AN EXPLORATIVE STUDY ON NETWORKING TECHNOLOGIES AND E-GOVERNANCE IN INDIA & ITS ATTRIBUTES

By- Ninad Shah

Student, LLM, 2nd Semester, Gujarat National Law University

ABSTRACT

The purpose of this research is to investigate networking technologies, their evolution and how Advancement of technologies did affect the administration system of the government. Here we will identify networking technologies and its impact on governance to the formulation of E-Governance. The next phase of research shows how e-governance and networking technologies converge and different programs of e-governance. In the final phase a comparative analysis is done in context of established provisions and scenarios of different countries and the result of networking technologies E-governance.

Keywords: Technology, Governance, Administration, Networking, Information Technology, Comparative analysis.

INTRODUCTION

Networking technology are the intermediaries for passing and exchanging data from one system to another information system, networking technologies are used by businesses, institutes and private individuals for their day to day survival and for their economic purpose too. These networking technologies enable the end user to broadcast files, messages, digital information (audio and video) and other data through various channels of information sharing. [115]

Simplifying the technical aspects, networking technology helps people simply network or communicate with other people or systems by means of a network of computer systems or electronic devices. Networking technology covers from wired cables to IPv6 Transition technology, from routers to adapters, from intra/extra – net's private or public networks and from texting to virtual reality. [116]

Basically, networking technologies can be bifurcated into two major technologies: being wired and wireless technologies. Networking technologies have been dynamically changing from message protocols to mobile network. The networking technologies have been evolved to a level of copious wide-ranging, scalable and sheltered collection of networking technologies covering from private users to state enterprises. Currently Gigabit and power over Ethernet switches are in demand in wired technologies, in wireless technologies 802.11ac Wave 2 is the contemporary development.[117]

1.1 CLASSIFICATION AND TYPES OF NETWORKING TECHNOLOGIES.

The classification of networking technologies can be divided into three categories, them being:-

I. Ethernet Technology
II. Wireless Networking Technologies
III. Internet Protocol Version 4 and Internet Protocol Version 6.

1.1.1 Ethernet Technology

[115] Networking technology, Learn.org; last accessed on 9th,oct,2018 : https://learn.org/articles/What_is_Networking_Technology.html.
[116] Advanced Network Technology, U.S. Congress, Office of Technology Assessment, Advanced Network Technology--Background Paper, OTA-BP-TCT-1O1; last accessed on 9th,oct,2018 : https://www.princeton.edu/~ota/disk1/1993/9304/9304.PDF.
[117] Networking, Current Technologies; last accessed on 9th,oct,2018: http://www.currenttech.net/networking/.

Ethernet is one of the first networking technologies which used wired local area networks for transmitting and receiving data by the use of prefixed protocols and a common computer language. There are basically three types of Ethernet connections: The Fast Ethernet, Gigabit Ethernet and Switch Ethernet, all these three types' work on the same model of transmission of data through wired networks.[118]

1.1.1.1 Elements of Ethernet technology[119]:-

There are basically two major elements of Ethernet technologies, those being the interconnecting media and the network nodes.

Interconnecting media:-Interconnecting media are the means of physical connectivity between two or more computer devices or systems. Coaxial cables, Fiber optics and twisted pair cables are some of the major used interconnecting media.

Network Nodes:- Network Nodes are the protocols or the software or hardware equipment for transmitting and receiving the data. There are two network nodes:- Data Terminal Equipment (DTE) and Data communication Equipment (DCE).

1.1.1.2 Evolution of Ethernet Standards:-

Gigabit Ethernet : The Gigabit Ethernet Standard has a maximum data transmission rate of 1000 Mbps. This standard is roughly 100 times faster than the Mbps standard. This standard has more power for transferring giant stacks of data with a low-cost maintenance and simply integrates with all devices.

40 GE Transmission : These transmissions are used for a distance up to 2 Km, 10 Km and 40 Km standard. This system transmits over one strand of fiber and receives on another strand of the fiber optic.

100 GE Transmission : These transmissions are used for a distance up to 2 Km, 10 Km and 40 Km standard. This system has pluggable module multiplexes all transmitting over one lane of strand of fiber and receiving on another lane of strand of the fiber optic.

[118] Networking for Beginners- What is Ethernet?, El-Pro_Cus; last accessed on 9th,oct,2018: https://www.elprocus.com/what-is-ethernet-and-different-types-of-ethernet-networks/.

