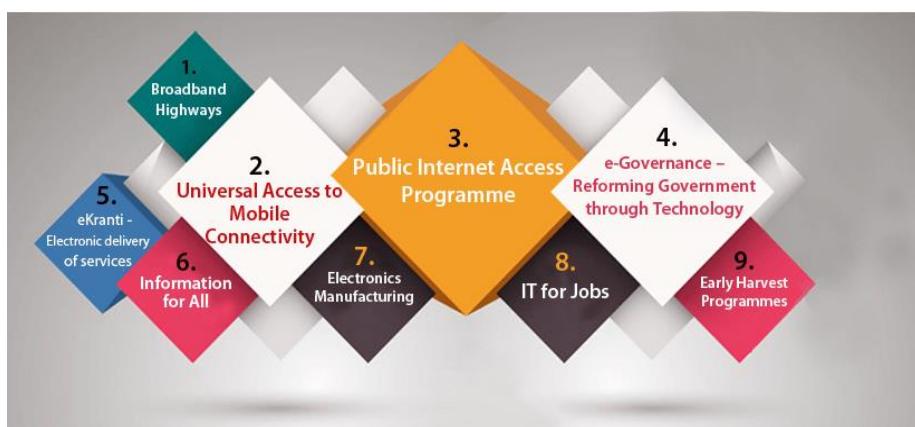
6. **Information for All**: Under this pillar, Govt plans to establish a two-way communication channel with the citizens in which the public will have open and easy access to the information and at the same time provide feedback to the govt. recently launched platform MyGov.in has already become a medium to exchange ideas/suggestions with the Govt.

7. **Electronics Manufacturing**: This is probably our weakest leg in the Digital India program. We import huge quantities of electronic equipment's ranging from, Smartphone' laptops to set top boxes. Out domestic manufacturing capacity in electronics is grossly inadequate. To ramp up local manufacturing, coordinated action on many fronts is required e.g., the tax incentive to local manufacturers, give more focus on –set-top boxes, mobile phones, smart cards, and micro-ATMs.

8. **IT for Jobs**: This is a project to train 1 crore students from smaller towns and villages for IT sectors jobs over five years. Business Process Outsourcing (BPOs) would be set up in every north-eastern state to facilitate ICT-enabled growth in these states.

9. **Early Harvest Programme**: Most of these projects are already underway and some are even nearing completion. These include Biometric attendance in govt organizations, Wi-Fi in all Universities, school books to be e-books, SMS base whether information, disaster alerts.

How Digital India will be realized: Pillars of Digital India

(Source: https://digitalindia.gov.in/content/programme-pillars)

III.   INCLUSIVE DEVELOPMENT

The best way to realize inclusive development is through developing people's talents. It is said by government authorities that a multidimensional approach towards education, financial inclusion, technological advancement, and skills development is essential to achieve inclusive development in India. For instance, the spread of digital technology will improve inclusion in both, new and existing markets. The World Bank[8] argues that this happens because some transactions did not exist previously. This could be either because parties of potentially beneficial transactions did not know each other or when one had more information than the other. Technology innovations make monitoring and sharing of information much easier. User-specific information allows the firms to use newer risk mitigation strategies and provide more individualized services. The increased use of credit bureau data in the Indian market is a good example. The Micro Finance Institutions (MFIs) are actively availing the service of credit bureaus and also contribute to them. Integration with the credit bureau system is highly beneficial to the consumer also, as it considerably eases future engagements with mainstream financial actors.

Advances in technology also allow the adoption of a broader view of financial inclusion, taking it beyond the mere provision of financial services to the unbanked. Financial inclusion does not mean just access to financial services, but also ensuring continuous and efficient use of these services, which depends on both demand and supply.9 Technology innovations have immense potential to address the underbanked who might be voluntarily or involuntarily excluded from the system. These innovations differ from others in that they can be more rapidly adopted, and are pioneered largely by new and small players. MFIs can easily collaborate with the new crop of players to usher in new models of operation and service delivery.

IV.   CHALLENGES IN SCIENCE AND TECHNOLOGY

The technological disruptions and challenges emerging from rapid advances and the adoption of technologies such as artificial intelligence, robotics, gene editing, synthetic biology, blockchain, and social media have received much attention. All these technologies present opportunities as well as significant challenges. The negative implications range from potentially significant job loss in certain sectors without new employment opportunities, to societal disruption through the spread of false news and loss of privacy, to the creation of new technological capabilities that threaten national and personal security. As much effort should be directed at anticipating and mitigating these consequences as to taking advantage of corresponding business and development opportunities.[3]

The challenges to making progress on the SDGs cover many issues. Aspirational rhetoric is nice, but effective policies, real action, and adequate funding are hard to implement and sustain. Just to begin with three prime examples, current targets do not cover all the essential elements. Many key indicators are either missing or lack adequate data. The voluntary national reviews submitted by member states to the UN High-Level Political Forum are useful, but not real action plans.[10]   Furthermore, stakeholder engagement is weak in most countries, including in many with top-down national plans. Not every government is paying attention, which is especially true of the United States. With a few notable exceptions, the Sexually Transmitted Infection (STI) community in most countries is not much involved.

