



# Digital Society: Aspects and Emergence with Reference to Digital Education in Enhancing Advanced & Intelligent Society–A Conceptual Policy Framework

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## ABSTRACT

Society is more advanced and progressing in different areas in this era. Application of technology become the integrated part of the developed society. Digital Society is the society, culture and technology-oriented solutions. Digital society deals with the many programs and fields with the variety of programs including Information and Communication Technology (ICT), Information Science, and Computing, Computer Engineering, etc. Business Studies, Commerce and several areas of Humanities and Social Science are the unified branches of digital society programs. These programs of digital society are useful to make digital society more appropriate. Various technologies are associated with digital society such as internet technology, wireless, and network technologies. Digital Society provides knowledge, information, best culture, and digital based products for improvement of the society. The revolution of the Digital Society involved in development of the society as well as conduct the academic and research degree programs in different countries. Characteristics of Digital Society, tools, and advanced technologies are described in this Paper. Digital Society existing degrees programs, the Indian and International Digital Society related educational programs are analyzed and focused in this paper.

**Keywords:** Digital Society, Digital Humanities, Information Science, Interdisciplinary, Advanced Society, Potential Degrees, India

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Digital Society is an interdisciplinary research facet and this is responsible for the progressive societal development. Furthermore it is formed as a result of the adoption and integration of traditional and emerging technologies including business science & the humanities and lies on different kind of stakeholders which include the society, technologies and content<sup>[1],[8]</sup>. Initially all the components of Information Technology considered as prime in Digital Society development such as Software Technology, Database Technology, Network Technology, Web Technology, Security Technology etc.<sup>[2],[11],[32]</sup>.

Furthermore many latest technologies become important and vital in Digital Society and among these important are as follows—

- ❖ Cloud Computing
- ❖ Big Data
- ❖ Internet of Things (IoT)
- ❖ Data Analytics
- ❖ Next Generation Networks
- ❖ Human Computer Interaction
- ❖ Robotics & AI
- ❖ Intelligent Systems & Interaction Systems
- ❖ Usability Engineering & UXD etc.

There are many emerging concepts raised in Digital Society domain such as Smart Town, Smart City, Smart Villages with various smart and advanced services. The growing importance of technologies results & led the development of the concept of Digital Society. Many international universities been started academic programs, degrees, research programs, academic & research events in this area. Here in this work, the aspect of Digital Society including its meaning and concept, stakeholders, characteristics and features are illustrated. Digital Society is though have huge potentiality but having many issues and challenges related to the HR, technologies, Government Support, Planning etc. Since Digital society is highly connected with the advanced telecommunications and other electronic systems therefore the aspects related to the economic development with proper support from digital tools & technologies and depend on information knowledge & digital products. There are many benefits of Digital Society and therefore universities and educational institutions are engaged in offering academic program on this<sup>[3],[24],[33]</sup>.

### **Objective of the paper**

This paper entitled 'Digital Society: The Concept, Foundation, Emergence emphasizing

Educational Programs, and Potentialities—*A Proposed Policy Work*’ is a basic overview and conceptual paper and basically deals with following aim and objective in brief—

- ❖ To learn about the fundamental aspects of Digital Society such as meaning, features, and characteristics in brief.
- ❖ To dig out the Digital Society emphasizing its various stakeholders in brief manner.
- ❖ To know about the basic functions and tools of such Digital Society in emerging concepts.
- ❖ To learn about the development and emerging technological involvement in developing and upgrading Digital Society with proper Information Technology integration.
- ❖ To know about the basic challenges and issues regarding Digital Society concept development.
- ❖ To know about the opportunities as well as advantages regarding the design, development of Digital Society and similar aspects.
- ❖ To get the idea about technological skill requirement for a proper and healthy designing and developing of Digital Society related aspects.
- ❖ To learn about the basic degrees and academic program in the field of Digital Society including some of the potential and proposed programs.

### **Digital Society and Characteristics**

There concept of Digital Society is rising rapidly throughout and it is deals with many basic and emerging features, facets etc. and some of them are listed herewith—

***Tools & Technology Dependent***— Digital Society is deals with various kinds of tools and technologies; and such technologies and systems are changing rapidly. Computers, Laptops and Smart Electronic Products, Networking devices, Database and Storage Devices, Web related tools are become important tool as far as Digital Society concept is concerned<sup>[9],[10],[20]</sup>.

***Diverse & Changing Technologies***— Digital Society concept is always changing with special reference to its support from the end of tools and technologies. Since latest technologies are always coming therefore in Digital Society also changing its shape and periphery.

