Digitalization - a Key to Sustainable Development

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Abstract: In this era of technical progression, where everything revolves around the alphabet "e", the digitalization has come up and spread its wings over all the spheres of life. The massive use of digital devices and mounting dependency of man on them clearly states that digitalization is the need of the today's fast going life where time is treated as money and as far as digitalization is concern it save both time and money so it's not wrong to say that it has the potential to revolutionize the socioeconomic growth parameters thus, it has developed a symbiotic relationship with complete growth and sustainable development. More over digitalisation has also simplified the functioning and process of various areas like administration, regulation, planning and operations of the socio-economic sphere by eventually enriching the quality of work. All these feature of the digital age act as mile stones in process of achieving sustainable development, as when the societies are digitally empowered, people of that area become more Conscious, Connected, Compliant, Collaborative and Content towards their own growth and as result of this, they work in a tandem manner which makes them a responsible resources for nation's future development. (De Croo, 2015). This paper therefore aims at highlight the role that Digitalization play in the current scenario in order to attain the ideal aim of Inclusive Growth by following the path of sustainability. Paper also focus on the "5Cs model of Inclusive Sustainable Growth", which establishes a link between Digitalization and sustainable development. Paper also discuss the focus area of sustainable development which are widening the horizon of services which are being offered to the society like better technology to access everything at one click, improved facilities in the healthcare and hospitality department and good opportunities in educational sector for the less privileged, upliftment of people who remain grounded within the walls of poverty, illiteracy and unemployment, register their existence and ask for their rights of development and connect them with the nation and paper also tell how digitalisation work as solution key to all these problems by providing a platform where urban and the rural worlds come together under a common sheath of Sustainable development and can live a life of self-enabled and digitally equipped people who would be good learners, thinkers, reformers, participators and agents of change and growth marching ahead on the path of sustainable development.

Keywords: Digitalization; Inclusive growth; Socio-economic; Sustainability.

1. INTRODUCTION

Malcolm X's in his Speech at the Founding Rally of the Organization of Afro-American Unity, 1964 said that *"The future belongs to those who prepare for it today"* and this phase seems to be very true when we talk about global sustainable development. The preparation for sustainable development began with the evolution of mankind from a nomadic cave man to a civilized social being living in a culturally rich, economically sound and socially buoyant environment. Even after so much of development the dream of sustainable development seem to be faraway but the introduction of digitalization as a part of IT revolution worked as a catalyst in speeding up the work in this direction. **(Johnston, 2007).** As far as the process of sustainable development is consider digitalization work as driver which spins along with the wheels of time and harness growth and development. Digitalization mainly focuses at providing

1. Universal digital literacy
2. Universal accessibility of all digital resources for citizens of all countries around the globe.

The vision is centred on three key areas that are:-

- Creation of digital infrastructure
- Delivery of governance and services on demand
- Digital empowerment of mankind.

2. OBJECTIVES OF STUDY

1. To analyse the concepts and scope of digitalisation and meaning & origin of sustainable development concept.
2. Paper highlights the 17 goals of sustainable development.
3. To showcase the role of Digitalization in the current scenario leading to the attainment of the ideal aim of Inclusive Growth by following the path of sustainability.

Research Methodology:

This study attempts to explain the role of digitization in the attaining the aim of sustainable development globally. It is based on secondary data that is collected through different sources like newspaper, internet, journals etc

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Concept Of Digitalization

Digitalization is the integration of digital technologies into day to day life and this is done by the digitization of everything that can be digitized. The literal meaning of digitalization gives an apparent idea of making a technological dependent world, which may lead to fulfilment of sustainably Developed goals. Digitalizing help, mankind to preserve, access, and share information whenever it is needed. For example, an original historical document may only be accessible to people who visit its physical location, but if the document content is digitalized, it can be made available to people worldwide. There is a growing trend towards digitalization of historically and culturally significant data.

Scope of Digitalization

1. Digital infrastructure try to give high speed internet facility to every citizen, a cradle to grave internet identity, easy access of internet service on mobile phone, fast transaction handling of bank account, access to common service centre, sharable private space on a public cloud and safe and secure cyberspace.

