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Higher Education for All

# E-GOVERNANCE IN INDIA

## COURSE CODE: B23PS02SE

Undergraduate Programme in Political Science
Skill Enhancement Course
Self Learning Material

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# SREENARAYANAGURU OPEN UNIVERSITY

The State University for Education, Training and Research in Blended Format, Kerala

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## Vision

*To increase access of potential learners of all categories to higher education, research and training, and ensure equity through delivery of high quality processes and outcomes fostering inclusive educational empowerment for social advancement.*

## Mission

To be benchmarked as a model for conservation and dissemination of knowledge and skill on blended and virtual mode in education, training and research for normal, continuing, and adult learners.

## Pathway

Access and Quality define Equity.

# E-Governance in India

Course Code: B23PS02SE

Semester - V

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**Skill Enhancement Course**

**Undergraduate Programme in Political Science**

**Self Learning Material**

**(With Model Question Paper Sets)**

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# E-GOVERNANCE IN INDIA

Course Code: B23PS02SE
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Undergraduate Programme in
Political Science


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# MESSAGE FROM VICE CHANCELLOR

Dear learner,

I extend my heartfelt greetings and profound enthusiasm as I warmly welcome you to Sreenarayanaguru Open University. Established in September 2020 as a state-led endeavour to promote higher education through open and distance learning modes, our institution was shaped by the guiding principle that access and quality are the cornerstones of equity. We have firmly resolved to uphold the highest standards of education, setting the benchmark and charting the course.

The courses offered by the Sreenarayanaguru Open University aim to strike a quality balance, ensuring students are equipped for both personal growth and professional excellence. The University embraces the widely acclaimed "blended format," a practical framework that harmoniously integrates Self-Learning Materials, Classroom Counseling, and Virtual modes, fostering a dynamic and enriching experience for both learners and instructors.

The University aims to offer you an engaging and thought-provoking educational journey. The UG programme in Political Science offers a comprehensive study of political processes and structures. It balances theory and practice, providing essential analytical tools. The curriculum follows a chronological progression of political thought and examines various systems and international relations. Designed for aspiring civil servants and future policymakers, it also develops critical thinking skills. The course prepares learners for careers in public service, diplomacy, and political consultancy. The Self-Learning Material has been meticulously crafted, incorporating relevant examples to facilitate better comprehension.

Rest assured, the university's student support services will be at your disposal throughout your academic journey, readily available to address any concerns or grievances you may encounter. We encourage you to reach out to us freely regarding any matter about your academic programme. It is our sincere wish that you achieve the utmost success.

Regards,
Dr. Jagathy Raj V. P.

01-09-2026

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BLOCK

# Introduction to E-Governance In India

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UNIT

# Definition and Concept of E-Governance

## Learning Outcomes

Upon the completion of this unit, learner will be able to:

- explain the meaning, concept, objectives and significance of e-governance and distinguish it from e-government
- identify and analyse the four major interaction models of e-governance—G2C, G2B, G2G and G2E—with suitable Indian examples
- describe and evaluate the four major pillars of e-governance: People, Process, Technology and Resources
- explain the Gartner Maturity Model and distinguish its four stages—Information, Interaction, Transaction and Transformation
- assess the importance of User Experience (UX), accessibility, multilingual support, mobile-first design and Service Blueprints in creating inclusive and citizen-centric digital governance

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## Prerequisite

Before beginning this unit, learners should have a basic understanding of government, public administration, citizens, public services and the role of Information and Communication Technology (ICT) in everyday life. Think about how many activities that once required a visit to a government office can now be performed using a mobile phone or computer—such as applying for a passport, downloading digital documents, paying taxes or utility bills, registering complaints and accessing government schemes. This everyday experience provides an excellent starting point for understanding e-governance. Learners should also understand that government is not merely about making laws but also about delivering services, maintaining records, communicating with citizens, and responding to public needs. With this

foundation, students can understand why e-governance seeks to make administration more efficient, transparent, accountable, inclusive and citizen-focused, and how digital technologies can transform the relationship between government and society.

## Keywords

E-Government, ICT, G2C, G2B, G2G, G2E, Digital India, Gartner Maturity Model, User Experience (UX)

## Discussion

**Conceptual Foundations & Terminology**

The rise of Information and Communication Technology (ICT) has transformed government operations globally, with increasing reliance on digital tools to improve efficiency, public service quality, and citizen engagement. In India, e-governance plays a crucial role in streamlining government processes and reducing paperwork, wait times, and corruption by facilitating communication among governments, citizens, and businesses through online platforms. Understanding e-governance is essential for Political Science students, as it illustrates technology's impact on democracy and governance. E-governance aims not only to expedite governmental tasks but also to improve overall governance by employing ICT tools like computers and the internet to create a more transparent, accountable, and citizen-focused administration. It strives to simplify government functions, deliver better services, reduce costs, and foster public trust by making government information and services readily accessible online, thereby enhancing convenience for citizens.

Several key ideas underpin e-governance:

1. Citizen-Focused Governance: Prioritizes the needs of citizens by offering services through digital tools, reducing the need for physical visits to government offices.
2. Transparency: Ensures government decisions and processes are publicly accessible online, fostering accountability and reducing corruption.
3. Accountability: Digital systems maintain detailed records, holding officials responsible for their actions.
4. Efficiency: Automates tasks using technology, minimizing errors and expediting decision-making.
5. Inclusiveness: Aims to ensure that diverse groups, including marginalized communities, can access digital governance.

Key concepts include Information and Communication Technology (ICT), which encompasses tools that support information management, and Electronic Service Delivery, which enables online access to government services. Digital identity systems, like India's Aadhaar, facilitate secure online verification for services. Open Government Data promotes data transparency for innovation and research, while digital literacy is essential to use these technologies effectively. Together, these elements illustrate how e-governance systems function.

Although e-government and e-governance are often conflated, they possess distinct

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meanings and objectives. E-government primarily focuses on government entities using Information and Communication Technology (ICT) to deliver public services electronically, improving operational efficiency and access. Examples include online tax filing and access to digital records. In contrast, e-governance has a broader scope, aiming to improve government functionality through greater transparency, accountability, public engagement, and democratic processes. It emphasizes collaboration between citizens and government in policy-making and administrative tasks. Thus, while e-government is a component of e-governance, effective governance also requires infrastructural support, legal frameworks, institutional capacity, and citizen participation.

India's Digital India Programme has initiated various e-government and e-governance projects to enhance government operations and service delivery. Key platforms include DigiLocker for document storage, UMANG for accessing government services, and Passport Seva for online passport applications. The Government e-Marketplace (GeM) promotes transparent procurement, while MyGov enables citizen feedback on policies, and CPGRAMS allows for online complaint filing and tracking. These initiatives highlight the distinction between e-government, focused on digital infrastructure, and e-governance, which emphasizes citizen participation, transparency, accountability, and collaborative decision-making. Analyzing local government websites can further clarify the difference between informational services, which provide details without requiring action, and transactional services that involve official processes.

Transactional e-governance services allow citizens to complete official tasks online—such as paying taxes and utilities, applying for certificates or permits, and filing complaints. Unlike purely informational sites, these services require user registration, digital verification, and electronic payments, eliminating the need for in-person visits while reducing administrative delays.

Analyzing these platforms helps public administration students bridge the gap between classroom theory and real-world practice. By evaluating a local government website's ease of use and service gaps, students gain firsthand insight into how technology makes governance more efficient, transparent, and inclusive.

### 1.1.2 The Four Interaction Models (G2C, G2B, G2G, G2E)

E-governance is built on the principle of using Information and Communication Technology (ICT) to improve the interaction between the government and its various stakeholders. Since governments perform multiple functions and interact with different sections of society,commonly used introductory classification identifies four major e-governance interaction models: Government to Citizen (G2C), Government to Business (G2B), Government to Government (G2G), and Government to Employee (G2E Each model addresses the specific needs of a particular group and aims to improve efficiency, transparency, accountability, and service delivery. Together, these four models form the backbone of modern digital governance and play a crucial role in achieving the objectives of good governance in India.

The Government to Citizen (G2C) model refers to the interaction between government institutions and ordinary citizens through digital platforms. Its primary objective is to provide public services conveniently, efficiently, and transparently without requiring citizens to visit government offices repeatedly. G2C services focus on improving the quality of life by making

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essential government services accessible online. Through official websites, mobile applications, and Common Service Centres (CSCs), citizens can apply for certificates, pay utility bills, register grievances, access welfare schemes, file income tax returns, apply for passports, renew driving licences, and obtain various government documents. The Government of India has introduced several successful G2C initiatives under the Digital India Programme, such as DigiLocker, which allows citizens to securely store and access digital documents; UMANG (Unified Mobile Application for New-age Governance), which provides access to hundreds of government services through a single mobile application; Passport Seva, which simplifies passport applications and appointments; and the Centralized Public Grievance Redress and Monitoring System (CPGRAMS), which enables citizens to submit complaints and track their resolution online. These initiatives have reduced paperwork, increased transparency, minimized corruption, and improved citizen satisfaction by making government services more accessible.

The Government-to-Business (G2B) model refers to interactions between government agencies and the business community. The main objective of G2B is to create a business-friendly environment by simplifying regulatory procedures, reducing compliance costs, promoting transparency, and encouraging economic growth. Businesses must interact regularly with government departments for taxation, licensing, registrations, approvals, procurement, and regulatory compliance. E-governance enables these interactions digitally, reducing delays and administrative burdens. One of the most significant examples of G2B in India is the Goods and Services Tax (GST) system, which allows businesses to register, file tax returns, upload invoices, claim input tax credit, and make tax payments through the GST portal. Other important examples include the Government e-Marketplace (GeM), where businesses supply goods and services to government departments through an online procurement platform; the Ministry of Corporate Affairs (MCA21) portal, which facilitates company registration and corporate filings; and online systems for obtaining environmental clearances, import-export licences, and industrial approvals. By digitizing these services, G2B promotes ease of doing business, reduces corruption, enhances transparency, and encourages investment.

The Government to Government (G2G) model involves the electronic exchange of information and coordination between different government departments and agencies. Governments comprise numerous ministries, departments, state governments, district administrations, and local bodies that must regularly share information and coordinate activities. Traditionally, such communication relied on paper files and lengthy administrative procedures, causing delays and inefficiencies. G2G e-governance enables seamless digital communication through integrated databases, electronic file management systems, video conferencing, and secure information-sharing platforms. In India, initiatives such as the e-Office system allow government officials to process files electronically, reducing paper usage and improving administrative efficiency. The Crime and Criminal Tracking Network and Systems (CCTNS) connects police stations across the country, enabling faster investigation and information sharing. Digital land record systems, integrated financial management systems, and electronic treasury management are other examples of G2G applications. These systems strengthen coordination among government agencies, improve decision-making, reduce duplication of work, and enhance the overall efficiency of public administration.

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The Government to Employee (G2E) model focuses on digital interaction between government organizations and their employees. Government employees require various administrative services throughout their careers, including salary management, leave applications, pension processing, training programmes, performance evaluation, promotions, service records, and grievance redressal. G2E systems digitize these processes, making personnel management more efficient and transparent. Employees can access online portals to view salary slips, submit leave requests, download service records, participate in online training programmes, and monitor pension benefits. In India, the Integrated Financial Management System (IFMS), electronic Human Resource Management Systems (e-HRMS), online pension portals, and employee self-service portals are examples of G2E initiatives. These systems reduce administrative delays, improve communication between departments and employees, increase transparency in personnel management, and enhance employee satisfaction and productivity.

Although all four interaction models use digital technology, they differ in their primary stakeholders and objectives. The G2C model focuses on improving citizen welfare through efficient public service delivery. G2B aims to promote economic development by simplifying interactions between government and businesses. G2G strengthens coordination and information sharing among government institutions, while G2E improves the internal administration and management of government employees. Together, these four models create an integrated digital governance ecosystem that enhances administrative efficiency, transparency, accountability, responsiveness, and public trust.

A practical understanding of these interaction models can be developed by examining the data flow involved in different digital services. Consider the example of a citizen applying for a birth certificate online, which represents the Government to Citizen (G2C) model. The process begins when the citizen accesses the official municipal or local government website and logs in using a registered account or mobile number. This is an illustrative workflow for online birth registration .The actual process may vary by state and local government body. The applicant fills in the online application form by entering personal details such as the child's name, date of birth, place of birth, parents' names, and hospital information. The applicant uploads supporting documents, including hospital records or identity proof. Once submitted, the application is stored in the government database, where it is verified by the concerned municipal officials. If additional verification is required, the application may be electronically forwarded to hospitals or local administrative authorities. After successful verification, the system digitally generates the birth certificate, the authorized officer approves it, and the portal makes it available for download. The applicant also receives SMS or email notifications about the application status. This process demonstrates how digital technology simplifies public service delivery while ensuring transparency, efficiency, and convenience for citizens.

The data flow in the case of a business filing Goods and Services Tax (GST) represents the Government to Business (G2B) model and involves a more complex exchange of financial and commercial information. The business first logs into the GST portal using its GST Identification Number (GSTIN) and secure authentication credentials. It uploads sales invoices, purchase invoices, tax details, and other financial records into the system. The GST portal processes and validates the information the taxpayer submits, including invoice details and input tax credit claims, under applicable GST rules. Based on the

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verified information, the system determines the tax liability and applicable input tax credit, and processes refunds and penalties according to the relevant provisions. The taxpayer can then make the required tax payment electronically through the GST portal using the available payment options. The GST portal processes and validates the information the taxpayer submits, including invoice details and input tax credit claims, as per the applicable GST rules. Based on the verified information, the system determines the tax liability and applicable input tax credit, and processes refunds and penalties according to the relevant provisions. The taxpayer can then make the required tax payment electronically through the GST portal using the available payment options. The GST Network (GSTN) stores all transaction records and shares relevant information with the Central Board of Indirect Taxes and Customs (CBIC), State GST departments, and other authorized government agencies. Businesses receive electronic acknowledgements, payment receipts, and compliance reports through the portal. Compared with the G2C birth certificate process, GST filing involves larger volumes of financial data, ongoing interaction across multiple government agencies, automated tax calculations, and strict compliance monitoring.

This comparison highlights the different objectives of G2C and G2B models. In the birth certificate application, the primary objective is to deliver a public service to an individual citizen efficiently and transparently. The data involved is mainly personal and demographic, and the interaction usually concludes once the certificate is issued. In contrast, GST filing involves continuous regulatory compliance by businesses, complex financial transactions, tax calculations, electronic payments, and regular interaction with multiple government authorities. While both processes rely on secure digital infrastructure, online authentication, electronic databases, and automated workflows, the nature of information processed and the objectives of service delivery differ significantly. Understanding these interaction models and their practical applications helps Political Science students appreciate how e-governance transforms governance by making public administration more efficient, transparent, citizen-centric, and responsive to society's needs.

### 1.1.3 The Pillars and Maturity Models of E-Governance

E-governance uses Information and Communication Technology (ICT) to deliver efficient, transparent, and accountable public services. Its success depends on effectively integrating four core pillars: human resources, administrative processes, technological infrastructure, and financial support.

Rather than digitizing overnight, governments progress through stages of digital maturity. The Gartner Maturity Model outlines this evolution across four distinct phases:

- Information: Providing basic online data.
- Interaction: Enabling basic two-way communication.
- Transaction: Processing official tasks and payments online.
- Transformation: Completely restructuring governance systems digitally.

Together, these pillars and maturity stages provide a roadmap for implementing and evaluating modern e-governance.

The first pillar of e-governance is People, the most important element of any digital governance system. Technology alone cannot ensure successful governance unless people are willing and able to use it effectively. The people component includes government officials, policymakers, technical experts,

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employees, citizens, businesses, and other stakeholders who participate in the governance process. Government officials must possess the knowledge and skills required to operate digital systems, manage electronic records, and provide online services. Citizens must also have adequate digital literacy to access government websites, mobile applications, and online services. Capacity-building programmes, digital literacy campaigns, and regular training are therefore essential for the successful implementation of e-governance. In India, initiatives such as the Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) aim to improve digital literacy among rural citizens. At the same time, training programmes for government employees strengthen their ability to work in digital environments. Public awareness and citizen participation further support effective e-governance by encouraging people to use digital services and engage with government institutions.

The second pillar is Process, which refers to the administrative procedures, rules, workflows, and decision-making mechanisms through which government functions are carried out. Merely converting paper-based procedures into digital formats does not constitute effective e-governance. Instead, governments must redesign and simplify processes to eliminate unnecessary delays, duplication of work, and bureaucratic complexity. This approach, known as Business Process Re-engineering (BPR), involves reviewing and restructuring administrative procedures before digitization. Efficient processes improve service delivery, reduce processing time, minimize corruption, and enhance citizen satisfaction. For example, online passport applications, digital land records, and electronic procurement systems have simplified administrative procedures by reducing paperwork and enabling faster processing. Well-designed processes ensure that technology supports governance rather than merely automating inefficient systems.

The third pillar is Technology, which forms the backbone of e-governance by providing the infrastructure necessary for digital administration. Technology includes computers, servers, communication networks, internet connectivity, cloud computing, software applications, databases, cybersecurity systems, mobile platforms, artificial intelligence, and digital authentication mechanisms. Reliable technological infrastructure enables governments to deliver services online, maintain secure digital records, facilitate interdepartmental communication, and ensure continuous access to public services. In India, initiatives such as DigiLocker, UMANG, Aadhaar, the Government e-Marketplace (GeM), and the e-Office system demonstrate how technology supports efficient governance. At the same time, governments must ensure data privacy, cybersecurity, regular software updates, and protection against cyber threats to maintain public trust in digital systems. Thus, technology is not only a tool for automation but also an enabler of transparency, efficiency, and innovation in governance.

The fourth pillar is Resources, which includes the financial, institutional, legal, and organizational support required to implement and sustain e-governance initiatives. Establishing digital infrastructure, maintaining secure databases, developing software applications, training personnel, upgrading technology, and ensuring cybersecurity require substantial financial investment. Governments must allocate adequate budgets and establish institutional mechanisms to manage e-governance projects effectively. Resources also include legal frameworks such as the Information Technology Act, 2000, data protection regulations, administrative policies, and institutional coordination among different government departments. Public-private partnerships, international cooperation, and collaboration with technology companies

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often strengthen the resource base for e-governance. Without adequate financial, legal, and institutional support, even technologically advanced systems may fail to achieve their intended objectives.

The success of e-governance requires a balanced, holistic integration of four interdependent pillars:

- Human Resources: Skilled personnel to manage and use digital systems.
- Administrative Processes: Simplified workflows that fix inefficiencies rather than just digitizing them.
- Technological Infrastructure: Advanced systems to ensure secure, efficient service delivery.
- Institutional Capacity: Sufficient financial and organizational resources to ensure long-term sustainability.

Because a weakness in any single pillar undermines the entire system.Governments must ensure adequate and appropriately balanced investment in human capital, administrative reform, technological innovation, and financial resources, based on their specific needs and institutional capacity.

In addition to these foundational pillars, the Gartner Maturity Model explains how governments gradually progress from a basic digital presence to fully integrated digital governance. Developed by the global research and advisory firm Gartner, this model identifies four stages of e-governance maturity: Information, Interaction, Transaction, and Transformation. Each stage reflects increasing technological sophistication, citizen engagement, and administrative integration.

The first stage is Information, which represents the initial level of e-governance development. At this stage, government departments establish official websites to provide basic information to the public. Citizens can access information about government schemes, departmental functions, office addresses, contact details, notifications, circulars, budget documents, laws, regulations, public announcements, and downloadable forms. Communication is largely one-way, with the government providing information while citizens act as passive recipients. Although this stage does not allow online transactions, it significantly improves transparency by making government information easily accessible. Most government websites initially begin with this stage before introducing more advanced digital services.

The second stage is Interaction, where communication becomes two-way between the government and citizens. Instead of merely accessing information, citizens can interact with government departments through online platforms. They can submit feedback, register grievances, send queries, participate in surveys, download and upload application forms, communicate through email, and engage in online consultations. Government departments also respond electronically to citizen requests and complaints. Interaction improves public participation, responsiveness, and accountability by encouraging dialogue between government institutions and the public. Online grievance redressal systems, email communication, discussion forums, and public consultation portals are examples of this stage. Although financial transactions may still not be available, the government begins to establish meaningful digital relationships with citizens.

The third stage is Transaction, which marks a major advancement in e-governance. At this stage, citizens, businesses, and government employees can complete entire government procedures online without visiting government offices. Secure authentication systems, digital payments, electronic signatures, and

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integrated databases enable users to apply for certificates, pay taxes, renew licences, submit applications, register businesses, receive welfare benefits, and access numerous public services electronically. Examples include online income tax filing, GST payments, passport applications, digital land records, online scholarship applications, utility bill payments, and electronic procurement through the Government e-Marketplace (GeM). Transactional e-governance significantly improves administrative efficiency by reducing paperwork, processing time, operational costs, and opportunities for corruption while enhancing convenience for users.

The fourth and final stage is Transformation, which represents the highest level of e-governance maturity. At this stage, digital technology fundamentally transforms the entire governance system rather than merely automating individual services. Government departments become fully integrated through shared databases, interoperable information systems, cloud computing, artificial intelligence, and real-time data sharing. Citizens can access multiple government services through a single digital platform without interacting separately with different departments. Decision-making becomes data-driven, service delivery becomes proactive, and governance becomes more citizen-centric. India's UMANG application, which integrates hundreds of government services into one platform, and the Digital India Programme, which aims to create a unified digital ecosystem, illustrate the movement toward transformational e-governance. At this stage, the focus shifts from digital service delivery to digital governance, where technology supports policy formulation, public participation, transparency, innovation, and collaborative decision-making.

The Gartner Maturity Model underscores that e-governance is an ongoing process of development, not a one-time project. Advancing through its stages requires parallel upgrades to infrastructure, cybersecurity, legal frameworks, and digital literacy.