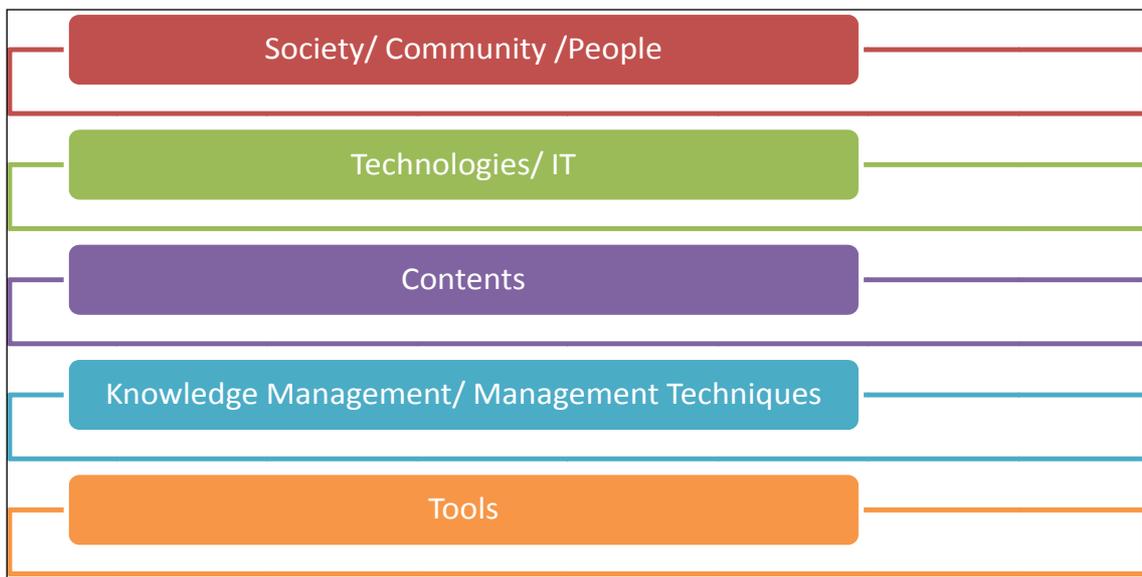
***Basic and Common Technologies***—The basic technologies that led and helps in developing Digital Society in real sense will become supported by the basic and common technologies of IT and these are Database Technology, Network Technology, Web Technology, Software Technology, Security Technology etc.

***Integration of Human Affiliation***— The integration of human affiliation and their significance considered as most valuable in terms of healthy, sustainable and advanced Digital Society development.

**Proper Management**— In respect of planning, developing, managing and executing an advanced and healthy Digital Society it is important to have proper management techniques applications. Here all the advanced and basic technologies may be applied and utilized accordingly with proper management technological applications<sup>[4],[15],[20]</sup>.

**Addiction related Aspects**— Digital Society is supported by various kind of basic and emerging technologies therefore it is also getting affected to its users and as a result it is in many context considered as addiction.

In India and throughout the world there are many projects initiated for the development of the Digital Society in real sense and among some of the Indian projects important are Bhoomi, Gayandoot, Lokvani, Friends, E-Suvidha, E-Choupal, Internet Saathietc<sup>[6],[12]</sup>.



**Fig. 1:** Basic supporting technologies of Digital Society

### Stakeholders of Digital Society

Design, Development of Digital Society is associated with many stakeholders (as depicted in Fig. 1) and all these stakeholders are important in their respective fields—

**Society-** Digital Society is includes the association of the common people, community civilization.

**Technologies-** There are many basic and fundamental Information Technology components viz. software technology, communication technology, database technology, network technology, multimedia technology etc. and all these may be considered as important stakeholder.

**Content-** In Digital Society contents considered as most vital and therefore data, information, knowledge, documentation etc. are should be in prime focus<sup>[20]</sup>.

**Knowledge Management-** As far as Digital Society is considered Knowledge Management considered as important and it may include knowledge organization, knowledge processing, database technology etc.

### Tools for Digital Society

There are various tools being used in designing, developing and conceptualizing Digital Society and among these some of the important are as follows (but not limited to)—

- ❖ Computing tools: In developing Digital Society tools are considered as important one and among these important are laptops, computers, smart gadgets and electronic products.
- ❖ Network tools: There are many important devices in respect of networking and among these few important are Router, switch, repeater, hub.
- ❖ Database tools: As far as Database tools are concerned some of the important are DMBS, database, storage device (pen drive, hard drive etc are the core of this segment<sup>[7],[17]</sup>).
- ❖ Communication system: Satellite systems are important in respect of designing, developing and managing Digital Society.
- ❖ Multimedia tools: HCI (Human Computer Interaction) system, UXD, VFX, Virtual Reality becomes an important concern in developing Digital Society.

The development of the Digital Society incorporates the aspects of digital village, digital town, digital nation, therefore whole concept of ICT4D is important and valuable in this regard. All the phases of ICT4D is most important and all the tools in regard to proper ICT and Information Infrastructure building (Refer Table 1 in this regard).

**Table 1:** Phases of ICT4D and Tools: The root for building Digital Society

Phase of ICT4D	Tools
ICT4D 0.0 – (1950-1980)	Computing devices and its spreading during the time
ICT4D 1.0 – (1990-1990)	Computer/ internet/email uses and popularity during the time
ICT4D 2.0 – (2000- Till )	Social Networking viz. (Facebook, Twitter, WhatsApp etc.), including emerging technological involvement likeIoT (internet of things), Cloud computing, Big Data, AI & Robotics

Furthermore to reach a perfect and proper Digital Society all kind of Digital literacy is important. There are many Digital Literacy techniques and ways in proper Digital Society support such as—

- ❖ Computer Literacy to educate about the aspects and skilling in basic computing uses.
- ❖ Network Literacy to educate regarding the skilling of network skill sets.
- ❖ Web Literacy to educate regarding web related literacy<sup>[13],[14]</sup>.
- ❖ Internet Literacy to educate basics of internet use of such tools and skilling on such issues.
- ❖ Media Literacy to educate on the aspects on media related issues and skilling
- ❖ Multimedia Literacy to educate about the basics of various media tools and supporting systems.

