

## Service Quality Inurban Local Body E-Governance

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**Abstract:** The purpose of this paper is to obtain a better understanding of the extent to which service quality is delivered by the e-Governance services. An example case of the Smart City ULB e-Governance services is used for analysis of citizen customer perceptions and expectations of service quality. SERVQUAL is used to measure service quality amongst customers of MCD (ULB at Delhi, India and shortlisted for Smart City development by MoUD, India). The survey captures customers' expectations of a good quality e-Gov. services and compares these with their perceptions of the service delivered. The findings reveal that the citizen respondents generally believe that there is a minor shortfall in meeting customer expectations across all service quality parameters. The author recommends that bridging the Service Quality gap is essential before implementation of advanced ULB e-Gov. services under smart city mission. The improvement steps suggested include, special attention of mature and elderly citizens, appropriate on-line safety measures, data integrity standard compliance notification to the public, extended operating time and high e-services portal availability, display of service standard and citizen charter. The findings from previous studies, like staff training, citizen consumer awareness and cross departmental process integration are re-iterated again to supplement suggestions. This research adds to the body of knowledge relating to e-Governance servicequality management.

**Keywords:** India, Smart City, e-Governance, Service Quality, SERVQUAL, Front Customer expectations, Customer Perceptions

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### I. Introduction

We see a rapid emergence of e-governance in the Government and public sector. It includes the continuous optimization of service delivery, participation and governance by technology, the internet and new media led relationshiptransformation (Gartner Industry Research, 2007). The e-Governance include processes and structures pertinent for e-delivery of government services plus all forms of electronic communication between government and the citizen, such as information, voting, polling, or discussion etc., thereby enabling citizens to participate in the government's policy making. (Tripathy et al., 2016). Keeping in view this, current Indian Government e-Governance initiatives encapsulate the finer points of Governance for, citizen Centricity, service orientation & transparency beside the computerization of Government departments.

At the same time, the Government and public sector are under increasing pressure to improve efficiencies (Robinson, 2003) and deliver quality services (Randall and Senior, 1994). Though there are enhanced needs and citizen expectations, low service quality situation is exacerbated by difficulties in outcome measurement, increased scrutiny from the public and media, due restrictions on actions and a requirement for decisions to be based on law (Teicher et al., 2002). Thus the expectation of high quality e-Governance services is imperative. The use of a technology interface for delivery of services throws up many challenges, especially those related to management of change from the human interface to technology interface, adoption of a particular technology, differential access to such services etc.(Department of Information Technology, GOI, 2011) The author sees service quality as an important aspect of e-Governance. The Service quality is defined as an approach to manage business processes. It works as an antecedent of customer satisfaction (Ruyter and Bloemer, 1995). If expectations are higher than performance, perception, then perceived quality is not satisfactory and hence lead to customer dissatisfaction (Parasuraman et al., 1985; Lewis and Mitchell, 1990)

### II. Purpose Of The Study

The purpose of this paper is thus to examine the service quality of online services provided by the Urban Local Body (ULB) level e-Governance project in India as a pre-cursor to e-Governance services proposed under Smart City Project (SCP), Ministry of Urban Development (MoUD), India. The study uses the SERVQUAL approach to examine the gap between customers' general expectations and their perceptions of the online e-services under e-Governance banner. Specifically, the author has taken an existing e-Governance project of the Municipal Corporation of Delhi (MCD) as a proxy to planned ULB e-governance under the Smart

City Project of MoUD, India. The e-service examined are for an existing e-municipality project, which is a Mission Mode Project (MMP) under the National e-Governance Plan (NeGP, 2006), India. It has implemented online services like registration of birth and death, Information seeking under RTI act, property tax, health trade licenses, veterinary licenses, pet dogs, trade/storage licenses, park services, community hall bookings, building plan sanction, factory licenses, farm house registration and booking, conversion and parking charges. The recommendations for improving service quality within the ULB e-Governance project based on the findings of the survey and secondary research are also included.

### **III. Literature Review**

#### **SMART CITY PROJECT AND E-GOVERNANCE**

The Smart City Mission recently launched by the MoUD, India is quite detailed and comprehensive. A Smart City has basic infrastructure, use 'smart' solutions to make infrastructure and services better, and relies on Area based development (MoUD, 2015).