For Political Science students, combining the Four Pillars (People, Process, Technology, Resources) with this maturity model provides a complete framework to analyze digital governance. Together, they show how technology modernizes public administration, expands democratic participation, and turns basic online information into secure, citizen-centric good governance.

### 1.1.4 Core Competency: User Experience (UX) in Public Systems

The success of e-governance depends heavily on User Experience (UX), as public digital platforms must be easy to navigate, fast, and accessible to serve citizens effectively. Unlike private websites, government portals operate under citizen-centric governance. They must accommodate a highly diverse population—including senior citizens, rural residents, and individuals with disabilities or limited digital literacy. By incorporating simple language, clear navigation, and secure, efficient forms, good UX minimizes user confusion and errors. Ultimately, prioritizing inclusive design over administrative convenience reduces the need for in-person office visits, boosts public satisfaction, and builds the trust required to drive widespread adoption of online public services.

Despite significant progress in e-governance, many government portals still face usability challenges due to poor accessibility, which excludes millions of citizens from essential public services. To ensure universal inclusion, digital platforms must follow the Web Content Accessibility Guidelines (WCAG) established by the World Wide Web Consortium (W3C). These

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international standards are built on four core principles: content must be Perceivable (offering text, audio, or visual alternatives), Operable (navigable via keyboards, screen readers, or voice commands), Understandable (simple, predictable, and clear), and Robust (compatible across various browsers, devices, and assistive technologies). Adhering to these principles is vital for preventing the digital exclusion of individuals with physical or cognitive disabilities and achieving truly inclusive governance.

The limited success of many government portals can also be traced to a lack of vernacular language support, which creates a sharp digital divide between fluent English or Hindi speakers and India's vast, multilingual population. When official sites fail to offer regional languages like Malayalam, Tamil, or Bengali, millions of rural or less-educated citizens struggle to understand eligibility criteria, apply for schemes, or complete transactions. To bridge this gap, digital governance must provide multilingual interfaces, accurate translations, and voice-based assistance. Prioritizing regional language support—as emphasized by the Digital India Programme—is essential to ensure that online public services are truly accessible to every citizen, regardless of their linguistic background.

A third major challenge is the failure to adopt a mobile-first design. India has witnessed rapid growth in smartphone usage, and for millions of citizens, particularly in rural and semi-urban areas, mobile phones are the primary means of accessing the internet. Many users do not own desktop computers or laptops and rely entirely on smartphones for accessing government services. However, several government websites are designed primarily for desktop computers and do not function effectively on mobile devices. Small fonts, poorly aligned forms, difficult navigation, excessive scrolling, slow loading speeds, and incompatible layouts make these websites difficult to use on smartphones. A mobile-first approach means designing digital services primarily for mobile devices before adapting them for larger screens. Mobile-first design emphasizes responsive layouts, simplified navigation, touch-friendly buttons, optimized images, faster loading, minimal data usage, and compatibility with different screen sizes. Government mobile applications such as UMANG (Unified Mobile Application for New-age Governance) show the benefits of mobile-first service delivery by letting citizens access hundreds of government services through smartphones.

Beyond accessibility and language barriers, government portals often fail because of routine usability issues like outdated information, broken links, clunky search tools, and complex authentication systems. Users often have to resubmit the same data because backend databases aren't integrated across departments, while high-traffic server crashes and technical jargon create widespread frustration. Combined with poor user support, inconsistent design, and weak cybersecurity, these systemic failures erode public confidence. Ultimately, instead of streamlining public administration, these digital hurdles discourage citizens and push them to abandon online platforms for traditional, offline bureaucracy.

To optimize public systems, governments must adopt international design principles that place citizens at the center of digital governance. Portals should feature clear language, logical navigation, mobile responsiveness, multilingual options, robust cybersecurity, and WCAG accessibility compliance. Integrating databases across departments is also essential to eliminate repetitive data entry. Furthermore, governments should implement continuous feedback loops and regular usability testing with diverse citizen groups to catch performance issues early. By training public

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officials in digital service design and fostering collaboration among administrators, tech experts, and the community, public platforms can become highly efficient, inclusive, and user-friendly.

In India, initiatives under the Digital India Programme, including UMANG, DigiLocker, Aadhaar-enabled services, MyGov, and Common Service Centres (CSCs), have made significant progress in improving user experience by providing integrated digital services and expanding access to citizens across the country. However, continuous efforts are required to ensure that every government portal follows accessibility standards, supports regional languages, and functions efficiently on mobile devices. A well-designed user experience not only increases the adoption of digital services but also strengthens transparency, accountability, citizen participation, and trust in government institutions. Therefore, User Experience has become a core competency in modern public administration and an essential requirement for achieving the objectives of effective and inclusive e-governance.

### 1.1.5 Practical Lab: Designing a Service Blueprint

A Service Blueprint is a strategic planning tool that maps a public service's entire delivery process, helping governments transition manual, paper-based operations into efficient, digital workflows.A service blueprint maps the service from the user's perspective and shows the organisational processes that support service delivery. It commonly includes customer or user actions, frontstage actions, backstage actions, support processes, and physical or digital evidence, with elements often separated by the line of interaction and the line of visibility. By integrating these components, the blueprint creates a seamless workflow where citizen submissions are instantly validated, electronically approved by officials, and delivered as digitally signed certificates, allowing public administration students to practically analyze how process re-engineering can eliminate bureaucratic delays and modernize governance.

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## Recap

- E-governance uses ICT to improve government functioning, public service delivery and citizen engagement.
- It aims to make governance more transparent, accountable, efficient, inclusive and citizen-centric.
- E-government mainly focuses on electronically delivering government services, whereas e-governance has a broader emphasis on participation, transparency, accountability and collaborative governance.
- The four interaction models are G2C, G2B, G2G and G2E.
- G2C connects government with citizens through services such as certificates, passports and grievance redressal.

- G2B facilitates government-business interactions such as GST filing and online procurement.
- G2G enables information sharing and coordination between government departments and agencies.
- G2E provides digital administrative services to government employees.
- The four pillars of e-governance are People, Process, Technology and Resources.
- The Gartner Maturity Model consists of Information, Interaction, Transaction and Transformation stages.
- Good UX requires clear navigation, accessibility, simple language, multilingual support and mobile-friendly design.
- WCAG promotes accessible digital services through the principles of Perceivable, Operable, Understandable and Robust design.
- A Service Blueprint maps the complete delivery process of a digital public service

## Objective Questions

1. What is meant by e-governance?
2. What does ICT stand for?
3. What is the full form of G2C?
4. What is the full form of G2B?
5. Which e-governance model deals with interaction between government departments?
6. What are the four major pillars of e-governance?
7. What are the four stages of the Gartner Maturity Model?
8. Which stage of the Gartner Maturity Model enables online transactions and payments?
9. What is the full form of UX in e-governance?
10. What are the major components commonly included in a service blueprint?

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## Answers

1. Electronic governance (e-governance)
2. Information and Communication Technology
3. Government to Citizen
4. Government to Business
5. Government to Government (G2G)
6. People, Process, Technology, and Resources
7. Presence, Interaction, Transaction, and Transformation
8. Transaction stage
9. User Experience
10. User actions, frontstage actions, backstage actions, support processes, and physical/digital evidence

## Assignments

1. Explain the concept and significance of e-governance in India.
2. Discuss the four interaction models of e-governance: G2C, G2B, G2G and G2E.
3. Discuss the four pillars of e-governance — People, Process, Technology and Resources.
4. Examine the challenges of accessibility, multilingual support and mobile-first design in Indian e-governance.
5. Design and explain a Service Blueprint for an online government service, showing its front-end interface, back-end database and verification process

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UNIT

# Historical Evolution of E-Governance in India

## Learning Outcomes

Up on completion of this unit, the learner will be able to:

- explain the historical evolution of e-governance in India from traditional paper-based administration to modern digital governance
- identify and analyse major milestones such as the establishment of NIC, NICNET, economic liberalization, and the emergence of the internet in India
- discuss important state-level initiatives such as Bhoomi, Gyandoot, e-Seva/MeeSeva and Kerala's Akshaya Project
- evaluate the significance of the National e-Governance Plan (NeGP), Mission Mode Projects, Common Service Centres and Aadhaar in transforming public service delivery
- assess the impact, challenges and prospects of e-governance, including Digital India and emerging technologies such as AI, Big Data, Cloud Computing, Blockchain and IoT

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## Prerequisite

Before studying the historical evolution of e-governance, learners should imagine what it would be like to complete an ordinary government service without a computer, internet or smartphone. In the traditional administrative system, citizens often had to travel to government offices, stand in queues, submit multiple paper documents and wait for files to move from one office to another. Population growth and expanding government responsibilities gradually made these systems increasingly difficult to manage. The introduction of computers, followed by networking, internet services, digital identity and mobile applications, progressively changed this experience. Understanding this transformation—from paper files and physical

offices to online services, smartphones, and integrated digital platforms—will help learners appreciate why each stage in India's e-governance journey mattered and how technological development gradually changed the relationship between citizens and government.

## Keywords

NIC, NICNET, Economic Liberalization, Bhoomi, Gyandoot, Akshaya, NeGP, Mission Mode Projects, Digital India

## Discussion

### 1.2.1 Introduction

The evolution of e-governance in India marks a major administrative shift. Post-independence governance initially relied on manual, paper-based processes, which became inadequate as the population grew and demand for faster, transparent public services increased. Recognizing the power of Information and Communication Technology (ICT), India moved beyond basic office automation to integrate digital platforms that boost efficiency, transparency, and citizen participation.

This progression occurred in distinct phases, balancing technological innovation with challenges like geographical diversity and socio-economic inequality. Aligning with global shifts toward public administration efficiency, India developed a unique digital governance model focused on social welfare. From establishing the National Informatics Centre (NIC) in 1976 to launching Digital India in 2015, initiatives like UMANG, DigiLocker, and CoWIN have transformed public service delivery right onto citizens' smartphones.

### 1.2.2 Governance before Computerization: The Traditional Administrative System

Before computers, India's governance relied on manual, paper-based systems requiring vast physical archives. Inherited from British colonial rule, this centralized hierarchy prioritized procedural accountability but created lengthy delays, human errors, and frequent file losses. Citizens faced multiple office visits, excessive paperwork, and long wait times, which increased opportunities for corruption and discretionary decisions.

Information accessibility and inter-departmental communication were severely limited by reliance on physical correspondence. As post-independence Five-Year Plans expanded state responsibilities in rural development, health, and education, paper systems could no longer handle the massive volume of administrative data. Rapid population growth further overwhelmed traditional processes, convincing policymakers that computerization was essential for efficient, modern administration.

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### 1.2.3 The Beginning of Computerization: The First Phase (1970s–1985)

The first phase of India's e-governance evolution began in the 1970s, focusing on administrative efficiency rather than citizen service. Computers were used for data processing, statistical analysis, payroll management, and budget preparation, demonstrating their ability to handle large data volumes efficiently. This period marked a recognition of information as an essential administrative resource, prompting investments in computer technology as a means of administrative reform. The National Informatics Centre (NIC), established in 1976, played a pivotal role in government computerization by providing services and promoting IT use across government departments. Initial efforts included developing software, creating databases, and training personnel, but limited technology and resources kept these applications largely confined to central ministries and selected state departments. Despite initial resistance, training programs fostered computer literacy among government employees. Overall, this phase signified a shift from manual record management to a conceptual acknowledgment of technology's potential to enhance planning and decision-making, setting the stage for future e-governance efforts in India.

### 1.2.4 Establishment of the National Informatics Centre (NIC): The Foundation of E-Governance

The establishment of the National Informatics Centre (NIC) in 1976 was a pivotal milestone in India's e-governance, shifting computerization from fragmented, department-level efforts to a centralized strategy. As the technical backbone of digital governance, NIC built applications, government databases, and communication networks for central, state, and district administrations.

A major contribution was its focus on decentralization—extending technology to state capitals and district headquarters to improve local management of land records, revenue, and welfare programs.NIC promoted centrally coordinated computerisation while extending information technology to state capitals and district headquarters, thereby supporting decentralised management of areas such as land records, revenue, and welfare programmes. By developing indigenous software tailored to local administrative needs and running training programs for bureaucrats, NIC built self-reliance and internal capacity. Ultimately, NIC proved that effective e-governance requires strong institutional support, policy frameworks, and skilled personnel alongside technological infrastructure.

### 1.2.5 Expansion of Government Informatics: NICNET and the Networking of Government Administration

The establishment of the National Informatics Centre (NIC) laid the institutional foundation for computerization in government, but the next major challenge was enabling communication between government departments across the country. During the late 1970s and early 1980s, most government offices functioned independently with very limited technological interaction. Administrative communication depended largely on postal correspondence, telephones, telegrams, and the physical movement of files. This method was not only slow but also affected the timely implementation of development programmes and public policies. As India's administrative system became more complex, the need for a reliable communication network connecting central ministries, state governments, and district administrations became increasingly apparent.

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To overcome these limitations, the Government of India established NICNET (National Informatics Centre Network) in 1987. NICNET was India's first nationwide satellite-based computer communication network dedicated exclusively to government administration. It connected the Central Government with State Governments and gradually extended its services to district headquarters across the country. The establishment of NICNET represented a revolutionary development because, for the first time, government departments located in different geographical regions could exchange information electronically.

NICNET significantly improved administrative coordination and communication. Ministries could transmit official documents electronically, share statistical information, exchange reports, and monitor government programmes without depending entirely on physical correspondence. This reduced delays in decision-making and strengthened coordination between different levels of government. The network also enabled district administrations to communicate directly with state capitals and central ministries, thereby improving the implementation of national development programmes.

The creation of NICNET also contributed to the emergence of Management Information Systems (MIS) within government departments. Administrative data relating to agriculture, education, healthcare, rural development, finance, and public distribution could now be collected, processed, and analysed more efficiently. Decision-makers gained access to more accurate and timely information, enabling them to formulate policies based on reliable evidence rather than delayed manual reports. This marked an important transition from administrative record-keeping to information-based governance.

Another significant contribution of NICNET was fostering a culture of digital communication within government institutions. Government officials gradually became familiar with electronic mail, computerized databases, digital document transmission, and electronic information sharing. Although internet services for the general public were still unavailable during this period, NICNET introduced government officials to digital communication and administrative methods. It also demonstrated that information technology could improve administrative efficiency without fundamentally altering the constitutional structure of governance.

Networking government departments also strengthened national integration in administration.NIC improved intergovernmental communication and administrative coordination by facilitating information sharing and connectivity among government institutions at different levels. India has enormous geographical diversity, with government offices in remote villages, mountainous regions, coastal areas, deserts, and metropolitan cities. Before digital communication, maintaining administrative coordination across such a vast country posed significant challenges. NICNET reduced these geographical barriers by facilitating faster information exchange and improving coordination between different administrative units.

The establishment of NICNET therefore represented a crucial milestone in the evolution of e-governance. It transformed computerization from isolated departmental applications into an interconnected administrative network and prepared the institutional infrastructure necessary for future digital governance initiatives.

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## 1.2.6 Economic Liberalization and the Information Technology Revolution (1991–2000)

The year 1991 marked a turning point not only in India's economic history but also in the evolution of e-governance. Faced with a severe balance of payments crisis, the Government of India introduced comprehensive economic reforms that liberalized trade, encouraged private investment, reduced industrial licensing, and promoted globalization. These reforms transformed the Indian economy and simultaneously accelerated the development of the information technology sector.

Economic liberalization created favourable conditions for the rapid expansion of computer technology, telecommunications, software development, and internet services. Private companies entered the information technology industry, telecommunications investment increased substantially, and computer hardware became more affordable. As a result, the technological environment necessary for digital governance improved significantly.

The rapid growth of India's software industry during the 1990s further strengthened the government's capacity to implement technology-based administrative reforms. Indian software professionals gained international recognition for their expertise, helping establish India as a global information technology hub. Government departments increasingly collaborated with public and private technology organizations to develop software applications suited to administrative needs.

Another major development during this period was the introduction of internet services to India in 1995. The availability of the internet fundamentally changed the relationship between governments and citizens. For the first time, government departments could disseminate information electronically through official websites. Ministries began publishing government orders, recruitment notifications, policy documents, annual reports, application forms, and public notices online. Although these websites initially served mainly as information sources rather than service-delivery platforms, they represented an important step toward digital governance.

The internet also increased public awareness regarding transparency and access to information. Citizens gradually expected governments to provide faster services and greater accountability through digital platforms. Consequently, the focus of government computerization began shifting from internal administrative efficiency to citizen-oriented service delivery. This conceptual shift became a defining characteristic of modern e-governance in India.

Economic liberalization also influenced administrative thinking by introducing concepts such as efficiency, competitiveness, customer satisfaction, and service quality into public administration. Governments increasingly viewed citizens not merely as recipients of welfare programmes but as stakeholders entitled to timely and efficient public services. Information technology emerged as an important instrument for achieving these objectives.

Thus, the economic reforms of 1991 indirectly accelerated e-governance by creating the technological infrastructure, institutional capacity, and policy environment needed for digital transformation.

## 1.2.7 Pioneer State-Level E-Governance Initiatives

During the late 1990s, several Indian states pioneered innovative e-governance projects that transformed public service delivery and served as blueprints for national policies:

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- Karnataka's Bhoomi Project (2000): Computerized 20 million land records, protecting farmers from corruption, delays, and manipulation in obtaining ownership certificates.

- Madhya Pradesh's Gyandoot Project (2000): Established rural internet kiosks in Dhar district, giving villagers local access to crop prices, welfare schemes, and grievance mechanisms.

- Andhra Pradesh's e-Seva (later MeeSeva): Introduced a "single-window" system that allowed citizens to pay utility bills and access government services under one roof.

- Kerala's Akshaya Project: Combined digital literacy training with e-service delivery, establishing community-based centers to bridge the digital divide.

Other states followed suit—including Tamil Nadu (e-District), Maharashtra (property registration), and Gujarat (treasury management). Together, these state-led efforts shifted digital governance from internal administrative record-keeping to citizen-focused service delivery.

## 1.2.8 The National e-Governance Plan (NeGP), 2006

Before 2006, state e-governance initiatives operated in isolation, leading to duplicated efforts, incompatible systems, and unequal access to services. To fix this, the Government of India launched the **National e-Governance Plan (NeGP)** in May 2006 as its first unified national digital strategy.

- Process Re-engineering: Instead of digitizing flawed workflows, NeGP required departments to simplify administrative processes first.

- Core Infrastructure: Built the national digital backbone using State Wide Area Networks (SWANs), State Data Centres (SDCs), Common Service Centres (CSCs), and the National Service Delivery Gateway (NSDG).

- Mission Mode Projects (MMPs): Focused on targeted, time-bound digital reforms in key sectors like passports, taxation, land records, and health.

- Public-Private Partnerships (PPP): Leveraged private sector collaboration to maintain service centers and scale infrastructure.

By integrating infrastructure and standardizing practices, NeGP created the foundation for future national programs like Digital India.

## 1.2.9 Mission Mode Projects: Transforming Public Service Delivery

The National e-Governance Plan (NeGP) revolutionized India's digital strategy by introducing Mission Mode Projects (MMPs)—a framework that replaced fragmented, department-specific IT systems with standardized, timeline-driven projects. MMPs systematically targeted key sectors like taxation, passports, justice, banking, transport, and municipal services to boost administrative efficiency and service delivery.

- Passport Seva Project: Replaced lengthy manual procedures with online applications, scheduled appointments, digital verification, and real-time tracking, drastically cutting processing times.

- Income Tax MMP: Introduced e-filing, online payments, and automated refunds, eliminating physical visits and improving compliance and transparency.

- e-Courts Project: Digitized the judicial system via computerized case management, online cause lists, electronic

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filing, and video conferencing to reduce legal delays.

Other MMPs modernized vehicle licensing, land records, and municipal tax collections, demonstrating that standardized technological solutions could make public administration faster, more transparent, and accessible.

### 1.2.10 Common Service Centres: Bridging the Digital divide

To bridge the digital divide and prevent e-governance from remaining purely urban, the Government of India launched the Common Service Centre (CSC) programme under the NeGP. Designed as physical access points in rural areas, CSCs operate on a Public-Private Partnership (PPP) model run by local Village Level Entrepreneurs (VLEs).

- Service Accessibility: Villagers can access vital government services—such as birth certificates, caste certificates, pensions, utility bill payments, and Aadhaar enrolment—at a single location, saving time and travel costs.

- Rural Development: CSCs offer non-government services including digital banking, financial inclusion, online education, telemedicine, and agricultural updates (market prices, weather).

- Empowerment: Beyond service delivery, CSCs generate local employment, foster entrepreneurship, and promote digital literacy.

Ultimately, the CSC model proves that inclusive e-governance requires localized access points alongside technical infrastructure.

### 1.2.11 Aadhaar:Establishing a Digital Identity Ecosystem

The launch of the Aadhaar Programme in India in 2009 marked a major advance in e-governance by providing a universal identification method and addressing fraud, duplication, and exclusion in welfare delivery. Managed by the Unique Identification Authority of India (UIDAI), Aadhaar assigns a twelve-digit number to residents based on biometric data, facilitating quick digital authentication for government agencies. This system supports various e-governance initiatives, enhances beneficiary identification, and promotes transparency in welfare administration across programs like pensions, scholarships, and food subsidies. Furthermore, Aadhaar underpins the Direct Benefit Transfer (DBT) initiative, enabling direct transfers of subsidies to beneficiaries' bank accounts and reducing corruption and intermediaries. Despite privacy concerns, Aadhaar is vital to India's digital governance framework, showcasing the transformative power of digital identity systems in public administration.

