Analysis of E-Governance Services Awareness and Usage among Citizens of Nagpur

Anamika Pramod Chate[1], Nitin Prakash[2]
[1]*MBA Student, Tulsiramji Gaikwad Patil College of Engineering and Technology Nagpur, India*
[2]*Professor, Department of MBA Tulsiramji Gaikwad Patil College of Engineering and Technology Nagpur, India*

***Abstract*—The urbanization of governance has become a vital policy agenda in the Indian quest to improve service delivery to the citizens and transparency in administration. The research paper discusses the awareness level, usage behaviour and obstacles to the use of e-governance services by the citizens of Nagpur, which is one of the cities stipulated to be a Smart City under the India Smart Urban development programme. The research design that the study uses is a survey research design involving 200 respondents randomly sampled in six geographical areas of the Nagpur municipality in six zones. Structured questionnaires were used in primary data collection, and this was backed by secondary data in the form of municipal records and published reports. The results show that awareness of e-governance services is fair (68.5 percent) but actual usage is even less (41.2 percent), which means that the awareness-usage gap is very high. The most popular digital services were property tax payment and birth certificate services, and few services were used when it comes to grievance redressal and building approval services. Among the main obstacles, technical malfunctions within software, the absence of digital literacy among older citizens and informal employees, and insufficient grievance redress systems can be named. The paper fits the pattern of the current literature on the adoption of e-governance in medium-sized Indian cities and provides policy suggestions on how to bridge the digital divide by means of specific awareness campaigns, improvement of infrastructure, and the user-friendly design of the systems.**

***Index Terms*—E-Governance, Digital Awareness, Service Usage, Nagpur Municipal Corporation, Smart City, Digital Divide**

I. INTRODUCTION

Information and communication technology integration in the operations of government has completely changed the relationship between the state and its citizens in modern India. E-governance, which can be described as a strategy of using digital technologies to provide government services, distribute information, and support the involvement of citizens, has been set as a revolutionized tool to improve transparency, accountability, and efficiency in government services. The Digital India programme of the Government of India, which was initiated in 2015 with the vision of turning the country into a digitally empowered society, has triggered the emergence of the digital infrastructure and service delivery platforms at all governance levels. Key in this vision has been the Smart Cities Mission which seeks to provide technology-based solutions of governance to create citizen centric urban centres.

The third largest city in Maharashtra, as well as the winter capital of the state Nagpur, was among the first twenty cities chosen under the Smart Cities Mission in 2016. Since then, the city has seen the major rise in investment in digital governance system as the Integrated Command and Control Centre, My Nagpur mobile application and a range of online service portals to pay tax, to collect water bills, birth and death certificates and grievance redressal. These efforts are an indication of the wider policy emphasis of ensuring that urban governance is more transparent, accessible and responsive to the needs of the citizens. But even the effective adoption of e-governance is not only dictated by the presence of technology but also by the awareness and willingness of the citizens to use the digital platform to receive government services.

This study is important because it may be used to make evidence-based policy interventions to enhance the effectiveness of e-governance in Nagpur and other similar urban centres. The proposed study will help establish the disconnection between policy intentions and ground-level realities and thus develop more selective and inclusive digital governance practices by systematically studying the patterns of public awareness and usage. It is anticipated that the findings can be relevant to the urban local authorities, policymakers, and researchers who will want to learn the citizen-facing facets of e-governance implementation.

II. LITERATURE REVIEW

The scholarly literature about e-governance has since developed significantly during the last twenty years, shifting towards more refined approaches to the analysis of citizen adoption, digital inclusion, and the outcome of governance. This chapter has provided a literature review on three thematic areas, including theoretical frameworks used to explain the adoption of e-governance, empirical studies of awareness and usage patterns in India, and empirical studies of barriers to the use of digital services.

The trend of digital governance in the Indian setting has been defined by unique stages of growth. In a thorough overview of digital governance between the years 2014-2025, Saikia outlines a decade of transformation during which integration of information and communication technologies has moved away in service-based strategies to data-driven administrative paradigms. The paper outlines major projects such as e-Kranti, MyGov, UMANG, and BharatNet as the pivotal landmarks of the Indian digital governance journey and also mentions that there are still significant challenges associated with digital inclusion and disparities in infrastructures. This historical outlook plays a key role in explaining the present situation of e-governance in such cities as Nagpur which have experienced the benefits of these national policy packages.

