V Skills
Skills for a secure future

Certified E-Governance Professional Sample Material

V-Skills Certifications

**A Government of India
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V-Skills

Skills for a secure future

1. CONCEPTS AND EVOLUTION

e-Governance expands to Electronic-Governance. The word "electronic" in the term e-Governance implies technology driven governance. E-Governance is the application of Information and Communication Technology (ICT) for delivering government services, exchange of information communication transactions, integration various stand-one systems and services between Government-to-Citizens (G2C), Government-to-Business(G2B),Government-to-Government(G2G) as well as back office processes and interactions within the entire government frame work.

1.1. E-Government and need of e-governance

As explained earlier, e-governance is the use of a range of modern information and communication technologies such as Internet, local area networks, mobiles etc. by Government to improve the effectiveness and efficiency of service delivery and to promote democracy

Need for e-Governance

Countries have recognized Information Technology (IT) as an effective tool in catalyzing and achieving a efficient and effective governance. Hence, countries have made considerable investments in it and are successfully integrated it with their present policies and process, thereby reaping the benefits to their society. In India also these developments have been noted and considerable efforts have been undertaken by central and various state governments and their implementation agencies to deliver the benefits to the masses. This age of digital economy is continuously evolving and due to which, the concept of governance has also undergone lots of change with resulting in various questions to be answered by all stakeholders like

- ✓ How government can become more responsive and accessible?
- ✓ How can political and bureaucracy can provide better Government services
- ✓ How can the government use advanced technologies for transferring benefits, improving health care and education.

These questions have been addressed with adoption of e-governance. The e-Governance has consequently become an accepted methodology involving the use of Information Technology for

- ✓ Improving transparency
- ✓ Providing information speedily to all citizens at any time of the day
- ✓ Improving administration and bureaucratic efficiency
- ✓ Improving public services such as transportation, power, health, water and security.
- ✓ Accomplishing all the above in cost-effective manner

Today, a country like India, with 1.2 billion population, more than 600,000 villages, increasing aspirations of the citizens for better quality of life outlines the use of Information Technology in improving government processes has not just become vital but essential and without which it would be extremely difficult, if not impossible, to serve its citizens efficiently and transparently and ensure participation of larger number of people in decision making at all levels of Government – Centre, State and local.

1.2. Role of ICT

ICT applications are improving the delivery of public goods and services to common people by boosting the process and management of government. Possible areas to target include the provision of technology at low or no cost to vulnerable groups through community technology centers or out of working hours access thus, including all members of the community in the information society.

ICT has not only got deep linkages in governance but also are part of governance and has effects on governance patters and practices at both central, state and local level. By recognizing these facts, UNDP focuses on technologies to end poverty at WSIS Cyber Summit 2003, and emphasizes on ways that new technologies can help lift more than one billion people out of extreme poverty (UNDP, 2003). Apart from the four Asian IT giants (Korea, China, Taiwan, and Japan), most of the Asian countries have fallen under the "low access" category of the Digital Access Index.

1.3. Basic Concepts

The main objective of governance is the welfare of citizens by not only safeguarding the legal rights of all citizens but, also ensuring equitable access to public services and the benefits of economic growth to all. E-Governance is an productive tool for the government to discharge its functions more effectively. But, e-Governance requires the government to change its processes, outlook, laws, rules and regulations and also the manner of interaction with the citizens.

e-Governance is not just meant only for introducing or using technological tools, it is an tool focused towards bringing a change in mindset and work culture to integrate government processes and functions to serve the citizens better.

Hence, e-governance targets internally-focused utilization of information and internet technologies to manage organizational or governmental resources across it's departments like capital, human, material and machines with administering policies and procedures. The telecommunications network that facilitates e-governance is the Intranet.

The three main target groups that can be distinguished in e-governance concepts are government, citizens and businesses or interest groups and hence different E-Government mainly found across the world are Government-to-Citizen (or G2C), Government-to-Business (or G2B) and Government-to-Government (or G2G) depending upon the type of service.

1.4. Evolution

The term E-Government (e-Gov) emerged in the late 1990s, but the history of usage of IT in government organizations dates back to the beginnings of computer history. Some early projects on IT in government go back to the 1970s.

Just like the e-Commerce, E-Government also gained widespread acceptance with the Internet boom. However, it is not limited to providing applications on Internet or publicly accessible systems for direct use by citizens. E-Government started with government and bureaucrats struggling to meet the new challenges of governance and then using the Internet medium by implementing new systems creatively.

In India, e-governance goes back to the seventies with a focus on development of in-house government applications in the areas of defense, economic monitoring, planning and the deployment of IT to manage data intensive functions related to elections, census, tax administration etc. The efforts of the National Informatics Center (NIC) to connect all the district headquarters during the eighties was a very significant development.

During the introductory stages of ICT in governance there was widespread resistance with doubts of computerization cannot work in the complex government system, it may lead to un-employment and also doubts whether government employees at all levels would be able to handle computers. Though all these thought and resistance got easily cleared out with successful implementation of E-Government and ICT projects, especially the online ticket reservation system.

The Government of India established the Department of Electronics in 1970 and the National Informatics Centre (NIC) in 1977 which acted as baby steps for e-Governance in India by bringing 'information' and its communication in focus. In early 1980s, use of computers was limited to selected government departments and organizations. But, with emergence of personal computers the storage, retrieval and processing became cheaper and accessible to all.

e-Governance was boosted by the launch of NICNET in 1987 – the national satellite-based computer network. This was followed by the launch of the District Information System of the National Informatics Centre (DISNIC) programme to computerize all district offices in the country for which free hardware and software was offered to the State Governments. NICNET was extended via the State capitals to all district headquarters by 1990. In 1999, the Union Ministry of Information Technology was created. By 2000, a 12-point minimum agenda for e-Governance was identified by Government of India for implementation in all the Union Government Ministries/Departments.

e-Governance in India has steadily evolved from computerization of Government Departments to initiatives that include many aspects of Governance. Many initiatives by the Central and State governments to bring public services closer to the citizens have been taken. The National e-Governance Plan (NeGP), takes a holistic view of e-Governance initiatives across the country, integrating them into a collective vision and a shared cause.