### 1.2.12 Digital India Programme: Towards Comrehensive Digital Governance

Launched on July 1, 2015, Digital India shifted e-governance from isolated departmental computerization to a holistic national ecosystem based on three core vision areas:

1. Digital Infrastructure as a Utility: Delivering broadband connectivity, mobile access, and secure online platforms to all citizens.

2. Governance and Services on Demand: Simplifying procedures, integrating departments, and promoting paperless administration.

3. Digital Empowerment: Expanding digital literacy, universal resource access, and multi-language services.

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Key platforms introduced under the initiative include DigiLocker (paperless document storage), UMANG (a unified mobile app for government services), GeM (transparent public procurement), and BHIM (digital payments). Simultaneously, the BharatNet Project expanded high-speed broadband to rural Gram Panchayats. The framework proved vital during COVID-19, enabling mass vaccination management through CoWIN.

### 1.2.13 Emerging Technologies and the Future of E-Governance in India

E-governance in India is shifting from traditional electronic service delivery to intelligent governance through technologies such as Artificial Intelligence (AI), Big Data Analytics, Cloud Computing, Blockchain, the Internet of Things (IoT), and advanced cybersecurity systems. AI aids in data analysis for evidence-based policymaking and improves public service accessibility through chatbots. Big Data enables the evaluation of government programs, as demonstrated during the COVID-19 pandemic. Cloud Computing enhances data management and resource sharing, while Blockchain bolsters transparency and accountability. IoT supports smart city initiatives by providing real-time infrastructure monitoring. Future developments will focus on personalized, citizen-centric services, supported by the legal and ethical safeguards needed for responsible governance.

### 1.2.14 Challenges in the Evolution of E-Governance in India

Despite significant advances, e-governance in India faces challenges across several domains. The digital divide persists, limiting access for rural and economically disadvantaged citizens, compounded by low digital literacy. Cybersecurity risks, such as data breaches, threaten public trust and require robust protective measures. Organizational resistance, driven by fears of change and skill gaps, hinders adoption. Interoperability issues among government departments reduce efficiency, while India's linguistic diversity complicates service accessibility. Privacy concerns demand strong legal frameworks for data protection. Financial constraints at local government levels hamper infrastructure and training investments, underscoring the need for sustainable funding. Ultimately, e-governance requires not just technology but comprehensive administrative reforms and citizen engagement.

### 1.2.15 Impact of E-Governance on Public Administration

E-governance has transformed India's administrative system by boosting efficiency, transparency, accountability, and citizen participation. Public service delivery has shifted online through portals and mobile apps, streamlining everything from passport applications and tax filing to land records. Internally, digital workflows and real-time data access have reduced paperwork, accelerated decision-making, and improved inter-departmental coordination.

Transparency and financial management have advanced through electronic procurement and Direct Benefit Transfers (DBT) authenticated via identity platforms, reducing welfare leakages. Platforms like MyGov further encourage civic engagement. E-governance has evolved from basic 1970s office computerization into an integrated ecosystem under initiatives like Digital India. While successful, sustaining this momentum requires addressing the digital divide, cybersecurity, and privacy while leveraging emerging technologies like AI, blockchain, and big data.

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## Recap

- India's early administration was largely manual and paper-based.
- Paper-based administration resulted in delays, excessive paperwork, file losses and limited information accessibility.
- The first phase of computerization began during the 1970s, mainly to improve administrative efficiency.
- The National Informatics Centre (NIC) was established in 1976 and became an important institutional foundation for e-governance.
- NICNET, established in 1987, connected government offices and enabled electronic information exchange.
- The 1991 economic liberalization accelerated the growth of India's IT and telecommunications sectors.
- Internet services were introduced in India in 1995, encouraging government departments to publish information online.
- State-level initiatives such as Bhoomi, Gyandoot, e-Seva/MeeSeva and Akshaya demonstrated the potential of citizen-oriented digital services.
- The National e-Governance Plan (NeGP) was launched in 2006 as a unified national digital strategy.
- Mission Mode Projects (MMPs) focused on specific sectors such as passports, taxation, justice and transport.
- Common Service Centres (CSCs) helped extend digital government services to rural communities and bridge the digital divide.
- Aadhaar, launched in 2009, created a digital identity ecosystem supporting authentication and welfare delivery.
- Digital India was launched on July 1, 2015, with a vision of digital infrastructure, services on demand and digital empowerment.
- Emerging technologies such as AI, Big Data, Cloud Computing, Blockchain and IoT are shaping the future of e-governance.
- Major challenges include the digital divide, cybersecurity, privacy, digital literacy, interoperability, language barriers and financial constraints.

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## Objective Questions

1. When was the National Informatics Centre (NIC) established?
2. What does NICNET stand for?
3. In which year was NICNET established?
4. When were internet services introduced in India?
5. Name the Karnataka e-governance project that computerized land records.
6. What was the name of the e-governance project launched in Madhya Pradesh's Dhar district?
7. In which year was the National e-Governance Plan (NeGP) launched?
8. What is the main purpose of Common Service Centres (CSCs)?
9. In which year was Aadhaar launched?
10. When was the Digital India Programme launched?

## Answers

1. 1976
2. National Informatics Centre Network
3. 1987
4. 1995
5. Bhoomi Project
6. Gyandoot Project
7. 2006
8. To provide accessible digital government and other services, particularly to rural communities, and help bridge the digital divide.
9. 2009
10. July 1, 2015.

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## Assignments

1. Explain the historical evolution of e-governance in India from the traditional administrative system to Digital India.

2. Discuss the traditional administrative system in India before computerization and its major limitations.

3. Examine the impact of economic liberalization and the IT revolution of 1991–2000 on e-governance.

4. Explain the significance of Bhoomi, Gyandoot, e-Seva/MeeSeva and Akshaya as pioneer state-level e-governance initiatives.

5. Discuss the objectives, infrastructure and significance of the National e-Governance Plan (NeGP), 2006.

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UNIT 3

# Objectives and Role of E-Governance

## Learning Outcomes

Upon the completion of this unit, learner will be able to:

- explain the major objectives of e-governance in India and its contribution to efficient, transparent, accountable and citizen-centric governance
- analyse how e-governance improves administrative efficiency, transparency, accountability, accessibility, social inclusion and integrity in public administration
- examine the role of e-governance in public service delivery, rural development, economic development and democratic participation
- discuss the contribution of e-governance to important sectors such as education, healthcare, disaster management and public health
- identify and evaluate major challenges of e-governance, including the digital divide, cybersecurity, resistance to organizational change, language diversity, privacy and infrastructure requirements

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## Prerequisite

Before studying this unit, learners should think about a simple question: "What would happen if every government service still required citizens to stand in a queue and submit paper documents personally?" Imagine applying for a passport, paying taxes, obtaining a certificate, applying for a scholarship or registering a complaint without access to digital services. Such experiences would involve considerable time, travel, paperwork and repeated visits to government offices. E-governance attempts to change this traditional experience by bringing government services closer to citizens through websites, mobile applications, Common Service Centres and other digital platforms. Therefore, learners should have a basic understanding

of government administration, public services, citizens' rights, ICT and the idea of good governance. With this foundation, students can better understand how technology is not merely used to computerize government offices, but to transform administration into a system that is more efficient, transparent, accountable, accessible, inclusive and citizen-oriented.

## Keywords

Administrative Efficiency, Transparency, Accountability, Citizen-Centric Governance, Social Inclusion, Public Service Delivery, Rural Development, Digital Divide, Cyber security

## Discussion

### 1.3.1 Introduction

The rapid growth of Information and Communication Technology (ICT) has changed how governments operate worldwide. Governments are now expected to offer efficient, transparent, accountable services that meet citizens' needs. In India, e-governance has been adopted to improve public institutions using digital technologies. Traditional governance methods are inadequate for managing a diverse population, making e-governance a tool for better administration and citizen engagement.

E-governance aims to modernize governance by making it more efficient and inclusive. It involves redesigning processes, connecting departments, and creating online platforms for public access. Initiatives like the National e-Governance Plan, Digital India, and others reflect this commitment. E-governance also supports socio-economic development, democratic participation, and public accountability by giving citizens faster access to services and information. Understanding e-governance is crucial for assessing public administration and India's move toward digital governance.

### 1.3.2 Objectives of E-Governance in India

The objectives of e-governance in India are multidimensional and reflect the broader vision of creating an efficient, transparent, accountable, inclusive, and citizen-centric system of governance. These objectives are closely aligned with the principles of good governance and sustainable development. Rather than viewing technology as an end in itself, the Government of India considers digital technologies as instruments for improving administrative performance and enhancing the quality of public service delivery. Each objective contributes to building a governance system that responds effectively to citizens' needs and expectations while strengthening democratic institutions.

**Administrative Efficiency**

One of the primary objectives of e-governance is to improve administrative efficiency by simplifying governmental procedures and enhancing organizational productivity. Traditional administrative systems often relied on extensive paperwork, manual record-keeping, physical movement of files, and multiple layers of bureaucratic

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approval. These procedures often led to delays, duplicated work, higher operational costs, and inefficient use of public resources. E-governance addresses these challenges by introducing computerized information systems, electronic file management, digital databases, and online communication networks that significantly improve administrative performance.

Digitizing government records enables officials to retrieve information quickly, process applications more efficiently, and coordinate activities across departments. Electronic workflows reduce the time required for file movement while minimizing the risk of misplaced documents and clerical errors.Government officials can use MIS and administrative databases to monitor programme implementation, evaluate performance, and analyse administrative data using real-time, near-real-time, or periodically updated information, depending on the system. This supports evidence-based decision-making and improves administrative efficiency. Efficient administration not only benefits government institutions but also builds public confidence by ensuring timely service delivery.

Administrative efficiency also supports evidence-based policymaking. Modern governments need accurate, up-to-date information on demographic trends, economic indicators, healthcare outcomes, educational performance, agricultural production, and social welfare programmes. Digital databases and Management Information Systems (MIS) provide policymakers with reliable information that supports informed decisions and effective planning. Consequently, administrative efficiency has become a key objective of e-governance because it strengthens institutional capacity while improving governance outcomes.

**Promoting Transparency and Accountability**

Transparency and accountability are key goals of e-governance. Democratic governance needs open access to government decisions, financial transactions, and policies. Traditional systems often lacked public access, leading to secrecy and decreased trust. Citizens struggled to obtain information about government schemes, budgets, and services.

E-governance enhances transparency by providing access to information via websites, online portals, and mobile apps. Citizens can view government notifications, policies, and procurement details without visiting offices. This access helps people understand government actions and assess performance.

Digital technologies also improve accountability through electronic records of actions, allowing easier monitoring and auditing. Citizens can track applications and grievances, while transparency reduces corruption and boosts trust in government.

**Citizen-Centric Governance**

The transition from government-centric administration to citizen-centric governance represents one of the defining objectives of e-governance in India. Traditional administrative systems were largely designed around bureaucratic requirements rather than citizens' convenience. Individuals seeking public services often had to visit multiple offices, complete repetitive paperwork, obtain numerous approvals, and wait long periods before receiving services. Such procedures created inconvenience, increased administrative costs, and discouraged public engagement with government institutions.

E-governance seeks to redesign public administration around citizens' needs

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and expectations. Digital platforms let individuals access government services anytime, anywhere, through computers, mobile devices, or Common Service Centres. Services such as passport applications, income tax filing, driving licence renewal, scholarship applications, pension services, utility bill payments, land record verification, and birth certificate applications can now be completed electronically. These improvements significantly reduce waiting time, administrative complexity, and travel expenses.

Citizen-centric governance also emphasizes responsiveness. Online grievance redressal systems enable citizens to register complaints, monitor complaint status, and receive timely responses from government departments. Digital communication platforms facilitate direct interaction between citizens and public authorities, enabling governments to understand public concerns more effectively. As a result, governance becomes more responsive, participatory, and service-oriented.

**Accessibility and Social Inclusion**

Another important objective of e-governance is to ensure equitable access to public services for all sections of society. India is characterized by considerable geographical diversity, socio-economic inequality, and linguistic plurality. Many citizens live in rural and remote areas where physical access to government offices remains limited. Traditional administrative systems therefore created unequal opportunities to access government services, particularly for economically weaker sections, women, elderly citizens, and persons with disabilities. E-governance seeks to overcome these barriers by delivering services electronically through digital platforms accessible regardless of geographical location. Common Service Centres have played a particularly significant role in extending digital governance to rural communities by providing local access to government services. Citizens without personal internet connectivity or computer facilities can get assistance through these centres, helping keep digital governance inclusive.

Digital literacy programmes have also become an important component of e-governance. Initiatives such as the Pradhan Mantri Gramin Digital Saksharta Abhiyan aim to equip citizens with the knowledge and skills necessary to utilize digital technologies effectively. Government websites increasingly support multiple Indian languages, enabling citizens to interact with digital platforms in their preferred language. Accessibility standards have also been incorporated into government portals to facilitate access for persons with disabilities. Through these measures, e-governance helps reduce social inequalities while promoting inclusive development.

**Reducing Corruption and Improving Integrity**

Reducing corruption remains one of the most significant objectives of e-governance in India. Corruption undermines public trust, reduces administrative efficiency, weakens democratic institutions, and diverts public resources away from developmental objectives. Traditional administrative systems often involved extensive personal interaction between citizens and officials, creating opportunities for bribery, favouritism, procedural manipulation, and unauthorized discretion.

E-governance minimizes these opportunities by automating administrative procedures and reducing direct physical interaction between citizens and government officials. Online application systems, electronic payments, digital document verification, biometric authentication, and computerized service delivery create transparent administrative processes that are

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less susceptible to manipulation. Electronic procurement systems such as the Government e-Marketplace (GeM) increase transparency in public purchasing, while Direct Benefit Transfer (DBT) reduces leakages by transferring welfare benefits directly into beneficiaries' bank accounts. Permanent digital records also facilitate auditing and monitoring, making irregularities easier to detect and investigate.

Thus, by promoting transparency, minimizing discretion, and strengthening institutional oversight, e-governance contributes significantly to improving integrity within public administration.

## 1.3.3 Role of E-Governance in India

E-governance has emerged as a key instrument for transforming public administration in India. While the objectives of e-governance explain what the government seeks to achieve through Information and Communication Technology (ICT), its role explains how these objectives translate into practical outcomes within the governance system. Over the past two decades, digital technologies have become deeply integrated into almost every aspect of governance, including policy formulation, public service delivery, financial management, education, healthcare, agriculture, law enforcement, and disaster management. Today, e-governance is no longer viewed merely as a technological innovation but as a comprehensive administrative reform that strengthens democratic governance and promotes inclusive development.

The role of e-governance has become increasingly important because governments are expected to respond quickly to changing social and economic conditions while maintaining transparency, accountability, and efficiency. India's large population, geographical diversity, and complex administrative structure require governance mechanisms that can deliver services effectively to millions of citizens across rural and urban areas. Digital technologies have enabled governments to overcome many limitations of traditional administrative systems by improving communication, integrating government departments, enhancing information management, and making public services more accessible. Consequently, e-governance now plays a central role in achieving the broader goals of good governance and sustainable development.

**Role in Improving Public Service Delivery**

One of e-governance's most visible roles is transforming public service delivery. Traditionally, citizens had to visit several government offices, submit multiple paper documents, wait in long queues, and often make repeated visits to obtain even basic public services. These procedures consumed considerable time and financial resources while frustrating citizens. E-governance has fundamentally changed this situation by delivering government services electronically through online portals, mobile applications, and Common Service Centres.

Today, numerous government services can be accessed digitally. Citizens can apply for passports, driving licences, birth and death certificates, income certificates, caste certificates, pensions, scholarships, utility connections, tax payments, land records, and various welfare schemes without visiting government offices in person. Platforms such as UMANG, DigiLocker, Passport Seva, Income Tax e-Filing, and various state-level service portals have integrated multiple services into user-friendly digital platforms. These systems enable citizens to complete applications, upload documents, make online payments, track application status, and receive services more conveniently.

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Digital service delivery has significantly reduced administrative delays. Automated workflows, electronic verification, digital signatures, and online approvals have sped up application processing while reducing human error. Citizens benefit from faster service delivery, while government officials experience improved administrative efficiency through reduced paperwork and streamlined procedures. The availability of services twenty-four hours a day further improves convenience, allowing individuals to access government services on their own schedules rather than being restricted by office hours.

E-governance also supports grievance redressal in public service delivery. Online grievance portals allow citizens to submit complaints regarding government services and monitor the progress of their cases. This promotes responsiveness within public administration and strengthens citizens' confidence in government institutions. Therefore, one of e-governance's greatest contributions has been creating a service-oriented administrative culture that places citizens at the centre of governance.

**Role in Promoting Good Governance**

Good governance has become an essential principle of modern public administration, emphasizing transparency, accountability, participation, responsiveness, efficiency, equity, and adherence to the rule of law. E-governance plays a crucial role in strengthening these principles by integrating digital technologies into government processes.

Transparency has greatly improved as government information is now easily accessible through websites and digital platforms. Citizens can view policies, budgets, job notices, welfare guidelines, and reports without relying solely on officials. This openness helps close the information gap and raises public awareness.

Accountability has also grown with digital monitoring systems, as every transaction leaves an electronic record that can be audited. This makes officials more responsible, as delays and issues can be easily tracked. Citizens can check application statuses and seek explanations, which boosts institutional responsibility.

Responsiveness has also improved; governments communicate better with citizens through websites, apps, email, SMS, and social media. Citizens can register complaints online, allowing quicker responses than before. This ongoing interaction builds trust between citizens and governmental institutions.

Digital administration also strengthens efficiency and effectiveness. Automated systems reduce duplication of work, improve coordination among departments, minimize paperwork, and optimize resource utilization. Consequently, governments can provide better services with available financial and human resources. By supporting these principles, e-governance contributes significantly to achieving good governance in India.

**Role in Rural Development**

One of the most remarkable contributions of e-governance has been its role in promoting rural development. Since nearly two-thirds of India's population resides in rural areas, improving rural governance remains essential for achieving balanced national development. Given the significant share of India's population living in rural areas, strengthening rural governance is essential for promoting inclusive and balanced national development. Rural citizens have historically faced numerous administrative challenges, including inadequate infrastructure, limited government offices, lack of information, poor connectivity, and delayed access to public services.

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E-governance has reduced disparities by providing digital services in villages through Common Service Centres (CSCs), BharatNet, and state digital initiatives. CSCs allow citizens to access government certificates, apply for welfare schemes, pay bills, bank, and learn about government programs without traveling far, saving time and money.

Agriculture has gained from digital governance, as farmers get timely weather updates, crop advice, pest management, and market prices online. They can also find information on subsidies and financial support. Additionally, telemedicine improves rural healthcare, online learning expands education, and rural entrepreneurs benefit from digital banking and e-commerce, making e-governance vital for rural development.

**Role in Economic Development**

E-governance contributes significantly to India's economic development by improving administrative efficiency, promoting financial inclusion, supporting digital commerce, and creating an environment conducive to investment and entrepreneurship. Efficient governance reduces administrative costs, simplifies regulatory procedures, and encourages economic activity by making government services more predictable and transparent.

One of the major economic contributions of e-governance is the promotion of digital financial systems. Initiatives such as Aadhaar-enabled payment systems, Unified Payments Interface (UPI), BHIM, digital banking, and Direct Benefit Transfer have transformed India's financial ecosystem. Millions of citizens who previously lacked access to formal banking services have been integrated into the financial system, thereby promoting financial inclusion.

Business environments have also improved through online company registration, digital taxation systems, Goods and Services Tax (GST) portals, electronic procurement platforms, and simplified licensing procedures. Digital platforms help entrepreneurs establish businesses more efficiently while complying with regulatory requirements. Electronic procurement through the Government e-Marketplace (GeM) has increased transparency and competition in public purchasing while providing opportunities for small and medium enterprises to participate in government contracts.

E-governance further supports economic development by improving data availability for policymaking. Governments can use digital information systems to analyse employment trends, industrial production, investment patterns, agricultural performance, and financial indicators more effectively. Evidence-based policymaking enables governments to design more effective economic policies that promote sustainable growth.

The Digital India Programme has also stimulated growth in India's digital economy by encouraging innovation, software development, digital entrepreneurship, and information technology services. Consequently, e-governance contributes not only to administrative modernization but also to national economic competitiveness in the global digital economy.

**Role in Strengthening Democratic Participation**

One of the most significant roles of e-governance is its contribution to strengthening democratic participation by facilitating greater interaction between citizens and the government. Democracy is not limited to periodic elections; it also requires continuous dialogue, transparency, accountability, and citizen involvement in public affairs. Information and Communication Technology has created new opportunities for governments to engage with

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citizens, seek public opinion, and encourage collaborative decision-making.

Digital platforms enable citizens to communicate directly with government departments through online grievance portals, mobile applications, social media platforms, and dedicated public consultation websites. Citizens can submit complaints, provide suggestions, participate in discussions, and monitor the actions taken by government agencies. This has transformed the traditional one-way flow of information into a two-way communication system in which governments not only disseminate information but also receive valuable public feedback.

The Government of India's MyGov platform illustrates this participatory approach to governance. Citizens are encouraged to contribute ideas, participate in discussions, respond to surveys, and share innovative solutions for addressing public policy issues. Such initiatives promote participatory democracy by recognizing citizens as active partners in governance rather than passive recipients of government services.

The Right to Information Act, supported by digital disclosure, has further strengthened democratic participation. Citizens can now access government reports, expenditure statements, policy documents, and programme implementation details through official websites. Increased access to information enables citizens to evaluate government performance more effectively and hold public institutions accountable. Consequently, e-governance strengthens democratic values by promoting openness, public engagement, and informed citizenship.

**Role in Education and Healthcare**

E-governance has significantly transformed the education sector by improving administrative management, expanding access to educational resources, and promoting digital learning. Educational institutions increasingly use online admission systems, digital examination management, scholarship portals, student information systems, and electronic academic records. These technologies simplify administrative procedures while improving transparency and efficiency.

