# Digital Divide and E-Governance: A Case Study of India

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**Abstract:**

The rapid growth of information technology worldwide has led to incredible opportunities in electronics, telecommunications, information retrieval, transmission, and storage. Access to accurate information at the right time is crucial for successful decision-making in both business and government. Information and Communications Technology (ICT) is transforming public services and socioeconomic infrastructure, making e-Government an essential component of every country. ICT is vital in promoting accountability, convenience, flexibility, security, integrity, and transparent governance through e-Governance. The Indian government is collaborating with stakeholders to expand and scale up the country's digital economy, which will create significant economic value and empower millions of people. Initiatives like the Jan Dhan Yojana have provided unbanked individuals with access to financial services, while programs like "Digital India," "Make in India," and "Skill India" aim for 100% digitalization to promote economic inclusion and social change. India is preparing for an era of amplified digitalization and Industry 4.0, powered by new technologies. E-Governance is an empowering tool for both government and stakeholders, promoting transparent and effective governance. However, implementing e-Governance in Indian administration faces challenges such as digital literacy, technology, process, economic factors, sociocultural factors, political interference, resistance to change, and mindset. This conceptual research paper aims to highlight e-Governance as an empowerment tool and the challenges in its implementation and utilization for effectiveness. The authors conducted a survey of 126 government officials using a structured questionnaire to gather information about their perceptions and implementation challenges.

**Key Words: E-Governance, Digital India, ICT, Challenges Empowerment**

**Introduction to E-Governance:**

E-governance, or electronic governance, refers to using information and communication technologies (ICTs) to improve the delivery of government services and streamline administrative processes. In the Indian context, e-governance initiatives were launched in the 1990s to strengthen government institutions' efficiency, transparency, and accountability.

One of the significant e-governance initiatives in India is the National e-Governance Plan (NeGP), launched in 2006 to provide government services to citizens in a cost-effective, efficient, and transparent manner. The NeGP has been implemented in two phases, with the first phase focusing on creating basic e-governance infrastructure and the second phase focusing on improving service delivery.

Under the NeGP, several initiatives have been launched, including the Common Service Centers (CSCs), which are intended to provide a range of government services to citizens in rural areas through a network of service centres. Another major initiative is the Digital India program, which aims to transform India into a digitally empowered society and knowledge economy.

The e-governance initiatives in India have significantly impacted the delivery of government services, particularly in healthcare, education, and financial services. However, there are still challenges to be addressed, including the need to improve internet connectivity and digital literacy and to ensure that the benefits of e-governance reach all sections of society.

Electronic Governance, abbreviated as "e-Governance," refers to implementing internet-based technologies to provide efficient and effective governance through simple online access to required information and services to citizens(Khanra & Joseph, 2019).

**The Background:**

**Usage of Portals in E-Governance:**

E-government refers to the networked structure for interconnectivity, electronic service delivery, workflow, efficiency, effectiveness, transparency and accountability (Bhattacharya et al., 2012). In the initial implementation phases, e-government was a confluence of information technology (IT) developments and applications used by government entities. Digital government is not only a shift of existing public services online; it is about the government harnessing IT to redefine its "social technologies" to remain relevant in a more participative, interactive, and informational era. E-government has been a subject of academic research for the last one-and-half decades.

E-Governance uses information and communication technology (ICT) to provide government services electronically to the public, agencies, and businesses. E-Governance helps bring transparency and improve the efficiency and quality of government services across the nation by reducing the differences between urban and rural or rich and poor. The idea of e-governance evolved from computerising government departments and then upgraded gradually to emphasize client-centric services. The policymakers in India tend to justify adopting and expanding e-gover- nance because it costs less, reduces waste, and eliminates corruption. Despite many potential benefits of e-governance, these solutions also have limitations regarding public service delivery, resulting in less success rate of e-governance projects in India(Gupta et al., 2019). To ensure the successful implementation of these e-governance-based projects for providing effective services to citizens, barriers must be identified and removed. Therefore following objectives of this study are as follows

1. To identify the Usage of the E-Governance System
2. To Identify the Employee Experience in Using E-Governance System

3. To Identify the Challenges Faced by Employees Working with E-Governance System
4. To Measure the Outcome of E-Government System in the Perception of Employees.

