
**E-Government: Technology for
Masses
--- With special references to
Indian Cities
Forum Dave***

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Abstract

Information and communication can reach beyond the political and social boundaries arrangement of societies. In the time of epidemic like COVID-19, technology has been a blessing for the smooth running of the society and the economy. Thus, information and communication technology is helping in the improvement of the public delivery system in all layers of government. The E-government is a new dimension to the traditional administrative setup for various layers of the government, especially local government in urban and rural areas. Through this kind of a government, services can be made available to the citizens in a quick, convenient, efficient and transparent manner. E-government should be used in both the functionary and the governance aspects of the public administration. The national E-governance plan was launched in 2006 in India; however, at the local level, government is still trying to explore the potential of information and communication technology. This research paper will try to explore the awareness of the citizens of selected cities of India. The paper focuses on the responses of citizens to the prevailing role of E-government, requirement, and the potential of e-government in enhancing public convenience and services. It also highlights how Information and Communication technologies are used in various parts of India. It further directs attention to the usage of “M-government” and the limited role and high variation on the part of E-government in case of urban and local government administrative (ULBs) setups.

Keywords: *E-government, Urban Local Body, Administration, Indian Cities.*

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Introduction

The word government has its roots in the Latin word “governor” meaning “to control.” The form and name may differ considerably; nevertheless, since ancient times, society has witnessed various forms of government from political as well as economic aspects. The main goal of government is to provide a peaceful socio-cultural environment to a group of people/citizens where they can progress both economically and socially. The forms of government have undergone enormous changes in history. However, the world/nation/society is a self-correcting organism that is not static hence, it changes the form of government from region to region and time to time. And yet the “government” still hasn’t become irrelevant. The government today is using various new technologies to administrate the macro-unit called a nation and a micro-unit called a region.

Information and communication can reach beyond the arrangement of the political and social boundaries of the societies. Information and Communication technology is helping in the improvement of the public delivery system at all layers of government. The E-government is a new dimension to the traditional administrative setup for various layers of government especially local government in urban and rural regions. Through E-Government, the government services will be made available to the citizens in a quick, convenient, efficient, and transparent manner. E-government should be used in both the functionalities and governance aspects of the public administration.

India observed changes in three-phase as mentioned below (Gandhi & Kumbharana, 2017);

Phase I: 1947-1984 Information based E-Governance

Phase II: 1984-1995 Personal Computer-based E-Governance

Phase III: 1995-onwards Internet-based E-Governance

The history of E-governance in India dates long back in 1950’s when the initial planning of the project was assumed as a possibility. Later, in 1998, A National Task Force on Information Technology and Software Development was constituted. During the 2000s, the Indian Government had identified 12 points minimum agenda for implementing E-governance in all union Ministries / Departments (2001), (Gandhi & Kumbharana, 2017).

The national E-governance plan was launched in 2006, the Union Government approved the National E-governance Plan (NeGP) comprising of 27 Mission Mode Projects

(MMPs) and 10 components. Although, at the local level, even today the local government of India is also trying to explore the potential of information and communication technology. Technology is trying to bridge the gap between the masses and the government. With the increased use of technology, information becomes easily accessible. The policy-makers in India tend to justify the adoption and expansion of E-governance because it costs less, reduces waste, promotes transparency, eliminates corruption, generates possibilities to resolve rural poverty and inequality, and guarantees a better future for citizens (Dwivedi and Bharati, 2005-2010). Rapidly urbanizing India required an effective support system for easy management of its urban regions. According to the 2011 census, 31.16 percent of the population resides in urban regions. Urban regions are managed by Urban Local Bodies (ULBs). These regional Institutions face certain limitations such as lack of funding, resources-especially manpower. ULBs must be entitled to the selection of the required technologies (Patodia, 2001).

The research paper provides an outline of E-governance and digitalization of Urban Local Bodies (ULBs), in the first session. The second session is the literature review. The third session indicates the usage of E-governance in central-state and local government. The rapidly urbanizing India is adopting the practice of digital technology, especially by Urban local government (ULBs) which has been discussed in the fourth session of the paper. The fifth session includes an analysis of the case study of four major cities of the country.