East and South Asia have progressed more towards achieving the SDGs than any other region since the adoption of the goals in 2015. However, countries in the region differ greatly in size and in the level of economic development, with a corresponding range of challenges in meeting the SDGs. Overall, the region is performing best on SDG 1 (No Poverty) and SDG 4 (Quality Education), with particularly positive trends on SDG 1 (No Poverty) – although, as in other parts of the world, COVID-19 has amplified poverty rates. But while trends are generally positive, no country in the region is on track to achieve SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-Being), SDG 5 (Gender Equality), SDG 10 (Reduced Inequalities), and SDGs 14 and 15 on biodiversity protection. Many countries are facing major challenges in these areas. The negative trends on SDG 15 (Life on Land), driven by biodiversity loss and threatened species, need to be reversed and will require a significant acceleration of progress to achieve the 2030 targets.

Second, to further reduce inequalities, countries need to expand social safety nets. These need to be complemented by anti-discrimination measures (including gender), improved labour standards, and measures to end all forms of modern slavery, trafficking, and child labour. This year's scorecards provide indicators on countries' commitments to reducing inequalities and on whether the principle of gender equality is enshrined in the law. Third, to promote economic growth, which can contribute to lowering inequalities, most countries need to boost innovation and ensure diffusion from research and development. Organization for Economic Co-operation and Development (OECD) countries spend, on average, more than 2 percent of GDP on research and development (R&D) compared with 0.5 percent or less in lower-middle-income countries and lower-income countries. Among G20 countries, Germany, Japan, and South Korea spend the most on R&D as a share of their economy. Consistent investment in R&D can support the emergence of solutions to address climate change but also for the development of vaccines and treatments.[11]

First, India faces several socio-economic and environmental challenges. Then, second digital India is achievable but it has its set of challenges. Some of these challenges are mentioned here first though India achieved 'universal primary education target in 2015, its adult population still has a sizeable number of illiterate or semi-literate people, especially in villages. Digital illiteracy is another major challenge that has prevented the effective utilization of the projects. The integration and alignment of different networks, interfaces/platforms across different states have been a major challenge in the implementation of Digital India .[7]

With increased digitalization and e-services, the threat of cyber-crimes and frauds would increase. So, precautions on this front need to be taken from the beginning, else it may erode the public confidence in e-services. People need to be made aware of cyber threats and ways to guard against them. We need IT solutions suited to Indian needs. For this push need to be given for innovation and developing low-cost technologies. Hence the concept of Net Neutrality needs to be nourished and supported as it helps in innovation on the internet.

In the wake of scientific advancement, humanity has largely benefited from technology and electronics. The use of electronic gadgets has made an unprecedented impact on our lives, it has made communication easier, has boosted business, has created innumerable job opportunities but on the other hand, there are widespread issues of electronic waste that need to be dealt with boldly by the society. Delhi ranks second in the collection of e-waste in India and hence the labour force employed in it is also huge.[12]

The composition of e-waste is very diverse and differs in products across different categories. It contains more than 1000 different substances, which fall under the 'hazardous' and 'non-hazardous' categories. Broadly, it consists of ferrous and non-ferrous metals. E-waste comprises a whole range of electrical and electronic items such as computers, mobile phones, refrigerators, washing machines, printers-scanners, televisions, mobile, music players, batteries, etc., many of which contain toxic elements and chemicals which may pose serious challenges to the environment and human health if not disposed of properly.[13]

Less than 1.5 percent of India's total electronic waste gets recycled due to the absence of proper infrastructure, legislation, and framework. India produced approximately 2.5 million metric tonnes of e-waste in 2017. The National Environmental Policy also encourages giving legal recognition and strengthening the informal sectors system for the collection and recycling of various materials. In particular, considering the high recycling potential of e-waste such waste should be subject to recycling in an environmentally sound manner.[14]

In the end, we came to the big question-can technology solve the inherent problems of society? Can inequality, cast/gender-based discrimination, exploitive social and political structure all be dealt with by just automation and optical fiber cables? Probably not, but it is for sure, that digital India can certainly play a positive role in solving all these problems, and hence everything needs to be done to make it successful.