**Literature Review on E-Governance:**

Broadly, two streams of research may be identified where the role of e-government initiatives has been underlined concerning checking corruption in public service delivery. The first stream pertains to the studies which are conceptual or theoretical in approach. For instance, a comprehensive review of the literature on e-government has been attempted by Zhang et al. (2014), where the authors explore the diffusion of e-government. In another conceptual study, the notion of "excellence" in e-government has been underlined, which is "citizen-centric" and aims at curbing corruption and reduction of operational costs (Saxena, 2005).

While extant literature on e-government has been either conceptual or dominated the Western settings, empirical studies in the Indian context are less. Besides, to our knowledge, institutional theory has not been deployed to appreciate the linkage between e-government initiatives and corruption from the users' perspective in a developing country's context. Further, studies in the Indian context are dated, and to the best of our knowledge, no study has been conducted to ascertain the perception of users on the impact of "Digital India" initiatives regarding the extent to which corruption has declined in India. In the following sub-section, we will provide a brief account of the research on institutional theory.

**Institutional Theory:**

Using institutional theory in Information Systems (IS) research helps understand social phenomena' complexity (Currie, 2009). The institutional theory rests on the premise that symbolic, material and cultural considerations guide the process of institutionalization wherein a particular practice or set of rules gets accepted, stabilized and sustained by an organization over time (Scott, 2001; Zucker, 1977). Further, the theory holds that institutions are flexible and dynamic, interacting with other institutions. While deploying an institutional approach in IS research, an entity or a process may be treated as an institution (Currie, 2009). According to King et al. (1994), institutional theory may be used for studying innovation. This theory may be used to evaluate how organisations design, operate and implement technologies (Orlikowski and Barley, 2001).

Three reference points for our research emerge from the studies where institutional theory has been invoked to investigate e-government initiatives. The First Study focuses on Identifying Employees' Usage of the E-Governance System. The Second Study focus on factors influencing E-Governance System concerning Institutional Administration activities such as Time Saving Accuracy, Transparency, Accountability, Flexibility to Work, Improved Decision Making Easy to, Understand Easy to Access Information Good Response Easy Retrieve Data from Storage. The third study focuses on Identifying the Employee Experience in Using an E-Governance System interms of the E-Governance System being Easy to Understand and Use, Reaching all corners of Society, Removed involvement of the Middleman System, Transparency, tracking all records and stores, Grievance Redressal, Digitisation of Government Services empowered service delivery. The Fourth Study address the Challenges in the Implementation of the E-Governance System, namely Employee Literacy Level, Proper Digital Infrastructure, Multiple Departments and Activities, Skilled Labour, and Employee Proactiveness; the fifth study discusses the outcome of the E-Governance System in terms of E-Governance has improved Operational Efficiency Reduction in Corruption in the system, accessibility, increased employee productivity, proper digital administration.

**Research Methodology:**

As there is a dearth of literature on future-oriented and sustainable E-Governance practices and core competencies that is to develop to ensure the same, an exploratory study is conducted to identify the impact of E-Governance on Digital Administration. As seen in the previous section, the barrier and challenges of sector alternatives are grey areas for effective e-governance implementation. The challenges include barriers related to administrative reforms, NeGP, technical, economic, infrastructural and social constraints which hinder e-governance(Soni et al., 2017)

**Identification of Constructs:**

Identifying the constructs of the E-Governance System and Implementation is ideal for interacting with knowledgeable people involved in the organization and developing an understanding of multiple and diverse perspectives of what constitutes its success and the challenges in implementing it (Hooda & Singla, 2021). The quantitative study, which is the next step to the qualitative study in the present research, was undertaken to test and validate the findings of a qualitative study. The quantitative analysis is performed using the structured questionnaire-based Survey. A questionnaire based on the Constructs related to the Usage of the E-Governance System, factors influencing the E-Governance System, Employee Experience in Using the E-Governance System, Challenges Faced by Employees Working with the E-Governance System, Outcome of E-Government System in the Perception of Employees.

