

# Record Management Issues under e-Governance

Poonam Kundu, Parul Bansal, Kavita Choudhary

**Abstract**— In today’s world, the amount of information available and to be processed is increasing day by day and there is a necessity to manage these large volumes of data. It becomes tedious to handle the data via manual database supervision tools or conventional data handling applications. The advancement in technology facilitates the ease of handling the information by providing a common platform and results in quick reference and easy maintenance. E-governance covers various aspects and operations in any government and is a sensitive and vital concern for any nation. In any government, there is massive amount of information to be maintained and secured and hence record management under E-governance is crucial. In this paper, we have covered the aspects of E-governance in various domains and the importance of cloud computing and security in record management has been analyzed.

**Index Terms**—Business Intelligence, Cloud Computing, E-governance, Electronic Record Management.

## I. INTRODUCTION

Highlight E-governance refers to the employment of information and communication technologies to enhance the efficiency, productiveness, transparency and liability of transactional and informational interactions within the government, between the governments and various levels in the government hierarchy, and to authorize citizens through access and use of information [1]. Information and Communications Technology (ICT) play a dynamic and considerable role in processes of E-governance. ICT is the abbreviation for Information and Communication Technologies and it refers to the technologies that supply access to data and information via telecommunications. ICT is analogous to Information Technology (IT), but concentrates essentially on communication technologies. This comprises of the Internet and World Wide Web (WWW), mobile phones, wireless networks, and other communication mediums [2]. The processes in E-governance assist government organizations modify into enterprise framework-based digital entities that perform various functions. Various models in E-governance are Customer to Government, Government to Customer, Business to Government, Government to Business, Government to Government.

## II. DATABASE APPLICATIONS USING ELECTRONIC MEDIA

Database management systems are operations that collect and evaluate data by communicating with the consumer, other systems, and the database itself. An all-purpose database management system (DBMS) facilitates the definition, formation, querying, renew, and organization of databases. The administrative data is exclusively for the authorized use of the government with respect to all sectors of the governance. Usually, the communication within the district and block levels and the government takes considerable time which results in delayed updating of data on various prospects of the programs and operations of the government [4]. The computerization of data and its accessibility up to the block level can bridge this gap in communication. The revenue, police and treasury information systems can be networked. Networking in such a manner enables internal verification, cross references and tests. For this reason, management information is a crucial element of efficient operation of the government. *Business intelligence (BI)* refers to the concepts, technologies, operations, models, and procedures that alter raw data into relevant and purposeful information for business requirements. A large amount of information can be processed by BI and it allows businesses to determine and establish new opportunities. BI technologies present factual, ongoing and predictive aspects of business operations. Common functions of business intelligence technologies include business activity management, recording and summarizing, prognostic and descriptive analytics, online systematic analysis, data mining, operation mining, compound business refining and standardizing. A challenging market advantage and stable establishment can be accomplished by utilizing new opportunities and employing an adequate planning. In the current scenario, almost all the successful organizations are taking advantage of BI technology for their business [5].

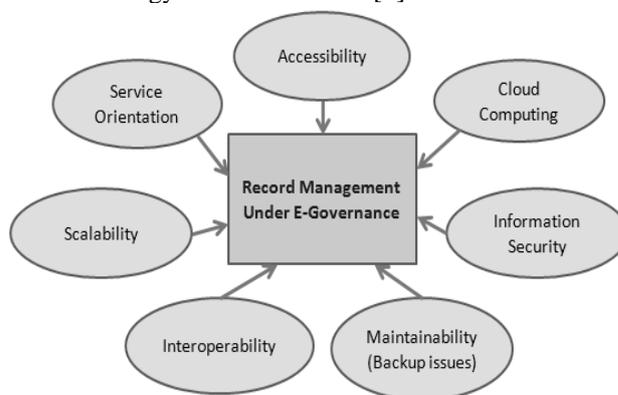


Figure 1: Model for Record Management under E-governance

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\* Correspondence Author

Poonam Kundu\*, Department of EECE, ITM University, Gurgaon, Haryana, India.