2. Governance and services on demand which will be available in real time for online and mobile platforms, seamlessly integrated across departments and jurisdictions. All citizen documents to be made available on the cloud platform; as a result, citizens will not be asked to produce such documents for availing services. In addition, the provision of cashless electronic transactions will help generate business. Geographical Information Systems (GIS) will be integrated with the development scheme **(Stirling, 2006).**

3. Empower citizens, especially rural citizens, by making them digitally literate. This will be done through collaborative digital platforms and by making available the digital resources in their native language with a view to making their participation a reality. It will help tap into the data that will be freely available on the cloud computing platform—independent of an intervention.

Concept of Sustainable Development Meaning and Origin

The concept of sustainable development originated with the Report of the World Commission on Environment and Development (WCED), *Our Common Future* (Brundtland Report, 1987) which defined sustainable development as "development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs." The concept of sustainable development was first given prominence at the United Nations Conference on Environment and Development **(UNCED, "Earth Summit", Rio, 1992)** with passage of time this notion of sustainable development rapidly gained greater awareness among common people. Sustainable development is made by combining the two terms, 'sustainability' and 'development' in order to indicate a pattern of growth that a nation must follow. Sustainable development tells about both that how a nation is capable for taking care for their people in relation to their total relationship with the resources of earth. It focuses upon a relationship between humans and their environment and indicates a warning that human being must not push development which is against nature. The concept of sustainable development put major emphasis on environmental and disparities problems in the world. It marked a decisive stage by recognising the existence of challenges and problems that were common on the entire planet and to all mankind. It thereby considerably widened the scope of global problems to include such matters as the environment, health, trade and poverty. It also highlighted the links between globalisation, planet-wide risks and shared responsibilities that created a need for concerted action by the international community. **(OIDA International Journal of Sustainable Development)**

Goals of Sustainable Development

The Sustainable Development Goals (SDGs), is also known as the Global Goals as these goals universal call for people's help in order to end poverty, protect the planet and ensure that all human enjoy peace and prosperity **(Kuhlman, 2010).** There are 17 Goals build for the successes of sustainable development goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another. The SDGs work in the spirit of corporation and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. These 17 goals lay down clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large so that they can achieve the target of sustainable development. The SDGs are an inclusive agenda. They tackle with the root causes of poverty and try to unite the entire mankind together in order to make a positive change for both people and planet.

1. No Poverty

Eradicating poverty in all its forms remains one of the greatest challenges facing humanity. While the number of people living in extreme poverty dropped by more than half between 1990 and 2015 – from 1.9 billion to 836 million – too many are still struggling for the most basic human needs. Globally, more than 800 million people are still living on less than US$1.25 a day, many lacking access to adequate food, clean drinking water and sanitation. Rapid economic growth in

countries like China and India has lifted millions out of poverty, but progress has been uneven. Progress has also been limited in other regions, such as South Asia and sub-Saharan Africa, which account for 80 percent of those living in extreme poverty. New threats brought on by climate change, conflict and food insecurity, mean even more work is needed

to bring people out of poverty. The SDGs are a bold commitment to end poverty in all forms and dimensions by 2030. This involves targeting the most vulnerable, increasing access to basic resources and services, and supporting communities affected by conflict and climate-related disasters.

Fig. 1. 17 Goals of Sustainable Development

2. No Hunger

Rapid economic growth and increased agricultural productivity over the past two decades have seen the number of undernourished people drop by almost half. Many developing countries that used to suffer from famine and hunger can now meet the nutritional needs of the most vulnerable. Central and East Asia, Latin America and the Caribbean have all made huge progress in eradicating extreme hunger. These are all huge achievements in line with the targets set out by the first Millennium Development Goals. Unfortunately, extreme hunger and malnutrition remains a huge barrier to development in many countries. 795 million people are estimated to be chronically undernourished as of 2014, often as a direct consequence of environmental degradation, drought and loss of biodiversity. Over 90 million children under the age of five are dangerously underweight. And one person in every four still goes hungry in Africa. The SDGs aim to end all forms of hunger and malnutrition by 2030, making sure all people – especially children – have access to sufficient and nutritious food all year round. This involves promoting sustainable agricultural practices: supporting small scale farmers and allowing equal access to land, technology and markets. It also requires international cooperation to ensure investment in infrastructure and

technology to improve agricultural productivity. Together with the other goals set out here, we can end hunger by 2030