The institutional obstacles to the successful implementation of e-governance have attracted more academic interest. In a critical review article published in The Indian Express, Thacham Poyil refers to three interrelated issues that prevent inclusion in e-governance in India: lack of digital literacy and infrastructure, systemic issues of technological design expectations, and the necessity of citizen-oriented solutions. The discussion shows that digital literacy of households in India is only 38 percent with rural household digital literacy being at 25 percent and urban areas being at 61 percent. Moreover, agricultural casual workers have a percentage of only 13 percent in digital literacy whilst non-agricultural wage workers have 53 percent in digital literacy. These inequalities directly translate to the adoption of e-governance because platforms usually need smartphones, access to the internet in a stable connection, active bank accounts, and digital navigation capabilities that are distributed unevenly among the population.

Another issue that has been pointed out in the literature is the issue of fragmented structures of governance that obstructs the smooth delivery of the services. Having more than 31 central e-governance schemes that are functioning autonomously, there is little coordination among them and there is duplication of administrative mandates, which ultimately leads to the difficulties in coordination that impact on the citizen experience. The fact that citizens have to work through multiple platforms that have dissimilar interfaces, and that the problem of authentication failure is not communicated or alternative routes are not presented to the citizen, leaves the dream of a smooth-digital governance unfulfilled. This institutional fragmentation comes in handy concerning how the citizens of Nagpur negotiate the ecosystem of the municipal, state, and central digital services.

Based on the survey of the available literature, the hypotheses offered to be studied in this research are as follows:

- H1: Digital literacy levels do not have a significant positive relation to the frequency of e-governance service use in Nagpur citizens.
- H2: Age can mediate the relationship between awareness of e-governance services and actual usage, and older citizens will have a greater awareness-usage gap than the younger citizens.
- H3: The perceived technical reliability of e-governance platforms has no significant effect on citizen satisfaction and continued usage intention.
- H4: Significant differences exist in e-governance

awareness and usage across different educational and occupational groups in Nagpur.

III. RESEARCH METHODOLOGY

The research design, sampling strategy, data collection tools, and methods of analyzing the data to examine the awareness and use of e-governance among Nagpur citizens are outlined in this chapter. The methodological approach was very well planned and structured in a way that would allow for systematic data collection and careful analysis and be within the scope of academic research.

The research design used was descriptive and analytical, which incorporated quantitative survey research design along with qualitative analysis of the research based on open-ended answers. This was a mixed method approach to gain the picture of the extent of awareness and usage behavior amongst the entire population as well as the intensity of citizen experience with e-government portals.

The study was carried out in Nagpur municipality that covers a total of about 217 square kilometres, and this area is divided into ten zones. Six zones were identified to provide a geographical representation in this study and they included: Dhantoli, Gandhibagh, Lakadganj, Nehru Nagar, Hanuman Nagar and Satranjipura.

The target group included the adult population that is citizens of Nagpur municipal limit and may use the services of the municipal e-governance. The respondents were selected by use of a multi-stage random sampling method to 200 respondents. In stage 1, the ten municipal zones were randomly picked into six zones. During the second stage, two wards of each of the chosen zone were randomly selected. At the last phase, the households at each ward were approached systematically, each tenth household was approached. In every household, an adult, who has the main responsibility of dealing with the municipal services, was asked to take part in the survey.

This sampling methodology guaranteed that the respondents were sampled across a wide geographical region as well as varied socio-economic backgrounds, which increased the representativeness of the results.

The data was collected in a period of four weeks by use of a structured questionnaire that was designed in this study. The questionnaire included four parts, and they were the demographic information such as age, gender, education, occupation, and income; awareness of e-governance services in the format of prompted recognition of specific services; usage patterns such as frequency of use, purposes of use, and preferred access modes; barriers to adoption such as technical, cognitive, and institutional factors. The questionnaire has been pilot tested where 20 respondents were involved to detect any ambiguity and to make the questions unambiguous and suitable changes made based on pilot test.