The MoUD project document, list **e-governance & citizen participation** among the Basic infrastructure. It is also listed among the City Wide Smart solutions that use application of ICT to municipal services and infrastructure to make them better.

**The e-governance & citizen services include public information, grievance redressal, electronic service delivery and citizen engagement.**

**Beside this, not many details are provided, though this is the** aspect without which any smart city implementation can be complete.

According to New Delhi Municipal Corporation (NDMC) Smart City Proposal (Ministry of Urban Development, NDMC Smart City Proposal, 2016), the Pan-Smart City solutions use ICT interventions in basic infrastructure to improve livability and transform the city into the world's benchmarked capital city. It addresses the issues of water, power, education, healthcare & governance via the following initiatives:

- Use of e-governance to enable citizen and companies to contribute to world class governance
- Smart Grid and Energy Management to enable electricity continuity with reliability and efficiency. The sustainability is addressed via the focus on renewables.
- Smart Water and wastewater management, including rehabilitation of the existing systems.
- Smart Education via e-Education in government schools, skill development initiatives, senior citizen driven mentoring program for underprivileged and centralized student's e-health records.
- Smart health, enabling citizens to access private hospitals through centralised hospitalization facilitation. It also includes virtual medical service, including network of volunteer doctors and access to online blood banks through integrated e-healthcare. The air quality monitoring is also a part of it.

More specifics on the above are available in ISO 37120:2014 Standards and 46 Benchmark Indicators for the top 20 Smart Cities. Overall, smart cities around the world have used e-governance as an effective tool to serve citizens efficiently, re-engineer internal business processes, increase transparency, accountability & citizen participation and use resources in an environment friendly manner. While e-governance initiatives usually account for only 10-15% of the total investment, they are an essential part of the overall city architecture. According to Forrester Research, smart governance is the core of smart cities initiatives (Belissent, 2011). Considering the fact that, the definition of a concept describes the important elements which build it. From the definition of Smart Cities, percentage of occurrence of terms "Governance" & "ICT" is more than 37%. Therefore, two things are evident that – core of a Smart City is Smart Governance and Smart Governance utilising ICT. While a number of e-governance/ICT solutions find mention in the mission document, the modalities for implementation have not been spelt out. The Winning Smart City proposal of NDMC (part of the Delhi ULB MCD), proposes e-Governance as a tool for efficient services to citizens, re-engineer internal processes to bring it on a digital platform, improve transparency, accountability & citizen participation. It includes:

- Application of ICT for delivering municipal services
- Integration of various standalone systems and services between Government & Citizens and within the organization
- Use of smart devices enabled through standards based M2M & IOT technologies
- Developing web-based/ mobile-based applications and e-services
- Opening up of government data through data.gov.in
- Encouraging paperless communication through cloud-based document management
- Biometric Attendance (on-going)
- Expanding network (dedicated leased lines and P2P connectivity) and server capabilities (on-going)
- Virtualisation of licenses (on-going)
- NDMC mobile app store.

The actual proposal also spells the success factors for the proposed pan-city projects as the existence of a robust ICT infrastructure & e-Governance. It is targeting 100% implementation of all components by March, 2018. As of now, NDMC already has a strong ICT infrastructure and e-governance related to property tax, grievance redressal, finance, litigation, licenses, health, project management, assets, etc. This is set up under ULB level E-Governance setup (e-municipality project) as a part out of 23 reform parts proposed under JnNURM and National e-Governance Program. For this research, we are looking at a proxy, but completed operational e-governance project at ULB, and took the e-municipality project (part of the National e-Governance Plan) at the Municipal Corporation of Delhi (MCD, includes NDMC) for further analysis.

SERVICE QUALITY IN ULB E-GOVERNANCE

Under Jawaharlal Nehru National Urban Renewal Mission (JnNURM) and NeGP, the service level benchmarks for e-Governance were established by considering customer or citizen service delivery as a main priority, dealing with functioning's between government, business, citizens and employees. But at the implementation level, after completion of the project out of 65 mission cities only 27 cities have achieved full implementation of the project (Guha, 2016). However, a closer look also found that there are multiple vendors were involved in e-governance module development and do not form part of one integrated system with single point data entry (Guha, 2016). The business processes for service delivery vary substantially, as most cities went ahead with implementation of their own functional requirements separately at module level. The United Nations defined five stages of e-government implementation as emerging, enhanced, interactive, transactional and seamless. An existing analysis (Tripathy et al., 2016) compared status of all five stages of e-government services in 100 cities in India (also short-listed in Smart Cities Mission 2020) towards improving e-Governance (Table 1).