Literature Review

The e-government and E-governance have been defined separately by the planning commission of India. The former one is said to deliver only services and information with the use of electronic media. While in the case of the latter, there is expected to be an interaction between the citizens and the government. Electronic government involves simply the usage of information technology to deliver public services. (Garimella, Kolluru, 2011). However, it is indicated in the research of lee and Chircu A.M, Lee D. Hae-Dong (2005), due to hierarchical structure the top-level objectives may not necessarily reach the lower level. Hence, the administrative structure is very important along with the usage of information technology. Therefore, various frameworks have been proposed by various economists and policymakers. One such model proposed by Kumar and Gupta (2006) focuses not only on technology but also on behavior factor and network factor. Study of Suri and Sushil (2008) also indicate government project need to be conceptualized and implemented at the same time identify the gap with the help of an across-process framework. Hence, various frameworks have been proposed except the few mention above which need to be analysed

logically and rationally, based on the type of economy where it required to be applied. The history, as well as technical details and usage of E-governance have been presented well by Gandhi & Kumbharana (2017). One of the most important initiatives undertaken by the central government of India in the Information Technology Act (2000) is to regulate cyberspace and define offenses and penalties related to information technology (IT) such as tampering with computer source documents, breach of confidentiality and privacy, the publication of false digital signatures and so on.

There are limitations of E-governance that must be addressed for better performance. The limitation is listed out by Mittal and Kaur (2013) and divided into three major heads. Social; Different Languages, Low Literacy, Low IT Literacy, Recognition of applications, User-friendliness of government websites, non- accessibility of the services, confidence in technologies provided by the government, separation, struggle to Change, population, lack of integrated services, lack of awareness in people. Economical; Higher Cost, non-transferability of applications from one platform to another, maintenance of electronic devices, low per Capita income, limited financial resources. Technical; Interoperability, scale of applications, multimodal Interaction, privacy and security, scope of applications, tried and tested technologies, geographical problems, local language. Hence, Digital India has three core components, which are required to be developed. These include; the creation of digital infrastructure, delivering services digitally, digital literacy (Kulkarani and Patil, 2015).

Various factors need to be considered for the selection of technology including E-governance in Practice service-oriented architectures, shared infrastructure databases and applications, use of new technologies especially web-based, information security, data centers infrastructure and statewide area network. It is a challenge to choose appropriate technology, as for ULBs it is a big challenge to collect, standardize, and maintain the data. Key factors like huge data size, uneven data formats, distributed databases, historical data and data exchange interfaces should be taken into consideration at design time. The Public, Private Partnership Model is very useful in this case in India.

The recent epidemic COVID-19 paved a clear way for the use of technology not only in the business sector but also in government. It is evident from the literature review that the need and structure of usage of technology are continuously varying with time. However, is the socio-economic structure also rapidly moving in the same phase? How much is the awareness about various digitalized services provided by local level government? These questions need to be addressed for the speedy adoption of technology.

E-government at Federal-state-local level in India:

The federal structure of India provides autonomy to each layer of the government to adopt digitalization to increase transparency and reduce cost. The major requirement is always at the local government level. It is essential to understand that, E-government has many dimensions which can be verified with the help of various model established by developed countries such as the MAREVA model (A Method of Analysis and Value Enhancement), developed by the French Electronic Administration Development Agency, (ADAE) and Bearing Point (2005); WiBe Economic Efficiency Assessment methodology (Federal Ministry of the Interior, Germany, 2004), being used by the German federal administration; the eGEP measurement framework developed by the European Commission (2006) based on a review of MAREVA, WiBe, and other frameworks developed in the UK, Holland, and Denmark. However, developing countries have different political, social, and economic set ups, hence it is required to adopt a suitable model or only a specific aspect of various models.