Parul Bansal, Department of EECE, ITM University, Gurgaon, Haryana, India.

Prof. Kavita Choudhary, Department of CSE (Asst. Prof.), ITM University, Gurgaon, India.

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### III. CLOUD COMPUTING UNDER E-GOVERNANCE

Cloud computing provides extensible IT solutions over the Internet to an organization. This is in contrast to handling and processing these resources locally. It increases the ease of maintenance and availability of records and data over an integrated environment. Applications, services and infrastructure are the resources included in cloud computing. With the advancement in technology and web usage, it is able to provide IT services in an efficient manner. Cloud computing is applicable in E-governance processes due to the various features it supports. Some of these characteristics are-service orientation, scalability, interoperability, high availability, and accessibility and information security. It handles governments' applications by supporting a unified and secure environment to allow the users to exchange, distribute and process data among several units. Cloud computing helps in managing electronic records under E-governance. It maintains easy access to the information with minimum expenditure as the payment is on the basis of demand and usage. It facilitates anytime and anywhere access and 24X7 support and the cloud is device and location independent. Customization and integration of applications as per the preferences of an organization is easy. It offers the advantage of fast deployment and it takes very less time to make the system functional. Cloud computing offers unlimited storage capacity. All the data is stored on the cloud which makes backing up and restoring it much easier than storing the same on physical device. Thus it eliminates the need for maintaining separate platforms [9].

### IV. E-GOVERNANCE RECORD MANAGEMENT IN VARIOUS SECTORS

#### A. Health

Public health service regulated by government is overloaded and breaking down. The rapid development in medical science and multiplication of information resources have given rise to critical requirement for broadcasting of data by connecting primary, secondary and tertiary level health centers through ICT and E-governance solutions. IT organizations are exploring E-governance solutions in health domain in the government as well as private hospitals [6]. E-healthcare refers to the application of ICT in healthcare support and services that directly caters to the people outside the usual care centers like hospitals and residence. Tele-referral services, Tele-medicine and health information distribution by video conferencing are common services provided. E-governance creates a common platform for healthcare providers, decision makers, specialists and the people. Therefore, the implementation of E-governance in health sector can supervise and enhance the characteristic of healthcare processes, increase system reliability, transparency and productivity. The use of cloud computing for maintaining health records provides quick access to required information in case of emergency. In developed nations like USA, health record management has already been recognized as a necessity for effective health care. It offers various benefits to the citizens and helps government in providing services in an efficient manner. Provision of efficient emergency services and urgent care by the government and private hospitals to the patients has been made due to the effective centralized record management.

#### B. Banking

E-banking refers to the availability of banking solutions and policies directly to customers through the electronic media. It makes use of online banking in which a software-based system delivers the services. E-banking reduces the need for the customers to visit the bank and facilitates them with debit and credit cards. For smooth operations, banks must follow a standard that manages the system, information, application, process, people, and network and data components of IT management. Cloud computing offers a centralized storage system that allows various branches of a bank to synchronize the transactions and update records instantly. The World Bank and other prominent organizations have realized the importance of E-banking in the development of any nation. Thus they have recognized records management as a key element for development effectiveness.

#### C. Education

Education sector requires automation and administration of diverse records and processes. E-governance processes in educational institutes make use of the most recent techniques to model a system that integrates managerial and organizational operations. These operations are required to productively tackle the issues arising in an educational society. E-governance assists in the computation and alignment of huge amount of data that includes student, faculty, inventory, asset management, transport, library, staff details, payroll and other information in all the departments. By uploading these documents on a cloud, it becomes easy and less time consuming for the officials to monitor the organization workflow. E-governance gives rise to a simple, ordered, fault free, accessible, reliable, flexible, time and cost saving system.