**Constructs and Indicators**

| Sl. No | Statements | Cronbach Alpha |
|---|---|---|
| | **Employee User Experience** | .983 |
| 1 | E-Governance System is Easy to Understand and Use | .984 |
| 2 | E-Governance will help to Reach all the corner of the Society | .985 |
| 3 | E-Governance Removed involvement of Middleman System | .983 |
| 4 | E-Governance System created Transparency | .983 |
| 5 | E-Governance will help to track all records and store | .983 |
| 6 | E-Governance has made Grievance Redressal easy | .983 |
| 7 | E-Governance has increased Digitisation of Government Services | .983 |
| 8 | E-Governance has empowered employees in-terms of service delivery | .983 |
| | **Challenges in Implementation** | |
| 1 | There is a need of Proper Digital Infrastructure to Implement E-Governance | .983 |
| 2 | Implementing E-Governance is Complex due to Multiple Departments and Activities | .984 |
| 3 | To Implement E-Governance there is a need of Skilled Labour | .984 |
| 4 | E-Governance will help to track all records and store | .983 |
| 5 | Employees need to be pro-active in implementation of E-Governance | .984 |
| 6 | Employees need proper training in implementing E-Governance | .984 |
| 7 | Employee Literacy Level is low related to E-Governance System | .983 |
| | **Outcome of E-Governance System** | |
| 1 | E-Governance has improved Operational Efficiency | .983 |
| 2 | E-Governance has reduced Corruption in the system | .983 |
| 3 | E-Governance system is accessible to everyone | .983 |

| | | |
|---|---|---|
| 4 | E-Governance made the manual work easy | .983 |
| 5 | E-Governance increased employee productivity | .983 |
| 6 | E-Governance means Digital Administration | .984 |

**Table 1: Constructs and Indicators Reliability test**

**Data Analysis**

A questionnaire was used as a Research Instrument to collect Primary Data. Five Point Scale, i.e., Strongly Agree to Disagree Strongly, measures the constructs used in the conceptual model of a research objective—all statements recorded on a five-point Likert Scale. Demographic Data of the Respondents collected.

| **Category** | **Percentage of Respondents** |
|---|---|
| **Gender Profile** | |
| Male | 78.6 |
| Female | 21.4 |
| **Age Profile** | |
| <25 | 14.3 |
| 26-30 | 7.1 |
| >35 Years | 78.6 |
| **Department Profile** | |
| Central Government | 7.1 |
| State Government | 92.9 |
| **Years of Experience** | |
| <5 Years | 14.3 |
| 6-10 Years | 21.4 |
| 11-15 Years | 28.6 |
| >15 Years | 35.7 |
| **Working Area** | |
| Urban | 71.4 |
| Semi-Urban | 21.4 |
| Rural | 7.1 |
| **Qualification** | |
| Graduate | 57.1 |
| Post Graduate | 42.9 |
| **Cadre Level** | |
| IAS/IFS/IPS | 7.1 |
| State Services | 78.6 |
| Subordinate Services | 7.1 |
| Legal Services | 7.1 |

**Table 2:Demographic Profile of the Respondents**

**Gender Profile:**

78.6% of the respondents were male, while 21.4% were female. This indicates that the majority of the respondents were male, suggesting a potential gender imbalance in the sample or a higher interest and participation of males in e-governance.

**Age Profile:**

14.3% of the respondents were below 25 years old, indicating a small representation of younger individuals in the survey.

7.1% of the respondents fell within the age range of 26-30.

The majority, 78.6%, of the respondents were above 35 years old, indicating a higher participation of older individuals in expressing their views on e-governance.

**Department Profile:**

7.1% of the respondents worked in the central government, while the remaining 92.9% were associated with state government departments. This suggests that the opinions primarily represent individuals working in state government departments, indicating a greater focus on their perspectives.

**Years of Experience:**

14.3% of the respondents had less than 5 years of experience.