In the case of India; civic center's outlay and services centers or internet Kisco for tax payment is a famous one. India launched its national e-government plan in 2003(NeGP), however, the framework took place in 2002 as noted in the words of the honorable Prime Minister on the National Independence Day who said, "The Government would implement a comprehensive program to accelerate E-governance at all levels of the Government to improve efficiency, transparency, and accountability at the Government-Citizen Interface". It also has proposed various projects some of which have already been implemented. The IT-Act, 2000 has also been formed which provides legal status to the information and transaction carried out on the internet. The state-level implementation was more difficult in a country with a wide range of variations in terms of geography, culture, social and economic structures, etc. However, the state government successfully adapts and implements e-government through various projects as indicated in Table I.

Table-I E-government Projects

State	E-governance Application
Madhya Pradesh	Gyandoot
Gujarat	Drishtee, E-Nagar
Uttar Pradesh	E-Nagar Seva
Maharashtra	SETU, Aapple Sarkar
Karnataka	Bhoomi

Andhra Pradesh	CARD
TamilNadu	Vahan and Sarathi

The application has been implemented targeting G2G (government to government), G2C (government to commons masses), and B2C (business to government). However, G2B (government to business) will be an added advantage as business communities today prefers to carry out its sales, procurement, hiring and other activities through the internet. In the case of Indian states, various projects have been implemented successfully by the state government, both in rural and urban regions.

The local government –With the introduction of the 74th Constitutional Amendments Act, the urban local government was provided a legal status in India (in 1992). Hence, at the grassroots level, local governments are emphasizing the implementation of e-government, though it is a very recent phenomenon. The national e-government plan has included the local government as well. With regional specific variation through e-government plant, administration of local government has adopted the digitalization for numerous purposes.

Urban Local Government and E-government:

India is a rapidly urbanizing country. According to the 2011 census, 31.16 % of the population residing in urban regions of the country. In absolute terms, it is more than 377 million populations, much higher than the many less developed countries.

The urban regions are growing rapidly in India so are the responsibilities of urban government. Nevertheless, with legal status through the 74th Constitutional Amendment Act (CAA), ULBs also have to carry out certain responsibilities and functions. According to the 74th CAA, the urban local body is divided into two major categories;

- A) Municipality
- B) Municipal- Corporation

However, with expanding cities, migrating people, and increasing opportunities the responsibilities of urban government are rising multi-fold. Municipalities have been included in NeGP to ensure efficiency in the delivery of various services to citizens living in urban regions. The eleventh five-year plan (planning commission of India) has also approved the project of municipalities concerning the National Mission Mode Project. The National Mission Mode Project was firstly undertaken by seven municipalities of the country.

Several private firms showed interest in providing technical inputs for the requirements of e-government. E-government has been now an integrated part of the Jawaharlal Nehru National Urban Renewal Mission, which is helping municipalities and city governments to make the city more efficient and productive both economically and socially. However, city government and municipal administrative bodies are required to take up certain mandatory reforms to be eligible to receive funds under JNNRUM. E-government is one area of reform that requires municipal governments' implementation to be eligible to receive the fund under JNNRUM. The Mission Mode Project (MMM) on E-governance for municipalities is one of the components under JNNRUM. Initially, the project was implemented in 35 cities having a population of more than one million as per the 2001 census; subsequently, it will be extended to the remaining cities and towns of India (Aijiaz, 2012).

Even, twelfth five-year plan period (2012-17) emphasized on E-District Mission Mode Project for Rs 1663.08 crore to be implemented in all 640 districts. The objective was to "Make all Government Services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man." (12th FYP, GOI). Furthermore, in the thirteenth, the five-year plan includes various e-government project such as;

- a) Modified e-Government Architecture for the state of Kerala, citizen-centric E-governance services, Kerala State Spatial Data Infrastructure (KSDI)
 - b) E-district project continue covering more districts,
 - c) E-GP is a Mission mode project under NeGP of GOI with a vision to make thee-government procurement system to enhance transparency and efficiency in public procurement activities and monitor the same on a real-time basis.
 - d) E-office is an integrated digital workflow management system designed exclusively to handle the operations of government departments.
 - e) Mobile Governance
 - f) SSDG project has been formulated under the NeGP plan of GOI, which facilitates all government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency, and reliability of such services at affordable costs.
 - g) Digital Identity and Aadhaar Enabled Services
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- h) Outreach Projects: Digital Empowerment Campaign project is an initiative of KSITM to digitally empower citizens by imparting awareness on digital capabilities in using the internet, e-governance, and e-commerce., FRIENDS is an ongoing project of KSITM which is a single-window, no queue integrated remittance center, where the citizens have the opportunity to pay all taxes and other dues to Government under one roof at no extra costs.
 - i) Capacity Building Projects
 - j) The smart city mission: National Smart Cities Mission is an urban renewal and retrofitting program by the Government of India with the mission to develop smart cities across the country, making them citizen-friendly and sustainable. The e-governance, digitalization plan an important role in the same.