### **Challenges of Digital Society Development**

We all are moving towards the Digital Society; though there are certain issues regarding the development of the digital society, and such challenges and issues can be noted as under.

- ❖ In developing healthy and proper Digital Society designing and development it is important to have good cooperation, coordination as well as collaboration of different kind of stake-holders<sup>[18],[21]</sup>.
- ❖ Lack of proper planning of digital product uses including the availability of the proper and available manpower is an issue.
- ❖ Digital Society development and its utilizations need a healthy and proper skilled, trained manpower to execute the tasks.
- ❖ The proper, sufficient and enough budgets is very much important and urgent in executing work properly.
- ❖ Proper and healthy policy implementation is also another important feature and all such are important to look into.
- ❖ To develop a real and continuous Digital Society the lack of infrastructure should be taken into consideration.
- ❖ As of now there is a limited initiative from the government bodies and ministries; and therefore sufficient effort is highly solicited.
- ❖ Another important issue also need to look into that is Less involvement of common people regarding Digital Society development initiative<sup>[16],[26]</sup>.

Apart from the above the unwillingness towards the project as well proper testing of the existing projects also considered as vital and important.

### **Manpower and Human Resource Development: Digital Society and Allied Programs**

Digital Society is become an important research area in many universities and institutions of higher learning internationally. And moreover it is now become an academic degree

and program at Bachelor, Masters, Doctoral Degrees. Few institutions also even started Certificate, Training and Diploma program on Digital Society and allied areas. As far as allied nomenclature is concerned few important are—

- ❖ Digital Media & Society
- ❖ Digital Society & Humanities
- ❖ Digital Humanities etc.

Digital Society programs are available as Science Degree and also as a domain directly with the degree for example IIIT Bangalore, India, The University of the Edinburg, UK offers MSc Degree irrespective of the basic degree in Science. Most of the institutions offering Digital Society programs are Masters Degree. However few also offered with Digital Humanities as well<sup>[22],[27]</sup>. Table 2 in this regard offered the details of the program including nomenclature, duration, country of the institutions etc.

**Table 2:** List of tentative Higher Educational Institutions offering Digital Society Programs

Sl. No.	Degrees offered	Institution/Universities	Remarks	Country
1	BSc Digital Society	Maastricht University	3 Years Program and 180 Credit Total	The Netherlands
2	MSc Digital Society	International Institute of Information Technology (IIIT), Bangalore	2 Years Program and Open to Any Bachelors Degree Holder 66 Credit	India
3	MSc Digital Society	Department of Sociology, The University of Edinburg, UK	1 Year (FT) & 2 Year (PT) Program for Any Bachelors Degree Holder	UK
4	MSc Digital Society	The University of Glasgow	1 Year (FT) & 2 Year (PT) Program for Humanities & Social Science Bachelors Degree Holder	UK
5	MSc Digital Society	Central University of Rajasthan	2 Years Program and Open to Any Bachelors Degree Holder 92 Credit	India
6	MA Digital Media & Society	The University of Sheffield	1 Year (FT) & 2 Year (PT) Program and Open to Any Bachelors Degree Holder 180 Credit	UK
7	MA Digital Media & Society	Cardiff University	1 Year (FT) and Open to Any Bachelors Degree Holder 180 Credit	UK

8	MA Digital Media & Society	Loughborough University	1 Year (FT) and Open to Any Bachelors Degree Holder 180 Credit	UK
9	MA Digital Media & Society	The University of Bremen	2 Years Program and Open to Any Bachelors Degree Holder	Germany
10	MSc Digital Humanities	Indian Institute of Technology Jodhpur	2 Years Program and Open to Any Bachelors Degree Holder	India
11	MA Digital Humanities & Society	Hamid Bin Khalifa University	2 Years Program and Open to Any Bachelors Degree Holder, 39 Credit	Qatar
12	Master of Digital Humanities & Public Culture	Australian National University	2 Years Program and Open to Any Bachelors Degree Holder, 96 Unit	Australia
13	Master of Public Policy in Digital Society	McMaster University	1 Year (FT) and Open to Any Bachelors Degree Holder	USA
14	MSc Media & Communication	The London School of Economics & Political Science (LSE)	1 Year (FT) and Open to Any Bachelors Degree Holder	UK

It is worthy to note that many universities offers the program with one year Masters Degree program while few are two year based. Some of the universities offers physical, online and blended mode of education<sup>[20],[28]</sup>. At the line of international universities two universities from India started to offer M.Sc. in Digital Society viz. Indian Institute of Information Technology (IIIT) Bangalore, India, Central University of Rajasthan, India.