**Table 1:** Comparison of e-government services status in India (Tripathy et al., 2016)

Phase	Parameter Available	Cities Qualified	Cities Lacking
Emerging	Website Presence	91	7
	Statistics	51	47
Enhanced	CDP	66	32
	Master Plan	50	48
	E-Tendering	84	14
	E-Budget	74	24
	E-Balance Sheet	36	62
Interactive	E-Complaint	74	24
	E-Birth/Death: Record & Application	59	39
	Building Plan Approval	27	71
	Mobile Application	49	49
	E-document Search	24	74
Transactional	Property Tax	53	45
	Water Supply Tax	20	78
	Building Permission Charges	11	87
Seamless	Integration of e-Services across administrative boundary	Challenging task: Not yet achieved	

According to the above study, an integrated and systematic approach to e-Governance is missing and implementation is not citizen centric. The e-governance as a participatory process, structure and organisation, is not found to be an explicit priority. At the same time the level of citizen's inclusion in e-Governance from the e-participation perspective is probably very low (Tripathy et al., 2016). Taking cue from above mentioned study, the author focus on the current state of Service Quality of e-Governance in a ULB which is also part of the future smart cities mission, India. The author proposes that to get genuine success in e-Governance, customer expectations must be exceeded. Else, customers/citizens may opt for an alternate service provider (if available), go to consumer forum for grievance re-dressal, complain in legislative assembly or even vote against an administration in local elections.

**Servqual Approach**

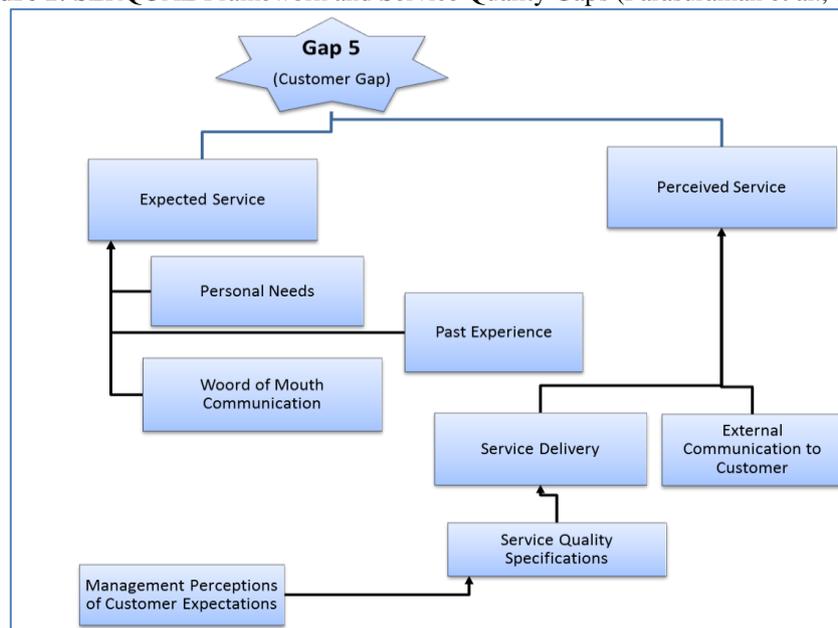
For service quality, the author use SERVEQUAL approach. The SERVQUAL framework (Zeithaml, Parasuraman & Berry, 1980) evaluates the quality of a service on five dimensions:

- **RESPONSIVENESS (R):** Willingness to help customers and provide prompt service. It consists of 4 statements.

- ASSURANCE (A): Knowledge and courtesy of employees and their ability to convey trust and confidence. It consists of 4 statements.
- TANGIBLES (T): Appearance of physical facilities, equipment, personnel, and communication materials. It consists of 4 statements.
- EMPATHY (E): Caring, individualized attention the firm provides its customers. It consists of 4 statements.
- RELIABILITY (R): Ability to perform the promised service dependably and accurately. It consists of 4 statements.