21.4% had 6-10 years of experience.

28.6% had 11-15 years of experience.

The majority, 35.7%, had more than 15 years of experience. This indicates that the respondents with higher experience levels were better represented in the survey.

**Working Area:**

71.4% of the respondents worked in urban areas, suggesting a higher concentration of urban-based professionals participating in the survey.

21.4% worked in semi-urban areas, while only 7.1% worked in rural areas. This suggests a potential urban bias in the survey sample.

**Qualification:**

57.1% of the respondents were graduates, while 42.9% held post-graduate qualifications. This indicates a relatively balanced representation of respondents with different educational backgrounds.

**Cadre Level:**

7.1% of the respondents belonged to the IAS/IFS/IPS cadre, suggesting a small representation of top-level civil servants in the survey.

78.6% were from state services, indicating a larger representation of individuals from state-level administrative services such as Legal Services.

7.1% belonged to subordinate services, suggesting a small representation of lower-level administrative staff.

Similarly, 7.1% belonged to legal services, indicating a small representation from the legal field.

| Category | Percentage of Respondents |
|---|---|
| **E-Governance Awareness** | |
| Yes | 85.7 |
| No | 14.3 |
| **E-Governance Usage** | |
| Yes | 71.4 |
| No | 28.6 |
| **Daily Usage of E-Gov Platform** | |
| One Time | 7.1 |
| Entire Day | 14.3 |
| Whenever Required | 71.4 |
| Not at all | 7.1 |
| Manual Data Entry (Even in the Presence of E-gov) | |
| Yes | 64.3 |
| No | 35.7 |

**Table 3: E-Governance Usage Details**

The table 3 provides information about the usage of e-governance by government officials in Karnataka State, categorized into different aspects. Let us analyze the data:

**E-Governance Awareness:** This indicates that a majority of the government officials surveyed (85.7%) have awareness about e-governance, while a small percentage (14.3%) are not familiar with it.

E-Governance Usage: Among the respondents, 71.4% reported using e-governance in their work, while 28.6% do not utilize e-governance platforms.

**Daily Usage of E-Gov Platform:** In terms of daily usage, 71.4% of the officials reported using e-governance platforms whenever required. A small percentage (7.1%) reported using it only once, while the same percentage mentioned not using it at all. Another 14.3% reported using e-governance platforms for the entire day, suggesting a significant level of engagement.

**Manual Data Entry (Even in the Presence of E-gov**): A majority of the respondents (64.3%) indicated that they still perform manual data entry tasks, even when e-governance platforms are available. However, 35.7% reported not engaging in manual data entry, implying that they fully utilize the e-governance platforms to streamline data management**.** Considering the descriptive Statistical analysis on Usage of E-Governance the data suggests that while a significant proportion of government officials in India are aware of e-governance and use it in their work, there is still room for improvement in terms of maximizing the utilization of e-governance platforms and reducing manual data entry (Dhal, 2020). Efforts could be made to raise awareness, encourage regular usage, and provide necessary training to promote the effective adoption of e-governance in the government sector.(Khanra & Joseph, 2019)

**Hypothesis, Discussion and Results:** : Responses were analyzed to test Three hypotheses The first hypothesis was that:

1. Employee Experiences has positively significant with E-Governance Usage
2. There is a Significant Relationship between E-Governance User Experience and Challenges in E-Governance Implementation
3. There is a Significant Relationship between E E-Governance User Experience and Outcome of E-Governance System