### **Curriculum Development in the Context of Digital Society**

Digital Society as an interdisciplinary program deals with the aspects and components of Society & Social Science, Information Technology, Management Sciences with the Computing therefore the curriculum should be purely interdisciplinary in nature. A Sample example of such curriculum of M.Sc. Digital Society of Indian Institute of Information Technology (IIIT) Bangalore, India is given bellow.

#### **Semester 1(16 credits)**

- ❖ Digital components of a connected society (4 credits)
- ❖ Application development, OR, Enterprise software development (2 credits)
- ❖ Qualitative research methods (4 credits)
- ❖ Quantitative data analysis for public policy (4 credits)
- ❖ Technology and society (4 credits)

### Semester 2 (16 credits)

- ❖ Technology in development (4 credits)
- ❖ ICT Policy and regulation (4 credits)
- ❖ Social complexity and systems thinking (4 credits)
- ❖ Human computer interaction (4 credits)

### Semester 3 (16 credits)

- ❖ Elective 1-4 (4 × 4 = 16 credits)

### Semester 4 (16 credits Thesis/Internship)

This M.Sc. Digital Society program is equipped with the Specialization into its program and currently is comes with any of the following:

- ❖ Human-centered digital design
- ❖ Data intensive digital design
- ❖ Research and policy studies

Therefore a degree and program on the subjects may be offered with the subjects related to the Information Science, Computing, ICT, Computer Applications etc. Since Information Science is the applications of the IT and Computing in the Societies therefore there is a ground of introducing Digital Society specialization at BSc/MSc-IS programs.

**Table 3:** Possible Agricultural Informatics Information Science/ IT concentration

Digital Society & allied possible nomenclature in IS Context
BSc/MSc-Information Science (Digital Society)
BSc/MSc-Information Science (Digital Society & Media)
BSc/MSc-Information Science (Digital Society & Sociology)
BSc/MSc-Information Science (Digital Society & Humanities)

Computing is another subject that is responsible for using computers in different settings. This is also become a field of study in the areas of Software, basic Computing Technologies etc. therefore it is not involved in study and designing and development of Computing; rather it is deals with the applications of computer related technologies; and in this regard Digital Society Specialization can be introduced perfectly.

**Table 4:** Possible Agricultural Informatics Computing/ ICT concentration

Digital Society & allied possible nomenclature in Computing/ ICT Context
BSc/MSc-Computing (Digital Society)
BSc/MSc-Computing (Digital Society & Media)
BSc/MSc-Computing (Digital Society & Sociology)
BSc/MSc-Computing (Digital Society & Humanities)

Since Computer Application is an important very popular subject in India and not deals with the hardware and designing of computer systems therefore Digital Society and allied nomenclature can be started as with Computer Application subjects i.e. BCA/MCA/BSc-CA/ MSc-CA.

**Table 5:** Possible Agricultural Informatics Computer Application concentration

Digital Society & allied possible nomenclature in IS Context
BCA/MCA (Digital Society)
BCA/MCA (Digital Society & Media)
BCA/MCA (Digital Society & Sociology)
BSc/ MSc-Computer Applications (Digital Society)
BSc/ MSc-Computer Applications (Digital Society & Media)
BSc/ MSc-Computer Applications (Digital Society & Sociology)

These possible programs are mainly proposed in the areas Computing, Information Science, Computing; however since Digital Society is applications of IT in the Society therefore in some other allied nomenclature too the specialization can be offered viz. IT, ICT, Information Systems.

### **Inclusive Development of the Society with Skilled Digital Society Experts**

Digital Society programs are comes with the interdisciplinary knowledge, skill sets, technologies, management and truly believes in digital transformation of different sectors viz. digital organizations, digital government, digital commerce, digital media & entertainment, digital healthcare, digital transportation & tourism etc. Hence Digital Society brings jobs and carrier opportunities in diverse fields such as—

- ❖ Skilled Digital Society educated can GPO for human-centered computing for product development
- ❖ In Developing ICT-Society interface related areas.
- ❖ In the e-Governance programs and projects.

- ❖ Consulting organizations deals with ICTs working with the public and private sectors.
- ❖ CSR units dedicated in the Digital Sustainability and digital ecology
- ❖ Corporate research labs and virtual organizations
- ❖ Policy think-tanks and in Business Information Systems practice.

Therefore Digital Society educated can have well-positioned for a wide range of careers in the public, private, and third sectors, including the opportunities in digital research or digital media design and development. The subject also empowers to the candidates working in the digital technology in wider scale as an activist, artist, manager, practitioner, or policy maker. Since the subject deals with the multidisciplinary facets therefore it brings research, communication, and project management applications as well<sup>[19],[29]</sup>.

### **Digital Education: An Overview**

Digital Education is an educational frame based on various technologies<sup>[5]</sup>. To assist teaching – learning process various modern technologies and digital devices have been used. Digital education could be through online or offline mode. Online Learning, e-Learning, Blended Learning, Virtual Education, ICT based education and so on, are the part of digital education. The teaching – learning will become more students centric after the incorporation of digital technologies in education. The area of education will get expanded with the use of Digital Education framework. It reduces the time, cost and geographic boundary for the learners. It is possible to impart education to a much larger number of people. Digital Education is also a field of Study<sup>[23]</sup>. Many universities are offering Digital Education as an educational Program.

