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Using Telecommunication Services Effectively for a Successful E-Governance

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***Abstract*— Public Service Organizations over decades around the world has invested largely in telecommunication technology to improve service and cost effectiveness, generally known as e-Governance. It is a highly important strategic direction to reduce administrative burden and make government more efficient and service-directed. The study will help Telecommunication practitioners in the public sector learn how to use and manage technologies to revitalize business processes, improve decision-making, and gain a competitive advantage from the adoption of e-government. However many e- Governance projects are not succeeding or are facing bottlenecks. Due to lack of knowledge over communication services, In this paper, we would see the basics of e-Governance, and discuss the prospects of telecommunication services in order to successfully functioning of e-Governance specially in remote areas so, the standardization must be followed which is recommended by ITU-T. This paper gives a brief overview about control of e-governance by telecommunication services**.

***Keywords*— Telecommunication**, e-Governance, ITU-T.

I. INTRODUCTION

E-Government (short for electronic government, also known as e-gov, Internet government, digital government, online government, or connected government) consists of the digital interactions between a government and citizens (G2C), government and businesses/Commerce (G2B), government and employees (G2E), and also between government and governments /agencies (G2G).[1] E-governance is the effective use of IT to improve the ability of the government to address the needs of society and to improve the system of governance in place to provide better services to the citizens. Through e-governance, government can be defined by giving a choice to the citizens of when and where they can access government information and services. It includes the publishing of policy and program related information to interact with citizens. It extends beyond provision of on-line services and covers the use of IT for strategic planning and for reaching the development goals of the government. The advantages are many, like a higher degree of transparency, less paperwork and less delay. It improves the pace and effectiveness of governance to name a few. E-governance is basically the application of ICT to the process of Government functioning in order to bring about SMART governance. This generally involves the use of ICTs by government agencies for any or all of the following reasons:
i) Exchange of information with citizens, businesses or other government departments.
ii)Speedier and more efficient delivery of public services
iii) Improving internal efficiency
iv) Reducing costs and increasing revenue
v) Restructuring of administrative processes
vi) Improving quality of services.

Definition of E-Governance

Although the term 'e-governance' has gained currency in recent years, there is no Standard definition of this term. Different state governments and organizations define this term to suit their own aims and objectives. Some widely used definitions are listed below:

1) World Bank defines e-governance

"E-government refers to the use by government agencies of information technologies such as Wide Area Networks, the Internet and mobile computing that have the ability to transform relations with citizens, businesses and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information or more efficiency of government management. The result of these benefits can be less corruption, increased transparency, greater convenience, revenue growth and cost reductions."[2] facilitate an efficient, speedy and transparent process of disseminating information to the public, other agencies and for performing government administration activities."

2) UNESCO defines e-governance

"Governance refers to the exercise of political, economic and administrative authority in the management of a country's

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affairs, including citizens' articulation of their interests and exercise of their legal rights and obligations. E-governance may be understood as the performance of this governance via the electronic medium in order to
facilitate an efficient, speedy and transparent process of disseminating information to the public, other agencies and for performing government administration activities."

3) Council of Europe defines e-governance

"E-governance is about the use of information technology to raise the quality of the Services governments deliver to citizens and businesses. It is hoped that it will also Reinforce the connection between public officials and communities thereby leading to a Stronger, more accountable and inclusive democracy. The uses of electronic technologies in three areas of public action are:
1) Relations between the public authorities and civil society
2) Functioning of the public authorities at all stages of the democratic process (electronic democracy)
3) The provision of public services (electronic public services). In these cases, the focus is on making use of electronic technologies with a view to encourage better interaction between government and citizens to promote democracy and provide public services.