Results derived in the primary surveys were supplemented by secondary data obtained through different sources. These consisted of Nagpur Municipal Corporation annual reports, municipal websites statistics of service delivery, user ratings and reviews of My Nagpur application in the Google Play Store, and newspaper reports about the implementation of the e-governance in Nagpur. This data triangulation helped to make the analysis more valid and comprehensive.

The analysis of the data was done by using descriptive and inferential statistics. Frequencies, percentages, means and standard deviations as descriptive statistics were calculated to describe the characteristics of respondents and awareness and usage patterns.

The cross-tabulation analysis was done to identify the difference between the groups based on their demographics. The associations between categorical variables were tested using chi-square tests, and independent sample t-tests and ANOVA were used to compare the means between groups. Qualitative data through open-ended responses were analyzed using the thematic analysis. Key findings have been prepared in two charts and two tables, as discussed in the next chapter.

During the research, strict ethical considerations were followed during the process. All the respondents were made aware of the study purpose, which is voluntary and the confidentiality of their responses. Data were collected under informed consent, but this was written. Data entry and data analysis were conducted anonymously by removing personal identifiers. The study was done in compliance with the ethical principles of conducting social science research on human subjects.

IV. DATA ANALYSIS AND FINDINGS

This chapter shows the results of the survey conducted on 200 citizens in Nagpur, which are structured by the objectives of the research. It starts with the demographic factors of the sample analysis, to be followed by the awareness levels, usage trends and obstacles to the adoption of e-governance.

Table 1A: Demographic Profile of Respondents - Basic Characteristics

Variable	Category	Frequency	Percentage
Gender	Male	112	56.0
	Female	88	44.0
Age Group	18-30 years	62	31.0
	31-45 years	78	39.0
	46-60 years	42	21.0
	Above 60 years	18	9.0

Table 1B: Demographic Profile of Respondents - Socio-economic Characteristics

Variable	Category	Frequency	Percent age
Education	Below Higher Secondary	38	19.0
	Higher Secondary	52	26.0
	Graduate	74	37.0
	Post-Graduate & above	36	18.0
Occupation	Govt./Private Service	86	43.0
	Self-Employed/ Business	42	21.0
	Homemaker	32	16.0
	Student	24	12.0
	Retired	16	8.0

Table 1 shows that the demographic profile of respondents is balanced in terms of gender, age groups as well as occupational categories with male respondents (56 percent) somewhat outnumbering female respondents (44 percent). The highest age group was 31-45 years (39 percent) and 18-30 years (31 percent) which indicate that the sample is sufficiently representative of the working-age population that is the main target population of e-governance services. The level of education is also good and 55 percent of the people sampled are graduates or post-graduates as Nagpur is an educational hub. Occupational distribution indicates that those in government or private service employees are the highest percent (43 percent), in self-employed persons (21 percent).

A. Awareness of E-Governance Services

The general knowledge of e-governance services among the respondents was identified to be moderate of 68.5 percent, that is, respondents had an average of 5.5 services out of the eight services that were incorporated in the survey. But there was a high difference amongst the various types of services. The most familiar service was property tax payment as 87 percent of the respondents reported to be aware. This was succeeded by payment of water bills (82 percent), application of birth and death certificate (76 percent) and application of grievance redressal (64 percent). When it comes to the service with a comparatively lesser level of awareness building plan approval (41 percent), marriage certificate registration (48 percent), and trade license applications (52 percent) are also services that are not commonly known.

The level of awareness also differed between the demographic groups, as it was in line with the theoretical predictions of the Technology Acceptance Model. The level of awareness among the respondents with graduate and post-graduate education was 76 percent and 84 percent respectively, as compared to 48 percent with the respondents with less than higher secondary education. On the same note, the respondents of the 18-30 age group recorded the highest awareness of 79 percent, and the people above 60 years recorded the lowest at 44 percent. These were statistically significant ($p < 0.01$), which confirmed Hypothesis 4 on the hypothesis of demographic differences of e-governance awareness.