Perceived service quality results from comparisons by consumers of expectations with their perceptions of service delivered by the service providers (Zeithaml et al., 1990). Parasuraman et al. (1988) suggested that customer expectations are what the customers think a service should offer rather than what might be on offer. Thus, excellent service quality is exceeding the customers' expectations. A gap is created when the perceptions of the delivered service is not as per the expectations of the customer. This gap is addressed by identifying and implementing strategies that affect perceptions, or expectations, or both (Parasuraman et al., 1985; Zeithaml et al., 1990). Parasuraman et al. (1988) stated that SERVQUAL had been designed to be "applicable across a broad spectrum of services" and the format could be adapted to fit specific needs. They proposed that the SERVQUAL framework could be extended to measure gaps in quality and could therefore be used as a diagnostic tool to enable management to identify service quality shortfalls. The gap score is calculated by the perception statements being deducted from the expectation statements. If any gap scores turn out to be positive, then this implies that expectations are actually being exceeded. This allows service managers to review whether they need to re-deploy resources to areas of underperformance (Wisniewski, 2001). If the Gap is negative, it shows the gap in service quality. Figure 1 shows, Gaps 1 to 4, that are within the control of an organization and need to be analysed to determine the causes and changes to be implemented which can reduce or even eliminate Gap 5, which is the gap reflecting the difference between customers' perceptions and expectations of the level of service.

**Figure 1: SERVQUAL Framework and Service Quality Gaps (Parasuraman et al., 1980)**



The use of the SERVQUAL approach in the public sector is supported (Bryceland and Curry, 2001). For example, the quality of service provided by the University of Houston Health Centre was measured using 15 statements representing the five-dimensions of SERVQUAL (Anderson (1995). Patients were found to be generally dissatisfied with the five dimensions of SERVQUAL. Similarly, using the SERVQUAL approach, Wisniewski (2001) carried out a study to assess customer satisfaction within the public sector across a range of Scottish Councils services. The author also noted that, an assessment study (DIT, GOI, 2010), QoS of e-governance services was measured using a 7 statement based questionnaire. In addition, the framework for impact assessment and baseline study (DIT, 2014) has 11 indicators for QoS dimension. The indicators are in congruence with Servqual from citizen customer perspective. Thus the Author decides to use Servqual approach to measure service quality of e-Governance related online services offered by ULB in Delhi.

#### IV. Research Methodology

The Servqual based survey questionnaire was prepared. The questionnaire has both personal profile questions and questions on expectations (E) and perceptions (P) of respondents. The questions in the questionnaire were measured on a five-point scale ranging from “1 = No” to “5 = Very High”, where the respondents rate their expectations and perceptions of the various dimension-items for the e-Governance Online service (e-municipality). The questionnaire was pilot-tested (5 customers) and the SERVQUAL instrument was modified via a change in wordings and the reduction of 22 statements to 12 (Annexure 1: Modified Servqual). This research is carried out in the e-Governance Online service (e-municipality) by Municipal Corporation of Delhi (MCD). The sample unit is an actual user of the e-Governance Online services by Municipal Corporation of Delhi. The survey questionnaire was self-completed by the citizen customers and data is collected using Non-probability convenience sampling. During one month (October, 2016), a sample size of 54 responses was collected in data analysis for this study. The sample of customers consisted of female (26) and male (28). The respondents were between the 18 to 30 years (36), 30 - 60 years (17), Less than 18 years (1). The household annual income level of respondent is as follows: less than 2.5 lakh p.a. (1), 2.5 - 5 lakh p.a. (13), 5 - 10 lakh p.a. (19) and more than 10 lakh p.a. (21). Finally, the self-declared computer literacy levels of respondent are low (1), medium (26) and high (27). The Statistical Package for the Social Sciences (SPSS) version 20 was used to analyse the data. Descriptive statistical analysis is used to measure respondents' expectation and perception scores. The data is reliable since the Cronbach's Alpha value of the response items is 0.860, more than 0.5 to 0.6 to be the minimum required for reliability (Nunnally (1994).