V.   ROLE OF SCIENCE, TECHNOLOGY AND INNOVATION FOR SOCIAL INTEGRATION

Technology has helped increase productivity and efficiency in every field that it is employed. Technology has helped to improve agricultural production all over the world with the use of tractors and machines. Due to transport and communication not only, travel means but also safety owing to new technological inventions in transport. The internet has revolutionized communication among people. Production is made easier with the help of computers which handle much of the work, minimizing the efforts of labourers. The service sector has also been improved with technology. Booking tickets, shopping, handling bank accounts, and even setting up a business, such works are easily done with the help of computers and the internet.

Technology has changed media and its forms. Man has reached space and is researching more about the universe with advancing space technology. Many other fields like construction, logistics, education, and commerce have also progressed with better technology.

Scientific Innovations in the Service of Society

Innovation mostly indicates advancements; however, it is important that such advancements should be novel too. This is because, at times, the advancement is more about the progression of the existing technology than having discovered something new or original. Say in case of developments being witnessed over the years in the domain of computers, mobile phones, the Internet, and other social media methods.

Artificial Intelligence (AI) is another technology that has been there for many years and is presently found making a lot of impact on the development cycle in various disciplines. However, even today, AI is still an evolving technology and the scope of AI is varied. There are various viewpoints about the exact applicability of AI. No final verdict has yet been announced whether AI is a saviour or destroyer. Issues of ethics do get raised in regard to the applicability of AI. However, globally it has been observed that AI could bring in various advantages in very many fields associated with human growth and progress.[15]

Contribution in Higher Education

Statistically speaking, India for its 1.25 billion people offers higher or tertiary level education through nearly 800 universities (including central, state, private, deemed, and all other categories) who are mostly governed by the University Grant Commission (UGC) and nearly 100 Institutes of National Importance (INIs) which were created through special acts of the Parliament or State Assemblies who directly report either to the Central or State Government.

The main objective of this virtual classroom initiative is to enable millions of youths outside the university campus to access the best quality teachers and teaching courses in an easy-paced manner without having to pay large admission/tuition fees or even qualify through JEE or other entrance examinations. MOOCs will all limit interaction with faculty, take examinations and even earn certificates that may help in getting employment.[16]

Figure 1 has demonstrated the socio-economic challenges India is facing.

Table 1: Twelve technologies empowering India

Digitizing Life and work	Mobile Internet	Inexpensive and increasingly capable mobile device and internet connectivity enable services to reach individuals and enterprises anywhere.
	Cloud Technology	Computing capacity, storage, and application delivered as a service over a network or the internet, often at substantially lower cost
	Automation of knowledge work	Intelligent software for unstructured analysis, capable of language interpretation and judgment-based tasks, potential to improve decision quality
	Digital payments	Widely accepted and reliable electronic payment systems that can bring millions of unbanked Indians out of the cash economy
	Verifiable Digital Identity	Digital identity that can be verified using simple methods, enabling secure delivery of payments and access to government services.
Smart Physical Systems	Internet of things	Networks of low-cost sensors and actuators to manage machines and objects, using continuous data collection and analysis
	Intelligent Transportation and Distribution	Digital services, used in conjunction with the internet of things, to increase efficiency and safety of transportation and distribution systems
	Advanced Geographic information system (GIS)	A system that combines location data with other types of data to manage resources and physical activities across geographic spaces.
	Next generation genomics	Fast, low-cost gene sequencing and advanced genetic technologies to improve agricultural productivity-improving India's energy security
Rethinking energy	Advanced Oil and Gas Exploration and Recovery	Techniques that make extraction of unconventional oil and gas (usually from shale) economical, potentially improving India's energy security
	Renewable Energy	Generation of electricity from renewable sources to reduce harmful climate impact and bring power to remote areas not connected to the gird
	Advanced Energy Storage	Devices or systems of energy storage and management that reduce power outages, variability in supply, and distribution losses.

Sources: Noshir Kaka, et.al.[17], India's technology opportunities: Transforming work, empowering people, Mckinseqy, Quarterly, Mckinsey global Institute, December 2014.

VI.   SUSTAINABLE DEVELOPMENT

According to the classical definition given by the United Nations World Commission on Environment and Development in 1987, development is sustainable if it "meets the needs of the present without compromising the ability of future generations to meet their own needs." It is usually understood that this "intergenerational" equity would be impossible to achieve in the absence of present-day social equity if the economic activities of some groups of people continue to jeopardize the well-being of people belonging to other groups or living in other parts of the world. "Sustainable" development could probably be otherwise called "equitable and balanced," meaning that, in order for development to continue indefinitely, it should balance the interests of different groups of people, within the same generation and among generations, and do so simultaneously in three major interrelated areas–economic, social, and environmental.[18]

Why a strategic approach to sustainable development is needed?