[119] Ethernet Technologies, CISCO; last accessed on 9th,oct,2018 : http://docwiki.cisco.com/wiki/Ethernet_Technologies.

400 GE Transmission : Is the latest development and is still developing and working on the 100m, 500m, 2 Km, 10 Km transmission system.

1.1.2 Wireless Networking Technologies[120]

Wireless networking technologies use radio waves or infrared waves to transmit the data; physical cable connectivity is no longer required in these technologies. These networks cover from a low range of wireless networks to networks connecting the entire world and space.

Types of Wireless Networks are-

- Wireless Personal Area Networks
- Wireless Local Area Networks.
- Wireless Mesh Networks
- Wireless Metropolitan Net.
- Wireless Wide Area Networks.
- Cellular Networks.
- Global Area Networks.
- Space Networks.

1.1.3 Internet Protocol Version 4 and Internet Protocol Version 6[121].

Internet Protocol is used for transmitting data from one device to another device using the internet. One device is the host, and another is receiver, which changes as per command. Internet protocol is the virtual address or unique identity of any computer devices or system. Internet protocols are unique, and no two devices have the same address. There are two types of internet protocols: - Internet Protocol Version 4 and Internet Protocol Version 6.

1.1.3.1Transference from Internet Protocol Version 4 to Internet Protocol Version 6 –

The address space in the internet protocol version 4 is getting exhausted due to the immense demand of computer systems and devices. There are three different strategies for transmission from the IPv4 to IPv6.

[120] Learn Data communication and networks, Tutorialspoint; last accessed on 9th,oct,2018 : https://www.tutorialspoint.com/data_communication_computer_network/data_communication_computer_network_tutorial.pdf.

[121] IPv4 Address Report, Potaroo.net; last accessed on 9th,oct,2018 : http://www.potaroo.net/tools/ipv4/.

Dual Stack Network : In the dual stack network strategy both the protocols are used and maintained as one database, where query would go through both protocols until the address returns.

6th (Rapid Deploy) : In this strategy the customers who are not IPv6 compatible will be provided access by using IPv4 natively or via converter.

Large Scale NAT : Here the translation methods are used by reducing the private addresses and converting into public addresses using fewer public addresses creating empty private addresses in IPv4.

1.2 IMPACT AND RAMIFICATION OF NETWORKING TECHNOLOGIES.

In the past three decades the field of computer devices system and networking technology has taken dynamic turns and has reached at the paramount positions in the evolution of these technologies. The entire lifestyle and atmosphere of human beings have been changed. These devices and technologies have an enteric connection to human life and their existence. Impacts of these technologies can be seen everywhere, these technologies have become omnipresent. Education have become more efficient an interactive, jobs and professional work can be done thousands of Km away with electromagnetic waves (wireless technologies), world has become all informative with easy access, business and social communications have changed by these technologies connecting entire world into single market, it has also changed the medical field with the R&D and the new equipment's, virtual reality and artificial intelligence is slowly becoming reality al this is due to the networking technologies which began the interaction between machine and man, machine and machine[122].

The ramifications of these networking technologies can be seen in the Business Models, Market structure, workplaces and labour markets, in education as well as personal and social lifestyle. Those ramifications are[123]:-

- Knowledge of the Economy has increased. The current position and future scenarios can be analyzed.
- Digitalization

[122] Information Technology, Its Impact on Society and Its Future by Sagarmay Deb Central Queensland University; last accessed on 9th oct, 2018 : http://article.sapub.org/10.5923.j.ac.20140401.07.html.
[123] Impacts of Networking Technology on society by Konsbruck Robert Lee; last accessed on 9th,oct,2018: https://www.zurich.ibm.com/pdf/news/Konsbruck.pdf.

- Convergence in entirety due to the huge network
- Efficiency and time saving have increased due to the digital system.
- Electronic commerce: - created an entire new type of commerce, online businesses.
- Virtualization.
- Globalization:- these huge networks made the whole world one economy.

