

# Effectiveness of Information and Communication Technology in Promoting E-Governance in India

Partha Protim Borthakur, Dip Jyoti Bhuyan

**Abstract:** *E-governance means the utilization of internet and World Wide Web (WWW) for transfer of information and delivery of services from government to citizens. With the growing progress in Information and Communication Technology (ICT) and rise of innovative and creative instruments has also contributed towards the expansion and growth of government activities in the various countries around the world. For the economic and social empowerment of the citizens particularly of the developing countries, the Information and Communication Technology is recognized as an apparatus of development and mechanism of empowerment. Use of Information and Communication Technology in E-governance has created new prospects of innovation and expansion in the activities of the government and delivering services to the citizens. To improve the quality of life and to get faster economic development, the electronic governance takes for granted better importance in the platform of contemporary governmental organizations. In the project of electronic-governance, the various methods and technologies are being used to provide a structure for successful execution of government services up to grassroots level. The growth and development of various nations are mainly based on the utilization of Electronic-Governance with their penetration in contemporary periods. This E-governance has minimized the corruption and saving the time along with increasing the level of transparency in the governmental process and operation. However, the various projects such as e-seva, e-kranthi, smart government and digital India have been launched by the Government of India to execute and support the initiatives of E-governance. This research paper is an effort to examine the initiatives of E-governance which is directly related to citizens. The present work is an attempt to examine whether the latest information and communication technologies can create an important impact to the success of Electronic-governance.*

**Keywords:** *E – Governance, ICT, Indian Political System, welfare, smart government.*

## I. INTRODUCTION

In the 21st century the Information and Communication Technology (ICT) is fast changing the society and the nature of the governance. To facilitate the government services to the citizens the Electronic-Governance is principally applied and to functionalize the Information and Communication

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Technology through internet. The E-governance not only refers to Electronic Governance E-governance is known as enabled government which provides well and various services and programs. Generally the Electronic -governance represents a method that needs a sustained guarantee of resources, political will as well as arrangement between the public sector government and private sectors. The E-governance is necessary for good policy consequences, better engagement with the people and greater quality services. With the initialization of 'AHSHAYA' in Kerala, the use of ICT in Electronic-Governance started in India (B.K.Suresh, 2016). In fact, it can be argued that governance is seen as an innovative style of headship with new means of education and organizing as well as new means of determining strategy and investments. Now days in many countries, the Electronic-governance has become a crucial portion of any governmental program. The E-governance promotes well distribution of government facilities to citizens and empowers the citizens to access the information. The E-governance contains the willingness and the capability of the public sector to use Information and Communication Technology for promoting and distributing information and knowledge in the citizen's services. However, the government creates best probable practice of internet equipment to connect as well as deliver data to common public with businessman in E-Governance.

## II. METHODOLOGY

The present study is based on qualitative research method due to its improved insights on the experience as well as context of utilizing Information and Communication Technology in the domain of E-Governance. The research work is based on the current literature review related to E-governance and Information and Communication Technology.

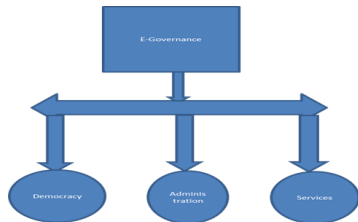
The present study is a descriptive one that attracts as well as discovers the theory and concept of Information and Communication Technology in sustainability of E-governance by representing as well as arguing the theoretical and functional structure on changing and implementation of E-governance in its application. The methodology adopted is based on series of widespread review of literature and explores the changing role of ICT in the effectiveness of E-governance.



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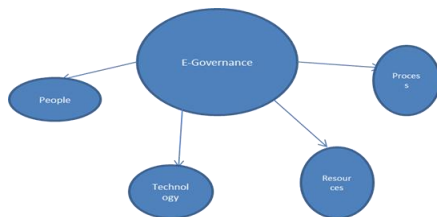
It investigates how ICT overtime has affected and has accelerated the effectiveness of E-governance. Data of the literature is collected and studied thoroughly. The findings suggested that the practice of ICT is strongly associated with sustainability of E-governance. In the secondary data the characteristics such as reliability of data, suitability of data and adequacy of data have been considered.

