ICT : Enabling Evolution of Governance Towards e-Governance

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Abstract

With the rapid growth and success of internet, our lives have changed in all aspects we interact, learn and work. Demand for experienced and proficient labor is increasing day by day in today's globalised world. Nowadays, almost all organizations along with governments are delivering their services over and through internet. For the growth and success of e-Governance- effectiveness and efficiency of the government are the main criteria.

This paper aims to bring forth the ICT integration in governance. ICT increases the speed of delivery and distribution of services which in turn benefits customers to access services anytime from any place. ICT aids to the availability and implementation of those practices in the field of e-Governance, which ultimately helps customers. It also helps to contribute in the economic growth especially to the developing countries.

Key words*: e-Governance- effectiveness, efficiency, globalised world.*

1. Introduction

With the huge success and swift growth of information and communication technologies (ICTs), our lives are also affected in the way we work, learn and interact. Nowadays, many organizations, along with governments are delivering their services through internet. Use of ICT in e-Governance has following benefits [5]:

- promotes more efficient and effective government,
- eases government services within reach,
- permits more and more public access to information, and
- causes government more answerable to citizens.

Communications and information systems such as- telephone, internet, wireless devices, public access centers may be used for delivering services to the community.

United Nations has developed an index called the E-Government Development Index (EGDI) [1] to standardize the relative development of e-Governance in countries around the world. In fact, UNESCO has come forward to provide some aid in establishing fundamental ICT infrastructure for cities intended to assist in the method of evolving e-governance's role and support both- the local government personals and the community to the common accessibility of ICTs. In the above said project, few aids like- some Personal computers, Internet access, a Local Area Network, a Website and training were offered to the public and staff. After taking these initiatives in the first phase, next step is being taken to provide training on e-governance to the people of cities.

As the aim of e-Governance is to provide Government services to the general public in a easy, efficient and transparent manner, E-

Governance must try to find a suitable way for people's involvement, and efficiency and clarity of the system. ICT enables e-Governance to promote the followings-

1. Good governance
2. Trust and accountability
3. Citizen's awareness and empowerment
4. Citizen's welfare
5. Democracy
6. Nation's economic growth

Section 2 presents briefly the concept of Information and Communication Technology (ICT), an introduction to Cloud Computing and a brief outline of e-Government and e-Governance system. In section 3,e-Government application architecture and infrastructure is provided. Section 4 investigates on national e-Governance products and solutions. At last the final section 5 concludes that the integration of ICTs with e-Governance is necessary for a good future.

2. BACKGROUND

2.1 Information and Communication Technology (ICT)

Information and Communication Technology (ICT) is said to have the diverse group of technological equipment and resources for the purpose of communication. Information is produced, shared, gathered and managed with the use of ICTs.

Information and Communication Technologies (ICTs) comprise the followings:

- the hardware,
- software,
- networks
- media for collection, storage, processing, transmission and presentation

of information which is either in the form of text, data, images or voice, in addition to applications & services connected with them, for example distance learning & videocon ferencing. Information and Communication Technologies may be classified into two parts [4]:

i. Information and Communication Infrastructure (ICI) that deals with the followings:
- Physical medium,
- Telecommunication systems
- and networks (postal, cable, broadcast, cellular, satellite,) and the services which uses any telecommunication system such as Internet, voice, mail, radio, and television).

ii. Information Technology (IT), which deals with the followings:
- hardware and software
- for information collection,
- storage,
- processing and presentation.

ICT has made changes in many ways in different aspects of our life. The rapid growth of Information and Communication Technology, especially the Internet is the utmost attractive trend amongst others, which portrays that this, is the era of Information. ICT plays very vital role to:

- control access to information,
- enablel a test types of communication,
- assists several on-line services in the area of commerce, culture, entertainment
- education.

Followings are the key drivers [3], which geared the use of ICT in the growth/advancement of solutions of e-Government and platform towards the cloud are:

1. IT industries are getting prevalent in everywhere that has geared e-Governance so that government bodies may facilitate their processes electronically.

2. End-users are pursuing knowledge and getting more and more skilled in computers and Internet than ever before and adopting computers in day-to-day practice.

2.2 Cloud Computing

Cloud computing is entering our lives and changing the way people radically consume information. Clouds transform IT infrastructures with an emphasis on making them flexible, affordable, and capable of serving millions of users, satisfying their computing or storage demands. The design of early cloud computing systems has evolved from, and was dominated by, the concepts of cluster and grid computing. Currently, as the concepts of the cloud become advanced and mature, cloud networking and communication processes begin playing a central role. Cloud Networking has emerged as a promising direction for cost-efficient and reliable service delivery across data communication networks. The dynamic location of Service facilities and the virtualization of hardware and software elements are stressing the communication network and protocols, especially when datacenters are interconnected through the Internet.

Cloud Computing is a new paradigm in a Service-oriented model which delivers business applications and other IT resources as a services over the Internet. It is a collection of Infrastructure and Application Software, which provides services to the consumers on the pay-per use basis. Characteristics of the cloud are: (i) on-demand usage of resources and paid as it is actually consumed. (ii) scalable and support the varied load of traffic, and (iii) can be accessed over the network [3].

2.3 e-Government versus e-Governance

E-Government is about governments interacting, conducting business and delivering services to their citizens and private companies electronically through the use of Information and communications Technology (ICT). Hence, ICT is an enabler in the realization of e-Government applications, which involve Government-to-Government (G2G), Government-to-Citizens (G2C), Government-to-Business (G2B), Business-to-Citizen (B2C) transactions amongst others [2].