LEGAL PROVISIONS

Networking Technologies have no specific legislation or provisions in any legislative act of India. On legality of networking technologies with its regulation and governance has been majorly given in the Information Technology Act, 2000. The constitution of India and Different notifications of the Indian Ministry bring direct as well indirect liability on these network technologies expressing the does, don'ts and the procedure and standard to be maintained. There are two statues and two notifications providing legality, liability and governing provisions. These acts and notification are:- The Information Technology Act, 2000; The Constitution of India; The Information Technology (Intermediaries guidelines) Rules, 2011 and Information Technology (Privacy) Rules, 2011. Further here we will see the provisions on legality, procedure, standard, governance and Liabilities of these networking technologies.

2.1 The Information Technology Act, 2000[124].

Networking technology has been denoted as "Computer Network" in the section 2(j) of the Act which states that the communication or interconnection of one or more computer device or system by the use of satellites, radio waves, cables, communication media and terminals of interconnected devices are Computer network vis-a-vie Networking Technology.

These networking technologies are also included as computer resources in section 2(k) of the Act. This inclusion is done for granting safeguards. The act also includes and safeguards computer networks data as "Data" within the meaning of act and given in section 2(o) of the Act stating data is representation of digital information transmitting, processed or intended to be processed in a computer network.

[124] The Information Technology Act amended 2008; last accessed on 9th oct,2018. http://nagapol.gov.in/PDF/IT%20Act%20(Amendments)2008.pdf.

The Act also includes networking technologies and network providers as intermediary according to section 2(w) of the Act which states any particular person or system that receives and transmits records or services through network service providers (Networking Technologies) are intermediary.

2.1.1 Duties of the Computer Network technologies:-

Section 69(B) of the Act provides that if the central government by notification requires the computer network technologies to monitor and collect traffic data or information. The Network technologies are bound to this section and if the central government requires it needs to collect and monitor traffic data. This data includes anything which has been transmitted through the technologies. If any intermediary who does not fulfil its duty is liable for imprisonment up to three years with fine.

2.1.2 Safeguards and penalizing provisions of the Act:-

Section 43 of the Act provides for security and protection of computer, system and data. Section 43 of the act brings civil liability against anyone or any system which accesses, downloads, reproduces, introduces or causes disrupts, destroys, manipulates, facilitates, alters, charges or denies services without proper authorization or permission is liable for compensation not exceeding 1 crore rupees. This section protects the network, system, data and software from unauthorized access or other activities and brings civil liability to the infringer or a person who violates the provision.

Section 65 of the Act provides criminal liability against anyone or any system which tampers with the computer source documents. This section provides that if abates or intentionally anyone conceals, alters or destroys any source code utilized for a computer network is punishable for imprisonment up to three years with fine.

Section 75 of the Act provides for extra territorial jurisdiction where any act in contravention of the act affects or involves computer networks situated in India. The Indian government can take cognizance of offence and do the needful. This provides an international clause to the act.

2.1.3 Computer networks exemption from intermediary liabilities in certain cases:-

Section 79 of the Act, provides for certain situations where the computer network can be exempted from liability where the contravention of the act is done or data and information hosted by third parties when the intermediary has done due diligence and is not involved in the act and has no knowledge. This provides a safe haven for computer networks where content and data is not hosted by them.

2.2 The Constitution of India[125].

As networking technologies or computer networks are intermediary, they have a responsibility for protection of data and its privacy when its being transmitted or sent through one system to another using these technologies. There are as such no laws for protection of data and privacy, but certain fundamental rights of the constitution and the judiciary have interpreted and given the right of privacy and protection an equal stature of fundamental right.

The supreme court in many landmark judgments have interpreted Article 19(1)(A) The right of freedom and expression and Article 21 the right of life and personal liberty includes the right of privacy.

In the cases Justice K S Puttaswamy (Retd.) &Anr. vs. Union of India and Ors. SC WP 494 of 2012[126] known as the "Aadhaar card scheme" the Supreme Court held that Right to privacy is a fundamental right with certain restrictions.

Networking technologies being intermediary has to protect the data and privacy of users and systems.

2.3 The Information Technology (Intermediaries guidelines) Rules, 2011[127]

These guidelines present rules which all the intermediaries must follow and have some regulations and safeguards too. This notification makes the rules of Information Technology (Privacy) Rules,

[125] Data Protection Laws in India - Everything You Must Know, Article by Vijay Pal Dalmia, Partner Vaish Associates Advocates; last accessed on 9th,oct,2018: http://www.mondaq.com/india/x/655034/data+protection/Data+Protection+Laws+in+India.