Telecommunication

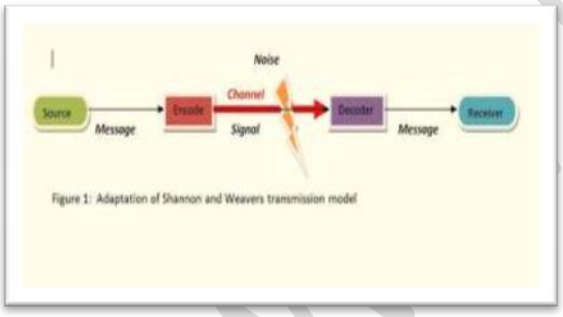

Figure 1: Adaptation of Shannon and Weavers transmission model

Communication is a process in which information is transferred from source to destination. Information can be in any form e.g. Voice, Data, Video, Graphics etc. Voice communication is the simplest mode of communication. We have been using communication technology for many years. Communications, or telecommunication, technology consists of electromagnetic devices and systems for communicating over long distance. Communication has broadly classified wired and wireless Telecommunication now include the use of electrical devices such as cellular phones, telephones, teleprinters and telegraphs, the use of radio and microwave communications as well as the use of orbiting satellites and internet. It has emerged as a backbone of economic and social development in an increasingly knowledge intensive for global scenario. As the fastest growing telecommunications market in the world, The Department of Telecommunications, under the Ministry of Communications and Information Technology, and ITU-T are concerned authorities for all matters relating to telecom. The department is responsible for formulating the developmental policies, granting licenses for various telecom services, promoting standardization, research and development as well as private investment in the sector. The main reason proposed for regulating telecommunications has been that a desirable competitive outcome could not be achieved by market forces. The Government of India has declared 2005-2015 as the "Decade of Innovation'' with focus on inclusive growth. Innovation is a process of taking new ideas to the market. It is the conversion of new knowledge into new products, processes and services. Telecom has been one bright spot in India's growth story of last two decades. This sector has performed admirably in registering outstanding growth rates consistently to achieve a tele-density which is over 74% now. The tariffs are the lowest in the world. The multiplier effect of the vastly expanded and improved telecommunication services has been visible and has contributed handsomely to the GDP growth of the country. India is the world's second-largest telecommunications market, with 898 million subscribers as on March 2013. Telecom infrastructure in India is expected to increase at a compound annual growth rate (CAGR) of 20 per cent during 2008-15 to reach 571,000 towers in 2015. Standards play a very important part in telecom hence there is a need to set up a Telecom Standards Development Organization (TSDO) in Public Private Partnership (PPP) mode to make national standards and get Indian requirements and IP incorporated into International standards. The size of the Indian market commands respect of the international vendors. By getting foreign vendors to design their products and services to meet India specific requirements (e.g. support for Indian languages), it can be ensured that Indian IPs get into their products and Indian innovators and developers can get the benefit. As per the Constitution of India, telecommunications is a central subject. The erstwhile Department of Post & Telegraph gave way to the formation of two separate departments, viz. Department of Post & Department of Telecommunications under the Ministry of Communications. Department of Electronics had been established in the Ministry of Electronics, which was later renamed as the Ministry of Information Technology just before the new millennium. However within a few years thereafter, both these ministries were merged to form the Ministry of Electronics, which was later renamed as

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the Ministry of Information Technology just before the new millennium. However within a few years thereafter, both these ministries were merged to form the Ministry of Communications & IT with 3 departments, viz.Telecommunications,Information Technology & Posts. The entry of private service providers brought with it the inevitable need for an independent regulator and thus the Telecom Regulatory Authority of India (TRAI) was established. Another major step was to set up the Universal Service Obligation Fund (USOF). The Telecom Centers of Excellence (TCOE) were set up in Public Private Partnership (PPP) mode and are an example of the Government, National Telecom Policy-2011 (in drafting stage) is designed to transform the Indian socio-economic scenario through accelerated equitable and inclusive economic growth by laying special emphasis on providing affordable and quality telecommunication services in rural and remote areas. NTP 2011 aims at promoting indigenous R&D, innovation and manufacturing to serve domestic and foreign markets.

Telecom Regulatory Authority of India (TRAI)

The Telecom Regulatory Authority of India (TRAI) was established on 20th February 1997 by an Act of Parliament(Telecom Regulatory Authority of India Act, 1997) to regulate telecom services, including fixation/revision of tariffs for telecom services which were earlier vested in the Central Government.