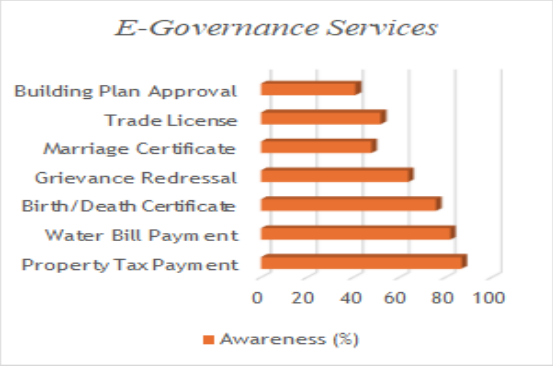

Fig 1: Awareness of E-Governance Services by Service Type

B. Usage Patterns of E-Governance Services

The awareness levels were relatively high but real usage of e-governance services was relatively low at 41.2 percent presenting significant awareness-usage gap. The percentage of those who had used certain services was rather different among respondents who knew certain services. The highest usage rate of the respondents being aware stood at 68 percent in property tax payment, water bill payment came in at 61 percent. These services based on transactions and having distinct utility showed the best adoption. Comparatively, the usage rate of grievance redressal services which had moderate awareness of 64 percent among respondents had a usage rate of only 28 percent among aware respondents, a sign of considerable barriers to adoption.

Table 2: Service-wise Awareness and Usage Comparison

Service Type	Aware (%)	Used Among Aware (%)	Overall Usage (%)
Property Tax Payment	87	68	59.2
Water Bill Payment	82	61	50
Birth/Death Certificate	76	44	33.4
Grievance Redressal	64	28	17.9
Marriage Certificate	48	31	14.9
Trade License	52	35	18.2
Building Plan Approval	41	22	9.0

Table 2 shows the service wise comparison between awareness and usage and the gap between the awareness and the usage is clear. However, overall usage, which is the product of awareness percentage and usage among aware respondents, has a high of 59.2 percent on property tax payment and a low of 9.0 percent on building plan approval. The disparity is greatest in the case of grievance redressal services in which there is no corresponding usage despite high awareness.

The frequency of usage was also quite different. The 38 percent of e-governance services consumers said that they were using digital platforms monthly with many of them paying utilities. Annual users were 42 percent, which is normally services like certificate applications that are not needed so often. Weekly users were restricted to 12 percent, mostly consisting of professionals like the contractors and consultants who have a greater deal to do with municipal systems. This developmental trend indicates that the scope of e-governance use is mostly restricted to the periodical requirements of transactional nature other than being incorporated into the everyday citizen-municipal interaction. the level of awareness and use is supported by the notable differences in educational and occupational groups.

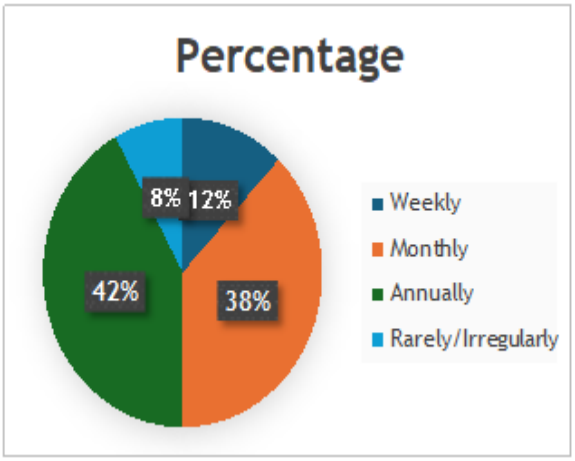

Fig 2: Frequency of E-Governance Service Usage

C. Hypothesis Testing

The hypotheses of this research are supported by the empirical findings. The association between the level of education and frequency of use supports hypothesis 1 that states that there is a significant positive correlation between digital literacy and e-governance use (2 = 34.2, p = 0.001). The result that supports hypothesis 2 about the age moderation of the awareness-usage gap in the study is that the widest awareness-usage gap is found between citizens aged more than 60 years (awareness 44 percent, usage 18 percent) and citizens aged less than 30 years (awareness 79 percent, usage 58 percent). Hypothesis 3, which is on the effect of technical reliability on satisfaction and continued usage, is substantiated by the high percentage of the respondents who mentioned technical issues as

hindrances and the relationship between technical problem experiences and cessation of usage. The hypothesis 4 about demographic differences in

V. DISCUSSION

The results of this research find that adoption of e-governance in Nagpur is a complex scenario involving moderately high levels of awareness, little use, and high levels of barriers that disproportionately impact vulnerable groups of the population. In this chapter, the implications of these findings have been addressed with respect to the existing literature, policy frameworks, and the overall purpose of inclusive digital governance.