The rapidly urbanizing India is now digitalizing at a faster rate. The awareness and usage learning abilities are required to be increased to earn maximum benefit of the same.

It is important to note that not only at the federal and state level but even at the local level, E-government services have been provided in India. Though mainly the larger urban government namely Municipal Corporation, in most cases is able to successfully implement the e-government and thereby provide online services, however, in certain cases even municipalities also did provide online services. The partial services provided in India are in English, Hindi, and regional languages. These enable citizens to access information more easily as well as make use of available online services. The urban residents who are not having internet facilities at home or in an office can access the municipal website from several citizen centers, kiosks, bureaus as established in different areas of a city. Hence, the local government is working in one direction to establish and improve the e-government facilities at every level.

Case Study of E-government:

An important objective of the study is to evaluate the implementation of e-government in selected cities of an Indian state. The Indian state with the highest urban population as well as the highest rural population was selected for the case study of this research paper. The cities which are selected have already having e-government as they are selected cities under JNNRUM as well as smart city mission also. The sample within the city is selected on a random sampling basis. The questioner and the interview method have been adopted. The four selected states and cities have the urban population as mention in

table 2. The opinion of citizens of four cities has been collected and analyzed for further recommendation to the policymakers.

Table -2 Population of Selected State

Country/State	Total Population in Million	Urban Population (in %)	Rural Population(in %)
India	121. 01	31.16	68.84
Maharashtra	11.23	45.23	54.77
Gujarat	6.04	42	58
Uttar Pradesh	19.95	22.27	77.73
Madhya Pradesh	7.26	27.6	72.4

Sources: Census of India, 2011

The four cities have been selected from the four different states of the country. The state of Gujarat and Maharashtra have the highest urban population while in the case of Uttar-Pradesh and Madhya-Pradesh; have a higher rural population.

The cities chosen are Mumbai, Ahmedabad, Kanpur, Indore, which are receiving funds under the JNNURM –Jawaharlal Nehru National Urban Renewal Mission and now Smart City Mission. According to the terms and conditions of JNNURM, these cities also have to go for mandatory reforms which include the implementation of E-government. Now, with the objective of the smart city apart from services even digitalization has also been incorporated. Moreover, each of them is the major city of the state it resides. The analysis is based on the responses received by residents of these cities. The various categories of residents have been selected to get a more lucid outcome. This research paper is expected to comprehend the various dimension of e-government facilities. The total questions are divided into four categories which include; general awareness, services related information and usages, awareness regarding JNNRUM facilities and Smart city Mission, and specific usages and information.

Research Methodology and Analysis:

The case study of four major states was selected based on the population and urban population. Urban regions (cities) of four states were selected based on the urban population of the 2011 census.

The state of Gujarat is a highly urbanized one with 42 percent urban population according to the 2011 census. This state has long and ancient traditions in rich urban

regions. Ahmedabad is one of them. Ahmedabad is the financial hub of Gujarat. Ahmedabad Municipal Corporation has been very innovative and advanced when it comes to the use of the latest technology. Now with the introduction of E-Nagar yojana in Gujarat, Ahmedabad has a free Wi-Fi zone, mobile updates on tax payment, etc.

The state of Maharashtra as indicated in the table is also a highly urbanized state with 45 percent of people living in urban regions of the state. The selected city, Mumbai is the financial hub not only for Maharashtra but also for India. The pattern and trend of urbanization of Mumbai are rapid. Hence, the responsibilities of government increase multi-fold.