Universal Service Obligation Fund

Another major step was to set up an Universal Service Obligation Fund with effect from April 1, 2002. The Fund is to be utilized exclusively for meeting the Universal Service Obligation, specifically in the rural areas. National optical fiber network (NOFN) is going to be the biggest initiative from USOF to provide broadband access to 250,000 Indian village panchayats.

ITU-T

The ITUTelecommunication Standardization Sector (ITU-T) is one of the three sectors (divisions or units) of the International Telecommunication Union (ITU); it coordinates standards for telecommunications. The CCITT Recommendation X.710 defines the Common Management Information Services (CMIS) to be used for the exchange of management operations and information's, while the CCITT Recommendations X.711 and X.712 specify respectively the Common Management Information Protocol (CMIP) and the Protocol Implementation Conformance Statement (PICS) Performa for CMIP which are used to vehicle the management operations. e-Government involves taking computer-based technologies and combining them with human-based administrative processes to create new ways of serving citizens. Organizations have to adapt ICTs to business processes. Similarly, business processes have to adapt to ICTs. ICTs provide new functions to do things that were not possible. Using these Standards the e-governance can be more effectively handled which can be understood with the following examples.

1 .Electronic Voting system using Internet
2 .Usage of Mobile devices
3. ICT Infrastructure for Rural e-Governance

E-VOTING SYSTEM

Many countries have implemented a unique id system for citizens. This can form the base for evotingsystem.UniqueIdentification (UID) process includes biometric information that is stored in a database. This information can be accessed for e-voting and it will ease the authentication process of e-voting system. It will further ensure that just one vote is cast by an individual and there is no rigging. To cater to the needs of all citizens irrespective of their level of education, there will be two channels of e-voting**.**

Votes on Internet with UID - This is for the educated section of people who have access to internet at their homes/offices or for those who do not get an opportunity to be in their constituencies during elections. Thus, wherever they are, they can exercise their right to vote through internet on the day of election. They can log into the e-voting system with UID and password and cast their votes.

Votes at Polling Stations with UID and Biometrics

This channel is for people who do not know how to use internet or do not have access to internet. Simple touch screens/computer system and finger print scanners can be installed at polling booths. People can simply swipe their fingers on scanners and get authenticated. Thus, they will be able to vote by merely touching the screen to select the candidate of their choice. This channel will ensure that uneducated people who cannot type passwords will be able to vote through biometric authentication. Apart from these two channels, mobile devices can also enable voting from remote places that lack web access. E-voting database will be maintained separately that will have information about the users who have already voted. This information in the database will be coupled with the UID database to nullify the

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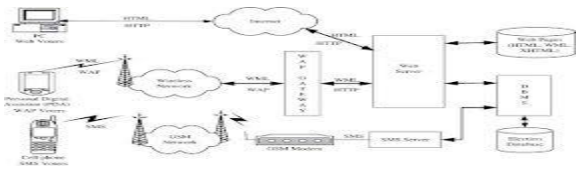
effect of any future changes. User's voting information will not be stored at any stage in the database to ensure confidentiality of vote. The only information about a user that will be stored in the database is whether or not the person has voted. The status flag will be set against the user details if she has already voted. So, no user will be able to vote twice. These flags will be reset after the successful completion of general elections so that the database is ready for reuse before next elections. With minimal efforts, e-voting can be refreshed for use in other state/general elections. Counting of votes has been automated to ensure error-free and quick results.



In order to maximize the benefits and minimize the risks of adopting e-voting, it is necessary to create a vision with a roadmap. To encapsulate, the catch phrase is to "think flat, start small and scale fast." e-Government should be value-driven and not technology-driven. The promised benefits of e-governments do not take place simply by digitizing information and placing it online. Instead, the challenge is to understand how the use of new ICT tools can be leveraged to bring about a transformation in the culture and structure of government in order to provide better and transparent services to citizens.