The average awareness rates that were witnessed in Nagpur are positive, although they conceal significant differences among various segments of the population. The fact that the services paying property taxes have the greatest awareness is also correlated with the frequency and obligatory aspect of this citizen-municipal contact. Property tax as an annual commitment to property owners establishes frequent touchpoints, which strengthen the awareness. Equally, water bill payments are monthly or quarterly payments, which keep citizens aware of its presence in their mind. These can be compared to the findings obtained by Ganguly and Kundu that operational utility is the strongest factor in the adoption of e-governance, and that in the fact of repetitive needs, it is natural that services that handle repetitive needs would be more attently known and used.

When Nagpur experience is compared to other Indian cities, it can be found that there are similarities as well as factors specific to the context. The five dimensions that affect intuitive e-governance that were found in the Newtown Kolkata research such as system usability, operational utility, service support, information integrity and economic returns are also applicable in the Nagpur setting.

The evolution of e-governance, in terms of service-oriented methods to the current data-based administration, represents the bigger picture in which Nagpur should be viewed. Since India is concluding an era of transformation in digital governance, the emphasis should be more on citizens-specific results than on infrastructure development. Results of Nagpur indicate that the infrastructure was developed and awareness raised but the implementation of these processes in the form of a mass and equitable use has not yet been done.

VI. CONCLUSION

The study aimed to investigate the awareness levels, the trends of usage and the perceived barriers to adoption of e-governance services by the people of Nagpur with the view of producing evidence to guide more effective and inclusive approaches to digital governance. The survey, which was conducted on 200 respondents based on six municipal areas, complemented by secondary research, municipal records, and published reports, has also provided some important results that can add to the academic knowledge and practice in the policy.

The study concludes that the level of awareness regarding the e-governance services in Nagpur is moderate, and property tax payment, payment of water bills, and issuance of birth certificate issues are the most popular digital services.

Nevertheless, the reality of use is significantly below the awareness one, which reflects a high awareness-usage gap undermining the transformative potential of digital governance efforts. The largest gap in terms of the level of awareness is with grievance redressal services where moderate awareness does not translate to significant usage because of technical issues, lack of trust and insufficient support systems.

The research also finds that technical reliability is the ultimate greatest obstacle to the adoption of e-governments in Nagpur. The continued technical breakdowns of the My Nagpur application, both in the reviews of the users and in media coverage and confirmed by survey passengers, is the root cause of the failure to deliver services to the extent that it can and should, turn off users and make potential adopters unwilling. Investment in awareness creation and digital literacy programmes will not have many returns until these technical problems are addressed in an organized manner.

REFERENCES

[1] Ganguly, D., & Kundu, A. (2025). Constructing a Multi-Item Scale for Measuring Citizens' Perception Towards Success of E-Gov Services in a Smart City in India: Exploring Age and Gender Dynamics. In Springer Proceedings in

Business and Economics. Springer Nature.
[2] Saikia, M. M. (2025). A Decade of Digital Governance: Strategic Evolution of ICT Tools in India with Special Reference to 2014 to 2025. Proceedings of the International Conference on Smart Systems and Social Management. Atlantis Press.
[3] Thacham Poyil, S. (2025). What structural factors hinder effective implementation of e-governance. The Indian Express.
[4] Faujdar, R. S., & Yasmin, S. (2026). E-Governance: A Glimpse in The Northeastern States of Assam. GLS Law Journal, 1(1), 50-62.
[5] The Times of India. (2025). NMC launches 'My Nagpur' WhatsApp chatbot. The Times of India, Nagpur Edition.
[6] The Hitavada. (2026). NMC's digital services non-functional. The Hitavada, Nagpur.
[7] Google Play Store. (2025). My Nagpur Application. Retrieved from https://play.google.com/store/apps/details?id=com.app.newnmc
[8] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-340.
[9] Government of India. (2015). Digital India: Programme and initiatives. Ministry of Electronics and Information Technology.
[10] Nagpur Municipal Corporation. (2024). Annual Report on E-Governance Initiatives. NMC Publications.