Government initiatives such as DIKSHA, SWAYAM, e-Pathshala, and the National Digital Library have made educational content available to students and teachers nationwide. Digital learning platforms provide access to lectures, textbooks, interactive learning materials, and online assessments, thereby promoting equitable access to quality education. During the COVID-19 pandemic, digital education platforms played a crucial role in maintaining teaching and learning despite the closure of educational institutions.

The healthcare sector has also benefited substantially from digital governance. The introduction of electronic health records, hospital information systems, telemedicine services, online appointment booking, digital health identification, and e-Hospital initiatives has improved healthcare administration. Patients can book appointments online, access medical records electronically, receive teleconsultations, and obtain diagnostic reports through digital platforms. Such services reduce waiting time, improve coordination among healthcare providers, and enhance the quality of patient care.

The Ayushman Bharat Digital Mission represents another important step toward creating an integrated digital healthcare ecosystem in India. The programme seeks to establish digital health records, improve information sharing among healthcare providers, and enhance healthcare accessibility through technology. Telemedicine services have become particularly valuable for rural populations by connecting patients with specialist doctors located in urban hospitals.

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Thus, e-governance has contributed significantly to improving both educational administration and healthcare delivery while supporting the broader objective of human development.

**Role in Disaster Management and Public Health**

E-governance is crucial during emergencies like natural disasters because it enables timely information sharing, coordination, and decision-making. In India, frequent disasters such as floods, cyclones, and earthquakes can benefit from digital technologies that help monitor situations and disseminate early warnings. Advanced tools like satellite communication and Geographic Information Systems (GIS) enable governments to predict disasters and issue alerts, saving lives and property.

The COVID-19 pandemic showcased e-governance's importance in public health. Platforms like CoWIN facilitated online vaccination registration and monitoring. Government departments used digital systems for health advisories and resource coordination. Telemedicine also helped reduce pressure on healthcare facilities, showing that e-governance strengthens national resilience in emergencies.

**Challenges in Performing the Role of E-Governance**

Despite its significant contributions, e-governance still faces several challenges that limit its ability to reach its full potential. One major challenge is the persistence of the digital divide. Although internet connectivity and smartphone usage have increased considerably, disparities remain between urban and rural areas, economically developed and underdeveloped regions, and different socio-economic groups. Many citizens still lack reliable internet access, digital devices, or the digital literacy needed to use online government services effectively.

Cybersecurity represents another serious concern. As governments increasingly store sensitive personal information relating to identity, finance, health, and welfare programmes in digital databases, protecting these systems against cyberattacks has become essential. Data breaches, identity theft, ransomware attacks, and unauthorized access to government systems can undermine public confidence in digital governance. Continuous investment in cybersecurity infrastructure, encryption technologies, and data protection mechanisms is therefore necessary.

Resistance to organizational change poses challenges for e-governance. Government officials must adapt to new technologies and improve their skills, but some may resist because of limited technical knowledge or a preference for traditional methods. Ongoing training and effective change management are crucial to address this resistance.

Language diversity in India complicates digital communication, as many services are more accessible in English than regional languages. Enhancing multilingual digital services is a key priority.

Privacy and data protection are vital in digital governance, requiring legal frameworks and robust safeguards to maintain public trust.

Lastly, maintaining digital infrastructure demands ongoing financial investment for software upgrades, hardware maintenance, and cybersecurity. Sustainable digital governance relies on sufficient resources and innovation.

E-governance in India goes beyond just upgrading government offices; it aims to transform public administration to achieve efficient, transparent, accountable, and citizen-focused governance. Its main goals include enhancing administrative efficiency,

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promoting transparency, reducing corruption, and empowering citizens while improving public services. E-governance affects various sectors by simplifying procedures, expanding access to services, promoting rural development, and improving disaster management.

However, challenges like the digital divide and privacy concerns need ongoing attention to ensure everyone benefits. India's digital initiatives, including Digital India and emerging technologies, will further expand the role of e-governance. Students studying public administration will gain insights into the relationship between technology and governance.

## Recap

- E-governance uses ICT to transform public administration and improve governance.
- Its major objectives include administrative efficiency, transparency, accountability, citizen-centric governance, accessibility and social inclusion.
- Digital systems reduce paperwork, improve record management and speed up administrative procedures.
- E-governance improves transparency by providing citizens with easier access to government information.
- Electronic records and digital monitoring strengthen accountability.
- Citizen-centric governance allows people to access services conveniently through digital platforms.
- Common Service Centres (CSCs) help extend digital services to rural and underserved communities.
- Digital literacy programmes and multilingual websites support social inclusion.
- E-governance can reduce corruption by minimizing unnecessary physical interaction and discretionary procedures.
- GeM and Direct Benefit Transfer (DBT) are examples of digital systems that promote transparency and reduce leakages.
- E-governance improves public service delivery through platforms such as UMANG, DigiLocker and Passport Seva.
- It contributes to good governance through transparency, accountability, participation, responsiveness, efficiency and equity.
- In rural areas, CSCs, BharatNet and digital initiatives improve access to government services.

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- E-governance supports economic development through digital payments, UPI, digital banking, GST portals and online procurement.
- Digital platforms such as MyGov encourage citizen participation and interaction with government.
- E-governance has transformed education and healthcare through digital learning, telemedicine, online appointments and electronic health records.
- During disasters and public-health emergencies, digital technologies support early warnings, coordination, vaccination registration and telemedicine.
- Major challenges include the digital divide, cybersecurity, resistance to organizational change, language diversity, privacy concerns and infrastructure costs.

## Objective Questions

1. What does ICT stand for?
2. What is the full form of G2C?
3. What is the full form of G2B?
4. What is the full form of G2G?
5. What is the full form of CSC?
6. Which digital platform provides access to multiple government services through a single platform?
7. What is the term used for the gap between people who have access to digital technology and those who do not?
8. What protects government information systems from cyber threats?
9. What is the direct transfer of government benefits to beneficiaries' bank accounts called?
10. What type of governance focuses on the needs and convenience of citizens?

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## Answers

1. ICT
2. G2C
3. G2B
4. G2G
5. CSC
6. UMANG
7. Digital divide
8. Cybersecurity
9. DBT
10. Citizen-centric

## Assignments

1. Explain the major objectives of e-governance in India.
2. Discuss the role of e-governance in promoting accessibility and social inclusion.
3. Examine the role of e-governance in rural development and economic development.
4. Discuss the contribution of e-governance to **democratic participation and good governance**.
5. Discuss the major challenges of e-governance in India and suggest suitable measures to overcome them.

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# E-Governance in India

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# UNIT 1 Role of ICT in E-Governance

## Learning Outcomes

Upon the completion of this unit, learner will be able to:

- understand the concept of Information and Communication Technology (ICT) and explain its role in supporting e-Governance in India
- analyse the major ICT tools, digital infrastructure, and technological initiatives that strengthen governance in India
- evaluate the contribution of ICT to improving transparency, accountability, accessibility, and efficiency across different sectors of public administration
- explore emerging technological developments and Digital Public Infrastructure (DPI) in India, examining their potential in shaping the future of digital governance

## Prerequisite

Ram once approached his teacher, Dr. Subheesh, with a query after visiting a government office to obtain an income certificate. Ram explained that he had expected to spend several hours standing in long queues, carrying many paper documents, and moving from one office to another. However, someone had informed him that the same service could now be completed online. This made Ram curious, and he wanted to understand how government services had changed so significantly in recent years. Dr. Subheesh explained that Information and Communication Technology (ICT) had brought major changes to the way governments function. He pointed out that many services which previously relied on paper files, manual procedures, and repeated visits to government offices are now available through digital platforms. He further explained that online service portals, digital identity, mobile applications, digital payments, and electronic records have made public services faster, more transparent, and easier for citizens to access. As Ram listened, he realised that technology was not only making government administration more efficient but was also helping citizens receive better public services.

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## Keywords

Information and Communication Technology (ICT), E-Governance, Digital Public Infrastructure (DPI), Citizen-Centric Governance, Digital Service Delivery, Artificial Intelligence (AI), India Stack

## Discussion

### 2.1.1 Introduction

Information and Communication Technology (ICT) has brought significant changes to the way governments function across the world. The use of digital technologies has made public administration faster, more transparent, and more responsive to the needs of citizens. Over the years, governments have gradually moved from paper-based procedures to digital systems that support the efficient delivery of public services. Today, governments are expected not only to formulate policies but also to ensure that citizens can access public services easily, quickly, and reliably. In this evolving environment, ICT has become an essential part of modern governance by supporting administrative activities through technology.

In India, the use of ICT in governance has expanded rapidly over the last two decades. Various initiatives, particularly under the Digital India Programme, have encouraged government departments to adopt digital technologies in their day-to-day functioning. Today, many services relating to taxation, education, healthcare, agriculture, banking, public distribution, social welfare, and local administration are available through online platforms. Citizens can access these services using computers, smartphones, or Common Service Centres, eliminating the need for repeated visits to government offices. This shift has made public services more convenient and has strengthened the connection between citizens and the government.

The benefits of ICT are not limited to improving administrative efficiency. It has made government information more accessible to the public, strengthened accountability by maintaining digital records of official activities, encouraged citizen participation through online platforms, and improved access to government services across different sections of society. At the same time, the growing use of digital technologies has also created new challenges and issues, including cybersecurity, protection of personal data, digital literacy, and equal access to technology.

### 2.1.2 Understanding Information and Communication Technology (ICT)

Information and Communication Technology (ICT) refers to the wide range of digital technologies used to collect, store, process, transmit, and share information. It combines information technology with communication technologies to make the exchange of information faster, easier, and more efficient. Individuals, organisations, and governments use ICT to communicate, manage information, and carry out a variety of activities in a digital environment. In the context of e-governance, ICT provides the technological support that enables governments to deliver public services electronically, improve the functioning of public administration, and maintain better communication with citizens.

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Previously, information systems generally operated as separate and independent entities. ICT has changed this by integrating computers, communication networks, software applications, databases, mobile devices, and the Internet into a connected digital system. This enables government departments to share information quickly, coordinate their activities more effectively, and provide services through online platforms. Instead of working in isolation, different departments can communicate and exchange information more easily, making public administration more organised and efficient. As a result, ICT has become an important part of modern governance. It supports the implementation of government policies, improves the delivery of public services, strengthens financial administration, and creates better opportunities for interaction between governments and citizens.

The contribution of ICT extends beyond replacing manual work with digital systems. It helps governments process information more quickly, reduces delays caused by paper-based procedures, and improves the speed and accuracy of administrative work. ICT also makes government information more accessible to the public, thereby promoting greater transparency in governance. As digital technologies continue to develop, governments are finding new ways to use ICT to improve public administration and deliver better services. It supports informed decision-making, encourages new approaches to solving administrative problems, and helps governments make public services more efficient, inclusive, and responsive to the changing needs of citizens.

## 2.1.3 Meaning and Characteristics of ICT

The term *Information and Communication Technology* (ICT) refers to the wide range of technologies used to create, collect, process, store, retrieve, and communicate information in electronic form. It includes both the physical equipment required for digital communication and the software that enables users to create, manage, access, and exchange information. By bringing together computing and communication technologies, ICT has greatly changed how information is handled and shared. Today, its use is not limited to data processing alone. ICT plays an important role in governance, business, education, healthcare, banking, and many other areas of daily life. It has made communication faster, information management more organised, and service delivery more effective.

The major characteristics of ICT include:

### 1. Digital Information Processing

One of the basic features of ICT is its ability to process information digitally. It helps government departments and other organisations collect, organise, store, process, and retrieve large amounts of information with greater speed and accuracy. Digital processing reduces the time required for administrative work and supports quicker, more informed decision-making.

### 2. Connectivity

ICT connects people, institutions, and government departments through communication networks. Information can be shared quickly between different offices and locations, making communication easier and improving coordination. This helps government departments work together more effectively and ensures smoother delivery of public services.

### 3. Speed and Efficiency

ICT enables governments to complete many administrative activities in much less time than traditional methods. Tasks such as processing applications, verifying documents, updating records, and delivering public services can now be completed more

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quickly. This saves time, reduces delays, and improves the overall efficiency of government administration.

**4. Automation**

ICT allows many routine administrative activities to be carried out automatically. Functions such as data entry, record maintenance, payroll processing, tax collection, and document verification can be performed using digital systems with very little manual effort. This reduces repetitive work, minimises the possibility of human error, and allows government employees to devote more time to important administrative responsibilities.

**5. Data Storage and Retrieval**

Another important feature of ICT is its ability to store large amounts of information in digital databases. These records can be updated regularly and retrieved whenever required. Digital record management helps government departments maintain accurate information, preserve official records safely, and improve continuity in administration.

**6. Accessibility**

ICT has made government services easier for citizens to access. People can obtain information and use public services through government websites, mobile applications, and Common Service Centres without having to visit government offices every time. This has made public service delivery more convenient, especially for people living in distant areas.

**7. Scalability**

ICT systems can be expanded to handle a growing number of users, services, and digital records without requiring the entire system to be redesigned. This flexibility allows governments to introduce new services and meet increasing public demand. Such a feature is particularly important in a country like India, where digital services are required to reach a very large population.

**8. Integration**

ICT enables different government departments to connect their digital systems and exchange information seamlessly. Rather than working in isolation, departments can share information as required, thereby improving coordination and reducing unnecessary duplication of effort. This integration helps governments deliver public services more efficiently and provides citizens with an improved overall experience when accessing government services.

## 2.1.4 Components of ICT

ICT comprises several components that work together to support digital governance. Each component performs a specific function, and collectively they assist governments in managing information, enhancing communication, and delivering public services more efficiently. These components form the fundamental technological basis of e-governance and enable government departments to operate within a connected digital environment. The major components are:

**1.Hardware**

Hardware refers to the physical equipment used in digital systems. This includes computers, servers, data storage devices, printers, scanners, biometric devices, routers, and other networking equipment. Government offices utilise these devices to store official records, process applications, manage information, conduct online meetings, and provide various digital services to citizens. The proper functioning of e-governance is heavily dependent on the availability of reliable hardware.

**2. Software**

Software encompasses the programmes and applications that instruct computers on

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how to perform various tasks. Government departments employ different types of software for office administration, database management, financial management, record keeping, and the delivery of online public services. These applications help government officials organise information, carry out administrative work more efficiently, and provide services to citizens in a timely manner.

### 3. Computer Networks

Computer networks connect computers and other digital devices, facilitating the exchange of information between government offices. Networks such as Local Area Networks (LANs), Wide Area Networks (WANs), and secure government communication systems enable different departments to share information quickly and collaborate more effectively. Improved connectivity among offices enhances coordination and helps government agencies fulfil their responsibilities more efficiently.

### 4. Internet

The Internet has become one of the most crucial components of e-governance. It provides the platform through which government websites, online service portals, digital payment systems, and many citizen services operate. With internet access, citizens can obtain information, submit applications, make payments, and utilise a wide range of government services without needing to visit government offices. This has made public service delivery more convenient and accessible.

### 5. Telecommunications

Telecommunication technologies facilitate communication and information exchange across different locations. Broadband networks, fibre-optic cables, satellite communication, and mobile communication systems aid in transmitting voice, data, and video between government offices. A dependable telecommunication network supports smooth communication, faster coordination, and the uninterrupted delivery of digital public services.

### 6. Mobile Technologies

The increasing use of smartphones has made mobile technology an important aspect of e-governance. Government mobile applications allow citizens to access public services, receive important updates, submit applications, make digital payments, and check the status of their requests using their phones. Mobile technologies have made government services easier to access and have contributed to extending digital governance to a larger segment of the population.

### 7. Databases

Databases are digital systems used to organise and store large amounts of information. Government departments maintain databases containing records related to citizens, land ownership, taxation, education, healthcare, welfare programmes, and many other public services. These databases facilitate record updates, quick information retrieval, and accurate administrative decisions. Proper database management also improves the efficiency of government administration.

### 8. Cloud Computing

Cloud computing enables government departments to store information and operate digital applications on shared online servers, rather than relying solely on computers within individual offices. This allows authorised departments to access information whenever required and simplifies resource sharing across different government organisations. Cloud computing also reduces infrastructure costs, improves data security, supports the

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expansion of digital services, and helps governments manage information more efficiently.

## 2.1.5 Evolution of ICT in Public Administration

The use of Information and Communication Technology (ICT) in public administration has grown steadily over time. As new technologies became available and the responsibilities of governments increased, public administration adapted to make better use of digital tools. Governments gradually introduced ICT to improve administrative work, provide better public services, and meet the growing expectations of citizens. This development was not instantaneous but unfolded in different stages, with each stage bringing new improvements to the way government departments functioned and interacted with citizens. This evolution can be understood through the following stages:

### 1. Computerisation

The first stage was computerisation. Government departments began introducing computers to carry out routine office work such as preparing payrolls, maintaining accounts, managing employee records, and storing official documents. Computers helped reduce manual work, improved the accuracy of records, and made office administration faster. During this stage, the main objective was to improve the internal functioning of government offices rather than change the way services were delivered to the public.

### 2. Networking

The next stage was networking, where government offices started connecting their computers through communication networks. This made it easier for different departments to exchange information and coordinate their activities. Officials could share records more quickly, avoid duplicating work, and communicate more efficiently with other offices. Networking improved coordination within the government and helped administrative work become more organised and efficient.

### 3. Internet-Based Governance

The widespread use of the Internet brought significant changes to public administration. Government departments started using official websites and online portals to provide information and services to citizens. People could download application forms, submit applications online, obtain government information, and communicate with public authorities without visiting government offices. This stage made government services more accessible and marked an important step towards digital governance.

### 4. Mobile Governance (m-Governance)

The rapid spread of smartphones further expanded the use of e-governance. Governments introduced mobile applications, allowing citizens to access public services, receive important notifications, submit applications, and track the progress of their requests using their mobile phones. Mobile governance made government services more convenient and helped extend digital services to people living in remote areas where access to computers was limited.

### 5. Cloud-Based Governance

The introduction of cloud computing brought another major improvement to digital governance. Government departments could now store information and operate digital applications on shared online servers instead of depending solely on computers within individual offices. This made it easier for departments to access common information, share digital resources, and collaborate more effectively. Cloud computing also reduced the cost of maintaining separate computer systems and improved the overall management of government information.

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**6. Intelligent Digital Governance**

The most recent stage in the development of ICT involves the use of advanced technologies such as *Artificial Intelligence (AI), Big Data Analytics, Blockchain, Geographic Information Systems (GIS),*and the*Internet of Things (IoT)*. Governments are increasingly using these technologies to analyse information more quickly, monitor public programmes in real time, manage resources more efficiently, and improve the quality of public services. As these technologies continue to develop, they are helping governments become more transparent, responsive, efficient, and better prepared to meet the changing needs of citizens.

## 2.1.6 ICT as the Backbone of E-Governance

Information and Communication Technology (ICT) forms the basic technological foundation of e-Governance. Governance involves many activities such as making public policies, implementing government programmes, delivering public services, and maintaining regular interaction with citizens. ICT supports all these activities by providing the digital systems and communication technologies needed to carry them out more efficiently. It enables governments to organise administrative work, manage information, and provide services through electronic platforms.

The introduction of ICT has brought major changes to the way government departments function. Previously, most administrative work depended on paper files, manual record keeping, face-to-face communication, and lengthy office procedures. These methods were time-consuming and often resulted in delays, duplicated work, and difficulties in sharing information between departments. With the use of ICT, many of these traditional methods have been replaced by digital systems that support electronic record management, faster communication, real-time sharing of information, and online public services. These changes have helped government departments improve the speed, accuracy, and efficiency of their day-to-day work.

The use of ICT has also changed the way citizens interact with the government. Today, people can access government information, submit applications, pay fees, check the status of their requests, and download official documents through digital platforms, eliminating the need for repeated visits to government offices. This has made public services more convenient and accessible. Furthermore, ICT has enhanced government transparency by making information readily available to the public, strengthened accountability through improved monitoring of administrative activities, and increased the ability of public institutions to respond to citizens' needs in a timely manner. As a result, ICT has become an important tool for making governance more effective, citizen-friendly, and democratic.

The role of ICT in e-Governance may be understood through several interrelated dimensions:

### 2.1.6.1 Digitisation of Government Functions

One of the most important contributions of ICT to public administration is the digitisation of government functions. Digitisation involves converting paper records, official documents, and administrative procedures into digital form, allowing them to be stored, processed, accessed, and shared electronically. This shift has gradually reduced dependence on paper-based office work and helped government departments adopt digital methods of administration. Consequently, government offices have become more organised, efficient, and better equipped to deliver public services. Digital

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records are easier to create, update, store, retrieve, and preserve than traditional paper files. Electronic document management systems have significantly reduced the need for extensive paperwork and lowered the chances of important records being lost, misplaced, or damaged. They also enable government officials to find and retrieve information much more quickly whenever it is needed. Similarly, electronic file management systems allow files to move digitally from one office to another, avoiding many of the delays that typically occur when physical files are manually transported between departments. Digitisation has also helped governments automate many routine administrative activities. Tasks such as receiving applications, verifying documents, processing approvals, preparing payrolls, maintaining official records, and updating databases can now be completed through digital systems. This reduces repetitive manual work, improves the accuracy and consistency of administrative procedures, and allows government officials to dedicate more time to planning, policy implementation, problem-solving, and serving the public.