Digital Education is very important part in Teaching – Learning process. It has the many special features over traditional education system. Digital education does not mean online education. It may be through online mode or may be through offline mode. Various digital devices which used in teaching learning will be considered as digital education tools. If conventional teaching methods use digital tools then it would be considered as digital education. Many professionals could not able to continue their education or update their skills because of the time constant and place constant. Digital education is providing the solution of this problem. Web based learning is one of the key features of digital education. Any person could learn anything with the use of web technologies. Interactive interaction, smart presentation, use of multimedia Technologies provides a better learning experience. It could help to grow more interest to the learners. It is more cost effective than traditional learning cost. Cloud hosted platform is another features of digital education. Data can be saved into clouds so 24×7 accessibility of the study material is possible. It is a secure medium of learning. Digital Education opens multidimensional possibilities for the learners.

Digital education has various stakeholders. The stakeholders are student, teacher, staff, educational institution, basic Technologies, emerging Technologies, contents and so on. Each stakeholder plays a unique role to create Digital Education system. Each component of Digital Education is very important to build a strong Digital Education environment.

Digital Education could be archive through different mode. It may be Web based Online learning, e- learning, Blended Learning, Virtual Education, ICT based education and so on. If the tradition face to face mode of education uses any digital equipment or digital tool or digital platform then it could also be considered as Digital Education. Information Technology and Information and Communication Technology play a vital role to implement the Digital Education in institution level.

Digital Education is an independent field of Study. Many universities are offering Digital Education as an educational Program. It is associated with various courses. Digital Education is an interdisciplinary field of study. Various subjects contribute to enhance the prospect of Digital Education as a program. Philosophy, Psychology, Sociology, Linguistics, Education, Computer Science, Information Technology, Information and Communication Technology (ICT), Data Science, Artificial Intelligence and many other disciplines contribute to enrich the Digital Education. Digital Education has many dimensions for the future of education system. So it is one of the emerging fields for the research scholars.

### **Digital Education and promotion of Digital Society**

Digital Education is one of the important parts to build Digital Society. Digital Education plays a vital role in digital society. The synchronization between the technologies based systems help to create a perfect digital society. The digital society gets many benefits by the digitization of education system. Education is directly associate with society, thus Digital Education plays a vital role to build Digital Society.

By the implementation of digital education it changes the concept of traditional society into digital society. It enhances the interaction between the different components of Digital society. Digital education has opened the door of education to worldwide. Now it is possible to collaboration between different universities present in different geographical locations irrespective of the distance between them. It enhances the virtual collaboration opportunities. It is possible to organize an international academic event with very less overhead which directly save the cost to organize the event. It becomes very easy to manage the resource person from the different part of the world. By Virtually organization of international events also save the travel time of the resource person. It is directly helpful for the resource person to use the time in some productive work. The student gets the opportunity to access renowned faculty members globally. The resource person can interact with the student virtually with the help of internet from remote place. Digital education framework also provides the facility to *exchange*

*the culture* between different societies. The mutual exchange of the culture indirectly enhances the quality of the learning. The interaction between the different cultures helps to enhance the cultural values among different societies. It gives the *Global exposure* of the student. The people living in urban area could exchange their view with the people living in village area; the people living in hill area could exchange their view with the people living in plane land. The outside climate would not consider as a barrier for education. it could be sunny weather, rainy season or winter.

Digital education provides a *cost effective* solution to the society. It is one time investment to establish the digital infrastructure to create digital education system to achieve the goal of digital society. Information technology and Information and Communication Technology help to build the stable infrastructure for the digital education system. It also helps to provide the stability to maintain the digit of society. It is able to provide *sustainable* solutions of the problems existing in the traditional education system. It also creates an environment friendly atmosphere. It is a green initiative. It is the greener way of solution of different environmental issues. It reduces the use of printed books with the use of e-books. e-books also have its own advantages. Any person of the society may able to access, download and read any e-books which are available free of cost. It gives the opportunity to access various kinds of e-books, journal papers and magazines available globally. After the implementation of online based evaluation system it also helps to reduce the use of paper. The online based examination system could able to replace the traditional examinations which needs lots of paperwork. The papers are made from trees. Thus reduce the use of paper is directly help to save the environment. Hence digital education is capable of creating a sustainable environment and sustainable digital society.

Digital education provides the *personalized and customize learning* environment to the learners[5]. It also provides personalized content to the learner. According to the choice of the learner and analyzing the potentiality of the learner, it is also possible to customize the content. The contents are designed in very scientific way. At the time of designing the contents, the psychological perspective of the learner has also been considered. It is very *easy to learn*. The contents are very attractive by the use of multimedia Technology. *Multimedia based contents* are very attractive for the learners. It consists of audio, video, animation and so on. Interactive contents are also attractive for the learners. The contents are designed to simplify the complex concepts. The complex concepts can easily be understood by the learners with the help of smart content. The contents are available in 24×7. The content can be accessible at *anytime from anywhere*. As the contents are stored in the cloud, thus with the use of Internet it can be accessible from any geographical location. There is no need to attend the institution physically; the learner could attend any class from their own house.