### III. EXECUTION OF E-GOVERNANCE IN DIFFERENT FIELDS THROUGH ICT



**Figure 1: Showing the implementation of E-governance in Different fields**

The below mentioned figure shows the elements of e-governance:



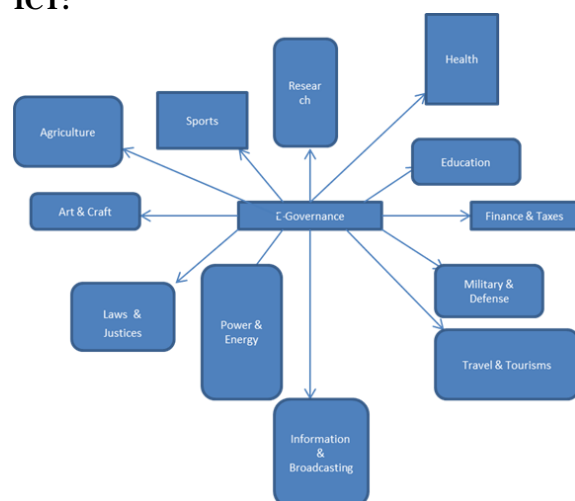
**Figure 2: Elements of E-governance.**

In order to access information through telecommunication the technological tools and mechanisms are provided by Information and Communication Technology (ICT). Although it seems to be equivalent with Information Technology (IT), but its main focus is on communication technology. Wireless networks, cell phones, Internet etc. are some common forms of communication channels within the domain of ICT which are continuously transforming the life of the humans under this present era of globalization. In order to help meet the goals of good governance around the world and to develop and improve the living standards of the live of the people, ICT has helped in opening up the new avenues and creating new opportunities for spreading information and giving a chance to the users to broaden their preferences to lead a healthy and effective life overcoming the challenges. Enhancing the government capabilities to address the needs of the commons through ICT, E-Governance integrates information and communication and implements it through technologies to simplify government processes. Fundamental aspects of governance are: graft, rule of law, and government effectiveness, besides other dimensions are - voice and accountability, political instability and violence, and regulatory burden. The five principles of sincerity, contribution, liability, helpfulness and

uniformity are implemented within the broader structure of democratic governance (Nagaraja, 2016).

Applications of E-Governance: With the coming up of government websites in 1990s the very concept of e-government also started. However, before the coming up of this module the functioning of government was very rigid, static, hierarchically regulated, and was based on transferring file from one desk to the other. E- Government made it smooth, and fast, at the same time systematic and readily available to the concerned domain. At present throughout India almost over 1000 e-governance services are available through NEGP. Since Jan 2013, over 237 crore e-transactions have been delivered successfully (Singh, 2014). For the better and smooth delivery of government services E-Governance acts as a powerful instrument and tool. Moreover it also gives the citizens a platform to interact with the government and empowers citizens to question the corporate sectors by providing relevant information regarding the policy initiatives undertaken in the name of Corporate Social Responsibility. Further e-governance also helps in simplifying the operations and directions of the government departments and creates an opportunities in the hands of the people to get benefits of the government services at a cheap rate and in a quick time. In order to provide people with the government services e- governance also helps in simplifying the internal operations of the governmental departments by taking advantages of the new technologies to deliver services at the best possible way. For the success of democracy in India the citizens should be empowered and e-governance enhances the efficiency and effectiveness of the government mechanisms, to enable citizens to develop and make them capable to deal with the real life situations. As the foremost objective of e-governance in to strengthen the ability of the people in the participatory model, it can only be achieved if the citizens were made conscious and competent to use and utilize the e-governance mechanisms creating a healthy platform for all.