## 2.1.6.2 ICT and Government Communication

Good communication is essential for effective governance. Government departments, public officials, businesses, and citizens need to exchange information regularly for government programmes and public services to function smoothly. Information and Communication Technology (ICT) has greatly improved this process by making communication faster, more secure, and more reliable. As information can now be shared quickly and accurately, government departments are able to coordinate their work better, respond to public needs more promptly, and improve the overall quality of public service delivery. The use of digital communication has also reduced dependence on traditional methods such as postal correspondence and the physical movement of paper files from one office to another. Today, government departments communicate through secure email services, online collaboration platforms, video conferencing facilities, and integrated communication networks. These digital tools help ministries, government departments, district administrations, and local self-government institutions stay connected and exchange information without unnecessary delay. As a result, government programmes can be implemented more efficiently and public services can be delivered in a timely manner. The role of ICT in government communication can be understood through four major interaction models:

### 1. Government to Government (G2G)

Government to Government (G2G) refers to the exchange of information and communication between different government departments, ministries, and public agencies through digital technologies. ICT enables these departments to communicate more quickly, share official information, and coordinate their work more effectively. It also supports the use of common databases and better planning among different levels of government. This reduces unnecessary duplication of work, improves coordination, and helps government policies and programmes to be implemented more efficiently.

### 2. Government to Citizen (G2C)

Government to Citizen (G2C) focuses on providing government services directly to citizens through digital platforms. Today, people can apply for certificates, pay taxes and utility bills, access welfare schemes, submit grievances, and obtain government information through online services. ICT has made these services easier to use and more accessible. It has also reduced the need for repeated visits to government offices,

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making public service delivery faster, more transparent, and more convenient for citizens.

**3. Government to Business (G2B)**

Government to Business (G2B) refers to the use of ICT to improve the relationship between government agencies and the business community. Many services such as business registration, licensing, tax filing, electronic procurement, and e-tendering are now available through digital platforms. These online services have simplified administrative procedures, reduced delays, increased transparency, and made it easier for businesses to interact with government departments.

**4. Government to Employee (G2E)**

Government to Employee (G2E) deals with the use of ICT for managing government employees and improving internal administration. Digital systems are used for payroll management, leave applications, pension processing, training programmes, and communication among government staff. These services help government offices manage their employees more efficiently and improve the overall functioning of public administration.

These different models show that ICT supports many aspects of governance. It not only helps governments provide better services to citizens but also improves coordination among government departments, strengthens communication with businesses, and supports the effective management of government employees. Together, these interactions contribute to a more efficient, transparent, and citizen-friendly system of governance.

## 2.1.7 National Informatics Centre (NIC)

The *National Informatics Centre (NIC)* is the primary technology organisation of the Government of India, providing Information and Communication Technology (ICT) support to government departments at Central, State, and District levels. Established in 1976, it functions under the *Ministry of Electronics and Information Technology (MeitY)*. Over the years, NIC has played an important role in introducing digital technologies into government administration and has made a valuable contribution to the growth of e-Governance in India. NIC provides the technological support required for the smooth functioning of many government departments and public services. It develops software applications, manages communication networks, provides cloud computing and data centre facilities, strengthens cybersecurity, and offers technical support for a wide range of government projects. Through its extensive digital network, NIC connects government offices across the country and supports many of the online services and digital platforms used by citizens every day. Its work has helped government departments improve administrative efficiency and expand the delivery of digital public services.

The major functions of NIC include:

- Developing e-Governance applications for government departments.
- Maintaining government websites and online portals.
- Managing secure communication networks used by government organisations.
- Providing cloud computing facilities and data centre services.
- Offering technical support for digital governance initiatives.
- Strengthening cybersecurity measures for government information systems.

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## 2.1.8 State Wide Area Networks (SWAN)

Good governance requires continuous communication and close coordination among government offices working at different levels of administration. Government departments need to exchange information regularly, communicate with one another, and work together to implement policies and deliver public services efficiently. To support this requirement, the Government of India introduced *State Wide Area Networks (SWANs)* as an important part of the *National e-Governance Plan (NeGP)*. SWAN provides a secure digital communication network that links State Headquarters with District Headquarters, Sub-Divisional Offices, and Block-level administrative offices. Through this network, government officials can share information, exchange digital records, conduct video conferences, and communicate quickly with other government offices. This has reduced dependence on traditional methods of communication and has made coordination among different levels of administration faster and more effective.

## 2.1.9 State Data Centres (SDCs)

As e-Governance has expanded, government departments have increasingly generated and managed vast quantities of digital information. Daily, data pertaining to citizens, land records, taxation, education, healthcare, financial transactions, welfare schemes, and numerous other governmental activities are collected and stored digitally. This information is crucial for the efficient operation of public administration and, therefore, requires secure storage, proper management, and ready availability. Consequently, secure data management has become a vital component of digital governance. To address this *need, State Data Centres (SDCs)* have been established in various States. These central facilities are responsible for storing government information and supporting digital services. They provide a secure environment for maintaining official records, hosting government websites, managing databases, and running diverse e-Governance applications. Rather than each department maintaining separate computer systems, multiple government departments can utilise the shared infrastructure provided by a State Data Centre. This approach enhances the management of digital information, making government administration more organised and efficient.

## 2.1.10 Common Service Centres (CSCs)

The increasing adoption of digital technologies has led to many government services being available online. However, not all citizens have access to computers, smartphones, reliable internet connectivity, or the digital skills necessary to use these services independently. This challenge is particularly evident in many rural and remote areas. To ensure that all citizens can benefit from e-Governance, the Government of India established *Common Service Centres (CSCs).These village-level digital service centres* operate through a *Public–Private Partnership (PPP)* model. They act as a crucial link between government departments and citizens, providing easy access to a wide array of digital services. Citizens can visit these centres to apply for government services, make digital payments, access financial services, and utilise educational and healthcare facilities, eliminating the need to travel to distant government offices. In this way, CSCs have made digital governance more accessible to individuals who may lack the necessary digital facilities or technical knowledge. Some of the services commonly available through CSCs include:

- Aadhaar-related services.
- Payment of electricity, water, and other utility bills.

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- Applications for pensions and welfare schemes.
- PAN card services.
- Banking and financial inclusion services.
- Insurance services.
- Telemedicine facilities.
- Online education and skill development programmes.
- Passport-related services.
- Digital literacy programmes.

Common Service Centres have significantly contributed to broadening the reach of e-Governance in India. They have brought digital public services closer to people, especially in villages and remote regions where access to government offices and digital facilities may be limited. By improving access to government services, fostering digital literacy, supporting financial inclusion, and bridging the gap between citizens and government departments, CSCs have helped make digital governance more inclusive, convenient, and citizen-friendly.

### 2.1.11 Bharat Net

Reliable internet connectivity is a fundamental requirement for the successful implementation of e-governance. Government departments can only provide digital services effectively when citizens have access to a stable and dependable internet connection. Although the use of digital technologies has increased across the country, many rural and remote areas have faced difficulties due to limited broadband connectivity. To address this challenge and improve digital access in villages, the Government of India launched *BharatNet*, one of the world's largest rural broadband connectivity programmes. The primary aim of BharatNet is to provide high-speed broadband connectivity to *Gram Panchayats* through optical fibre networks. Better internet connectivity helps government departments deliver digital services more efficiently and allows people living in rural areas to access a wide range of online facilities. Citizens can use internet-based services for education, healthcare, banking, agriculture, digital payments, and many government programmes without travelling long distances. Improved connectivity has also made it easier for people to communicate, learn new skills, access information, and participate in various economic activities.

### 2.1.12 MeghRaj Government Cloud

As e-governance expanded, government departments began handling larger amounts of digital information and providing more online services. This increased the need for better systems to store data, operate digital applications, and manage government information efficiently. Maintaining separate computer servers and digital infrastructure in every department was expensive and required continuous technical support. To address these challenges, the Government of India introduced *MeghRaj*, also known as the *GI Cloud (Government of India Cloud Initiative)*. MeghRaj enables government departments to store information and run digital applications through a shared cloud platform instead of depending solely on physical servers located in individual offices. This allows departments to use common computing resources whenever required and makes it easier to share information and digital services across different government organisations. By using a shared cloud infrastructure, departments can avoid unnecessary duplication of resources, reduce maintenance costs, and improve the overall management of government information.

### 2.1.13 India Stack: Enabling Digital Governance

In recent years, India has built a robust digital infrastructure to support the delivery

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of government services through connected digital platforms. One of the most important developments in this direction is *India Stack*. It is a *group of digital platforms* that enables governments, businesses, and citizens to interact safely and efficiently in a digital environment. Rather than being a single application, India Stack provides a common digital foundation that supports a wide range of government services and digital transactions. India Stack is built around a set of digital platforms that work together to make digital governance more efficient. Its main components include:

- *Digital Identity* through Aadhaar-based authentication.
- *Digital Payments* through platforms such as UPI
- *Digital Documents and Authentication* through services such as *DigiLocker and e-Sign*

These platforms allow citizens to verify their identity electronically, make secure digital payments, store important documents digitally, and authenticate transactions without relying on paper documents. As a result, many government procedures have become simpler, faster, and more convenient. India Stack has become an important part of India's *Digital Public Infrastructure (DPI)*. It has helped improve digital governance by connecting different digital services through a common framework, making public service delivery more efficient, secure, and accessible.

## 2.1.14 Major ICT Tools Used in E-Governance

The successful implementation of e-Governance depends not only on digital infrastructure but also on the effective use of various Information and Communication Technology (ICT) tools. These tools help government departments collect, store, process, manage, and share information systematically. They also improve communication among government offices, support better coordination, strengthen administrative decision-making, and make the delivery of public services faster and more efficient. Each ICT tool has a specific role in supporting government administration. Some tools help improve communication and information sharing, while others assist in analysing data, managing official records, strengthening cybersecurity, monitoring public programmes, or delivering services through digital platforms. When used together, these technologies make government administration more efficient, transparent, accountable, and accessible. The major ICT tools used in e-Governance are discussed below:

### 1. Internet and Web Technologies

The Internet is one of the most widely used ICT tools in e-Governance. It provides the digital platform through which government departments communicate with citizens, share information, and deliver a variety of public services. Web technologies support the development of government websites, online service portals, digital payment systems, grievance redressal platforms, and many other online services. These technologies have made it possible for governments to provide services more quickly and efficiently, making the Internet an essential part of modern e-Governance.

### 2. Mobile Technologies (m-Governance)

The increasing use of smartphones has brought major changes to the way government services are delivered. Today, mobile phones are used not only for communication but also for accessing information, making digital payments, and using a variety of online services. As more people started using smartphones, governments also began delivering public services through mobile applications. This approach, known

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as *mobile governance (m-Governance),* has made government services easier to access and has further expanded the reach of e-Governance. Government departments have developed mobile applications that allow citizens to use many public services directly from their smartphones. Through these applications, people can obtain information about government schemes, submit applications, make digital payments, register grievances, download important documents, and check the status of their requests. Mobile platforms also enable governments to send important notifications about welfare schemes, examination results, vaccination programmes, disaster warnings, public health campaigns, and other public announcements directly to citizens.

### 3. Cloud Computing

Cloud computing has become an important ICT tool in e-Governance, enabling government departments to store information, manage digital applications, and utilise computing resources more effectively. Rather than relying solely on computers and servers installed in individual offices, cloud computing allows departments to store data and run digital services through shared online infrastructure. This facilitates easier access to information for government organisations and supports the smooth delivery of public services across different departments.

One of the main benefits of cloud computing is that multiple government departments can share the same computing resources, eliminating the need for separate digital infrastructures. This reduces the cost of purchasing, maintaining, and upgrading computer systems while optimising the use of available resources. Cloud computing also allows government departments to handle increasing amounts of digital information and expand online services without making major changes to their existing systems. This flexibility has become increasingly important as more government services are delivered through digital platforms.

An important example of cloud computing in India is the Government of India's *MeghRaj (GI Cloud)* initiative. MeghRaj provides a common cloud platform that enables government departments to store data, operate digital applications, and share computing resources more efficiently. It has helped reduce infrastructure costs, improve the management of government information, and support the expansion of online public services.

### 4. Geographic Information System (GIS)

A *Geographic Information System (GIS)* is an important ICT tool that helps governments collect, organise, analyse, and present information related to different geographical locations. It combines maps with various types of data, making it easier for government departments to understand what is happening in a particular area. By presenting information in a clear visual form, GIS assists officials in planning development activities, managing public resources, and making better administrative decisions.

It helps in identifying suitable locations for roads, schools, hospitals, and other public facilities. It is also widely used for maintaining land records, preparing development plans, monitoring environmental conditions, and managing natural resources. During natural disasters such as floods, cyclones, earthquakes, or landslides, GIS helps government authorities identify affected areas, plan rescue operations, and distribute relief materials more effectively. In the health sector, it supports disease surveillance and helps officials plan healthcare services according to the needs of different regions.

### 5. Big Data Analytics

Government departments generate large amounts of information daily through

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public services, welfare schemes, financial transactions, population records, surveys, and numerous other administrative activities. Managing and utilising this information effectively has become easier with the help of *Big Data* Analytics. This involves using digital tools and techniques to collect, organise, process, and analyse vast volumes of data. It enables governments to understand information more clearly, make better decisions, and enhance the quality of public administration. Big Data Analytics allows government departments to study information from diverse sources and identify useful patterns and trends. This assists officials in understanding public needs, evaluating the performance of government programmes, and assessing whether policies are achieving their intended objectives. It also supports the identification of eligible beneficiaries for welfare schemes, monitoring public expenditure, estimating future demand for government services, and improving the planning of development programmes. Decisions based on accurate information are generally more effective and better suited to public needs. Big Data Analytics also plays a crucial role during emergencies such as floods, cyclones, earthquakes, disease outbreaks, and other public crises. It helps government departments quickly analyse available information, identify areas requiring immediate attention, and plan relief and response measures more effectively. Timely information enables governments to use available resources wisely and respond to changing situations without unnecessary delay.

**4. Artificial Intelligence (AI)**

*Artificial Intelligence (AI)* refers to computer systems capable of performing tasks that typically require human intelligence. These systems can recognise patterns, understand language, analyse information, and assist in decision-making. In recent years, governments worldwide have begun using AI to improve the efficiency and quality of public administration. By rapidly processing large amounts of information, AI helps government departments deliver public services more effectively and respond to citizens' needs promptly. AI is being employed in several areas of e-Governance to enhance the functioning of government departments. AI-based systems can answer citizens' questions via chatbots, detect fraud in welfare schemes, process official documents, support traffic management, assist healthcare services, provide advice to farmers, and help authorities prepare for natural disasters. It can also help government officials examine extensive amounts of information, identify emerging issues, and support planning and policy implementation. By handling many routine and time-consuming tasks, AI allows officials to dedicate more attention to important administrative responsibilities and public service delivery.

**6. Internet of Things (IoT)**

The *Internet of Things (IoT)* refers to a *network of physical devices* connected via the internet, which can automatically collect and share information. These devices utilise sensors and communication technologies to gather data from their surroundings and transmit it to digital systems for monitoring and analysis. In e-Governance, IoT assists government departments in overseeing public services, managing public infrastructure, and making quicker decisions based on up-to-date information.

IoT is widely applied in public administration, particularly in *Smart City* initiatives. Sensors installed on roads, street lights, water supply systems, electricity networks, waste management facilities, and other public infrastructure continuously collect data on their condition and performance. This information helps government authorities identify problems early and take timely action. It also enables

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officials to monitor public services more effectively and optimise resource utilisation.

## 2.1.15 Blockchain Technology

*Blockchain* is a digital technology designed to store and manage information securely and systematically. Instead of centralising records in a single computer or database, blockchain distributes information across a network in a series of connected digital records. Once information is recorded, it cannot be easily altered or removed without proper authorisation, making blockchain a reliable technology for maintaining records where security, accuracy, and transparency are paramount.

In e-Governance, blockchain has the potential to enhance how government departments maintain records and deliver public services. It can be used for managing land records, issuing digital certificates, verifying identities, handling public procurement, and tracking the movement of goods in supply chains. As every authorised transaction is recorded and traceable, blockchain reduces the likelihood of fraud, unauthorised changes, and tampering with official records. It also increases the transparency of government processes by allowing authorised records to be verified whenever necessary.

## 2.1.16 ICT and Digital Public Service Delivery

The primary objective of e-Governance is to improve the quality, accessibility, and efficiency of public service delivery. Information and Communication Technology (ICT) has significantly transformed how governments provide services to citizens. Historically, most government services relied on paper records, manual procedures, and multiple visits to government offices, which were often time-consuming and involved lengthy administrative processes. With the increasing adoption of ICT, many traditional methods have been replaced by digital systems that deliver public services in a faster, more organised, and citizen-friendly manner. Today, ICT supports almost every aspect of public administration.

The role of ICT in some of the major sectors of public service delivery is as follows:

### 1. ICT in Education

Information and Communication Technology (ICT) has brought significant changes to the way education is planned, managed, and delivered. Government departments and educational institutions now use digital technologies to improve academic administration and make educational services more accessible to students. ICT has streamlined many administrative activities, improved communication among educational institutions, teachers, students, and government authorities, and supported the efficient management of educational programmes. Today, many educational services are provided through digital platforms. Educational institutions use online systems for admissions, scholarship management, student registration, examinations, publication of results, and the maintenance of academic records. Digital platforms also provide access to study materials, online classes, assignments, and other learning resources. These systems have reduced paperwork, improved the management of educational information, and made academic administration more efficient and organised. Government initiatives have further expanded access to education by introducing online learning portals and digital repositories. These platforms make educational resources available to students across the country, including those living in rural and remote areas. ICT has also strengthened distance education by supporting virtual classrooms, online

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learning, teacher training programmes, and continuous professional development. As a result, students can continue their learning without being limited by geographical distance, while teachers have greater opportunities to improve their knowledge and teaching skills.

## 2. ICT in Healthcare

Information and Communication Technology (ICT) has brought important changes to the way healthcare services are organised and delivered. Government health departments and healthcare institutions now use digital technologies to improve health administration and make medical services more accessible to people. ICT has streamlined many routine administrative activities, improved communication among hospitals, healthcare professionals, and government agencies, and assisted in the better management of health-related information. Many healthcare services are now available through digital platforms. Hospitals and health centres use electronic health records to maintain patient information, online appointment systems to reduce waiting times, electronic prescriptions to improve the accuracy of treatment, and telemedicine services to provide medical consultations to people living in distant places. These digital systems have made healthcare administration more organised and have enabled doctors, nurses, and other healthcare professionals to provide timely and efficient medical services. ICT also plays an important role in protecting public health. Government departments use digital technologies to maintain vaccination records, monitor the spread of diseases, collect health-related information, and support public health programmes. During disease outbreaks, pandemics, or other public health emergencies, ICT enables authorities to share important information quickly, monitor the situation continuously, and coordinate healthcare services more effectively. Timely access to information helps governments take suitable action, provide medical assistance without unnecessary delay, and improve emergency response.

## 3. ICT in Agriculture

Information and Communication Technology (ICT) has become an important part of agricultural development by improving the flow of information and services to farmers. Agriculture remains one of the most important sectors of the Indian economy, and government departments are increasingly using digital technologies to support farming activities and rural development. ICT has made it easier for farmers to access useful information, government schemes, and agricultural services, helping them make better decisions throughout the farming cycle. Through online portals, mobile applications, and other digital platforms, farmers can obtain information on weather forecasts, crop advisories, soil health, market prices, irrigation practices, pest control, and modern farming methods. Government departments also use these platforms to provide details about agricultural subsidies, crop insurance, financial assistance, and various support programmes. Access to timely and reliable information helps farmers plan cultivation, reduce risks, and improve agricultural productivity. ICT has also strengthened communication between farmers and agricultural experts. Farmers can receive technical guidance, seek advice on crop-related problems, and learn about improved farming practices through digital platforms without travelling long distances. Online marketing platforms have created new opportunities for farmers to sell their produce, compare prices in different markets, and receive payments through digital systems. These services have improved market access and reduced dependence on traditional methods of buying and selling agricultural products.

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## 4. ICT in Revenue and Financial Administration

Information and Communication Technology (ICT) has brought important changes to the way governments collect revenue and manage public finances. Government departments now use digital technologies to collect taxes, manage financial transactions, maintain accounts, and deliver financial services more efficiently. The use of ICT has simplified many administrative procedures, reduced paperwork, improved the accuracy of financial records, and made financial administration faster and more organised. As a result, both citizens and government departments are able to complete financial transactions more easily and efficiently. Today, many revenue and financial services are available through digital platforms. Citizens and businesses can file tax returns online, pay taxes and government fees, make digital payments, and access a variety of financial services without visiting government offices. These online systems also allow users to view payment details, download receipts, and track the status of their transactions. Such services have made financial administration more convenient, reduced delays, and improved the overall quality of public service delivery. ICT has also strengthened the internal financial management of government departments. Digital systems support efficient revenue collection, budget preparation, accounting, financial reporting, and audit processes. Government officials can monitor financial transactions in real time, maintain accurate financial records, and identify irregularities more easily. This has improved transparency in the management of public funds, reduced the possibility of errors, and strengthened accountability in financial administration.

## 5. ICT in Local Self-Government

Information and Communication Technology (ICT) has significantly enhanced the operations of local self-government institutions, making public services more efficient and accessible. Panchayats, Municipalities, and Municipal Corporations are increasingly leveraging digital technologies for daily administration and citizen service delivery. ICT has streamlined numerous routine procedures, improved official record-keeping, and strengthened communication between local authorities and the public.

Many services offered by local self-government institutions are now available via digital platforms. Citizens can apply online for birth and death certificates, building permits, trade licences, and other local services. Property and other local taxes can be paid through digital payment systems, while grievances and service requests can be submitted via online portals and mobile applications. These facilities have reduced the need for repeated visits to local government offices, making public services quicker, more convenient, and easier to access.

ICT has also improved the internal administration of local governments. Digital systems facilitate the maintenance of official records, monitoring of development projects, management of financial resources, and tracking of local development programmes. Easy access to accurate information enables local authorities to plan development activities more effectively and enhance public service delivery. Digital platforms further facilitate local governments in sharing information about development projects, welfare schemes, public notices, and civic services, thereby encouraging greater public awareness and participation.