Usage of Mobile devices

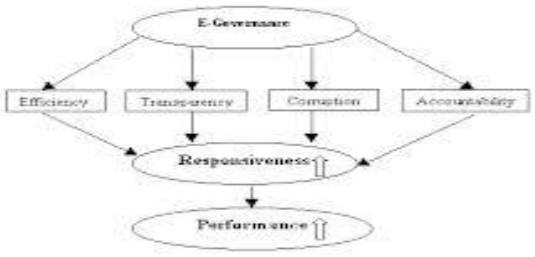
International Telecom Union's trends are to be believed, mobile phone services are accessible to 90% of the global population and 80% already avail it. Mobile communication has some unique characteristics that cannot be replicated by any other mode of information sharing or advertising, for e.g., print media, television, internet or radio. There are various channels of delivery. They can be grouped as:

Text message (SMS) - short SMS or appended text at the end of subscriber message ; and a complete SMS as standalone message, Multimedia messaging (MMS), Mobile applications, Mobile video - live video; and store and forward video Mobile web/mobile internet – dedicated websites or URL provided through any other channel.

Government can start sending short SMS to targeted audience one week ahead of an event. Mobile operators have relevant demographic data to categorize target audience and messages can be made more focused. Unlike broadcast channels that are one-way in nature, government can send MMS or video clips to educate people about events while providing them a channel to respond back with suggestions. These messages will help build momentum and people in remote areas can also be educated without worrying about any obstacle. Irrespective of developing or developed economies, mobile devices have become personal companions to subscribers and they are readily available to provide innovative services like e-governance. Information and context of information are becoming important to an individual's life. Government is one of the biggest owners of information. It is required that the government provides such information to relevant people at the right time and in the right context. Mobile communication can easily bridge the gap between people and the government, bringing them together for social and economic development. Marketing concepts in mobile communication are advanced, innovative and personalized. It is suggested that while using any channel of mobile marketing, guidelines, Thus, mobile communication should be used with innovative business models by government agencies for better governance.

UNDP e-Governance Framework

Figure-1



ICT Infrastructure for Rural e-Governance

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Computers have become more powerful, user friendly and less expensive. The PC revolution has brought them closer to the users to the extent that in number cases users have designed and developed their own applications. However, till recently, it has not become easy to create local content and regional language interfaces, to facilitate their use in villages. In addition, although the hardware costs are coming down, the total cost of ownership for rural applications is quite high. The costs of the minimum required gadgets like PC, Modem, Power stabilizer, and Printer along with the license costs of software (OS, Database, and Application as applicable) does not justify their use for offering government related information services, just on the basis of return-on-investment criterion. These equipments become obsolete too soon, and have high maintenance costs in the rural areas. At the current cost levels, to breakeven, the kiosk operators will have to find alternative revenue generation activities utilizing these equipments. We notice that in many cases such business potential does not exist and even if it existed, the kiosk owners / operators are not trained to develop new solutions. , we consider the following as major factors responsible for successful implementation and sustenance of ICT projects for social development:

• Degree of efficiency and transparency demonstrated in citizen services
• Extent of reduction in cost and improvement of convenience for citizens
• Extent of reengineering and improvement of back-end services
• Extent of Integration of backend processes with front-end and web site
• Degree of employee involvement and change management
• Amenability for Public Private Partnership (PPP) arrangement
• Strength of PPP arrangement in the application development
• Strength of PPP arrangement in the service delivery
• Enhancement of Revenue for the government and the service provider
• Technological robustness of the project

CONCLUSION

In order to maximize the benefits and minimize the risks of adopting e-voting, Usage of Mobile devices, ICT Infrastructure for Rural e-Governance it is necessary to create a vision with a roadmap. To encapsulate, the catch phrase is to "think flat, start small and scale fast."E-Government should be value-driven and not technology-driven. The promised benefits of e-governments do not take places imply by digitizing information and placing it online. Instead, the challenge is to understand how the use of new ICT tools can be leveraged to bring about a transformation in the culture and structure of government in order to provide better and transparent services to citizens. By using ITU-T-t and telecommunication standards and services can be effectively utilized.

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