There are many factors in the development and implementation of e-Strategies, but e-Government is the root cause behind it. With the effective execution of ICT e-strategies,every group who is the participant of e-Strategies is being profited – be it Government, Private Sector, or Citizens [2].

The words “e-Government” & “e-Governance” are now-a-daysvery widely used and become a common term and often used in place of one another. However, e-Government and e-Governance must be expressed as very well defined names. A clear distinction must be developed for these two words [2].

E-Governance is wider concept in itself and it is concerned with practice and application of ICT in terms of networks and relationship within government and it however e-Government is very limited to the growth of online government services provided to the citizen and businesses for example-e-transportation,e-tax,e-participation e-procurement, and many more [2]. e-Governance identifies and reviews the impacts of technologies on the practice and administration of governments

and the relationships between public servants and the wider society, such as dealings with the elected bodies or outside groups such as not for profits organizations, NGOs or private sector corporate entities. e-Governance includes a sequence of necessary steps for government agencies to develop and administer to ensure successful execution of e-government services to the public at large.

"E-Government refers to the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government [1]. 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 efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions [World Bank, 2004; italics added by author]. Synonyms for e-Gov include digital government, one-stop government, and online government.

2.4 Objectives of e-Government

The e-Government plans to define guidelines, which aspires for effective and efficient utilization of ICT prospects to empower the government to proceed in the proper ICT trend towards a way that influence to boost the status of the trade and industry, and community[4].
E-government must focus on the followings at every stage of Government especially at lower level:

- more efficient delivery of public services,
- better management of financial,
- human and public resources, and
- goods.

3. e-government

3.1 e-government Application Architecture and Cloud Computing

The application architecture consists of the followings:

- key business logic and business processes,
- essential workflows and
- various application components.

It is very typical task to integrate numerous subsystems in the architecture of e-Government.

Scalability and interoperability are key issues in e-governance architecture subject to all interconnect are which are deployed. Cloud computing is a distributed environment with many-resident and internet-based service delivery model. It offers many benefits to the common man as well as businessman so as to carry out business transactions online. Followings are the main features of cloud, which helps to e-Governance applications on the Internet.

- High Availability
- Accessibility
- Scalability
- Service Orientation
- Information Security
- Interoperability

3.2 e-Government Infrastructure

The core concept of National e-Governance Plan (NeGP) is *"Make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of*

such services at affordable costs to realize the basic needs of the common man."
Various initiatives and strategies have been commenced to develop Basic and Support infrastructure so as to encourage e-Governance in all dimensions.

Core Infrastructure Components:

The fundamental infrastructure components are as follows:
- State Data Centers (SDCs)
- State Wide Area Networks (S.W.A.N)
- Common Services Centers (CSCs)

and middleware gateways such as:

- National e-Governance Service Delivery Gateway (NSDG)

- State e-Governance Service Delivery Gateway (SSDG)

- and Mobile e-Governance Service Delivery Gateway (MSDG).

Support Infrastructure Components:

The main support components include:
- Procedures and plans on Security, human resource, Social Media, Citizen Engagement,
- Along with norms associated to Interoperability, Metadata, Information Security, Enterprise Architecture, etc.

Recent projects taken by Government of India consist of a structure for certification, namely e-Pramaan and a project viz., G-I cloud that ensures advantages of cloud computing for e-Governance missions that is termed as 'Meghraj'. The main purpose of this project is to develop a plan to execute many different modules comprising of e-Governance system, which guarantee the abundance of Cloud in government.

One of the fundamental measures-Articulation of the Cloud Managing and Operating Strategy may aid the Government to implement cloud on huge level. Government is working on this scheme to turn it into reality with a focus to bring out the planned way to define step-by-stepimplementation guidelines of G-I Cloud that affects the present or latest setup.

3.3 Benefits Provided by ICT to E-Governance

ICT provides lucrative benefits to the Government to introduce the e-Governance functions and applications on the cloud that are as follows:

- Reduces total cost of ownership.
- Minimizes labor cost.
- Increases Go-to market Times and Speed to Launch
- High Availability

4. National E-governance Products and Solutions

The variouse merging areas for e-Governance are Agricultural and Allied Services, Education, Health and Sanitation, Milk Production, Use of ICT in Energy Conservation. National Informatics Centre (NIC) offers various Applications and Solutions such as National Panchayat Portal (NPP), Agricultural Marketing Information Systems Network (AGMARKNET), Bhu-naksha, Cooperative Core Banking Solution (CCBS), Collab CAD, Collab Land, Plan Plus, Digital Archiving and Management, e-Granthalaya, (ELECON Election Automation System), e-Lekha, e-Hospital, e-Payroll (Comp DDO), e-Office, Value Added Tax (VAT) Soft, Government e-Procurement System of NIC (GePNIC), Instant Money Order (iMO), National Portal of India,

NREGA Soft, Online Admission Counseling System, Online Scholarship Management System (OSMS), Panchayati Raj, Institution Accounting Software (PRIA Soft), Area Profiler for Panchayat, Sarathi / Vahan, Treasury NET, Virtual Post Office (ePost Office)-for Government Corporations in the area of Business Intelligence, Archiving and management of large government repositories, office management (e-Office), e-procurement, etc.

5. CONCLUSION

E-Governance along with the ICT offers integrated practices and provides a collection of applications and services. ICT forms the core platform to the e-governance initiatives. The paper discusses the key features and benefits of ICT which helps to support and complement e-governance.

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