### Application of E-governance in different fields through ICT:



**Figure 3: Application of Electronic- governance**

#### Dissemination of E-Information:

Broadcasting or dissemination is the sharing of video and aural substance in all spheres at the similar time. It is a program that is basically broadcasted over airwaves for common viewing instruments like radio, television, films, press and print publications. Advertising and traditional modes of communication creates a significant impact in benefiting commons to secure information. The viewers can easily access and collect information about the broadcasting, community radio stations, Prasar Bharti, Doordarshan, Direct To Home (DTH) and IPTV etc., and test online services and facilities offered by government like- filing complaints with Press Council of India, collecting month or year-wise press releases of Ministry of External Affairs, getting official videos and photos and information of Prime Minister of India etc (N.S.Kalsi, 2009). E-Agricultural: In order to have benefits of the products and services for the agricultural community specifically farmers, diary workers, E-governance is very effective, as it provides valuable information and knowledge regarding the policy initiatives and schemes undertaken by the government and about the market structures and technological innovations undertaken to improve farming. E-governance also provides information regarding market rates of farm products, ways to reduce crop damage from bad weather and pests, improving livestock management, government schemes undertaken for providing food security and soil and bio- diversity conservation etc. The government also provides online facilities and projects based on agriculture like natural farming, soil and water conservation, Agriculture License etc (Tiwary, 2014). E-Sports: Perhaps various developmental activities and programmes are undertaken by sports departments under the directive of the Ministry of Youth Affairs and Sports for the aspiring individual who is seeking support and benefits from the government. Information regarding various scholarship schemes and awards and governmental support and funding for going for higher training in India and abroad in different training centres are provided in various governmental websites to enable the sportsperson to excel in his field of interest E-Health: In order to improve the health care facilities of the common people and make conscious the people about the various governmental services and schemes undertaken for improving the health care facilities of the people in both rural and urban areas, the Electronic Health Record of Citizens has made it easy to make people aware about the diseases and methods to prevent those diseases. Online mode of services like drug prescriptions and online medical records and consultancy etc., has helped in providing improved health care delivery services to the needy in very quick and easy manner. Projects launched by the Indian Government like "National Rural Health Mission", has also helped in creating awareness and preventing serious diseases in the rural areas of India (Nagaraja, 2016). E-Education: With the innovations in the teaching learning process and with the coming up of new ways in imparting education to the students, E-governance helps in using new tools for imparting education like using smart boards, educomm for delivering information. The New Education Policy also focused on mechanisms to easily and suitable deliver education services to every marginalized areas and assimilate them with world class educational institutions

(Singh S. S., 2018). Some important projects started by the government in various states of India are -  
CASSET: An initiative undertaken by Karnataka government for Education Department.  
AISES (All India School Education Survey): This project is started by Assam government for surveying the number of schools in districts and its working.  
E- Travel & Tourism: Tourism has become a major industry through which the government is able to generate a huge amount of revenue. India has become one of the major tourism destinations in recent times. With the introduction of e-governance in this sector now the tourist are able to collect information regarding their preferred destinations, modes of travel, accommodation and security of their belongings. These services are booked through online portal where there were registered travel agents to help them select their dream destinations. E-Governance has helped the people to select their desired location, collect location information regarding hotels and travel agents and other services provided by the government. Booking train and flight tickets and online advanced transactions has also been possible and easily available through the coming of different websites of travel and tourism. E-Banking: E-banking is one of the recent services made available to the people for suitable and smoothly conducting and at the same time securely making financial transactions. Now with the coming of M-Banking and E-Banking the consumers can easily access their account and make transactions and download statements of their exchanges. Moreover, information regarding loan facilities, fund transfer etc. are also available through e-banking. Now a day's online investment in the equity and mutual funds are basically done through e-banking. E-Laws & Justice: ICT in E-laws and justices is of very significance not only for the government but also for the common public. In order to strengthen the justice delivery mechanism and fostering bridges between common people and legal authorities ICT is very useful in providing information and access to justice, escalating cooperation between legal authorities and strengthening the justice delivery system. Because of ICT there has been an increase in the efficiency and also reduction in terms of costs and timing. The citizens can also easily avail information about the court cases and will also know about the rights and legal provisions to protect such rights. It also provides transparency in legal system through certain procedures like, recording of court proceedings, high resolution remote video to identify fraudulent documents, live fingerprints scanning and verification, remote probation monitoring, electronic entry of reports and paper work etc.  
E-Power& Energy: With the growing needs of the citizens and with the scaling progress of nation states there has also been growing demands for power and energy to sustain this development. Today's governments are also focusing on improving the living standards of the people and for that resources such as energy and power conservation is at the pivotal of initiatives undertaken by the government. Still about 700 million Indians use biomass as their primary energy resource for cooking (Tiwary, 2014).





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- Hence there is an urgent need to implement policies to achieve renewable sources of energy. Government of India has provided certain online facilities for the people:
1. Generating and paying electricity bill online
  2. An initiative undertaken by the Ministry of Petroleum and Natural Gas of transferring directly the benefits of LPG to the commons
  3. Monitoring the consumption of electricity with Central Power Distribution Company.
  4. Applying for high tension electricity connection.

### IV. RESULT AND DISCUSSION

To increase responsiveness, stability, equity, accountability, rule of law, transparency, as well as empowerment, generally governance processes and structures which are designed for it, in order to implement policies and schemes successfully should effectively apply ICT as a mechanism. Moreover, the government services are made obtainable with a transparent, effective and convenient manner by the electronic-governance. Current operatives of Electronic -Governance in India:

Moreover, different initiatives have been undertaken by the Indian Government for effectively applying and implementing e-governance. The below mentioned table has shown the initiatives of e-governance.