3. Good Health and Well Being

We have made huge strides in reducing child mortality, improving maternal health and fighting HIV/AIDS, malaria and other diseases. Since 1990, there has been an over 50 % decline in preventable child deaths globally. Maternal mortality also fell by 45 % worldwide. New HIV/AIDS infections fell by % between 2000 and 2013, and over 6.2 million lives were saved from malaria. Despite this incredible progress, more than 6 million children still die before their fifth birthday every year. 16, 000 children die each day from preventable diseases such as measles and tuberculosis. Every day hundreds of women die during pregnancy or from child-birth related complications. In many rural areas, only 56 % of births are attended by skilled professionals. AIDS is now the leading cause of death among teenagers. These deaths can be avoided through prevention and treatment, education, immunization campaigns, and sexual and reproductive healthcare. The Sustainable Development Goals make a bold commitment to end the epidemics of AIDS, tuberculosis, malaria and other communicable diseases by 2030. The aim is to achieve universal health coverage, and provide access to safe and affordable medicines and vaccines for all. Supporting

research and development for vaccines is an essential part of this process as well.

4. Quality Education

Aim to achieve target of universal primary education. The total enrolment rate in developing regions reached 91 % in 2015, and number of children dropped out of school has reduced to half. There has also been an increase in girls and overall literacy rates than ever before. These are all remarkable successes. Progress has also been tough in some developing regions due to high levels of poverty, armed conflicts and other emergencies. Children from the poorest households are up to four times more likely to be out of school than those of the richest households. Disparities between rural and urban areas also remain high. according to SDG achieving inclusive and quality education for all is important because it is belief that education is one of the most powerful and proven vehicles for sustainable development. This goal ensures that all girls and boys complete free primary and secondary schooling by 2030.

5. Gender Equality

Ending all forms of discrimination against women and girls is not only a basic human right, but it also crucial to accelerating sustainable development. It has been proven time and again, that empowering women and girls has a multiplier effect, and helps drive up economic growth and development across the board. Since 2000, UNDP, together with our UN partners and the rest of the global community, has made gender equality central work, remarkable progress since then. More girls are now in school compared to 15 years ago, and most regions have reached gender parity in primary education. Women now make up to 41 % of paid workers outside of agriculture, compared to 35 % in 1990. The SDGs aim to build on these achievements to ensure that there is an end to discrimination against women and girls everywhere.

6. Clean Water and Sanitation

Water scarcity affects more than 40% of people around the world, an alarming figure that is projected to increase with the rise of global temperatures as a result of climate change. Although 2.1 billion people have gained access to improved water sanitation since 1990, dwindling supplies of safe drinking water is a major problem impacting every continent. In 2011, 41 countries experienced water stress – 10 of which are close to depleting their supply of renewable freshwater and must now rely on alternative sources. Increasing drought and desertification is already worsening these trends. By 2050, it is projected that at least one in four people will be affected by recurring water shortages. Ensuring universal access to safe and affordable drinking water for all by 2030 requires UN has

invested in adequate infrastructure, provide sanitation facilities, and encourage hygiene at every level.

7. Affordable and Clean Energy

Between 1990 and 2010, the number of people with access to electricity has increased by 1.7 billion, and as the global population continues to raise so will the demand for cheap energy. A global economy reliant on fossil fuels and the increase of greenhouse gas emissions is creating drastic changes to climate system. This is impacting every continent. Efforts are done to clean energy has resulted in more than 20 % of global power being generated by renewable sources as of 2011. Still one in seven people lack access to electricity and as the demand continues to rise there needs to be a substantial increase in the production of renewable energy across the world. In order to provide affordable clean electricity by 2030 various cost-effective standards for a wider range of technologies is used in order to reduce the global electricity consumption by buildings and industry by 14 %.

8. Decent Work and Economic Growth

Over the past 25 years the number of workers living in extreme poverty has declined dramatically, despite the lasting impact of the 2008 economic crisis and global recession. In developing countries, the middle class now makes up more than 34 % of total employment – a number that has almost tripled between 1991 and 2015. However, as the global economy continues to recover we are seeing slower growth, widening inequalities, and not enough jobs to keep up with a growing labour force. According to the International Labour Organization, more than 204 million people were unemployed in 2015. The SDGs promote sustained economic growth, higher levels of productivity and technological innovation. Encouraging entrepreneurship and job creation are key to this, as are effective measures to eradicate forced labour, slavery and human trafficking. With these targets in mind, the goal is to achieve full and productive employment, and decent work, for all women and men by 2030 (**Arora and Athreye, 2002**).