#### V. Findings

The findings of Servqual analysis of Opinion survey are shown in Table 2. It consists of Mean score (on a maximum 5 point likert scale) and Standard deviation for each service quality attributes statement as per modified Servqual. The gap score for each attribute statement is the difference between mean satisfaction/perception score and the mean expectation score.

**Table 2:** Option Survey on Customer Expectations and Perception of Service Quality

Servqual Dimensions	Expectation		Satisfaction/Perception		Gap (P-E)
	Mean (E)	Std. Deviation	Mean (P)	Std. Deviation	
<b>Responsiveness</b>					
Inform customers when online requested services will be performed	3.89	0.86	3.54	0.99	-0.35
Offers prompt online services to customers	3.73	0.90	3.59	1.02	-0.35
Readily respond to customer on-line request	3.74	0.99	3.37	0.98	-0.37
<b>Assurance</b>					
Customers feel safe in their online transactions	4.19	0.94	3.48	0.95	-0.72
Have the online content and knowledge to answer customers	3.75	0.83	3.46	0.91	-0.32
<b>Tangibles</b>					
E-Gov. have up-to-date equipment and facilities	4.24	0.70	3.80	0.81	-0.44
Visually appealing materials associated with the e-Gov. services	3.68	0.94	3.52	0.95	-0.24
<b>Empathy</b>					
E-Gov. services has convenient operating hours to all	3.93	0.89	3.54	0.95	-0.39
Personalized attention to online customer	3.56	0.92	3.54	1.08	-0.02
<b>Reliability</b>					
E-Gov. performs the online service right the first time	3.98	0.91	3.72	0.86	-0.24
Provides online services at the time promised	3.91	0.95	3.78	0.95	-0.13
Maintains error-free records	4.13	0.89	3.59	0.88	-0.54
<b>Overall RATER Mean (12 Items)</b>	<b>3.89</b>		<b>3.58</b>		<b>-0.34</b>

The overall Service Quality Gap mean score (Customer Gap) is found to be negative (-0.34) indicating that customer expectations are more than their perception/satisfaction, thus there is a shortfall in Service Quality of online e-Governance services offered by MCD. The overall Service Quality Gap mean score, though negative is not very large (-0.34 out of 5), thus though improvement in level of Service (service quality) is required but it is manageable. As shown in Table 2, the highest Customer perception vs. expectation gap (-0.72) is in attribute “customer feel of safety in online transactions” of Assurance dimension. Thus MCD need to make sure appropriate on-line safety measure (authentication, identification, encryption) are not only implemented but are also notified to the customer during interactions/transactions.

Next large gap (-0.54) is identified in attribute “Maintains error-free records” belonging to Reliability dimension. Thus MCD need to show relevant notifications on its e-Governance on-line services website as well as show the IT and financial auditor’s finding prominently on its website assuring citizens of data integrity standard adherence and compliance. The next big gaps (-0.44) is in attribute “e-Gov. have up-to-date equipment and facilities” belonging to Tangible dimension. This case looks specific to developing countries like India, thus MCD need to keep its computer systems and facilities well-maintained especially in Common Service Centres (CSC).

Beside above, the other significant gap (-0.39) are in attribute “E-Gov. services has convenient operating hours to all” from Empathy dimension. If possible, e-Governance department of MCD may look at extended operating time, so as to cater to off-peak users. In addition, at Gap (-0.37) the attribute “Readily respond to customer on-line request” from responsiveness need attention as well and may be tackled by making sure that the website works round the clock with good traffic / load management practices followed. In addition, if the website provides clear communicating to citizens about the service standard (due process required, service response and fulfilment time) and citizen charter it will further boost the service perception and satisfaction. Further analysis of ServQual questionnaire response, is shown in Table 3. The author found that elder respondent (30-60 yrs.) are relatively more dissatisfied (mean gap score: -0.38) with service quality compared to younger respondent (18 – 30 years, mean gap score: -0.28). Furthermore, male respondent in their opinion are more dissatisfied with service quality with the mean gap score at -0.39 compared to females at -0.23. The Author draws no conclusion from this. The income levels do not seem to affect the respondent’s opinion of service quality.