#### A. Importance of Electronic-Governance through ICT:

**Table no.1: Initiatives of E-Governance**

Sl. No	Initiatives	Services
1	G2C Model	This model of e-governance is to share information between government and citizens.
2	G2G Model	This is model of –governance to share information between the intra governments.
3	G2B Model	This model helps to share information between government and private sector.
4	G2E Model	This model links the information between government and employees.

Generally, the three activities which are connected in the electronic- government are mainly:

- Government-to-Government (G to G): Major strenght of e-governance is the connection between Electronic-Government and the government of each level i.e. national, state and grassroots level in order to modernize the internal structures and processes for electronic dealings with citizens as well as business as presented.
- Government to Citizens (G to C): Generally the second activity i.e. G to C, assists communication between

government and citizens and in providing services i.e. transactions, payments and access of public information.

- Government-to-Business (G to B): The last one is G to B, that includes both the obtaining of services and goods by the government and the sale of surplus government goods to the public on line.

#### B.E-governance and its Four Pillars:

- Connectivity: Connectivity is essential to attach the public to the government services. However, there must be a strong connectivity as the first pillar of e-governance for an operative electronic-governance.
- Knowledge: In an operative way the state machinery should employ the active engineers to handle the electronic governance and can monitor all kind of technical errors during the functioning of electronic –governance.
- Data Content: There must be database to exchange any type of data or material over the internet, and to connect to government services, this database must have the data content.
- Capital: The last pillar of e-governance should be on private or public partnership because the capital mainly denotes to money utilized by the government to deliver the services or its operation.

#### C. Contribution of Information and Communication Technology in E-Governance:

- For monitoring and documenting the government activities the ICT promotes the accountability and clarity of the government functions by providing new prospects.
- With people consultation, inspiration of the presentation of views and informed debate, it promotes confidence to common people in the platform of government to minimize corruption and increase democratic values.
- ICT also provides answers to the citizen’s queries as well their responds to their hopes and aspirations. It also incorporates feedback of citizen into the decision-making process.
- With increasing clarity and responsibility in the discussion making process, makes stronger the government’s institutions and the civil society groups.
- Support the skill of citizens to meet information about campaign issues and makes varied coalitions around plan difficulties as well as acquire engaged in policy creation.
- In reducing corruption and mismanagement, the Information and Communication Technology, promotes vast opportunities for restructuring supply chain system.

#### D. The Projects of Electronic-Governance in various states of India:

- Andhra Pradesh: E-governance projects undertaken in this state are Fast, mphs, voice, e-cops, card e-seva, saukaryam and facility of online transaction processing.
- Bihar: A major e-governance projects undertaken in Bihar is Sales Tax Administration Management Information.
- Chhattisgarh: Projects undertaken in this state are Treasury office e-linking project, Chhattisgarh InfoTech Promotion Society etc.



- Delhi: Some projects of E-governance in Delhi are basically Electronic Clearance System, Computerization of website of RCS office, Automatic Vehicle Tracking System, Management Information System for Education etc.
- Goa: Dharani project is one of the famous and effective e-governance projects in Goa.
- Gujarat: Various projects of E-governance have been introduced in Gujarat like Form book online, G R book online, Mahiti Shakti, census online etc.
- Himachal Pradesh: - LokMitra is a major project undertaken in this State.
- Haryana: One major project undertaken in this State is-Nai Disha.
- Some e-governance projects implemented in the State of Kerala and are successfully in operation are: E-Srinkhala, RDNet, Efficient Network for the Disbursement of Services (FRIENDS) etc.
- Madhya Pradesh: Some of the e-governance projects are -Smart Card in Transport Department, Gyandoot, Gram Sampark etc.
- Maharashtra: Major e-governance projects are -Online Complaint Management System—Mumbai, SETU etc.
- Rajasthan: Projects like, Rajswift, Lokmitra, , Rajnidhi, JanMitra are more effective in Rajasthan.
- Tamil Nadu: In the States like Tamil Nadu, a major effective e-governance facility is Rasi Maiyams—Kanchipuram.