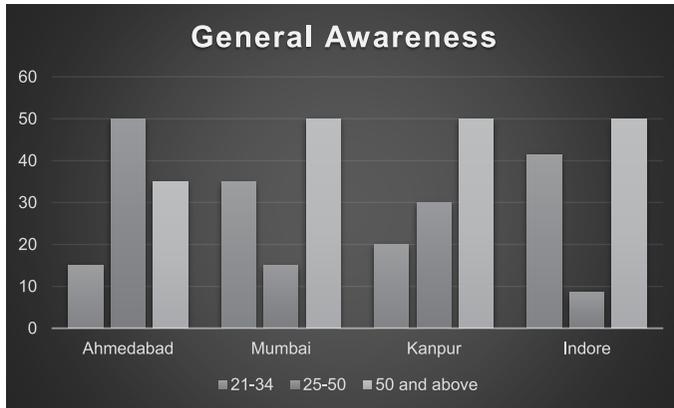
The state of Uttar-Pradesh is the largest state of India with just 22 percent urban population. The cities of Uttar-Pradesh faced urbanization waves; however, the higher population still resides in rural areas of this state. The various reforms for the development of urban regions have been undertaken and the city of Kanpur which is one of the cities with the highest urban population in the state. It was Manchester of ancient India.

The state of Madhya-Pradesh also states with a higher rural population. Bhopal is the capital of the state; however, Indore is the largest city. This public unit has divided the cities into various wards so that administrative burden can be reduced and it also helped the citizens to utilize the available services with ease.

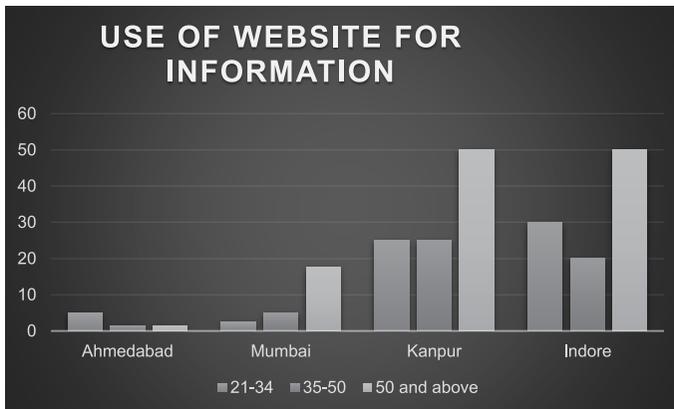
A total of 200 individuals were selected from different age groups. The age group selected was: 21-34, 35-50, and above.

The data collected indicates some of the remarkable results of the municipal corporation of the city. The below graph indicates the awareness and information through e-government for selected cities of India. The Graphs and tables indicate percentages-wise results of collected data.

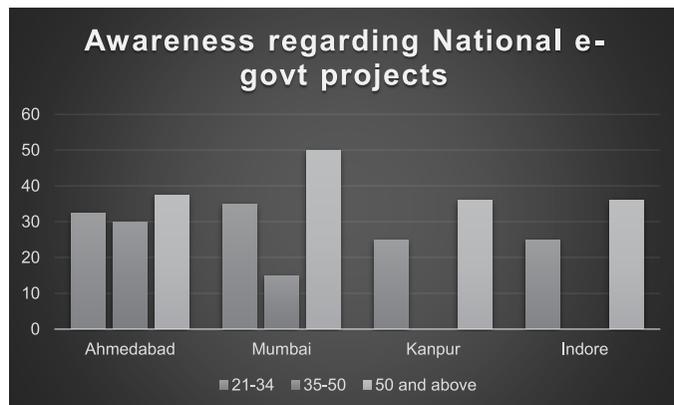
Graph 1. General Awareness



Graph 2: Use of Website for Information



Graph -3: Awareness Regarding National E-government Project.



According to the age-wise classification, the result of four cities indicates a lot of variation ‘regarding information and awareness’ and ‘regarding e-government’ at the local/municipal level. However, at the grass-root level citizen required to make more aware of the facilities provided by urban local government (ULBs).