**Table 3:** Comparison of Service Quality Gaps Across Survey Respondent Demographics

MEAN OVERALL GAP 5 ANALYSIS				
Age		N	Mean	Std. Deviation
	18 to 30 years	32	-0.28	0.39
	30 - 60 years	14	-0.38	0.61
	Less than 18 years	1	-0.42	
Gender				
	FEMALE	23	-0.23	0.43
	MALE	24	-0.39	0.48
Annual Household Income				
	2.5 to 5 lakh per annum	11	-0.33	0.52
	5 - 10 lakh per annum	17	-0.28	0.41
	Less than 2.5 lakh per annum	1	-0.08	
	More than 10 lakh per annum	18	-0.34	0.50
Computer Literacy				
	High	25	-0.36	0.46
	Low	1	-0.75	.
	Medium	21	-0.24	0.46
Total		47	-0.31	0.46

Interestingly, contrary to the authors’ belief, the respondent opinion shows that high computer literacy respondents (mean gap score: - 0.36) are more dissatisfied with service quality compared to medium computer literacy respondents (-0.24.). This could be due to their relative reference and higher expectations from on-line e-Gov. services of MCD. Thus, it is advisable for government service providers (e.g. MCD)/public sector service providers to regularly conduct surveys (Feedback) among its customer citizens to identify the main areas of improvement. Citizen involvement in planning and implementation stage is important. The survey response (Table 3) shows that citizens in general believe that their involvement level is medium (mean score 3.52 out of 5) and their involvement will further improve the service quality (mean score 3.89 out of 5) of online e-Governance services e.g. MCD. This is important for service quality delivery as well.

**Table 4:** Survey Respondent's opinion on Citizen Involvement in E-Gov. Services

Citizens Involvement	Mean	Std. Deviation	Skewness	Kurtosis
Level of Citizen involvement in online services (Planning/Implementation/Feedback)	3.52	1.04	-0.05	-0.71
Citizens involvement can improve the Quality of Online Services	3.89	0.86	-0.70	1.08

## VI. Conclusion

The author has tried to measure the Service Quality Gap of online public services offered by e-Governance department of the ULBs (MCD as used as a proxy to Small Smart City). The service quality gap has indicated that citizens in general believe that on-line public services offered by MCD (ULB at Delhi) have failed to meet their expectations. The overall "Customer Gap" is found to be negative (-0.34) indicating that the customer has higher expectations than their perception/satisfaction of online e-Governance services offered by ULB. The author's findings are in congruence with previous ULB e-Governance impact assessment study done by DIT, Government of India in 2010 with IIMA as a technical advisor and AC Nielson ORG-MARG as a field survey partner (DIT, 2010). The previous study concluded that attributes related to governance and quality need to be improved across all the ULBs. (DIT, 2010). The DIT assessment study recommended the need for automation of queue management, better location of service centres, re-engineering the process, enabling end-to-end transactions on the portal plus educating users and staff.

The author strongly recommends that to make e-Governance online services useful and practical, the Service Quality Gaps need to be bridged as soon as possible. This is essential before implementation of advanced ULB e-Gov. services under smart city mission. The improvement steps as mentioned in study findings include, special attention of mature and elderly citizens, install appropriate on-line safety measure (authentication, identification, encryption) with necessary notifications/pop-ups, website display data integrity standard adherence and compliance authorized by IT auditors, integrated databases, keep computer systems and facilities well-maintained especially in Citizen Service Bureau (CSB), extended operating time and high e-services availability with required traffic / load management plus website to clearly display the service standard (due process required, service response and fulfilment time) and citizen charter. In addition, awareness programs for citizens (especially for online grievance redressal system), staff training for staff (both on technical aspects as well as customer orientation) will help improve the efficiency of staff as well as give confidence in e-services to citizen customers.

## VII. Limitations And Future Research

The limitation of the study is relatively small sample size and not enough details on sample representing cross-section of citizen customers representative of the broader population. Also the re-call of e-service usage may be biased though author is not sure if in favour or otherwise. In addition, the survey was conducted for e-governance services at one ULB, its generalization to other ULB or Smart City e-governance services may not be hundred per cent applicable. For future research, the customer service staff and management's perceptions and understanding of customer service expectations can be examined further so that relevant point of view, constraints and on-going measures are also included in the analysis. In addition, the priority of applicable solutions can be recommended so as to effectively meet the service quality targets.

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