[126]Case Law; last accessed on 9th,oct,2018: https://www.sci.gov.in/supremecourt/2012/35071/35071_2012_Judgement_24-Aug-2017.pdf.

[127] Notification of Ministry of Communication and I.T; last accessed on 9th,oct,2018: The Information Technology (Intermediaries guidelines) Rules, 2011 - http://www.wipo.int/edocs/lexdocs/laws/en/in/in098en.pdf.

2011 enforceable for intermediaries according to the rule (3)(8) of the Information Technology (Intermediaries guidelines) Rules, 2011.

The guideline provides safeguarding of the intermediaries from liability where they do not host the content, data or media and is hosted and uploaded by third parties. Here if the intermediaries are due diligence and have no involvement and knowledge of the data or content is exempted from liability.

Rule (3)(2)(7) of the Information Technology (Intermediaries guidelines) Rules, 2011 provides for activities and content which are illegal; their transmission, storage and reproduction is restricted. All intermediaries must follow and restrict and prohibit this content. Contravention of these rules brings liability to the network technologies or intermediaries.

Rule (3)(4)(8) of the Information Technology (Intermediaries guidelines) Rules, 2011 provides for grievance redressal system where the aggrieved can inform the intermediary and the intermediary has to respond to the complaint within 36 hours and have to fixed it or remove the content within 30 days, contravention of which would bring liability to these intermediaries.

2.4 The Information Technology (Privacy) Rules, 2011[128].

The Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011 protects and gives safeguard for Personal information, passwords, financial details, private medical records, Private and personal acts and biometrics. This guideline provides for reasonable security practices and procedures which the intermediaries and bodies have to follow for storage, transition of data either received or transmitted and provides for situation and limits of asking, storing and transmitting data, the provisions are given in Rule 8 of the Information Technology (Privacy) Rules, 2011.

Rule 4, 5, 6, 7 of the Information Technology (Privacy) Rules, 2011 provides provisions where the intermediary and corporate bodies must provide disclosure of information policies, the Consensual collection of information, Disclosure of information and transfer of information. There

[128]Notification of Ministry of Communication and I.T: The Information Technology (Privacy) Rules, 2011; last accessed on 9th,oct,2018: http://www.wipo.int/edocs/lexdocs/laws/en/in/in098en.pdf.

are some limitations and some exceptions in the provisions for the same varying from content to systems.

CONVERGENCE OF GOVERNANCE WITH NETWORKING TECHNOLOGIES

3.1 Role of Networking Technologies in Governance[129]

Networking technologies exponential growth has seen a positive impact on the governance of the country and its system. The administration of the governance system is fully benefiting from the effectiveness and precision of these microelectronics, data compression, optic fibers, fast switching and a huge data storage facility with the reduced cost of operation and maintenance. The development of these networking technologies has impacted in the adaptation of Digital India concept, where the government can provide public service with low cost and a wide range of reach. These technologies have created an environment of effective transparent and fast governance systems.

3.1.1 Networking technology has helped in improving governance in three ways them being:-

3.1.1.1 Networking technologies have increased or made the system quite transparent. With this transparency information circulation and accountability of this government department and the government have increased.

3.1.1.2 Networking technologies have integrated the use of software and computer devices which has made the decision making and policy making more accurate. With this technology the government can easily get the opinion of the public at large and the public participation through e-portals have increased.

3.1.1.3 Networking technology has helped the Government with its logistic assistance for providing public services and goods efficiently and appropriately.

Networking technologies provide information about the ministries, the government plans, goals and its accomplishment. It provides for portals where the public can directly interact with the government and address or redress their grievances. This technology has also made the administrative maintenance cost effective. This technology has affected and improved tremendously for connecting the public with the government making a more conversant citizenry.

[129] Information Technology for Good Governance by Francisco Magno is Associate Professor of Political Science and Director of the Social Development Research Center, De La Salle University, Manila; last accessed on 9th, oct, 2018. http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan002708.pdf.