## 6. ICT in Police and Internal Security

Information and Communication Technology (ICT) has brought about significant changes in police administration and internal security, enhancing the efficiency of law enforcement agencies.

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Police departments now utilise digital technologies for maintaining criminal records, strengthening communication, supporting investigations, and improving public services. The use of ICT has simplified many routine administrative tasks, improved the management of official information, and fostered more effective collaboration among different law enforcement agencies.

Many police services are now provided via digital platforms. Citizens can register certain complaints online, access information about police services, and check the status of their complaints through official websites and mobile applications. Police departments also employ digital crime records, criminal information systems, and integrated communication networks to maintain accurate records and facilitate rapid information exchange. These systems allow police officers to access crucial information when required, making investigations more efficient and improving the overall functioning of police administration.

ICT has also bolstered internal security by supporting digital surveillance, cybercrime monitoring, forensic databases, and secure communication systems. These technologies assist law enforcement agencies in detecting criminal activities, monitoring security threats, and coordinating their actions more effectively. During emergencies or situations requiring immediate action, digital communication systems enable police departments and other security agencies to exchange information swiftly and respond without undue delay.

### 7. ICT in the Judiciary

The judicial system has increasingly adopted Information and Communication Technology (ICT) to improve access to justice and enhance the efficiency of court administration. Digital technologies are now utilised for electronic case filing, digital case management, virtual hearings, online publication of judgments, and electronic cause lists. These advancements have made many judicial procedures quicker, more organised, and more accessible to the public. ICT enables litigants, lawyers, and citizens to obtain case-related information and other judicial services via digital platforms, reducing the need for repeated court visits. It has also increased the transparency of judicial processes by providing easier access to case information, court orders, and judgments, while simultaneously reducing delays in numerous administrative procedures. Consequently, ICT has strengthened the justice delivery system by improving the efficiency, transparency, and accessibility of judicial administration.

### 8. ICT in Social Welfare Administration

Governments implement a wide range of welfare programmes for vulnerable sections of society. Information and Communication Technology (ICT) assists government departments in identifying eligible beneficiaries, electronically transferring financial assistance, monitoring the implementation of welfare schemes, and reducing duplication and fraud in benefit delivery. Digital databases enable government departments to identify beneficiaries more accurately, track the progress of welfare programmes, and ensure that benefits reach the correct individuals in a timely manner. As a result, ICT has improved the transparency, efficiency, and accountability of social welfare administration, supporting the timely and effective delivery of welfare benefits.

### 9. ICT in Disaster Management

Effective disaster management necessitates timely information, proper coordination, and rapid communication. Information and Communication Technology (ICT) supports disaster preparedness through satellite imagery, Geographic Information Systems (GIS), weather forecasting, early warning

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systems, and emergency communication networks. During natural disasters, digital technologies assist government authorities in monitoring affected areas, coordinating rescue and relief operations, issuing public advisories, and assessing the extent of damage. Consequently, ICT has become an essential tool for reducing disaster risks and improving the effectiveness of emergency management.

## 2.1.17 Digital Public Infrastructure (DPI): The New Foundation of Digital Governance

The rapid growth of e-Governance has led to the development of *Digital Public Infrastructure (DPI)*, a concept that has gained worldwide recognition in recent years. DPI refers to a set of secure, interconnected, and publicly accessible digital systems that facilitate efficient interaction between governments, businesses, and citizens through digital platforms. Unlike individual digital services, DPI provides a common digital foundation upon which numerous public and private services can be developed and delivered. India has emerged as a leading country in the development of Digital Public Infrastructure. The country's digital framework integrates digital identity, electronic authentication, digital payments, and digital document management into a unified system that supports governance, financial inclusion, and the delivery of public services. India's Digital Public Infrastructure is supported by initiatives such as *Aadhaar, Unified Payments Interface (UPI), DigiLocker, and e*-Sign, which together form an integrated digital framework known as *India Stack.* These platforms enable citizens to verify their identity electronically, make secure digital payments, store official documents digitally, and authenticate electronic transactions with ease.

## 2.1.18 Conclusion

Information and Communication Technology (ICT) has profoundly transformed governmental operations and public service provision. From the digitisation of traditional administrative processes to the facilitation of integrated public service delivery, ICT has become an indispensable element of modern e-Governance. In India, significant investments in digital infrastructure, through initiatives such as the *National Informatics Centre, BharatNet, Common Service Centres, and Digital Public* Infrastructure, have enhanced the accessibility of government services and boosted the efficiency of public administration. Emerging *technologies, including Artificial Intelligence, Big Data Analytics, Blockchain, and the Internet of* Things, are further refining governance by enabling data-driven decision-making and the delivery of more responsive public services. Nevertheless, the successful implementation of ICT hinges on overcoming challenges such as cybersecurity threats, limited digital literacy, privacy concerns, and ensuring equitable access to digital services for all.

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## Recap

- Information and Communication Technology forms the technological bedrock of modern e-Governance.
- ICT has enhanced administrative efficiency by digitising government processes and reducing reliance on manual procedures.
- Digital infrastructure, including NIC, SWAN, State Data Centres, CSCs, BharatNet, and MeghRaj, underpins e-Governance in India.
- The internet, mobile technologies, cloud computing, GIS, AI, IoT, blockchain, and cybersecurity are crucial ICT tools employed in governance.
- ICT has bolstered communication and coordination among various government departments.
- Digital technologies have improved the accessibility, transparency, and accountability of public service delivery.
- ICT supports public services across sectors such as education, healthcare, agriculture, revenue administration, local governance, policing, and disaster management.
- Digital Public Infrastructure has strengthened digital identity, digital payments, and electronic authentication in India.
- Citizen-centric governance relies on the effective utilisation of ICT to enhance public participation and service delivery.
- The future of e-Governance will depend on the responsible deployment of emerging technologies while safeguarding cybersecurity, privacy, and digital inclusion.

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## Objective Questions

1. Which technology forms the foundation of e-Governance?
2. Which organisation provides ICT support to government departments in India?
3. Which programme aims to provide broadband connectivity to Gram Panchayats?

4. Which digital initiative provides village-level access to government services?

5. Which ICT tool combines maps with digital information for planning and decision-making?

6. Which technology enables secure storage of information through connected digital records?

7. Which initiative provides cloud computing services for government departments in India?

8. Which concept refers to digital infrastructure that supports governance and public services?

9. Which technology enables government departments to analyse large volumes of data for improved decision-making?

10. Which feature of e-Governance enables citizens to access government services through digital platforms?

## Answers

1. Information and Communication Technology (ICT)
2. National Informatics Centre (NIC)
3. BharatNet
4. Common Service Centre (CSC)
5. Geographic Information System (GIS)
6. Blockchain Technology
7. MeghRaj Government Cloud
8. Digital Public Infrastructure (DPI)
9. Big Data Analytics
10. Accessibility

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## Assignments

1. Explain the role of Information and Communication Technology in strengthening e-Governance in India.
2. Discuss the major ICT infrastructure supporting digital governance in India.
3. Examine the contribution of ICT to citizen-centric governance and public service delivery.
4. Analyse the role of emerging technologies in improving governance and administrative efficiency.
5. Evaluate the significance of Digital Public Infrastructure in promoting digital governance in India.

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UNIT 2

# E-Governance and Good Governance

## Learning Outcomes

Upon the completion of this unit, learner will be able to:

- understand the concept of good governance and explain its relationship with e-Governance
- analyse the contribution of Information and Communication Technology (ICT) to the principles of transparency, accountability, efficiency, participation, inclusiveness, and the rule of law
- evaluate the role of e-Governance in promoting democratic governance, sustainable development, and citizen-centric public administration
- explore future directions for strengthening e-Governance through emerging digital technologies, institutional reforms, and citizen participation

## Prerequisite

Nowfal, a Political Science student, attended a classroom session where Dr.Subheesh discussed the increasing use of digital technologies in government offices. Nowfal had observed that many public services, such as tax payments, scholarship applications, and grievance submissions, were now available online. While these services appeared to expedite government operations, he questioned whether technology alone was sufficient to ensure honest and efficient governance. Dr. Subheesh explained that digital technology could certainly enhance administration, but good governance depended on more than just computers and online services. He emphasised that transparency, accountability, public participation, respect for the rule of law, and strong public institutions were equally vital. As the discussion progressed, Nowfal realised that e-Governance and good governance, though closely connected, were not identical.

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## Keywords

Good Governance, E-Governance, Transparency, Accountability, Democratic Governance, Sustainable Development, Citizen Participation

## Discussion

### 2.2.1 Introduction

Governance in the twenty-first century is expected to be transparent, accountable, participatory, efficient, and responsive to citizens' needs. These qualities are widely recognised as the key features of Good Governance, a significant goal for governments and international organisations globally. Concurrently, the rapid growth of Information and Communication Technology (ICT) has encouraged governments to leverage digital technologies to enhance administration and public service delivery. Consequently, e-Governance has emerged as an important means of assisting governments in achieving the broader objectives of good governance.

Although e-governance and good governance are closely connected, they are not the same. Good governance refers to the principles and values that guide the functioning of government, whereas e-governance refers to the use of ICT in government administration and the delivery of public services. Technology alone cannot ensure transparency, accountability or greater participation by citizens. These depend on sound public policies, efficient institutions, proper legal safeguards, ethical administrative practices and the active involvement of citizens. Therefore, e-governance should be understood as a tool for achieving good governance rather than as an objective in itself.

In India, initiatives such as the National e-Governance Plan and the Digital India Programme have expanded the use of digital technologies in government administration. Online public services, digital identity systems, electronic payment facilities, grievance redress mechanisms and integrated service delivery platforms have improved administrative efficiency and made government services easier for citizens to access. At the same time, challenges such as digital exclusion, cybersecurity, privacy and data protection show that the successful use of technology depends not only on digital progress but also on continuous improvements in the quality of governance and public service delivery.

### 2.2.2 Concept of Good Governance

The concept of Good Governance became widely recognised during the late twentieth century through discussions on public administration, sustainable development and institutional reforms. International organisations such as the World Bank and the United Nations Development Programme (UNDP) pointed out that economic growth and social development depend not only on the authority of governments but also on the quality of governance provided by public institutions. This understanding encouraged governments to give greater importance to improving the way public affairs are managed and public services are delivered.

Good governance refers to the way governments exercise public authority to manage public resources effectively and promote the welfare of society. It aims to

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ensure that government decisions and actions are transparent, accountable, participatory, equitable, efficient, responsive and based on the rule of law. Rather than focusing only on administrative procedures, good governance gives equal importance to achieving results that build public trust, protect the rights of citizens and promote inclusive development.

Although different organisations define good governance in slightly different ways, some principles are widely accepted as its basic features. These include:

- Participation, which gives citizens the opportunity to take part in public decision-making.
- Transparency, which makes government functioning open and provides citizens with access to public information.
- Accountability, which requires public authorities to accept responsibility for their decisions and actions.
- Responsiveness, which ensures that public services are delivered in a timely and effective manner.
- Rule of Law, which guarantees equality before the law and protects the fundamental rights of citizens.
- Effectiveness and Efficiency, which encourage the proper and economical use of public resources.
- Equity and Inclusiveness, which ensure that every section of society has the opportunity to benefit from governance.

These principles serve as the foundation for understanding good governance and provide a useful basis for evaluating how e-governance contributes to improving modern public administration.

### 2.2.3 Relationship Between E-Governance and Good Governance

E-governance and good governance are closely connected, but they are not the same. Good governance refers to the principles and values that guide the functioning of government, whereas e-governance refers to the use of Information and Communication Technology (ICT) in government administration and the delivery of public services. ICT helps governments improve administrative efficiency, make public services more accessible, increase transparency, and encourage greater participation by citizens. Because of these contributions, e-governance has become an important means of promoting the principles of good governance.

However, the relationship between e-governance and good governance should not be seen as automatic. The use of digital technology alone cannot ensure transparency, accountability, or responsiveness. If an online service is poorly designed, difficult for citizens to use, or introduced without proper institutional support, it may not improve governance. Likewise, challenges such as limited digital literacy, poor internet connectivity, and weak legal protection for personal data can reduce the effectiveness of e-governance initiatives and limit their benefits.

The relationship between e-governance and good governance can therefore be understood from two perspectives. On the one hand, ICT enables governments to provide public services more efficiently, reduce administrative delays, improve the sharing of information, and make government institutions easier for citizens to access. On

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the other hand, the success of e-governance depends on strong public institutions, capable administrative systems, effective legal frameworks, and ethical governance practices that ensure technology is used in the public interest. Therefore, e-governance should be viewed as an important tool for achieving good governance rather than as a substitute for it. Technology can support better governance, but lasting improvements depend on responsible administration, effective institutions, and active participation by citizens.

## 2.2.4 E-Governance as an Instrument of Good Governance

The principles of good governance provide an important basis for understanding and assessing the quality of public administration. Information and Communication Technology (ICT) has helped governments strengthen many of these principles by improving administrative procedures, making public information more easily available, and improving communication between the government and citizens. However, the extent to which these principles are put into practice depends on strong public institutions, sound public policies, and the commitment of the administration to good governance. The role of e-governance in supporting the major principles of good governance is discussed in the following sections:

### 2.2.4.1 Promoting Transparency

Transparency means openness in the way governments function and provide information to the public. It helps citizens understand how government decisions are made, how public money is spent, and how government programmes are carried out. E-governance promotes transparency by making government information available through official websites, online portals, digital dashboards, and electronic databases. Citizens can easily access government notifications, policies, budgets, welfare schemes, project details, and service standards without relying on intermediaries. The online publication of tenders, recruitment information, procurement processes, and public expenditure has also reduced opportunities for corruption. In this way, ICT has become an important tool for making government more open and transparent.

### 2.2.4.2 Strengthening Accountability

Accountability means that public officials and government institutions are responsible for their decisions and actions. ICT strengthens accountability by creating digital records of administrative activities through electronic file management, online transaction records, service tracking systems, and digital audit trails. These systems make it easier to monitor official work, identify delays, and reduce the possibility of unauthorised changes to records. Online grievance redressal systems also allow citizens to submit complaints, track their progress, and receive timely responses from government departments. This has encouraged greater responsibility and improved the quality of public administration.

### 2.2.4.3 Improving Administrative Efficiency

Efficiency means using available resources wisely while delivering quality public services within a reasonable time. ICT has improved administrative efficiency by reducing paperwork, automating routine tasks, and introducing digital communication and integrated databases. Activities such as document verification, record management, financial transactions, and application processing can now be completed more quickly and accurately. Better coordination

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among government departments has also reduced duplication of work and improved the overall delivery of public services.

### 2.2.4.4 Enhancing Responsiveness

Responsive governance means that governments respond to the needs and concerns of citizens quickly and effectively. ICT supports this by improving communication between government departments and the public. Online service portals, mobile applications, helpdesks, chatbots, and grievance redressal systems enable citizens to obtain information, submit requests, and receive updates without unnecessary delay. During emergencies such as natural disasters or public health crises, digital technologies also help governments share information quickly, coordinate relief activities, and provide timely public services.

### 2.2.4.5 Encouraging Citizen Participation

Citizen participation is one of the basic features of democratic governance. ICT has created more opportunities for citizens to take part in governance through online consultations, digital feedback systems, opinion surveys, social media platforms, and public grievance portals. These digital platforms help governments understand public concerns and encourage citizens to share their views on policies and development programmes. However, effective participation depends on digital literacy, equal access to technology, and the willingness of governments to consider and respond to public feedback.

### 2.2.4.6 Promoting Inclusiveness and Equity

Good governance aims to ensure that public services reach every section of society. ICT supports this objective by improving access to education, healthcare, financial services, welfare programmes, and public information through digital platforms. Initiatives such as Common Service Centres (CSCs), mobile governance, multilingual digital services, and digital literacy programmes have made government services more accessible, especially for people living in rural and remote areas. However, challenges such as the digital divide, limited internet connectivity, the cost of digital devices, and accessibility for persons with disabilities still need to be addressed to achieve truly inclusive governance.

### 2.2.4.7 Supporting the Rule of Law

The rule of law dictates that governments exercise their powers in accordance with the Constitution and established legal procedures. Information and Communication Technology (ICT) upholds this principle by enhancing the management of legal and administrative processes through digital court systems, electronic record management, online publication of judgments, digital land records, and electronic procurement. These technologies foster transparency, bolster the reliability of official records, and mitigate the potential for manipulation. Concurrently, governments must ensure that digital technologies are employed within a robust legal framework that safeguards privacy, data security, and citizens' rights.

## 2.2.5 E-Governance to Good Governance

While e-Governance has brought about significant enhancements to public administration, the mere adoption of digital technology does not automatically equate to good governance. Technology is merely a tool, and its efficacy hinges on the strength of public institutions, the efficiency of the

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administrative system, appropriate legal safeguards, and governments' commitment to the principles of good governance.

An online public service may improve the speed and efficiency of administration, but it cannot eradicate corruption if public institutions lack accountability. Similarly, digital platforms cannot guarantee meaningful citizen participation unless governments actively encourage public involvement and respond to citizens' concerns and suggestions. Even the most advanced digital technologies may fail to improve governance if they are introduced without transparency, inclusivity, and respect for democratic values.

Moreover, the benefits of e-Governance may not be equally accessible to all. Challenges such as limited digital literacy, inadequate internet connectivity, economic disparities, language barriers, cybersecurity risks, and concerns regarding data privacy can impede many individuals from accessing and utilising digital government services. These challenges clearly demonstrate that technology alone cannot achieve the broader objectives of good governance.

Therefore, e-Governance should be perceived as a crucial means of supporting good governance rather than as a substitute for it. Its success is contingent upon strong public institutions, responsible public administration, effective legal frameworks, and active citizen participation. In this way, technology supports and strengthens governance, but it cannot replace the values, institutions, and practices that form the bedrock of good governance.

## 2.2.6 E-Governance and Democratic Governance

Democracy extends beyond the mere conduct of regular elections. It also relies on continuous interaction between the government and citizens through transparent decision-making, public participation, accountability, and adherence to the rule of law. ICT has created new avenues to bolster democratic governance by facilitating citizens' access to information, enabling them to express their views, participate in public discussions, and monitor the performance of government institutions.

Digital platforms have enhanced communication between governments and citizens in numerous ways. Online grievance redressal systems, public consultation portals, social media platforms, and electronic feedback mechanisms enable citizens to communicate more readily with public authorities and obtain information about government policies, programmes, and public services. These technologies have fostered greater civic participation and contributed to building a more participatory system of governance.

ICT has also improved electoral management, public awareness campaigns, the dissemination of government notifications, and transparency in public administration. At the same time, digital democracy faces challenges such as misinformation, the misuse of social media, cyber threats, and unequal access to digital technologies. Therefore, strengthening democratic governance in the digital age requires not only the use of technology but also the responsible use of digital platforms, informed citizens, and effective legal and regulatory frameworks.

## 2.2.7 E-Governance, Sustainable Development, and Good Governance

Sustainable development aims to achieve balanced economic growth, social inclusion, and environmental protection. Good governance is essential for achieving these goals, and Information and Communication Technology (ICT) has become an important tool for supporting sustainable development.

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Digital technologies contribute to sustainable development by improving the efficiency of public administration, expanding access to education and healthcare, strengthening financial inclusion, supporting environmental monitoring, and helping governments make informed decisions. ICT also improves the implementation and monitoring of development programmes through real-time data collection and regular assessment of programme performance.

At the international level, the United Nations Sustainable Development Goals (SDGs) recognise the importance of effective, accountable, and inclusive institutions. In particular, SDG 16 highlights the need to promote peaceful, just, and inclusive societies supported by transparent and accountable institutions. E-governance contributes to this goal by improving public service delivery, strengthening government institutions, and encouraging greater citizen participation.

Thus, ICT has become an important means of supporting sustainable development by improving governance, strengthening public service delivery, and promoting inclusive development that benefits all sections of society.

## 2.2.8 Future Directions for Strengthening E-Governance and Good Governance

The continuing growth of digital technologies offers many new opportunities to improve governance and public service delivery. However, the future of e-governance depends not only on technological progress but also on the ability of governments to develop digital systems that are secure, inclusive, and focused on the needs of citizens.

Some important priorities for strengthening e-governance include:

- Expanding digital infrastructure to underserved and remote areas.
- Improving digital literacy among citizens.
- Ensuring accessible digital services for persons with disabilities.
- Strengthening cybersecurity and protecting personal data.
- Promoting the responsible and transparent use of Artificial Intelligence.
- Improving interoperability and coordination among government departments.
- Strengthening the capacity of public officials through continuous training.
- Encouraging greater citizen participation in digital governance initiatives.
- Developing effective legal and regulatory frameworks for emerging technologies.

Future governance will increasingly use technologies such as Artificial Intelligence, Big Data Analytics, Blockchain, cloud computing, and Digital Public Infrastructure. These technologies can improve administrative efficiency and make public service delivery more effective. At the same time, their use must remain guided by constitutional values, democratic accountability, and the protection of citizens' rights. The purpose of e-governance is not to replace public institutions or human decision-making but to strengthen governance through the responsible and effective use of technology.

## 2.2.9 Conclusion

Good governance is the objective every democratic government strives to achieve, with e-Governance providing the technological support to meet this goal. Information and Communication Technology (ICT) has transformed governance by enhancing transparency, accountability, efficiency, responsiveness, participation, and inclusiveness. It has strengthened public

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service delivery, improved communication between governments and citizens, and facilitated better decision-making based on reliable information.

However, technology alone cannot guarantee good governance. The success of e-Governance relies on transparent institutions, capable public administration, robust legal frameworks, ethical leadership, and the active participation of informed citizens. Challenges such as digital exclusion, privacy concerns, cybersecurity risks, and institutional limitations demonstrate that good governance depends not only on technology but also on strong institutions and responsible administration.