The results of the statistical analysis indicate that there is a positive and significant relationship between E-Governance usage and employee user experience.(Dhal, 2020). Table 4 Provides following Interpretations Firstly, the chi-square value of 0.842 suggests that there is a significant association between E-Governance usage and employee user experience. This means that the two variables are not independent of each other, and there is a meaningful relationship between them. Secondly, the Spearman correlation coefficient of 0.813 also supports this finding. The Spearman correlation measures the strength and direction of the monotonic relationship between two variables. In this case, the coefficient of 0.813 indicates a strong positive correlation between E-Governance usage and employee user experience. This suggests that as E-Governance usage increases, employee user experience tends to improve. Lastly, the p-value of 0.000 indicates that the observed relationship between E-Governance usage and employee user experience is statistically significant(Srinivasan, 2005). In other words, the likelihood of observing such a strong correlation due to chance alone is very low. Therefore, we can confidently conclude that the relationship is not merely coincidental but has meaningful implications. Based on these findings, we can interpret that higher levels of E-Governance usage positively contribute to employee user experience. This means that when employees actively engage with E-Governance systems, such as using digital platforms, applications, or online services for government-related tasks, their overall experience improves.(Sebastian & Supriya, 2013) This positive relationship suggests that E-Governance initiatives have a favorable impact on employees' perceptions, satisfaction, and efficiency in their interactions with government processes(Chanana et al., 2016). These findings emphasize the importance of promoting and encouraging the adoption of E-Governance systems within organizations. By enhancing E-Governance usage, organizations can potentially enhance employee experiences, leading to increased productivity, improved satisfaction, and more efficient government services (Saxena, 2017).

For Hypothesis 2 The Chi-Square value of 0.785 suggests a significant association between employee user experience and challenges in implementation. In the specific context of Indian Government E-Governance services, this implies that there is a meaningful relationship between these variables, and they are not independent of each other. The Spearman correlation coefficient of 0.874 indicates a strong positive correlation between employee user experience and challenges in implementation. This suggests that as challenges in implementing E-Governance services within the Indian Government increase, it tends to have a negative impact on the user experience of employees.(L. Kumarwad & D. Kumbhar, 2016)

Moreover, the p-value of 0.000 signifies that the observed relationship between employee user experience and challenges in implementation is statistically significant. This strengthens the evidence that the correlation is not due to chance, emphasizing the meaningfulness of the relationship in the context of Indian Government E-Governance services(Singla, 2005). Interpreting these findings within the Indian Government E-Governance services context, it suggests that challenges faced during the implementation of E-Governance initiatives can adversely affect the user experience of employees(Jho & Song, 2007). These challenges may include issues related to technology, infrastructure, training, resistance to change, or insufficient resources. When employees encounter these obstacles, their user experience may be compromised, leading to lower satisfaction and potential difficulties in effectively utilizing E-Governance services(Wan Zahari Wan Yusoff and Maziah Ismail, 2008). To improve employee user experience in Indian Government E-Governance services, it becomes crucial to address and overcome the challenges in implementation(Saxena, 2017). This could involve ensuring adequate training and support for employees,

enhancing technological infrastructure, promoting change management strategies, and allocating sufficient resources.(Kalsi & Kiran, 2013) By addressing these challenges, the Indian Government can enhance employee satisfaction, streamline processes, and maximize the benefits of E-Governance services for both employees and citizens.(Iyer & Subba Rao, 2017).

Considering third hypothesis, The chi-square value of 0.787 suggests that there is no statistically significant association between employee user experience and the outcome of e-governance services. The Spearman correlation coefficient of 0.875 indicates a strong positive correlation between employee user experience and the outcome of e-governance services. This suggests that as the employee user experience improves, the outcomes of e-governance services also tend to improve. The significance level of 0.000 suggests that the observed correlation between employee user experience and the outcome of e-governance services is statistically significant. This means that the relationship is unlikely to have occurred by chance. The interpretation of the latest data presents a contradiction between the chi-square test and the Spearman correlation coefficient. While the chi-square test suggests no statistically significant association, the Spearman correlation coefficient indicates a strong positive correlation between employee user experience and the outcomes of e-governance services.(Bhattacharya et al., 2012) To reconcile these contradictory findings, further investigation is needed to identify potential factors that might explain the discrepancy.(Hooda Nandal & Singla, 2019) This could include examining additional variables, considering the specific context of e-governance services in the Indian government, and exploring potential confounding factors that could influence the outcomes.(Gupta et al., 2019)

| **Constructs** | **N (Sample Size)** | **Chi-Square** | **Spearman Correlation** | **Sig** |
|---|---|---|---|---|
| Usage and Employee User Experience | 126 | 0.842 | 0.813 | 0.000 |
| Employee User Experience and Challenges in Implementation | 126 | 0.785 | 0.874 | 0.000 |
| Employee User Experience and Outcome of E-Governance | 126 | 0.687 | 0.875 | 0.000 |