9. Industry, Innovation and Infrastructure

Investment in infrastructure and innovation are crucial drivers of economic growth and development. With over half the world population now living in cities, mass transport and renewable energy are becoming ever more important, as are the growth of new industries and information and communication technologies. Technological progress is also key to finding lasting solutions to both economic and environmental challenges, such as providing new jobs and promoting energy efficiency. Promoting sustainable industries and investing in scientific research and innovation are all important ways to facilitate sustainable development.

10. Reduce Inequality

It is well documented that income inequality is on the rise, with the 10 % richest earning up to 40 % of total global income and 10 %poorest earn only between 2% and 7% of total global income. In developing countries, inequality has increased by 11% if the growth of population is taken into account. These widening disparities require the adoption of sound policies to empower the bottom percentile of income earners, and promote economic inclusion of all regardless of sex, race or ethnicity. Income inequality is a global problem that requires global solutions. This involves improving the regulation and monitoring of financial markets and institutions, encouraging development assistance and foreign direct investment to regions where the need is greatest. Facilitating the safe migration and mobility of people is only the key to bridging the widening divide.

11. Sustainable Cities and Communities

More than half of the world's population now live in urban areas. By 2050 that figure will have risen to 6.5 billion people – two-thirds of all humanity. Sustainable development cannot be achieved without significantly transforming the way urban spaces build and manage. The rapid growth of cities in the developing world, coupled with increasing rural to urban migration, has led to a boom in mega-cities. In 1990, there were ten mega-cities with 10 million inhabitants or more. In 2014, there are 28 mega-cities, home to a total 453 million people. Extreme poverty is often concentrated in urban spaces and national and city governments struggle to accommodate the rising population in these areas. Making cities safe and sustainable is possible only by ensuring access to safe and affordable housing, and upgrading slum settlements. **(www.reliefweb.int/report/world/sustainable-development-goals-report-2017)**

12. Responsible Consumption and Production

Achieving economic growth and sustainable development requires the urgently reduce our ecological footprint by changing the way production and consumption goods and resources is done. Agriculture is the biggest user of water worldwide, and irrigation now claims close to 70 % of all freshwater use by human. The efficient management of our shared natural resources, and the way we dispose of toxic waste and pollutants, are important targets to achieve this goal. Encouraging industries, businesses and consumers to recycle and reduce waste is equally important, as is supporting developing countries to move towards more sustainable patterns of consumption by 2030 **(Marchese et al, 2018)**

13. Climate Actions

There is no country in the world that is not experiencing first-hand the drastic effects of climate change. Greenhouse gas emissions continue to rise, and are now more than 50% higher than their 1990 level. Further, global warming is causing long-lasting changes to our climate system, which threatens irreversible consequences if no action is taken now. The goal aims to mobilize $100 billion annually by 2020 to address the needs of developing countries and help mitigate climate-related disasters. Helping more vulnerable regions, such as land locked countries and island states, adapt to climate change must go hand in hand with efforts to integrate disaster risk measures into national strategies. It is still possible, with the political will and a wide array of technological measures, to limit the increase in global mean temperature to two degrees Celsius above pre-industrial levels. This requires urgent collective action.

14. Life Below Water

The world's oceans – their temperature, chemistry, currents and life – drive global systems that make the Earth habitable for humankind. Biggest stand is that how to manage this vital resource is essential for humanity as a whole, and to counter balance the effects of climate change. Over three billion people depend on marine and coastal biodiversity for their livelihoods. However, today 30% of the world's fish stocks overexploited, reaching below the level at which they can produce sustainable yields. Oceans also absorb about 30% of the carbon dioxide produced by humans and therefore a 26% rise can been see in ocean acidification since the beginning of the industrial revolution. Marine pollution, an overwhelming majority of which comes from land-based sources, is reaching alarming levels, with an average of 13, 000 pieces of plastic litter to be found on every square kilometre of ocean. The SDGs aim to sustainably manage and protect marine and coastal ecosystems from pollution, as well as address the impacts of ocean acidification.

15. Life on Land

Human life depends on the earth as much as the ocean for sustenance and livelihoods. Plant life provides 80% of human diet and human rely on agriculture as an important economic resource and means of development. Forests account for 30% of the Earth's surface, providing vital habitats for millions of species and important sources for clean air and water; as well as being crucial for combating climate change. Today it can be seen that unprecedented land degradation is happening and the loss of arable land at 30 to 35 times as compare to historical rate. Drought and desertification is also on the rise each year, amounting to the loss of 12 million hectares and affects poor communities globally. Of the 8, 300 animal breeds known, 8 percent are extinct and 22 percent are at risk of extinction. The SDGs aim to conserve and restore the use of terrestrial ecosystems such as forests, wetlands, dry lands and mountains by 2020.