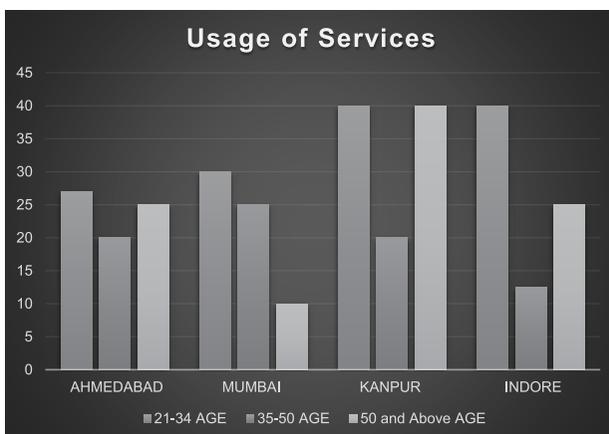
In the case of Ahmedabad, general awareness is higher among the most productive age group i.e., 35 to 50. In the case of Mumbai, the age groups above 50 have general awareness while the case of Kanpur and Indore is also the same. The various service-related questions were asked to understand the general awareness among the citizen. [Table-1, Chart-1]

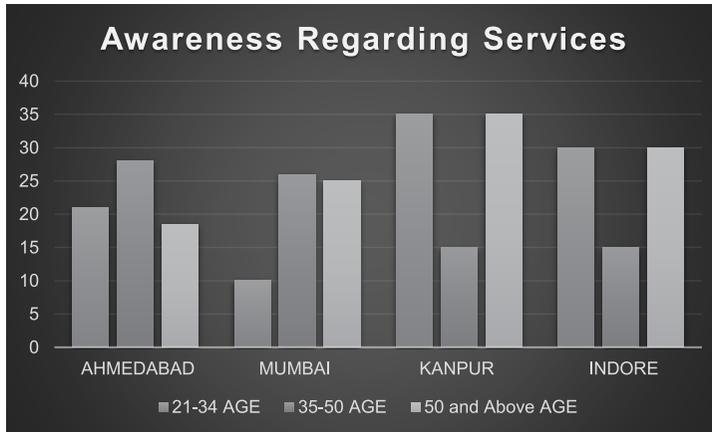
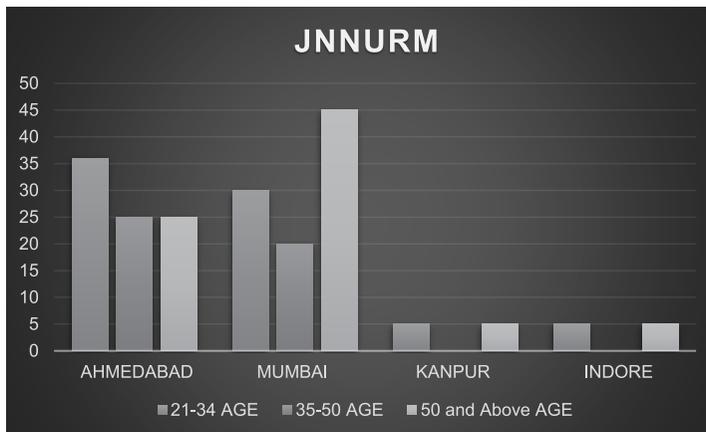
In the case of the *use of the Website of Municipal Corporation*, the citizen with the age group of 21-34 are maximum utilizing the facilities in Ahmedabad while in the case of Mumbai its age group above 50 which is also the case with Indore and Kanpur [Table-1, Chart-2]

The third category is the *awareness regarding e-government information*. In this category, the age group above 50 is well aware of all four cities of the country [Table-1, Chart-3].

The awareness indicates general information from newspapers, digital platforms, and peers’ group. From those, only a few uses the actual website for a different purpose. However, the complete information regarding e-government is lacking among the majority of the age groups from the selected participant.

Graph 4: Usage of Services



Graph 5: Awareness regarding service available**Graph 6: JNNRUM**

The second aspect is focusing on digitalized services provided and awareness regarding the services and their usages. It also covers the special facilities provided to these cities under the JNNRU mission and now Smart City Mission (though only part of Mumbai is under the mission).