3.2 Percussion of Networking Technologies In Governance

These networks and its technologies have changed our approach towards our governments and government's approach towards administration or governance. It has changed how we gather information, how we cast votes and how we ask questions, apply, interact, compliant or suggest reforms and even how we fulfill our duties toward the government. The legislative or judicial language of the court is evolving and developing as per the new age of digitalization and e governance focusing on the dynamic change it brought us and the cope up mechanism of the government. Apart from the change in the language of the government their theories are also evolving, the concept of E-governance is the major change or evolution these networking technologies have brought due to the digitalization of India and scientific development .The government had to bring out E-governance for covering and regulating the information technology and communicational aspects of the new era. Technology has changed the games, an increase of more than 100 folds have been seen in the last decade by the number of people using these facilities. The government administration system has also been affected by it, the government had to change its approach and practices to fight and control these online activities. This advancement of technology has changed the practices of this administrative justice, their expectations, issue redressal and philosophy. To cope up the government brought necessary amendments to legal provisions and came out with E-Governance which formulates policies, controls and regulates these technologies and provide facilities[130].

3.3 E- Governance

The convergence between the networking technology and law has created the term E-Governance or (Network governance/ electronic governance). Due to the rapid growth of these technologies information and knowledge has become essential rudiments of production. These changes and developments bring the primary question of governability of these changes. E-Governance was developed because there were no proper provisions and system for governance. E-Governance has

[130] The impact of technology on the Administrative Justice System by Prof John McMillan, Australian Information Commissioner, to the AIAL National Administrative Law Forum; last accessed on 9th,oct,2018: https://www.oaic.gov.au/media-and-speeches/speeches/the-impact-of-technology-on-the-administrative-justice-system.

changed the approach of bureaucratic governance to Governance of networks in the vertical horizontal as well as dynamic administration[131].

3.3.1 Evolution of E-Governance[132]-

- In 1970 the Department of Electronics had been established to formulate, regulate and control electronics and its devices.
- In 1977 the National Informatics centre (NIC) had been established, it was the first step towards E-Governance as this Centre was established for maintaining, sharing and verifying information.
- In the year 1987 the NICENET was launched, this was a satellite-based computer network. After the launch of DISNIC was initiated, it was the District information system of NIC which connected every district and office and computerized it. NICENET was installed in all districts by the year 1990.
- In the year 1998 national Task force of Information technology and software was launched which focused on formulating policies and development of technological infrastructure.
- In the year 1999 the union ministry of Information technology and communication was established. This was how e governance governability and concept evolved.

3.3.2 Initiatives by the government for E-Governance-

3.3.2.1 : 12-point E-Governance agenda by central and state government[133].

Here by notification the ministry of communication and information technology in 2000 had brought this 12-point agenda for e-governance which had to be implemented in all union and state government and its departments. These 12 agenda cover a wide range of provisions and regulation for E-governance, but we will only see the ones relating to networking technologies and e-governance. Those agenda being:-

[131] e-Governance Networking Services By ESDS; last accessed on 9th,oct,2018: https://www.esds.co.in/blog/e-governance-networking-services/#sthash.DBa9qtJk.9R3dLkoa.dpbs.
[132] ICT Governance in India by **Information Systems Audit and Control Association**, ISACA; last accessed on 9th,oct,2018 : http://m.isaca.org/chapters9/Accra/Events/Documents/eGovernance%20in%20India.pdf.
[133] MEITY, National e-governance plan ; last accessed on 9th,oct,2018: http://meity.gov.in/divisions/national-e-governance-plan.

- Every department and their ministry have been provided and equipped with computers and with networking technologies or computer networks such as Local Area Network (LAN).
- Each department and their ministry have to use the automated office procedure, requiring them to maintain issues and file through it. This creates a computer network for every department and their ministry where data is linked with other relevant departments.
- Every department and their ministry have to start using digital applications for accounting and maintenance.
- Each department and their ministry have toknow how to digitize their communications, orders, notifications and their inter department communication. Every record has to be maintained in digital format.
- Every department and their ministry had to create their website which should be efficiently and regularly updated and provide a platform for complaint and grievance redressal which can be easily accessible by the public.
- Each department and their ministry have to convert their archive and old notifications and gazettes into digital formats.
- Every department and their ministry have to provide the necessary forms of those departmental activities online in a digital form so that it can reach the public.
- Each department and their ministry have uploaded and maintained the documents into the state language as well as in Hindi and even English.
- Every department and their ministry should develop a network on the digital platform which receives and transmits packages of services delivered to the public.

3.3.2.2 : The 11th5-year plan[134].