Therefore, e-Governance should be viewed as a vital tool for supporting democratic governance and sustainable development. When governments utilise ICT in a responsible, inclusive, and citizen-focused manner, it can help build governance systems that are more transparent, accountable, efficient, and responsive to citizens' needs.

## Recap

- Good governance refers to the principles guiding governments in delivering transparent, accountable, efficient, and inclusive administration.
- E-Governance supports good governance by applying Information and Communication Technology to enhance public administration and service delivery.
- Technology alone cannot achieve good governance; strong institutions, sound policies, and responsible administration are also essential.
- ICT promotes transparency by making government information more accessible via digital platforms.
- Digital technologies strengthen accountability by improving record management, service tracking, and grievance redressal.
- E-Governance enhances administrative efficiency by reducing paperwork, automating routine tasks, and improving coordination among government departments.
- ICT encourages citizen participation through online consultations, digital feedback systems, and public grievance mechanisms.
- Digital governance contributes to sustainable development by improving public service delivery and strengthening inclusive institutions.
- Challenges such as digital exclusion, cybersecurity, privacy concerns, and limited digital literacy continue to affect the success of e-Governance.
- The future of e-Governance depends on the responsible use of emerging technologies, alongside democratic values, strong institutions, and active citizen participation.

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## Objective Questions

1. Which concept refers to the principles that guide transparent and accountable public administration?
2. Which technology-based approach supports the implementation of good governance?
3. Which principle of good governance ensures openness in government functioning?
4. Which principle requires public officials to answer for their decisions and actions?
5. Which principle of good governance guarantees equality before the law?
6. Which mechanism allows citizens to submit complaints and monitor their status online?
7. Which international development agenda recognises the importance of effective, accountable, and inclusive institutions?
8. Which governance principle encourages citizens to participate in public decision-making?
9. Which challenge relates to unequal access to digital technologies and internet services?
10. Which concept refers to balanced economic growth, social inclusion, and environmental protection?

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## Answers

1. Good Governance
2. E-Governance
3. Transparency
4. Accountability
5. Rule of Law
6. Grievance Redressal

7. Sustainable Development Goals (SDGs)
8. Participation
9. Digital Divide
10. Sustainable Development

## Assignments

1. Explain the concept and major principles of good governance.
2. Discuss the relationship between e-Governance and good governance with suitable examples.
3. Examine the contribution of ICT to transparency, accountability, and administrative efficiency.
4. Analyse the role of e-governance in promoting democratic governance and sustainable development.
5. Evaluate the challenges and future directions for strengthening e-governance in India.

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UNIT 3

# Major E-Governance Projects in India

## Learning Outcomes

Upon the completion of this unit, learner will be able to:

- understand the major e-governance projects implemented in India
- analyse the contribution of digital initiatives in sectors such as identity management, financial governance, healthcare, education, agriculture, justice delivery, and local governance.
- evaluate the impact of major e-governance projects on transparency, administrative efficiency, citizen-centric service delivery, and inclusive governance.
- explore the opportunities and challenges associated with the implementation of digital governance initiatives in India

## Prerequisite

Ram, a Political Science student, attended a classroom session conducted by Dr. Subheesh on the growing use of digital technologies in government administration. During the discussion, Ram reflected on several government services that had recently become available through mobile applications and online platforms. He had used DigiLocker to download academic certificates, noticed that digital payments had become common even for government services, and had heard about platforms such as UMANG and CoWIN. Although he was familiar with these services, he did not realise that they were all part of India's larger e-governance framework. Dr. Subheesh explained that these initiatives were not isolated projects but components of an integrated digital governance system designed to improve transparency, efficiency, accessibility, and citizen participation. As the class progressed, Ram became interested in understanding how these initiatives function across different sectors.

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## Keywords

Aadhaar, Digital Public Infrastructure, Unified Payments Interface (UPI), DigiLocker, e-Courts, UMANG, Direct Benefit Transfer (DBT)

## Discussion

### 2.3.1 Introduction

The implementation of e-Governance in India has progressed steadily over the past two decades through a wide range of digital initiatives aimed at improving public administration and the delivery of public services. These initiatives have changed the way governments, businesses, and citizens interact by making public services more accessible, transparent, and efficient. With the support of the National e-Governance Plan (NeGP), the Digital India Programme, and the development of Digital Public Infrastructure (DPI), India has emerged as one of the leading countries in the use of digital technologies for governance.

E-Governance initiatives in India cover several sectors, including digital identity, financial services, taxation, healthcare, education, agriculture, justice delivery, public procurement, and local governance. Together, these initiatives have reduced administrative delays, improved coordination among government departments, expanded financial inclusion, and increased transparency in the delivery of public services. They have also contributed to the wider goals of citizen-centric governance and digital inclusion.

These initiatives should not be seen as separate projects working independently. Instead, they are part of an integrated digital governance system. Many of these platforms are connected through interoperable digital infrastructure, enabling citizens to access different government services through a simple, smooth, and integrated digital experience.

### 2.3.2 Digital Identity and Citizen Authentication

A reliable system for identifying citizens is essential for effective digital governance. Electronic authentication helps governments deliver public services securely while reducing duplication, fraud, and unnecessary administrative delays. In India, the digital identity system has become one of the key foundations of the country's e-Governance framework and plays an important role in improving the delivery of public services.

#### 2.3.2.1 Aadhaar

Aadhaar is the world's largest biometric digital identity system and provides every resident of India with a unique identification number. It enables the electronic verification of identity by using demographic and biometric information.

Aadhaar has strengthened digital governance by supporting:

- Direct identification of beneficiaries.
- Efficient delivery of welfare programmes.
- Reduction of duplicate and fraudulent beneficiaries.
- Electronic Know Your Customer (e-KYC) services.
- Easier access to government services.
- Support for Digital Public Infrastructure.

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By providing a secure and trusted digital identity, Aadhaar has become an important part of citizen-centric governance in India.

### 2.3.2.2 e-KYC and Digital Authentication

Electronic Know Your Customer (e-KYC) enables the digital verification of a person's identity without requiring the repeated submission of physical documents. It has simplified administrative procedures and made access to banking, financial services, telecommunication services, and government welfare programmes faster and more convenient. Digital authentication has reduced paperwork, improved administrative efficiency, and supported secure digital transactions across different sectors.

### 2.3.2.3 DigiLocker

DigiLocker is a secure digital platform that enables citizens to store, access, and share official documents electronically. Educational certificates, driving licences, vehicle registration certificates, and other government-issued documents can be accessed online whenever needed. The platform promotes paperless governance by reducing the need for physical documents and improving the efficiency of public service delivery through the quick and secure verification of official records.

## 2.3.3 Digital Financial Governance

Digital financial technologies have transformed the way governments manage financial transactions and deliver financial services. They have enhanced transparency, promoted financial inclusion, and supported secure digital payments. India's digital payment system has garnered global recognition as an effective example of how technology can strengthen governance and improve the delivery of public services.

### 2.3.3.1 Unified Payments Interface (UPI)

The Unified Payments Interface (UPI) facilitates instant money transfers via mobile devices. Developed by the National Payments Corporation of India (NPCI), it has made digital payments simpler, faster, and more convenient for individuals, businesses, and government agencies. UPI supports governance by:

- Facilitating digital payments.
- Reducing reliance on cash.
- Promoting financial inclusion.
- Improving transparency in financial transactions.
- Supporting payments for government services.

### 2.3.3.2 Direct Benefit Transfer (DBT)

Direct Benefit Transfer (DBT) enables governments to disburse financial assistance directly into beneficiaries' bank accounts. This system has reduced leakages, eliminated intermediaries, and improved transparency in the implementation of welfare programmes. DBT has become a significant example of technology-enabled governance by ensuring the timely transfer of subsidies, pensions, scholarships, and other welfare benefits to eligible recipients.

### 2.3.3.3 Public Financial Management System (PFMS)

The Public Financial Management System (PFMS) assists governments in managing and monitoring public expenditure through digital platforms. It enhances financial accountability by tracking the movement of public funds and increasing transparency in the management of government finances.

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### 2.3.4 Taxation and Business Governance

Digital technologies have brought about significant changes to taxation and business regulation in India, simplifying compliance procedures and improving administrative efficiency.

#### 2.3.4.1 Goods and Services Tax Network (GSTN)

The Goods and Services Tax Network (GSTN) provides a unified digital platform for GST registration, tax filing, tax payment, and compliance. It has streamlined indirect tax administration by connecting taxpayers, businesses, and tax authorities through a single online system. The platform supports:

- Faster tax administration.
- Greater transparency.
- Improved tax compliance.
- Ease of doing business.

#### 2.3.4.2 Government e-Marketplace (GeM)

The Government e-Marketplace (GeM) is an online procurement platform that enables government departments to purchase goods and services electronically. The platform has enhanced transparency, encouraged healthy competition among suppliers, and made public procurement more efficient by reducing manual procedures and promoting competitive pricing.

### 2.3.5 E-Governance Projects in Healthcare

Healthcare is one of the sectors that has experienced major digital transformation in recent years. Information and Communication Technology (ICT) has improved healthcare administration by supporting digital health records, online medical consultations, electronic management of health information, and better delivery of healthcare services. The following initiatives demonstrate how e-Governance is strengthening the healthcare sector.

#### 2.3.5.1 Ayushman Bharat Digital Mission (ABDM)

The Ayushman Bharat Digital Mission (ABDM) aims to create an integrated digital health system in India by enabling the secure exchange of health information among patients, healthcare providers, hospitals, laboratories, and government agencies. The mission supports:

- Creation of digital health records.
- Secure sharing of health information.
- Improved continuity of medical care.
- Better coordination among healthcare institutions.
- Efficient management of public health services.

By enabling various healthcare systems to securely share information, ABDM has enhanced healthcare governance and strengthened citizen-centred healthcare services.

#### 2.3.5.2 e-Sanjeevani

e-Sanjeevani is the National Telemedicine Service, allowing patients to consult registered medical practitioners via digital platforms without visiting hospitals. It has improved access to healthcare, particularly for people in rural, remote, and underserved areas where specialised medical services are not readily available. The platform demonstrates

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how ICT can reduce geographical barriers and make public healthcare services more accessible.

### 2.3.5.3 CoWIN

The CoWINplatform was developed to manage India's COVID-19 vaccination programme. It facilitated online registration, appointment scheduling, management of vaccination records, and the generation of digital vaccination certificates. Although introduced during a public health emergency, CoWIN showcased how digital platforms can efficiently manage large public programmes. It remains a significant example of technology-enabled governance in public health administration.

## 2.3.6 E-Governance Projects in Education

Digital technologies have brought significant changes to educational administration by supporting online learning, academic management, digital content delivery, and broader access to educational resources. Several national initiatives have reinforced the use of ICT in the education sector.

### 2.3.6.1 DIKSHA

DIKSHA (Digital Infrastructure for Knowledge Sharing) is a national platform that provides digital educational resources for students, teachers, and educational institutions. The platform offers:

- Digital textbooks.
- Learning materials.
- Teacher training programmes.
- Assessment resources.
- Multilingual educational content.

DIKSHA has improved access to quality learning resources and strengthened digital education nationwide.

### 2.3.6.2 SWAYAM

SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) is an online learning platform offering courses prepared by leading educational institutions. It supports lifelong learning by making quality educational content available to learners regardless of their location. SWAYAM promotes inclusive education and supports the goals of digital learning and skill development.

## 2.3.7 E-Governance Projects in Agriculture

Agriculture remains a crucial part of India's economy, and Information and Communication Technology (ICT) has improved governance in this sector by providing farmers with timely information, better market access, and digital public services.

### 2.3.7.1 National Agriculture Market (e-NAM)

The National Agriculture Market (e-NAM) is an electronic trading platform connecting agricultural markets across the country. Its objectives include:

- Providing farmers with improved market access.
- Enhancing price transparency.
- Encouraging competitive bidding.
- Reducing the role of intermediaries.
- Promoting efficient agricultural marketing.

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e-NAM assists farmers in making informed marketing decisions and fosters greater transparency in agricultural marketing and governance.

### 2.3.7.2 Digital Agriculture Initiatives

Digital technologies are increasingly being used to provide farmers with:

- Weather information.
- Crop advisories.
- Soil health information.
- Irrigation guidance.
- Crop insurance services.
- Market intelligence.

These initiatives help farmers make informed farming decisions and improve the quality of agricultural extension services.

## 2.3.8 E-Governance Projects in Justice Delivery

An efficient justice delivery system is an essential component of democratic governance. ICT has improved judicial administration by making courts more accessible, strengthening case management, and increasing transparency in judicial processes.

### 2.3.8.1 e-Courts Mission Mode Project

The e-Courts Mission Mode Project aims to modernise the Indian judicial system through the use of ICT. Its major features include:

- Electronic filing of cases.
- Online case status.
- Digital cause lists.
- Virtual court proceedings.
- Online publication of judgments.
- Electronic case management.

These initiatives have improved transparency, reduced procedural delays, and made judicial information more easily available to the public.

### 2.3.8.2 Interoperable Criminal Justice System (ICJS)

The Interoperable Criminal Justice System (ICJS) connects digital information among the police, courts, prisons, forensic laboratories, and prosecution agencies. The project enables faster sharing of information, improves coordination among criminal justice institutions, and strengthens the efficiency of justice administration.

## 2.3.9 E-Governance Projects in Local Governance and Rural Development

Digital governance has strengthened local administration by improving transparency, financial management, and citizen participation at the grassroots level.

### 2.3.9.1 eGramSwaraj

eGramSwaraj is a digital platform that supports the planning, implementation, and monitoring of rural development programmes carried out by Gram Panchayats. The platform promotes:

- Transparency in local governance.
- Efficient planning.
- Financial accountability.
- Monitoring of development activities.
- Improved public participation.

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It has strengthened digital governance in Panchayati Raj Institutions.

### 2.3.9.2 SVAMITVA Scheme

The SVAMITVA Scheme uses drone technology and Geographic Information System (GIS) mapping to prepare accurate property records in rural areas. The initiative contributes to:

- Improved land administration.
- Reduction of property disputes.
- Better rural planning.
- Greater transparency in property ownership.

2.3.10 Integrated Citizen Service Delivery Platforms

One of the main objectives of e-Governance is to provide citizens with access to multiple government services through a single digital platform. This integration simplifies administrative procedures and improves the overall experience of using government services.

### 2.3.10.1 UMANG

UMANG (Unified Mobile Application for New-age Governance) provides citizens with access to a large number of Central and State Government services through a single mobile application. The platform enables users to:

- Access public services.
- Submit applications.
- Receive government notifications.
- Track service requests.
- Make digital payments.

UMANG is a good example of integrated and citizen-centric digital governance.

### 2.3.10.2 CPGRAMS

The Centralised Public Grievance Redress and Monitoring System (CPGRAMS) enables citizens to submit complaints related to government services through an online platform. The system strengthens:

- Administrative accountability.
- Transparency.
- Responsiveness.
- Citizen participation in governance.

## 2.3.11 India's E-Governance Ecosystem: An Assessment

India's e-Governance initiatives clearly show how digital technologies can improve public administration across many sectors. Digital identity systems, financial platforms, healthcare initiatives, educational portals, agricultural services, judicial reforms, and integrated citizen service platforms have collectively made governance more transparent, improved administrative efficiency, and increased citizens' access to public services.

The success of these initiatives has been supported by the growth of interoperable digital infrastructure, improved internet connectivity, wider use of mobile technologies, and the expanding adoption of Digital Public Infrastructure (DPI). At the same time, challenges such as the digital divide, cybersecurity threats, protection of personal data, and varying levels of digital literacy continue to affect how effectively these initiatives reach and benefit all citizens.

India's experience demonstrates that the success of e-governance hinges not only on technological advancement but also on robust public institutions, inclusive public

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policies, appropriate legal safeguards, and governments' capacity to adapt to evolving technologies and societal needs.

### 2.3.12 Conclusion

The major e-governance projects implemented in India illustrate how Information and Communication Technology (ICT) has transformed public administration across various sectors. Digital initiatives in identity management, financial governance, healthcare, education, agriculture, justice delivery, local governance, and integrated citizen services have enhanced administrative efficiency, increased transparency, and made government services more accessible to citizens. These initiatives have also strengthened citizen-centric governance by reducing procedural delays, broadening access to public services, and improving coordination among government departments.

The future success of these initiatives relies on continuous technological improvement, strong digital infrastructure, effective cybersecurity, personal data protection, and sustained efforts to bridge the digital divide. As India progresses towards a digitally empowered society, e-governance projects will play an increasingly vital role in bolstering democratic governance, fostering inclusive development, and enhancing the quality of public service delivery for all citizens.

## Recap

- India has implemented several e-governance projects to enhance public administration and service delivery.
- Aadhaar has strengthened digital governance by providing a secure and reliable system for digital identity.
- Digital financial platforms such as UPI and DBT have improved financial inclusion and transparency.
- DigiLocker supports paperless governance by enabling citizens to store and share official documents digitally.
- Healthcare initiatives like ABDM, e-Sanjeevani, and CoWIN have improved access to healthcare services.
- Educational platforms such as DIKSHA and SWAYAM have expanded access to digital learning resources.
- e-NAM and other digital agriculture initiatives provide farmers with improved market access and timely agricultural information.
- The e-Courts Mission Mode Project and ICJS have modernised judicial administration and enhanced access to justice.
- UMANG and CPGRAMS have simplified access to multiple government services and strengthened grievance redressal.
- The continued success of e-governance projects depends on robust digital infrastructure, cybersecurity, digital literacy, and inclusive public policies.

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## Objective Questions

1. Which digital identity system provides every resident of India with a unique identification number?
2. Which digital platform enables citizens to store official documents electronically?
3. Which digital payment platform facilitates instant fund transfers via mobile devices?
4. Which system enables governments to transfer welfare benefits directly into beneficiaries' bank accounts?
5. Which national telemedicine platform offers remote medical consultations?
6. Which platform was developed to manage India's COVID-19 vaccination programme?
7. Which national online learning platform provides courses from leading educational institutions?
8. Which electronic trading platform connects agricultural markets across India?
9. Which project modernises the Indian judiciary through digital technologies?
10. Which mobile application offers access to multiple Central and State Government services?

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## Answers

1. Aadhaar
2. DigiLocker
3. UPI
4. DBT
5. e-Sanjeevani
6. CoWIN

7. SWAYAM
8. e-NAM
9. e-Courts
10. UMANG

## Assignments

1. Explain the major e-governance projects implemented in India for digital identity and citizen authentication.
2. Discuss the contribution of digital financial governance initiatives to transparency and financial inclusion.
3. Examine the role of e-governance projects in improving healthcare and education in India.
4. Analyse the contribution of digital initiatives in agriculture, justice delivery, and local governance.
5. Evaluate the significance of integrated citizen service delivery platforms in strengthening citizen-centric governance.

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1. Misra, D. C. (2016). *Digital India: Technology to Transform a Connected Nation*. New Delhi: Bloomsbury India.
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UNIT

# Challenges in Implementing E-Governance

## Learning Outcomes

Upon the completion of this unit, learner will be able to:

- understand the major technological, administrative, legal, social, economic, and ethical challenges affecting the implementation of e-Governance in India
- analyse the impact of the digital divide, cybersecurity, institutional capacity, digital literacy, and legal frameworks on the effectiveness of digital governance
- evaluate the strategies adopted to strengthen e-Governance through digital infrastructure, capacity building, inclusive governance, cybersecurity, and regulatory reforms
- explore the future directions of e-Governance in India with reference to emerging technologies, digital inclusion, and sustainable public administration

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## Prerequisite

Ram attended a classroom session where Dr Subheesh discussed the remarkable progress India had made in digital governance. He learned about Aadhaar, DigiLocker, UPI, CoWIN, UMANG, and several other successful e-Governance initiatives. While listening to the lecture, he began to wonder why many citizens still preferred visiting government offices even when digital services were available. Dr Subheesh explained that the success of e-Governance depends on much more than introducing new technology. He pointed out that many people still face difficulties due to limited internet connectivity, inadequate digital literacy, concerns about privacy and cybersecurity, language barriers, and differences in administrative capacity. He further explained that governments must address these challenges while protecting

citizens' rights and ensuring equal access to digital services. As the discussion continued, Ram realised that overcoming these challenges is essential for building an inclusive, secure, and citizen-centred system of digital governance.

## Keywords

Digital Divide, Cybersecurity, Digital Literacy, Data Privacy, Inclusive Governance, Capacity Building, Ethical Governance

## Discussion

### 2.4.1 Introduction

The rapid growth of Information and Communication Technology (ICT) has brought about significant changes in public administration by making government services more efficient, transparent, and accessible. India has made substantial progress in implementing e-Governance through initiatives such as the National e-Governance Plan (NeGP), the Digital India Programme, and Digital Public Infrastructure (DPI). These initiatives have enabled governments to provide public services via digital platforms, improve coordination among government departments, and strengthen citizen-centric governance.

Even with these achievements, the implementation of e-Governance continues to face numerous challenges. Successful digital governance requires more than just modern technology; it also depends on robust public institutions, appropriate legal frameworks, adequate financial resources, administrative reforms, digital literacy, effective cybersecurity, and citizen confidence. In a country as large and diverse as India, disparities in internet connectivity, levels of digital preparedness, and administrative capacity continue to impede the effective implementation of e-Governance.

Many of these challenges are closely linked. Limited digital literacy makes it difficult for many people to use online government services, while poor internet connectivity restricts access to digital platforms. Concurrently, concerns about cybersecurity, privacy, and the protection of personal data influence public confidence in digital governance. Therefore, the success of e-Governance hinges on addressing technological, administrative, legal, social, and ethical challenges through well-designed and coordinated public policies.