The need for structural changes Achieving sustainable development will require deep structural changes and new ways of working in all areas of economic, social and political life. Economic growth patterns that actively favour the poor should be promoted. Fiscal policies that negatively affect the poor or promote environmental damage will need to be reformed. Issues of inequity and inequality of access to assets and resources need to be confronted in a more open and progressive manner. For example, in many countries, it will be necessary to reform land tenure policies so as to increase access to resources for disadvantaged and marginalized groups. Equally, it will be important to build and strengthen social capital and to devise formal 'safety nets' to enable vulnerable economies and groups of citizens to better cope with both external and domestic shocks.[19]

India's development trajectory is critically linked with investments in social infrastructure and the country's march towards attaining Sustainable Development Goals is firmly anchored in investing in human capital and inclusive growth, the Economic Survey 2019-20 said. To reap the benefits of demographic dividend, the government is committed to improving the outcomes in education and skilling, and to providing employment and affordable healthcare to all.

VII.   INCLUSIVE AND SUSTAINABLE DEVELOPMENT EXAMPLES

The World Economic Forum's Inclusive Development Index takes a much broader approach to measuring a country's economic performance and potential. The 2018 Index shows Norway is the world's most inclusive advanced economy. The Index measures three performance indicators, known as the pillars of a nation's economic development. Emerging European economies occupy six out of the 10 spots in the emerging economies ranking. Lithuania is the most inclusive, followed by Hungary in 2nd place. Latvia is in 4th place, Poland in 5th place, Croatia in 7th place, and Romania in 10th place.[20]

In 2020, the proliferation of green spaces within urban environments is expected to continue on a large scale. Green spaces are areas of trees, grass, and other types of vegetation located within primarily urban environments. New York City's Central Park is one of the biggest sustainable development examples. In addition to being a welcome aesthetic and a change of pace from the concrete and skyscrapers in urban areas, green spaces also provide real value in terms of sustainability. They help to improve air quality, recharge supplies of groundwater, reduce air temperature, and protect streams and lakes from polluted runoff. They also prevent soil erosion and help maintain the quality of water in the area.[21]

Solar panels are one of the most easily-recognizable examples of sustainable development. They can be fitted to buildings of any shape or size, and cost less to install than they ever have. Solar panels can provide enough power to make a building completely energy-independent and can even take the form of shingle-sized solar shingles which are interwoven with the rest of a building's shingles. Waste to E Energy Recycling is a method of turning waste into energy and yet another one of the best sustainable development examples we'll see next year. These facilities use combustion to turn non-hazardous waste into steam energy and electricity. Rather than being sent to a landfill, waste such as rags, absorbents, PPE, and organic debris are combusted and used to provide energy, reducing a building or area's dependence on external energy providers. The wind is essentially free energy, and harnessing it with wind turbines can help new areas of development to be more sustainable. Combined with other sustainable development examples, these can be an integral part of a larger sustainability-based strategy.[21]

New developments of land will need to focus heavily on sustainability in 2022. These examples of sustainable development are expected to be some of the most widely-implemented and effective methods for sustainability as we move into the new decade. Hopefully, by using these products and strategies, we can break new ground in the fight against global warming and protect ourselves from new impending disasters and financial hardships.

VIII. CONCLUSION

Technological developments in various fields of science have brought revolutionary changes in today's modern society. The usage of these technologies in agriculture, Industry, effective communication, defense, medical science, and in everyday life has proved to be a boon to entire humankind. The remarkable inventions and their successful application in the above-mentioned fields have led to the development of societies. However, one must be careful about their use as there are chances of misuse of these technologies.

In order to achieve the full benefit of the new modern technologies, it is imperative to build physical infrastructure for the digital economy, remove the possible barriers to technology adoption and provide effective policies, regulations, and standards for monitoring and controlling the ill-effect of technology, whether intended or unintended. There is also a need to create a vibrant innovative ecosystem. As India is a multi-lingual country, there is a need to weave multi-lingual capabilities to spread information, knowledge, and opportunities. There is also a need to integrate traditional systems into modern systems that will simplify various aspects of governance- be it building an efficient public distribution system, automating work, transforming the urban-rural living environment, or delivering better health care. It must be mentioned here that in Western countries, the adoption of digital technologies has improved efficiencies and productivity along with a reduction in jobs for people. In India, it is expected that in the medium term, it is going to increase more job opportunities. This critical aspect needs to be paid special attention to and with great responsibility.

In conclusion, in the last few decades, India growth story has been phenomenal but the outcomes of this growth were not visible on the ground as India has performed badly in several social indicators as well as Human Development Index, it will remain challenging and difficult unless political differences are eased out and ethnic violence subsides. Obviously, a democratic process of governance will be desirable to realize the dream of sustainable and qualitative development for present and future generations.

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