NeGP: The National E-Gov – The 11th5-year plan (2006 - 2011). The objective of the plan is to make all the governed accessible to the public through this networking technology. It provides for making all the common services and functions of the government and department available in their locality and to ensure and promote transparency, reliability and optimum utilization of resources. There are many initiatives but here are some related to the current topic:-

[134] ICT Governance in India by Information Systems Audit and Control Association, ISACA; last accessed on 9th,oct,2018 : http://m.isaca.org/chapters9/Accra/Events/Documents/eGovernance%20in%20India.pdf.

- The government is building a Statewide Area Network (SWAN) that will connect all the states and the country, all the departments and ministry and authorities would be connected in a network accessible by all departments.
- The government plans and aims to build government apps and software on these networking technologies for easy transmission of data and services at national, state and district level.
- The government is developing portals where all the necessary documents and forms are available.
- The one of the major aims of the plan is to make all districts of India an E-District where all information and services related to public welfare and livelihood are provided.

3.3.2.3 : The 12th 5-year plan[135].

The 12th plan emphasis on making India a Digital India. This program wants to transform India into a digital country where the public at large are digital empowered. This plan came in force because the commission saw the importance of networking technologies and wanted technology to enable and bring change. Digital India is a very wide project which includes all the departments and ministries of the government which is being regulated by the ministry of communication and information technology. This project wants to unite all departments for a unitary system with local objectives and services. The agenda of the plans relating to networking technologies are:-

- To make all government services and communication digital for making the process of governance transparent, unified and citizen oriented.
- To make a unified network of the entire country containing it's all bodies and departments.
- To promote and provide secure and encrypted cloud computing and the cyber space.
- To provide portals for the social welfare scheme which directly takes the public to those schemes.
- And to provide software or an app where all these platforms and services of information and transaction facilities are provided and available in a mobile compatible format.

[135] Planning Commission India ; last accessed on 9th,oct,2018: http://planningcommission.nic.in/plans/planrel/fiveyr/welcome.html.

GOVERNANCE PROGRAMS AND INTERNATIONAL SCENARIO OF NETWORKING TECHNOLOGIES

4.1 Governance Models[136]:-

Government believes in multi stakeholders in e-governance where multiple parties, committees and departments work together for the proper governance and assist each other. Our government believes that there are pillars of E-governance, them being – Connectivity, data content, capital and I.T knowledge. Our government has developed four models of e-governance-

Government to citizens (G2C) –In this model government services which are available for all the citizens, here the citizen can access those facilities or services by just clicking on the link provided. These services include: Payment to governments, online forms and redressal, documents and information.

Government to Government (G2G) - This model unifies all the government departments and ministries. Government has a lot of data and information which has to be passed, shared and transmitted on a daily basis. In this model the data and services of government are shared between other government bodies. These services include interstate and central sharing of information and documents between departments for approval, distribution and storage.

Government to Employees (G2E) - In this model the government tried to increase transparency between the employees and the government. This model provides for employees to check information, functioning and working of the government. This model provides services like: Data Submissions, office records, rules, regulations and an online registry.

Government to Businessman (G2B) - In this model of e-governance the government tries to connect the private and public sector and aims to provide more information and increase communication. This model provides services like: Collection of taxes, Intellectual property application and approvals.

[136] E-Governance: Past, Present and Future in India By Nikita Yadav Research Scholar, Singhania University, Pacheri Bari, Rajasthan. International Journal of Computer Applications) Volume 53– No.7, September 2012 ; last accessed on 9th,oct,2018: https://arxiv.org/ftp/arxiv/papers/1308/1308.3323.pdf.

4.2 E- Governance Programs[137]:-

The last two five-year plans have focused on providing the government and its department with networking technologies and digitalizing India respectively. There is a long list of these programs to provide networking technologies and connect entire India to transform it into digital India, we will see some major programs:-

Agriculture Information Network (AGRINET) –The department of Agriculture regulates and formulates policies. This network is a compilation of all data and information the agriculture sector is providing here. This project requires a setting up of a huge WAN and maintaining a database.

Regional Telecommunication Development Project (RTDP)-The telecommunication department's plans to make the RTDP network the backbone of the department, here they plan to provide and establish 6200 telephones line in 30 different localities.