### V. ISSUES UNDER ELECTRONIC RECORD MANAGEMENT

Because the final formatting of your paper is limited in scale, you need to position figures and tables at the top and bottom of each column. The storage of electronic records is an important issue in record management and must be carried out carefully. The data and records must be stored in a manner that only authorized personnel has the facility to code and decode them. Use of secret keys and passwords ensures the confinement of information to the concerned organization only. Antivirus softwares must be installed and kept up to date in order to protect data on computers, laptops and other devices. Confidential and personal information must not be shared or exchanged through Email as it does not guarantee safety. Although cloud is beneficial in sharing of large databases, the cloud services are not secure for hosting personal information but by implementing appropriate measures the security can be ensured. Tracking of the electronic records is a matter of concern due to the ever-growing pool of data. Tracking is needed for analysis, amendment and monitoring of the available information. A tracking system monitors the activities in the system and makes sure that the officials are performing the functions permitted to them.

Security should be implemented in a manner that an unauthorized user is not able to add, delete, modify or alter the available information and electronic records. These functions must be made accessible to authenticated and authorized officials. There lies high vulnerability in case of the information related to the security of a nation such as in the intelligence department. Various security measures need to be taken into account while designing procedures to comply with the existing needs of an organization. Some of them are records accessible only to relevant and permitted users, maintain backup to avoid data loss, skilled officials to employ safety measures against information theft, install and maintain anti-hacking softwares in all systems, abide by the security policies, standards and laws. Database security, technical security, key analytical data encryption, operating system security, physical security and software application security are the fundamentals that form a part of the security environment.

For E-governance applications, database maintenance and security must be assured because the information is vulnerable and prone to exploitation. In today's time, single encryption technology solely does not guarantee the security of a system. Therefore, advanced techniques like symmetrical encryption, asymmetrical encryption and hybrid encryption have been introduced that make the security system more effective [10]. Use of barcodes and digital signatures to safeguard electronic documents, password protection in data transfer devices, maintaining backup of the electronic records to prove their validity and avoid any legal issues are some of the measures that ensure data authenticity. Destruction of the records must be carried out with the same concern as their storage. In case of electronic records, the deleted data can often be recovered and thus their faultless destruction is a major issue. In addition to the manual deletion of data from disks, computers and other devices, special software tools must be used. In case a cloud has been used for storing the information, the records must be deleted in a manner that no traces are left. The erasure of records must be done in compliance with the rules and policies of the organization. The personnel need to take an approval from the higher officials before destructing confidential and crucial data [10]. The organizations should take various concerns into account while disposing of the information. Some of them are destroying the storage devices in case the data in these devices cannot be deleted completely, employing skilled and trained professionals for carrying out destruction of records who ensure safety of confidential, vulnerable and personal information, establishing and implementing specific steps and processes for destruction of records.

## VI. CONCLUSION

The advancement in technology has resulted in an efficient management of information under E-governance. From the analysis, we conclude that electronic record management and its security are the major concerns for any government. We discussed how cloud computing proves to be a beneficial technology due to the features of cloud such as accessibility, sustainability, scalability, etc. It caters to the needs of managing electronic records in various domains of E-governance. But, there is a need to monitor the cloud in order to ensure the security of the information.

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## AUTHOR PROFILE



**Poonam Kundu** is pursuing M.Tech. from ITM University. She did her B.Tech (ECE) from HCTM College, Kurukshetra University, Haryana with distinctions. She is currently working on LTE-OFDM technology.



**Parul Bansal** is pursuing M.Tech. from ITM University. She did her B.Tech (ECE) from Dronacharya College of Engineering, MDU, Haryana. She is currently working on femtocell and spectrum sensing technology.



**Kavita Choudhary** working as an Assistant Professor in Department of Computer Science in ITM University, Gurgaon. Currently, she is pursuing PhD from Banasthali University. She did her Post graduation with distinction from Guru Gobind Singh Indraprastha University. She did her graduation, B.Tech (CSE); in honors from University of Rajasthan. She have more than five year of teaching experience. Her core subjects are Software Engineering, Computer Networks, and Software Testing.