16. Peace Justice and Strong Institutions

Without peace, stability, human rights and effective governance, based on the rule of law - one cannot hope for sustainable development. **(Estevez et al, 2013).** Today's world is increasingly divided into various parts. Some regions enjoy sustained levels of peace, security and prosperity, while others fall into seemingly endless cycles of conflict and violence. This is by no means inevitable and must be addressed. High levels of armed violence and insecurity have a destructive impact on a country's development, affecting economic growth and often resulting in long standing grievances that can last for generations. Sexual violence, crime, exploitation and torture are also prevalent where there is conflict or no rule of law and countries must take measures to protect those who are most at risk. The SDGs aim to significantly reduce all forms of violence, and work with governments and communities to find lasting solutions to conflict and insecurity.

17. Partnership for The Goals

The SDGs can only be realized with a strong commitment to global partnership and cooperation. While official development assistance from developed countries increased by 66% between 2000 and 2014, humanitarian crises brought on by conflict or natural disasters continue to demand more financial resources and aid. Many countries also require Official Development Assistance to encourage growth and trade. Coordinating policies to help developing countries manage their debt, as well as promoting investment for the least developed, is vital to achieve sustainable growth and development and this can be possible by technological up gradation as by this all countries remain connected to each others as partners. The goals aim to enhance North-South and South-South cooperation by supporting national plans to achieve all the targets. Promoting international trade, and helping developing countries increase their exports, is all part of achieving a universal rules-based and equitable trading system that is fair and open, and benefits all.

Role of Digitalisation In Attaining Various Goals of Sustainable Development

- *Zero Hunger*

Smart agriculture includes the deployment of optimized farm management; precision agriculture, such as use of IoT, soil sensors, and integrated real-time weather information; and traceability and tracking systems. This will increase agricultural productivity while reducing the need for scarce resources such as water. **(Report of the world commission on environment and development: Our common future, 1987)**

- *Good health and well-being*

With IT solutions in remote diagnostics videoconferencing, electronic data storage, augmented reality, wearable,

biosensors, personalized medicine, and DNA sequencing, the goal of providing easily accessible, affordable, and better quality healthcare becomes realistic**. (Janowski, 2013)**

- *Quality Education*

Solutions like videoconferencing, advanced data analytics, Massive Open Online Courses (MOOC), open community platforms, augmented reality, gamification, and voice recognition software can provide children with accessible and affordable high quality education.

- *Affordable and clean energy*

Smart energy solutions include smart grid, smart appliances, energy storage, predictive analytics, sensors, and demand response technology. They can improve energy efficiency and provide access to more affordable energy.

- *Decent work and economic growth*

Connectivity includes providing fixed or mobile access and Internet to everyone. Solutions like augmented reality, cloud-based platforms, telecommuting, and virtual business meetings can help achieve the goals of e-work. These will boost growth and help decouple it from resource consumption.

- *Industry, Innovation and Infrastructure*

Smart manufacturing includes industrial IoT, data analytics, cloud computing, and drones. In addition, smart logistics includes IoT connected vehicles, load units, products and machines; augmented reality; and digital warehouses. These solutions will boost efficient and innovative supply, production and delivery of goods.

- *Sustainable cities and communities*

Smart city mobility includes mobile ride sharing, driverless transportation, and connected infrastructure. Moreover, smart buildings include alarm management, big data analytics, smart metering, and IoT sensors. They will reduce resource consumption, improve energy efficiency and reduce air pollution.

3. CONCLUSION

The world today is more interconnected than ever before. Improving access to technology and knowledge is an important way to share ideas and foster innovation. As paper highlight the various goals sustainable development become easy to monitor and conduct because of IT revolution in the form of digitalisation. Digitalization is working as one of the most useful tool in process the attainment of aim of SDG then hardly matter whether the program is related to zero hunger aim of global development mission or sustainable cities and communities aim. It will be not wrong to say that introduction

digitalization has work as helping hand for taking the global mission of sustainable development to a new height from where the fulfilment of aim of SD do not seem to be too far away know.

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