Digital education provides a *flexible learning environment*. The learners could access the course according to their choice. Digital education offers the choice is program to the learners. It has also available a wide range of courses and programs. Any person can access and enrolled themselves in any program. There is no age limit to learn any topic. The digital society people can upgrade they are skill with the use of digital education. It is also possible to learn new skills with the use of internet. It opens window of different career options to the learner with the advancement of technology by the implementation of digital education. One of the advantage of digital education is it could be accessible by the large number of people at a same time. MOOC (*Massive Open Online Courses*) is one of the examples of digital education initiative. The learners may also registered themselves in ODL (*Open Distance Learning*) based learning program.

Digital education has a broader prospective and that traditional education system. It is able to create the *critical thinking skills* among the learner. *Self-motivation* is also a key part of the digital education. Self-motivated learner can acquire many new skills with the help of digital education. In digital education it is very *easy to share information and knowledge* among the peer groups of the digital society. It creates an *easy communication* between the learners and the faculties. The learners could ask any question to clear the doubt regarding the topic. It also provides multi-mode of communication. The learner could interact with each other by direct communication, through email, video conferencing, chatting, messaging and so on. It could be possible to learning through interaction. The concept of digital education has enriched by the advancements of the technology. Different *basic technologies* and *emerging Technologies* have used in digital education. Cloud computing, Big Data Analytics, data mining, artificial intelligence, Machine learning algorithms and other emerging Technologies have used in digital education. Fig. 2 show the Digital Education promotes Digital Society.

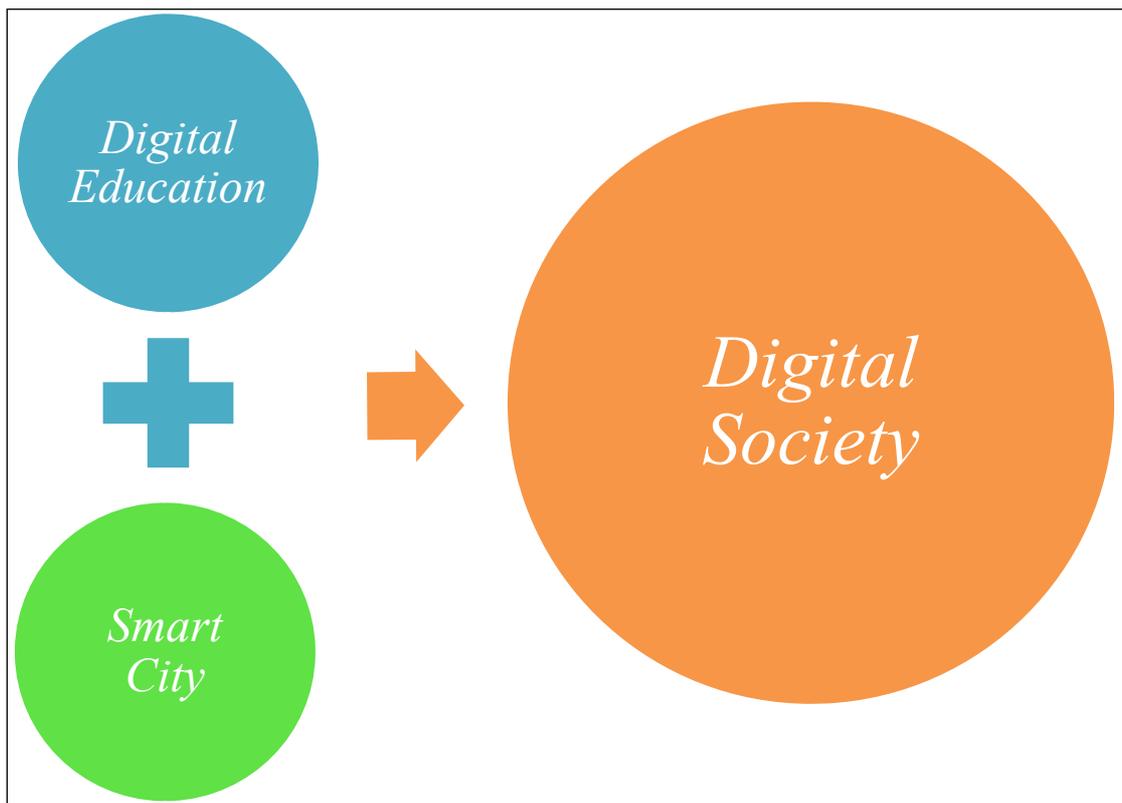
### **Smart City, Digital Society and Digital Education**

Society and technologies both are thriving parallelly. Digitalization using advance technology drive society development. Technology has strong relation with digital society to develop digital solutions for improvement of society. ICT involve with the societal enhancement towards diverse direction. Technology is very significant part to enhance the advancement of society. Society is promoted according to the progress of civilization. The wheel of technology advancement rolling fast keeping pace with the progress of decade. People are associate with the society and gain benefits of the societal headway. Demand of society advancement increases gradually for betterment of life standard. Smart city, digital education and digital society are interrelated. This Paper explored about smart city related with digital education, and digital society.