1.5. Emerging Trends

The countries with remarkable e-governance initiatives are New Zealand, Canada and Singapore. E-Government in the United States was especially driven by the 1998 Government Paperwork Elimination Act and by President Clinton's December 17, 1999, Memorandum on E-Government, which ordered the top 500 forms used by citizens to be placed online by December 2000. The memorandum also directed agencies to construct a secure E-Government infrastructure.

Various technological changes have emerged and are affecting the e-governance scenario, they include

Web 2.0 - Web 2.0 describes web sites that use technology beyond the static pages of earlier web sites. It does not refer to new technology, but to changes in development and usage of web pages. A Web 2.0 web site usually allows users to interact and collaborate with each other just like in

society similarly user generates content in a virtual community. Examples of Web 2.0 include social networking sites, blogs, wikis, and video sharing sites.

Since 2003, a new wave of web-based applications, which now go under the name of web 2.0, have been launched with very little investment and have encountered dramatic success in terms of take-up. These applications rely on the concept of the user as a producer of content (blog, wiki, Flickr), taste/emotion (Last.fm, de.li.cious), contacts (MySpace), and reputation/feedback (eBay, TripAdvisor).

While Web 2.0 has captured the media's attention, the vast majority of citizens and businesses are comfortable in the Web 1.0 world. As a result government shouldn't neglect its 'traditional' online offerings. As with any online initiative, government Web 2.0 approaches should be fundamentally based on a set of core principles

- ✓ What solutions will deliver the greatest benefit to citizens and businesses?
- ✓ Which of these are most likely to be adopted and used?
- ✓ What are their likely costs and ease of implementation?
- ✓ How effectively can associated risks by managed?

SOA - SOA or Service-Oriented Architecture, is an application architecture in which all functions, or services, are defined using a description language and have invokable interfaces that are called to perform business processes. As interfaces are platform-independent, a client from any device using any operating system in any language can use the service.

Service-oriented architectures have the following key features

- ✓ SOA services have self-describing interfaces in platform-independent XML documents. Web Services Description Language (WSDL) is the standard used to describe the services.
- ✓ SOA services communicate with messages formally defined via XML Schema (also called XSD).
- ✓ SOA services are maintained in the organizations by a registry that acts as a directory listing.
- ✓ Each SOA service has a quality of service (QoS) associated with it.

SOA with its loosely coupled nature allows organizations to plug in new services or upgrade existing services in a granular fashion to address the new business requirements, provides the option to make the services consumable across different channels, and exposes the existing enterprise and legacy applications as services, thereby safeguarding existing IT infrastructure investments.

Cloud computing - It refers to a type of Internet-based computing, where different IT services like servers, storage and applications, are delivered to user's computers and devices through the Internet.

Five features of cloud computing are
- ✓ On-demand self service - Consumers can use the cloud service i.e., computing capabilities, network storage and application 24/7 without any human interaction with cloud service provider.

- ✓ Broad network access - Cloud computing capabilities are available on Internet which can be accessed through standard
- ✓ mechanism by both thick and thin clients (laptops, mobile phones, PDAs etc).
- ✓ Resource pooling - Physical and virtual resources are assigned and re-assigned to the consumers according to their
- ✓ demand using multi tenant model.
- ✓ Rapid elasticity - Cloud computing has the ability to scale resources both up and down as needed. The cloud appears to be infinite to the consumers, and the consumer can purchase as much or as little computing power according to their need.
- ✓ Measured service - Measured services are one of the essential characteristics of the cloud computing where services and resources usage is constantly monitored, controlled and reported for fair pay-as-you-go model implementation.

The three cloud delivery models are

- ✓ Cloud Software as a Service (SaaS): Cloud consumers use software applications, but do not control the operating system
- ✓ hardware or network infrastructure on which they are running.
- ✓ Cloud Platform as a Service (PaaS): Cloud consumers use the platform upon which applications can be developed and executed.
- ✓ Cloud Infrastructure as a Service (IaaS): Cloud consumers use basic computing resources such as processing power, storage, networking components or middleware on demand.

Cloud computing is gaining prominence in e-governance due to various benefits as against the traditional rollout of E-Government projects, as government services are available by internet, it is available 24x7 anytime and anywhere. It also enables quick deployment of new applications or update to existing applications as by quickly updating or launching new functionality in the website.

Big Data - It is used to describe a massive volume of both structured and unstructured data that is so large that it's difficult to process using traditional database and software techniques. The challenges include capture, curation, storage, search, sharing, transfer, analysis and visualization. Few examples of big data are

- ✓ VISA processes more than 172,800,000 card transactions each day.4
- ✓ 500 million tweets are sent per day. That's more than 5,700 tweets per second.
- ✓ Facebook has more than 1.15 billion active users generating social interaction data.

After Edward Snowden's (a former National Security Agency) revelation of US Government's surveillance programme, Prism, for cyber espionage, it focused the processing and analytics of vast data in audio, voice chats, emails, images by big data. However, though big data is being used for national security purposes, it could be equally useful in reforming the government and citizen interface. Big data analytics of conversation on social media space can help in shaping manifestoes of political parties. If government observes people's perception over social media then, it can analyze trend and make an algorithm with data points, if 80% of data points start working in single direction, then it shows empirically there is unrest in a particular territory. This could lead to preventive action but, the issues of privacy and data security equally need to be debated.