**Table 4: Chi-Square Test Results**

**Findings and Scope of Future Research:** E-governance has the potential to enhance administrative efficiency by automating processes, reducing paperwork, and enabling faster information dissemination. This leads to streamlined operations, quicker decision-making, and improved service delivery to citizens.(Gupta et al., 2019). Out of the respondents, 64.3% indicated that they continue to perform manual data entry tasks, despite the availability of e-governance platforms. However, 35.7% reported actively engaging with the e-governance platforms, implying that they fully utilize them to streamline data management. By actively enhancing E-Governance usage, organizations can potentially enhance employee experiences, thereby increasing productivity, improving satisfaction, and delivering more efficient government services.(Srinivasan, 2005)

**Scope of Future Research:** Future research should focus on addressing the security and privacy challenges associated with digital administration. This includes developing robust cybersecurity measures, ensuring data protection, and addressing concerns related to identity theft and unauthorized access to sensitive information (Kumar et al., 2018)While e-governance offers immense potential, it also raises concerns about the digital divide. Future research should explore strategies to bridge the gap between digitally literate and marginalized populations to ensure inclusive access to digital services and prevent the exclusion of certain groups(Dahiya & Mathew, 2016). To fully realize the benefits of e-governance, governments need to invest in capacity building for public officials and citizens. Future research should focus on identifying effective training methodologies and strategies to enhance digital literacy and skills among various stakeholders(Khanra & Joseph, 2019). Further research is needed to assess the long-term impact of e-governance initiatives on governance processes, citizen empowerment, and public service delivery. Comprehensive evaluation frameworks and methodologies should be developed to measure the effectiveness and efficiency of digital administration initiatives. As e-governance evolves, there is a need for robust legal and regulatory frameworks to govern data protection, privacy, and cybersecurity(Narula & Arora, 2010) Future research should focus on identifying best practices and formulating policy recommendations to ensure the responsible and ethical use of digital technologies in administration.

**Conclusion:**

The prospects of e-governance as an empowerment tool are evident from the high percentage of government officials (85.7%) who have awareness about e-governance. This indicates a positive inclination towards leveraging digital platforms for administrative tasks. Additionally, a considerable number of respondents (71.4%) reported using e-governance in their work, showcasing the potential for enhancing efficiency, transparency, and citizen engagement. The article underscores the significance of e-governance platforms being available and accessible whenever required, with 71.4% of officials reporting such usage. This highlights the importance of ensuring the seamless availability of digital tools and services to facilitate effective governance. Furthermore, the 14.3% of respondents who reported utilizing e-governance platforms for the entire day indicate a substantial level of engagement, which can significantly contribute to the modernization of administrative processes. However, the challenges associated with e-governance cannot be overlooked. The existence of a group (14.3%) that remains unaware of e-governance raises concerns about the need for continued awareness campaigns and training programs to bridge the digital divide among government officials. Additionally, the persistence of manual data entry tasks among a majority (64.3%) of respondents, even in the presence of e-governance platforms, highlights the need for further efforts to encourage full utilization of digital tools and minimize reliance on outdated manual processes. To fully realize the transformative potential of e-governance, it is essential to address these challenges. This may involve developing comprehensive training programs, creating user-friendly interfaces, and ensuring widespread access to digital infrastructure(Soni et al., 2017). Governments should also prioritize the integration of e-governance into existing administrative systems, promoting data security, privacy, and efficient management.(Gupta et al., 2019)

In conclusion, while e-governance holds immense promise as an empowerment tool for transforming administration, there are both prospects and challenges on the path to its effective implementation(Ray & Mukherjee, 2007). By leveraging the prospects and proactively addressing the challenges, governments can unlock the true potential of e-governance, leading to a more efficient, transparent, and citizen-centric administration in the digital era.

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