### 2.4.2 Technological Challenges

Technology forms the bedrock of e-Governance. However, digital governance can only function effectively when governments possess reliable technological infrastructure that supports secure, efficient, and uninterrupted public service delivery.

#### 2.4.2.1 Digital Divide

One of the major challenges to e-Governance is the *digital divide*, which refers to disparities in access to digital technologies among different sections of society. The digital divide may result from:

- Unequal internet connectivity.
- Limited availability of digital devices.

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- Differences in income.
- Educational disparities.
- Rural-urban differences.
- Gender disparities.
- Accessibility barriers faced by persons with disabilities.

Owing to these disparities, many citizens are unable to utilise online government services even when they are available. Reducing the digital divide is therefore essential for ensuring that digital governance benefits all sections of society.

### 2.4.2.2 Inadequate Digital Infrastructure

Although India has expanded broadband connectivity through initiatives such as *BharatNet*, gaps in digital infrastructure persist in many rural, hilly, and remote areas. Poor internet connectivity, irregular electricity supply, limited bandwidth, and inadequate technological infrastructure continue to affect the quality and reliability of digital public services. Expanding and strengthening digital infrastructure nationwide remains crucial for achieving universal access to e-Governance.

### 2.4.2.3 Interoperability Issues

Government departments often use disparate digital platforms that are not fully integrated. This lack of interoperability leads to duplication of records, repeated submission of the same documents by citizens, and weak coordination among government departments. Developing interoperable digital systems and adopting common technical standards are therefore important for providing integrated and efficient public services.

## 2.4.3 Administrative and Institutional Challenges

The successful implementation of e-governance necessitates changes in the functioning of government organisations. Administrative systems developed for traditional governance methods may not readily adapt to digital processes.

### 2.4.3.1 Resistance to Organisational Change

Some public officials, accustomed to traditional administrative procedures, may hesitate to adopt new technologies. This can stem from limited familiarity with digital systems, concerns about increased accountability, or a reluctance to alter existing work practices. Successful e-governance implementation therefore requires continuous training, institutional support, and effective change management.

### 2.4.3.2 Capacity Building and Human Resource Development

Digital governance relies on skilled personnel capable of operating and managing ICT systems effectively. Limited technical knowledge, inadequate training, and a shortage of qualified personnel diminish the effectiveness of e-governance initiatives. Regular training programmes and continuous skill development are consequently essential to strengthen administrative capacity.

### 2.4.3.3 Coordination among Government Departments

Many public services necessitate inter-departmental collaboration across various administrative levels. Poor coordination among these departments can lead to duplicated efforts, service delivery delays, and fragmented administration. Effective e-governance implementation thus depends on improved planning, stronger coordination, and greater collaboration among government agencies.

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### 2.4.4 Legal and Regulatory Challenges

The rapid proliferation of digital technologies has introduced several legal and regulatory issues that demand appropriate laws and policy measures.

#### 2.4.4.1 Data Privacy and Protection

Governments collect and process substantial amounts of personal information when providing digital services. Protecting citizens' personal data has consequently become a crucial responsibility of public administration. Robust legal safeguards are required to regulate the collection, storage, sharing, and use of personal information, thereby protecting privacy and ensuring its responsible application.

#### 2.4.4.2 Cybersecurity Threats

The increasing adoption of digital technologies has amplified the risk of cyber threats such as hacking, malware, ransomware, phishing, identity theft, and data breaches. Cybersecurity is vital for safeguarding sensitive government information, maintaining public trust, and ensuring the uninterrupted delivery of digital public services. Governments must continuously bolster cybersecurity systems, adhere to recognised security practices, and enhance cyber awareness among public officials and citizens.

#### 2.4.4.3 Legal Validity of Digital Transactions

Digital governance requires clear legal recognition of electronic records, electronic signatures, and digital authentication systems. Governments must also regularly update legal frameworks to accommodate new technologies such as Artificial Intelligence, blockchain, and cross-border digital transactions. A strong and updated legal framework is therefore essential to ensure legal certainty, accountability, and public confidence in digital governance.

### 2.4.5 Social and Economic Challenges

The success of e-governance hinges not only on technology but also on citizens' ability and willingness to utilise digital public services. Even when governments develop advanced digital platforms, social and economic barriers may prevent many people from benefiting from them equally. Therefore, technological progress must be complemented by social inclusion and equal access to digital public services.

#### 2.4.5.1 Digital Literacy

Digital literacy refers to an individual's ability to access, understand, evaluate and effectively use digital technologies. Citizens with limited digital skills may struggle to use government portals, complete online applications, make digital payments or protect themselves from online fraud. Although several digital literacy programmes have been introduced, disparities persist across different age groups, educational backgrounds and regions. Improving digital literacy is therefore essential to help citizens confidently use digital public services and effectively participate in digital governance.

#### 2.4.5.2 Economic Inequalities

Access to digital governance relies on the availability of smartphones, computers, internet connectivity and a reliable electricity supply. For economically weaker households, the cost of digital devices and internet services can impede access to online government services. As a result, vulnerable sections of society may not fully benefit from government programmes that are increasingly delivered

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through digital platforms. Governments must therefore ensure that digital transformation does not exacerbate existing social and economic inequalities.

### 2.4.5.3 Language and Accessibility Barriers

India's linguistic diversity presents a significant challenge for digital governance. Many online platforms were initially available primarily in English or only a few other languages, making them difficult for citizens who prefer regional languages to use. Digital platforms should also be designed to meet the needs of people with disabilities through accessible interfaces, screen-reader support, voice-based navigation, captioning and other assistive technologies. Inclusive digital design is therefore essential for ensuring equal access to public services.

### 2.4.5.4 Building Public Trust

The effectiveness of e-Governance largely depends on the confidence citizens have in digital systems. People are more likely to use online public services when they believe that digital platforms are reliable, secure, transparent and capable of protecting their personal information. Building public trust requires consistent service quality, privacy protection, prompt grievance redressal and clear communication about how citizens' data are collected and used.

## 2.4.6 Ethical Challenges in E-Governance

As governments increasingly utilise Artificial Intelligence, Big Data Analytics, digital identity systems and automated decision-making, ethical issues have become increasingly important in digital governance. The use of technology should always remain consistent with democratic values, constitutional principles and respect for citizens' rights. Some of the important challenges the government must consider are discussed below:

### 2.4.6.1 Privacy and Informational Autonomy

Digital governance involves collecting, storing and using large amounts of personal information. Citizens share demographic details, financial information, health records, educational information and biometric data when using digital public services. Governments must ensure that personal information is collected only for legitimate purposes, stored securely and used responsibly. Protecting informational privacy strengthens public trust and supports responsible digital governance.

### 2.4.6.2 Algorithmic Bias and Fairness

Artificial Intelligence (AI) is increasingly employed by governments to analyse data, identify beneficiaries, and support administrative decision-making. However, AI systems may yield unfair results if they rely on biased or incomplete data. Public institutions must therefore ensure that AI-based systems are transparent, regularly reviewed, and free from discrimination based on gender, caste, religion, disability, region, or any other social characteristic.

### 2.4.6.3 Transparency in Automated Decision-Making

As governments increasingly adopt automated technologies, citizens should be able to comprehend how significant administrative decisions are made. A lack of transparency in automated systems can erode public confidence and hinder

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accountability. Responsible governance, therefore, necessitates that automated systems are understandable, subject to human supervision, and open to appropriate review whenever required.

### 2.4.6.4 Balancing Innovation and Citizens' Rights

Emerging technologies present numerous opportunities to enhance governance, but they also demand a careful balance between administrative efficiency and the protection of constitutional rights. Governments must ensure that technological progress does not adversely affect privacy, equality, freedom of expression, or due process. Ethical governance requires technology to promote public welfare while upholding democratic values and the dignity of every individual.

## 2.4.7 Strategies for Strengthening E-Governance

Overcoming the challenges of e-Governance requires a balanced approach that integrates technological progress with institutional reforms, legal safeguards, and increased citizen participation. Some important measures are discussed below:

### 2.4.7.1 Expanding Digital Infrastructure

Governments should continue to improve broadband connectivity, strengthen mobile network coverage, expand fibre-optic infrastructure, and ensure a reliable electricity supply, particularly in rural and remote areas.

### 2.4.7.2 Promoting Digital Literacy

Digital literacy programmes should be expanded to enable people from all sections of society to use digital public services safely and confidently. Educational institutions, local governments, Common Service Centres, and civil society organisations can play a crucial role in this endeavour.

### 2.4.7.3 Strengthening Cybersecurity

Governments should persist in strengthening cybersecurity through regular security audits, advanced encryption technologies, secure authentication systems, effective incident response mechanisms, and public awareness programmes.

### 2.4.7.4 Developing Robust Legal Frameworks

As digital technologies continue to evolve, legal frameworks must also be updated to address issues related to data protection, Artificial Intelligence, digital identity, cybersecurity, and electronic transactions. Regular review of laws is essential for maintaining public confidence in digital governance.

### 2.4.7.5 Capacity Building for Public Officials

Public officials should receive continuous training in digital governance, cybersecurity, data management, Artificial Intelligence, and other emerging technologies. Skilled and well-trained personnel are essential for the successful implementation of e-Governance initiatives.

### 2.4.7.6 Promoting Inclusive Governance

Governments should ensure that digital services are accessible to all citizens regardless of age, gender, language, disability, geographical location, or socio-economic background. Inclusive governance requires user-friendly platforms, multilingual services,

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assistive technologies, and multiple access points for public services.

### 2.4.7.7 Encouraging Responsible Innovation

Governments should encourage innovation while ensuring transparency, accountability, responsible use of technology, and respect for citizens' rights. The adoption of emerging technologies should always remain guided by constitutional principles and democratic values.

## 2.4.8 Future Prospects of E-Governance in India

The future of e-Governance in India is closely connected with the continued development of Digital Public Infrastructure, Artificial Intelligence, cloud computing, Big Data Analytics, Blockchain, and the Internet of Things. These technologies have the capacity to improve policy formulation, strengthen public service delivery, increase administrative efficiency, and support informed decision-making in government. In the years ahead, governance is expected to become more integrated, citizen-centric, and responsive. Digital platforms are likely to provide more personalised public services, improve coordination among government departments, and respond more effectively to the changing needs of citizens. At the same time, governments must ensure that technological progress is supported by robust cybersecurity, protection of personal data, ethical governance, and equal access to digital services for all sections of society. The continued success of e-Governance in India will therefore depend not only on technological development but also on strong public institutions, informed citizens, sound legal frameworks, and sustained political and administrative commitment.

## 2.4.9 Conclusion

E-Governance has brought significant changes to public administration by enabling governments to deliver public services more efficiently, transparently, and responsively. However, the successful implementation of digital governance also depends on overcoming a wide range of technological, administrative, legal, social, economic, and ethical challenges. India has made remarkable progress in expanding digital governance through initiatives such as Digital India, Digital Public Infrastructure, and several sector-specific e-Governance projects. At the same time, challenges related to digital inclusion, cybersecurity, privacy, institutional capacity, and public trust continue to influence the effectiveness of these initiatives. The future of e-Governance depends not only on adopting advanced technologies but also on ensuring that digital transformation remains inclusive, secure, transparent, and accountable. Technology should strengthen democratic governance by empowering citizens, improving public institutions, and providing equitable access to public services. Only then can e-Governance fully achieve its objective of promoting good governance and supporting sustainable development.

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## Recap

- The success of e-Governance depends on technological, administrative, legal, social, economic, and ethical factors.
- The digital divide remains a major barrier to equitable access to online government services.
- Reliable digital infrastructure is essential for the effective delivery of e-Governance services.
- Capacity building and continuous training improve the ability of public officials to manage digital governance.
- Strong legal frameworks are necessary to protect personal data and support secure digital transactions.
- Cybersecurity plays a vital role in protecting government information systems and maintaining public trust.
- Digital literacy enables citizens to use online public services confidently and safely.
- Ethical governance requires the responsible use of Artificial Intelligence and other emerging technologies.
- Inclusive governance ensures that digital services are accessible to all sections of society.
- The future of e-Governance depends on technological progress supported by strong institutions, sound laws, and active citizen participation.

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## Objective Questions

1. Which challenge refers to unequal access to digital technologies among different sections of society?
2. Which type of literacy enables citizens to use digital technologies effectively?
3. Which security measure protects government systems from cyberattacks and data breaches?

4. Which legal principle protects the personal information collected by governments?

5. Which challenge arises when government digital platforms cannot communicate with one another?

6. Which programme aims to improve public officials' skills in digital governance?

7. Which principle ensures that digital public services are available to all sections of society?

8. Which type of framework provides legal recognition for electronic records and digital transactions?

9. Which concept requires governments to use emerging technologies responsibly while respecting citizens' rights?

10. Which factor is essential for citizens to confidently use digital government services?

## Answers

1. Digital Divide
2. Digital Literacy
3. Cybersecurity
4. Data Privacy
5. Interoperability
6. Capacity Building
7. Inclusiveness
8. Legal Framework
9. Ethical Governance
10. Public Trust

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## Assignments

1. Explain the major technological challenges affecting the implementation of e-Governance in India.
2. Discuss the administrative and institutional challenges in implementing digital governance.
3. Analyse the legal, social, and ethical challenges associated with e-Governance.
4. Examine the strategies required to strengthen e-Governance in India.
5. Evaluate the future prospects of e-Governance in promoting inclusive and citizen-centric governance.

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# MODEL QUESTION PAPER SETS

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# SREENARAYANAGURU OPEN UNIVERSITY

QP CODE: ……

Reg. No.: …….....

Name: ……...……...

**MODEL QUESTION PAPER I**
**Fifth Semester - BA Political Science Examination**
**Skill Enhancement Course- B23PS02SE - E-Governance in India**
(CBCS - UG)

Time: 3 Hours

Max Marks: 70

## Section A (*Objective Type Questions)*

**I** Answer any ***ten*** of the following questions in one word or sentence**.**

1. Who is associated with the early development of computerisation in Indian public administration?
2. In which year was the National e-Governance Plan launched in India?
3. What does ICT stand for?
4. Name the national programme launched in 2015 to promote digital transformation in India.
5. The G2C model of e-governance primarily involves interaction between which two parties?
6. DigiLocker is primarily used for what purpose?
7. Name the e-governance initiative that provides government and public services through Common Service Centres.
8. The computerisation of land records in India is associated with which major e-governance initiative?
9. What does the term ‘digital divide’ refer to?
10. Which Indian law provides the legal framework for electronic records and electronic transactions?
11. When was the Information Technology Act enacted in India?
12. Name the government portal that provides citizens with access to information and a range of online public services.

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13. What does G2G signify in e-governance?

14. A lack of adequate digital skills among citizens is commonly identified as which type of e-governance challenge?

15. Which principle of good governance is directly promoted by providing citizens with greater access to government information through digital platforms?

**(10×1=10 marks)**

## Section B (*Very Short Answers)*

**II** Answer any ***ten*** of the following questions in one or two sentences.

16. Define e-governance.

17. What is meant by electronic administration?

18. Mention two important stages in the evolution of e-governance in India.

19. State two objectives of e-governance.

20. What is Information and Communication Technology?

21. Mention two ways in which ICT facilitates government administration.

22. What is meant by good governance?

23. State two ways in which e-governance promotes transparency.

24. What are Common Service Centres?

25. What is the significance of the Digital India programme?

26. What is e-Seva?

27. What is meant by interoperability in e-governance?

28. What is the digital divide?

29. Mention two major technological challenges faced in implementing e-governance.

30. What is meant by cyber security in e-governance?

**(10×2=20 marks)**

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## Section C (*Short Answers)*

**III** Answer any ***five*** of the following questions in one paragraph

31. Explain the meaning, nature, and scope of e-governance.

32. Trace the major stages in the historical evolution of e-governance in India.

33. Discuss the major objectives and administrative significance of e-governance.

34. Explain the role of ICT in improving the efficiency and accessibility of government services.

35. Examine the relationship between e-governance and good governance.

36. Discuss the major features and significance of the Digital India programme.

37. Explain the importance of Common Service Centres in the delivery of public services.

38. Discuss the major challenges involved in implementing e-governance in India.

39. Explain how e-governance can promote transparency, accountability, and citizen participation.

40. Discuss the importance of digital literacy and digital inclusion for effective e-governance.

**(5×4=20 marks)**

## Section D (*Long Answers/Essay)*

**IV** Answer any ***two*** of the following questions in 300 words.

41. Critically examine the evolution of e-governance in India and analyse its changing role in public administration.

42. Analyse the role of ICT in transforming government–citizen relations and improving the quality of public service delivery.

43. Evaluate the contribution of major e-governance initiatives in India towards achieving transparency, accountability, efficiency, and citizen-centric governance.

44. Examine the major challenges to e-governance in India, with particular reference to the digital divide, privacy, cyber security, digital literacy, and institutional capacity

**.(2×10=20 marks)**

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# SREENARAYANAGURU OPEN UNIVERSITY

QP CODE: ……

Reg. No.: …….....

Name: ……...……...

**MODEL QUESTION PAPER II**
**Fifth Semester - BA Political Science Examination**
**Skill Enhancement Course- B23PS02SE - E-Governance in India**
(CBCS - UG)

Time: 3 Hours

Max Marks: 70

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**Section A (*Objective Type Questions)***

**I** Answer any *ten* of the following questions in one word or sentence.

1. In which year was the National e-Governance Plan launched in India?
2. Which committee recommended the use of information technology for improving government administration in India in the early 1980s?
3. In which year was the Information Technology Act enacted in India?
4. Which programme was launched in 2015 with the objective of transforming India into a digitally empowered society and knowledge economy?
5. What does ICT stand for in the context of digital governance?
6. Which type of e-governance interaction involves the delivery of government services directly to citizens?
7. Which initiative provides citizens with access to digitally issued documents through an online repository?
8. Which e-governance initiative is associated with providing digital access to government services through village-level service centres?
9. Which project focuses on the computerisation of land records in India?
10. Which programme aims to provide broadband connectivity to rural and remote areas of India?
11. Which principle of good governance is promoted through greater public access to government information?
12. What term is used to describe the gap between people who have access to digital technologies and those who do not?

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13. Which type of security technology uses fingerprints, facial characteristics, or iris patterns for identity verification?

14. Which law provides the principal legal framework for electronic records and electronic transactions in India?

15. Which type of e-governance interaction refers to electronic communication and information exchange between government departments?

**(10×1=10 marks)**

## Section B (*Very Short Answers)*

**II** Answer any ***ten*** of the following questions in one or two sentences.

16. What is meant by digital governance?

17. Mention two characteristics of e-governance.

18. What was the significance of the National e-Governance Plan?

19. State two major roles of e-governance in public administration.

20. What is meant by digital infrastructure?

21. Mention two advantages of ICT in government functioning.

22. What is citizen-centric governance?

23. How does e-governance contribute to accountability?

24. What is Digi Locker?

25. What is meant by the computerisation of land records?

26. What is the role of digital identity in e-governance?

27. Define digital inclusion.

28. What is meant by data privacy?

29. Mention two institutional challenges in implementing e-governance.

30. What is cybercrime in the context of digital governance?

**(10×2=20 marks)**

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## Section C (*Short Answers)*

**III** Answer any ***five*** of the following questions in one paragraph

31. Distinguish between e-government and e-governance and explain their significance.

32. Examine the major developments that shaped the growth of e-governance in India.

33. Explain how e-governance can reduce administrative delays and improve public service delivery.

34. Discuss the role of ICT in facilitating coordination and information sharing among government institutions.

35. Examine the contribution of e-governance to citizen-centric and responsive administration.

36. Discuss the significance of Digi Locker and other digital service platforms in India's e-governance framework.

37. Explain the role of digital platforms in improving access to government services in rural areas.

38. Examine the technological, social, and administrative barriers to the effective implementation of e-governance.

39. Discuss the relationship between digital inclusion and equitable access to government services.

40. Explain the importance of privacy and data protection in the digital delivery of public services.

**(5×4=20 marks)**

## Section D (*Long Answers/Essay)*

**IV** Answer any ***two*** of the following questions in 300 words.

41. Discuss the conceptual foundations of e-governance and examine its objectives and significance in contemporary public administration.

42. Critically assess the role of ICT in promoting transparency, accountability, responsiveness, and efficiency in governance.

43. Examine the major e-governance projects in India and evaluate their contribution to citizen-oriented public administration.

44. Critically analyse the challenges confronting e-governance in India and suggest measures for making digital governance more inclusive, secure, and effective.

**(2×10=20 marks)**

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**സർവ്വകലാശാലാഗീതം**

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വിദ്യയാൽ സ്വതന്ത്രരാകണം
വിശ്വപൗരരായി മാറണം
ഗ്രഹപ്രസാദമായ് വിളങ്ങണം
ഗുരുപ്രകാശമേ നയിക്കണേ

കൂരിരുട്ടിൽ നിന്നു ഞങ്ങളെ
സൂര്യവീഥിയിൽ തെളിക്കണം
സ്നേഹദീപ്തിയായ് വിളങ്ങണം
നീതിവൈജയന്തി പാറണം

ശാസ്ത്രവ്യാപ്തിയെന്നുമേകണം
ജാതിഭേദമാകെ മാറണം
ബോധരശ്മിയിൽ തിളങ്ങുവാൻ
ജ്ഞാനകേന്ദ്രമേ ജ്വലിക്കണേ

**കുരീപ്പുഴ ശ്രീകുമാർ**

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## Regional Centres


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Ph: 04952920228
email: rckdirector@sgou.ac.in

### Thalassery
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Dharmadam, Thalassery,
Kannur, Pin: 670106
Ph: 04902990494
email: rctdirector@sgou.ac.in

### Tripunithura
Govt. College
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Kerala, Pin: 682301
Ph: 04842927436
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### Pattambi
Sree Neelakanta Govt. Sanskrit College
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