DOST Bicutan Fiber Optic Backbone Project- The department plans to use the switch Ethernet as the network and provides a backbone a 100 mbps fiber interface which distributes the data. The plan is to establish 13 centres like this which provide a network up to 200 kms and 1000 stations. The plan of this project is to provide better communication, access, interaction and high-speed connectivity.

Physical Asset Management and Information System (PAMIS)-This project formulates the standards and guidelines for the asset management and information system. It focuses on providing, developing, installing, monitoring and management of assets and information.

Government Business Process Re-engineering project-In this project by using the networking technologies the government wants to simplify the processes by providing online application, tracking, inter departmental communication, online repositories and an integrated service platform of electronic data. The government wants to use these technologies and make the workflow automated and to provide the citizens with a redressal system.

E- Kranti -E-Kranti is an electronic platform for delivery of services to citizens. This delivery system has been currently established for Education, healthcare, policy planning, agriculture, security, finance and the judiciary. Some of the sub-project of e-kranti are: Digital literacy program, national GIS Mission project, e-courts etc.

[137] Information Technology for Good Governance BY Francisco Magno and RamonetteSerafica; last accessed on 9th,oct,2018 : http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan002708.pdf

4.3 International Scenario of Networking Technologies'

Our government is bringing a change in our administrative system by e-governance, since 1998 the government is trying to establish an e-governance framework with the help of networking technologies through programs as a means. These programs have helped make India digitized but cannot be said to be a total success, if we the statistic of success or failure of these programs the result would be negative. Statistically 35% of the programs have completely failed, 50% of programs are partial failure and 15% of these programs are fully successful[138]. Now let's see the of networking technologies (e-governance) of different countries.

4.3.1 United States of America-

In the year 2001 a task force was identified and brought into action which focused on priority actions needed for strategic improvement in governance and to transform the governance system as per the citizens' needs. The major project initiated by this task force is :- Recreation One Stop: which is a platform where the government and private sector have agreed in maintaining these platforms where all the information and services given by the government are present here. Other projects are EZ Tax filing, Federal asset sales, E-payroll/H.R and E-authentication[139].

4.3.2 United Kingdom-In this year the United Kingdom has passed The Network and Information System Regulations 2018 (NISR), these regulations have emerged from the 2016 Network Information Systems Directive. This regulation gives the framework of measures to secure the networking technologies. This regulation applies to digital service providers and operators of essential services. These regulations are enforceable on this service provider and make it mandatory for them to secure and notify authority. This regulation even gives provision of penalizing the violators, the fine goes up to 17 million pounds. Some of those provisions are Fine up to 3.4 million pound if the incident affected reduction of services for a long time, a fine up to

[138] E-Governance for development, statistics ; last accessed on 9th,oct,2018: http://www.egov4dev.org/success/sfrates.shtml

[139] E-Governance: Past, Present and Future in India By Nikita Yadav Research Scholar, Singhania University, Pacheri Bari, Rajasthan. International Journal of Computer Applications) Volume 53– No.7, September 2012 ; last accessed on 9th,oct,2018: https://arxiv.org/ftp/arxiv/papers/1308/1308.3323.pdf

8.5 million pound for disruption of services for a significant time and a fine up to 17 million pound for security incident affecting the life of a person or the country[140].

CONCLUSION

We saw how networking technologies impacted the administrative system and how the government to cope up with these advancement initiated the e – governance projects, now let's see the effect of networking technologies and e-governance : a total of 2,50,000 villages have been equipped with broadband and universal phone connection, 4,00,000 internet access points have been created for public, 2,50,000 educational institutes have been provided with Wi-Fi facilities, 2,61,000 government employees were trained in information technologies and were equipped with latest knowledge and technologies were indirectly provided for 13.00.000 , digitalized the governance and services of these departments. An overall cost of these projects has reached to 17 billion U.S Dollars and expenditure is still ongoing. The networking technologies convergence with governance has led to only beneficial and progressive outcomes for the citizens as well as the administrative systems of the government. These benefits include enhanced dynamic relationship between government, employees, citizen and businessman; inclusion of citizens in the decision making and formulation of policies which all resulted in 81% reduction in corruption, 78% increase in efficiency and 95% in cost affordance by the citizens reports. Despite the success of the project and the brilliant future, the e-governance program faces numerous stumbling blocks like holdup in project execution, escalating cost, monetary feasibility and maintainability alongside technical congestion and amalgamation with Government departments, ministries and states.

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