#### ***E. ICT and E-Governance: Challenges***

- In a democratic country like India, poor infrastructure is a major challenge for the implementation of e-governance. For the economically weak people, accessing ICT is a costly affair as well as lack of adequate infrastructure is a major issue for implementing of E –governance projects.
- However, it is observed that technological illiteracy has posed a major challenge for implementing the e-governance projects.
- The Non-English speaking population is not fully familiar with the internet as they are not able to fully grab the command of computer. However, in the remote villages of India, the equipment's of ICT is quite useless due to overwhelming dominance of English language.
- Lack of consciousness is a major challenge for the implementation of E-governance in India. There is no proper awareness regarding the methods involved in executing effective Government to Government, Government to Citizen, and Government to Business and Government to Employees projects. Apart from this, the common illiterate people are not aware with the benefits of E-governance and its projects and schemes.
- Infrastructure acts as major component for successfully implementing the E-governance projects as E-governance is fully based on proper infrastructure. However, it is observed that the issues in the infrastructure such as lack of proper high speed internet, electricity, and ways of communications will disturb the functions of the Electronic-governance projects.

#### ***F. Key issues in implementing ICT in E-Governance:***

- Issue of Privacy: This is another key issues of e-governance, as any information provided by citizens should

be ensured by the government and if not, then any people or otherwise, any person or group can misuse the important evidence.

- Authentication: Presently, issue of authentication is one of the technical issues and it is observed that in promoting authenticity the digital signature is playing a key role however, it is very expensive as well as requires regular maintenance.
- Interoperability: Interoperability is the critical issue of electronic governance as interoperation between departments and ministries is hard to establish and has become problem for distributing and processing data.
- Issue of Security: However, there is a question of security of some online services done by the Electronic-governance as it sometimes gets hacked. And presently, safety of online transaction becomes an issue.
- Reusability: It is seen that any kind of models introduced and implemented by the government, should be reusable. Electronic governance which includes any modules or software must be utilized by other administration.
- Maintainability: It is considered as one of the important means of e-governance. However, the administration has regularly been improving the latest software's to fulfill the current needs of the people and also launching various projects for developing the ICT.
- Use of regional languages: India represents as the second largest population in the world. Basically the illiterate people cannot understand the English language. Thus, government must create some instruments for translating English language into the local languages for the advantage of electronic-services.
- Consciousness about electronic-governance: Lack of utilizing proper internet services, illiteracy were the factors for which a huge section of people have not been conscious of it. Hence, literate people and related departments must come forward to make rural people benefitted by the electronic-services.
- Accessibility: In the ICT era, people are using internet through various electronic devices. However, there is a far gap arising between non users as well as users due to insufficient infrastructure in rural areas, which should be tackled immediately to properly implement the projects of e-governance.

#### ***G. Vision and Objectives of the Twelfth Five Year Plan (2012-17):***

- To provide entire government facilities in an electronic method so as to create the clarity of Administrative practice, organize it to make it easily available.
- To provide both transactional and informational facilities of the government through mediums like mobile phones with increasing origination in mobile governance.
- To improve as well as progress sustainability of the current schemes by new business models along with constant infusion of advanced technology.
- To make a safety and protected Electronic-governance cyber world and to encourage ethical utilization of equipment's and data.



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- For the benefit of the citizens and governance and to generate an ecosystem for promoting the innovation in Information and Communication Technology.
- To properly implement the objective of distribution of well-being projects of the both state and central Governments.
- To promote all round consciousness as well as make tools for promoting as well as encouraging citizen's involvement.

## V. CONCLUSION

The role of ICT is central in the implementation of E-Governance as citizens reach government services with the help of internet. The Government of India has started the initiatives of electronic –governance keeping in view the idea of welfare of all, for facilitating all the government services electronically. The Electronic –Governance has the probability to highly develop and oversee how the state machinery runs internally as well as serves its consumers. However, the facilities of electronic-governance are popular in the various countries but in India the e-governance is still an emerging domain. It can also be argued that the e-governance can promote the “Good Governance” and it can reduce corruption as well as can provide effective and feasible governmental services to the citizens. As the main purpose of e-governance is not only facilitating the basic information of the governmental activities but also it provides an opportunities for their citizens to take participation in the discussion making process of the government. With the project of E-governance the Government of India provides various welfare services to the citizens of India. Although the government has succeeded to implement the e-governance projects in many parts of India, in spite of this various factors are responsible and putting a great challenge to the e-governance projects in India. The government of India should create awareness among the people about the e-governance activities for proper implementation of e-governance projects and for that policies and new modalities should be formulated to remove the obstacles in the path of implementation. Finally, it can be argued that to make it safer, convenient, clear and citizen friendly, for improving the confidence of people for electronic governance, the government should take more initiatives on the e-governance projects and its proper application.

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