**Fig. 2:** Digital Education promotes Digital Society

Urbanization has many significances for modernization of culture, society, and economy of state, country and territory. Smart city, smart town or intelligent city become part of the digital society. ICT, Information Technologies, and other advanced technologies deeply involve to made-up the smart city. The potentialities of Smart city are growing to improve the class of life and betterment of living standard. Latest and advanced technologies are base of the urban development. Development of the city connected with the multiple factors. Advance Information Technology such as Internet of Thing, Cloud Computing, Big Data, Artificial Intelligence, Block Chain, Cyber Security are involved in formation of smart city. Technologies inclusion makes diverse intelligent application for smart city. Fig. 3 shows the relation between digital education, smart city, and Digital Society.



**Fig. 3:** Digital Education, Smart City and Digital Society Relation

Digital Education is the technology equipped education that deliver education with the association of digital platform. The main goal of digital education to enrich the teaching methodology and spread education in remote location digitally. Digital education associates in development of digital society and smart city. On the other hand, smart city also become part of digital society regarding attachment of technology. Therefore, digital education, smart city, and digital society inter related and digitalization is the main target to enhance the education, make smart city and society.

## **SUGGESTIONS**

Digital Society is the need of the hour and it is required in designing, developing and administering intelligent and ICT enabled society and community. The development of Digital Society practice needs attention to the technologist, empowerment of the human resources with latest and emerging technologies, proper funding and budgets—therefore organizations, leaders and policy makers need to ensure on such topics for healthy and proper development.

Educational programs on Digital Society and allied programs though already been started but it is required to start in each and every level viz. short term to training program, degrees, professional programs, research degrees etc. Educationalist, universities need to think on this for developing the programs and research events for sustainable and intelligent societal development. Policy Makers need to implement the latest technologies as well.

## CONCLUDING REMARKS

Digital Society is therefore become an important gradients, components, tools, research area and name in developing and advancing the society and community. Digital Society is the need of hour in preparing and advancement of the society at large. Community, different sectors, organizations etc. can get the benefit of Digital Society from different context. The governments of each and every country in contemporary scenario are doing their efforts in developing a healthy, sustainable, intelligent, IT enabled, integrated, self sufficient, transparent world; and in this regard Digital Society is playing a great role. As Digital Society is now become a field of study in different institutions and organizations therefore such skilled Digital Society manpower are the helping hand in respect of fulfillment of modern governance and society. The emerging technologies such as Cloud, Big Data, IoT, Blockchain, Data Analytics, Advanced Networking Systems led the society towards a healthy and developed one where different technology play a leading role in making of Intelligent Society and Digital Citizen with proper information transfer cycle and transparencies.

## REFERENCES

- Alwi, N.H.M. and Fan, I.S. 2010. E-learning and information security management. *Int. J. Digital Soc. (IJDS)*, **1**(2): 148-156.
- Antonio, A. and Tuffley, D. 2014. The gender digital divide in developing countries. *Future Internet*, **6**(4): 673-687.
- Aubert, B.A., Schroeder, A. and Grimaudo, J. 2012. IT as enabler of sustainable farming: An empirical analysis of farmers' adoption decision of precision agriculture technology. *Decision Support Systems*, **54**(1): 510-520.
- Bowonder, B., Miyqake, T. and Singh, T.M. 1993. Emerging trends in information technology: Implications for developing countries. *Int. J. Information Management*, **13**(3): 183-204.
- Chatterjee, R., Bandyopadhyay, A., Chakraborty, S. and Dutta, S. 2023. Digital Education: The Basics with Slant to Digital Pedagogy-An Overview. In: Choudhury, A., Biswas, A., Chakraborti, S. (eds) Digital Learning based Education. Advanced Technologies and Societal Change. Springer, Singapore.
- Cooper, M.N. 2002. Inequality in the digital society: why the digital divide deserves all the attention it gets. *Cardozo Arts & Ent. LJ*, **20**: 73.
- Deb, S. 2014. Information technology, its impact on society and its future. *Advances in Computing*, **4**(1): 25-29.
- Dufva, T. and Dufva, M. 2019. Grasping the future of the digital society. *Futures*, **107**: 17-28.
- Garcia, F., Serra, E., Garcia, O.F., Martinez, I. and Cruise, E. 2019. A third emerging stage for the current digital society? Optimal parenting styles in Spain, the United States, Germany, and Brazil. *International Journal of Environmental Research and Public Health*, **16**(13): 2333.