The citizen is optimistic about the services provided in selected cities by the urban local government. The *awareness regarding the JNNRU* mission was high among the age group of 21-34 in both the city, Mumbai, and Ahmedabad. The same is partially reflected in even the smart city mission. However, the details were unknown. While it is medium among all age group citizens in cities of Indore and Kanpur. It is no surprise that larger

cities with higher urban populations received more funds and development take place which is not the case with Kanpur and Indore two-tier cities [Table-2, Chart-6].

It is important to note that the awareness regarding the available services by urban local government in selected two cities i.e., Mumbai and Ahmedabad are high among the working group i.e., 35-50. In the case of Indore and Kanpur, it is age group 21-34 and 50 and above is appeared to be well aware [Table-2, Chart-5].

The usage of services is a very important part of e-government; it focuses on administrative success in the provision of basic services to their citizen. The results indicate citizens of Ahmedabad and Mumbai with a higher urban population of all age groups appreciating urban services. Although the age group of 35-50 in both cities indicates it to be less useful which may be due to lack of awareness. The services provided by local government in these cities through e-government are registration of birth certificate and death certificate, grievance application, booking of party plot and tree-gardening department permission, tax calculation, and online payment, etc. The case with Indore and Kanpur is also welcoming as citizens are also using almost the same services via e-government. However, in Kanpur, it is not working-class but the other two age group people make use of urban services by ULBs. The reason being, lack of awareness and lack of infrastructure. Indore reflects the same scenario where the working-class are unable to use majoring to services [Table-2, Chart-4].

It is important to note that majority of the citizens are not aware of the fact that services which they are utilizing are provided by ULBs or Private firms. This can be observed especially in the working class. As their focus is more on earning and saving. Furthermore, the infrastructure and services provided by ULBs in cities with a strong economic base such as Mumbai and partially Ahmedabad are different than Indore and Kanpur. Smart City is a newly developed concept for the growth and development of urban regions, the focus should be on smaller towns which required financial as well as planning guidance. The awareness is very basic among the citizens.

Conclusion

The study of four cities in the research paper indicates the lack of awareness among citizens regarding the availability of services through e-government. The urban local government administrative required focusing not only on providing services but also spreading awareness regarding the availability of the services and their usages. The literacy level, especially basic technical know-how, is also an important factor for the utilization of

e-government seva. With digitalization, especially in the time of Epidemic COVID-19, it is easy to spread awareness. It is time that the government must be supported by technology for the welfare of the society.

Limitation of the study

The study is limited to only four states and four cities of the country. The study further confines itself due to responses especially in the case of Indore and Kanpur, where there are very few responses from citizens within the age group of 35-50. Furthermore, the detailed questions related to the smart city were not taken up separately. The study, however, indicates further scope for researchers, policymakers, and economists to explore the subject in the light of the usage of technology by the public administration.

The launch of the “Smart City” project is also one of the leaps towards digitalized cities and the improvement of urban services. However, this paper excludes the dynamics of this recent project.

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APPENDIX

TABLE 1. AWARENESS (%)

Sr.No	City Name	General Awareness			Use the website for information			Awareness regarding National e-govt projects		
		21-34	35-50	50 and Above	21-34	35-50	50 and Above	21-34	35-50	50 and Above
1	AHMEDABAD	15	50	35	5	1.5	1.5	32.5	30	37.5
2	MUMBAI	35	15	50	2.5	5	17.5	35	15	50
3	KANPUR	20	30	50	25	25	50	25	0	36
4	INDORE	41.5	8.5	50	30	20	50	25	0	36

TABLE 2. Digitalized Services (%)

Sr.No	City Name	Usage of Services			Awareness regarding service available			Jawaharlal Nehru National Urban Renewal Mission (JNNURM)		
		21-34	35-50	50 and Above	21-34	35-50	50 and Above	21-34	35-50	50 and Above
1	AHMEDABAD	27	20	25	21	28	18.5	36	25	25
2	MUMBAI	30	25	10	10	26	25	30	20	45
3	KANPUR	40	20	40	35	15	35	5	0	5
4	INDORE	40	12.5	25	30	15	30	5	0	5