- Gilbert, T. 2018. Looking at Digital Art: Towards a Visual Methodology for Digital Sociology. *The American Sociologist*, **49**(4): 569-579.
- Greyson, D., Quan-Haase, A., Cooke, N.A. and Worrall, A. 2016. Digital sociology and information science research. *Proceedings of the Association for Information Science and Technology*, **53**(1): 1-4.
- Lahlou, S. 2008. Identity, social status, privacy and face-keeping in digital society. *Social Science Information*, **47**(3): 299-330.
- Montag, C. and Diefenbach, S. 2018. Towards homo digitalis: important research issues for psychology and the neuro-sciences at the dawn of the internet of things and the digital society. *Sustainability*, **10**(2): 415.
- Nelson, K., Courier, M. and Joseph, G.W. 2011. An investigation of digital literacy needs of students. *Journal of Information Systems Education*, **22**(2): 95-110.
- Paul, P.K., Kumar, K., Chatterjee, D., Ghosh, M., Shivraj, K.S. and Ganguly, J. 2014. Information Science: The Multidisciplinary, Interdisciplinary field for Information cum Technological Solution for People and Wider Community. *International Journal of Information Science and Computing*, **1**(1): 25-34.
- Paul, P.K., Chatterjee, D., Bhuimali, A. and Atarthy, A. 2016. Cyber Crime: An Important facet for promoting Digital Humanities—A Short. *Perspective*, **11**(13): 15.
- Paul, P.K., Aithal, P.S., Bhuimali, A. and Kumar, K. 2017. Emerging Degrees and Collaboration: The Context of Engineering Sciences in Computing & IT—An Analysis for Enhanced Policy Formulation in India. *International Journal on Recent Researches In Science, Engineering & Technology*, **5**(12): 13-27.
- Paul, P.K., Bhuimali, A. and Raj, K. 2017. Digital Divide and Internet Saathi: A Social Computing and Informatics Practice Project for Empowering Indian Women. *International Journal of Applied Science and Engineering*, **5**(2): 55-63.
- Paul, P.K., Aithal, P.S. and Bhuimali, A. 2017. Internet Society: The pioneers in internet and network science for building digital society and Information Age—A Case Study. *International Journal on Recent Researches in Science, Engineering and Technology*, **5**(7): 11-18.
- Paul, P.K. and Aithal, P.S. 2018. Digital Society: Its Foundation and Towards an Interdisciplinary Field. In *Proceedings of National Conference on Advances in Information Technology, Management, Social Sciences and Education*, pp. 1-6.
- Paul, P.K., Bhuimali, A. and Aithal, P.S. 2018. Computing & Information Science Degrees with Emerging Flexibilities and Entry Level Criteria: Study of MSc Programs in IT and Computing Fields in Indian Private Universities. *International Journal on Recent Researches in Science, Engineering & Technology (IJRRSET)*, **6**(3): 24-33.
- Paul, P.K., Bhuimali, A., Aithal, P.S. and Bhowmick, S. 2018. Business Information Sciences emphasizing Digital Marketing as an emerging field of Business & IT: A Study of Indian Private Universities. *IRA International Journal of Management & Social Sciences*, **10**(2): 63-73.
- Paul, P.K. 2021. Digital Education: From the Discipline to Academic Opportunities and Possible Academic Innovations—International Context and Indian Strategies. In *Digital Education for the 21<sup>st</sup> Century* (pp. 255-281). Apple Academic Press.
- Ranade, P., Londhe, S. and Mishra, A. 2015. Smart villages through information technology—need of emerging India. *IPASJ International Journal of Information Technology (IIJIT)*, **3**(7): 1-6.
- Ribble, M.S. and Bailey, G.D. 2004. Digital citizenship focus questions for implementation. *Learning & Leading with Technology*, **32**(2): 12-15.

- Robey, D., Boudreau, M.C. and Rose, G.M. 2000. Information technology and organizational learning: a review and assessment of research. *Accounting, Management and Information Technologies*, **10**(2): 125-155.
- Roztock, N. and Weistroffer, H.R. 2011. Information technology success factors and models in developing and emerging economies. *Information Technology for Development*, **17**(3): 163-167.
- Sarvianto, D.F. 2020. The role of digital platforms in the transfer of knowledge and qualificationism: A study of digital sociology. *Simulacra*, **3**(1): 69-80.
- Selwyn, N. and Facer, K. 2014. The sociology of education and digital technology: past, present and future. *Oxford Review of Education*, **40**(4): 482-496.
- Sood, R. and Garg, A. 2014. Digital society from 1G to 5G: a comparative study. *International Journal of Application or Innovation in Engineering & Management (IJAIEM)*, **3**(2): 186-193.
- Skobelev, P.O. and Borovik, S.Y. 2017. On the way from Industry 4.0 to Industry 5.0: From digital manufacturing to digital society. *Industry 4.0*, **2**(6): 307-311.
- Soldani, D. and Manzalini, A. 2015. Horizon 2020 and beyond: On the 5G operating system for a true digital society. *IEEE Vehicular Technology Magazine*, **10**(1): 32-42.
- Thill, J.C. 2000. Geographic information systems for transportation in perspective. *Transportation Research Part C: Emerging Technologies*, **8**(1-6): 3-12.
- Visscher, A.J. 1996. Information technology in educational management as an emerging discipline. *International Journal of Educational Research*, **25**(4): 291-296.

