Service Providing Stakeholders Perception of Citizen Perceived e-Governance Service Quality: A Study of Online Services in Madhya Pradesh

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Abstract: **The success of e-Governance initiatives lies in their adoptability among citizens as well as, the willingness in citizens to adapt them. Understanding of citizens perception, about an online public service and their expectation from the concerned online service, may help service providers to improve the quality of service. Many studies have highlighted the discrepancy or gap between service providers view of design and implementation of a service and citizen or end users' actual experience with the service. The research verifies the validity and reliability of a proposed e-Governance service quality (citizen perceived) assessment scale, from service providers end. This study attempts to take a look at the understanding, among service providing stakeholders, about citizens' perception of e-Governance service quality. Responses of service providing stakeholders at different departments of state governments were collected to rate citizen perception of corresponding public services related to their department. Findings of the study may be helpful to the decision making stakeholders in government departments, to take in the citizens' opinion and expectations from online public services (as experienced reported by the service providing stakeholders) and for improving service design as well as implementation strategies in the state.**

Keywords: **E-Governance, E-service Quality Assessment.**

I. INTRODUCTION

The pervasive phenomenon of adopting Internet and ICT for implementing public services , known as e-Governance has from initial stage of transforming public services into online modes which are assumed to be more transparent and efficient as far as interaction between government and citizen is concerned. In the Indian scenario, many e-Governance projects triggered before and after launching NeGP from 2006 replaced the manual form of public services (including tax payment, job applications, license application any many others) with the their online transformed versions. As the funding of such projects have been arranged from the taxes paid by citizens, the need for exploring factors behind success (or failure) of such projects was experienced. Though the governments have been publishing such e-Governance projects to be successful regarding public convenience, yet . Research practitioners in their studies from national to state, district and panchayat level, disclosed a lack of quality in such online services [1], [2], [3]. [4], in his study, disclosed that 35 percent of projects under e-Government category in developing countries have resulted in total failure and while 50 percent were observed to be partial failure. [5] argued that awareness level, acceptance level among citizens, along with hopes and fears are major factors behind success or failure of the e-Governance service. They also assumed that the high quality of online-services may ensuring more acceptance and less fears. Gupta P. and Vasishta P. (2007) asserted that assessment of e-Governance projects can be of different types. One can assess a project , on the basis of some established framework , it could be performed by a third party . Also , a self assessment using a third party suggested framework can be performed. The researchers described different aspects of assessment, depending on the assessor, as well as on the objective of assessment. They also recognized service component as an important aspect of assessment Some studies considered citizens' willingness to be important behind acceptance and success of e-Governance initiatives [6] and [7]. [8] in their

study of citizen perceived e-service quality of Indian government portal, suggested that the government should be answerable about the service quality offered to the citizens. They pointed out that assessing the e-service quality of web-based government services, becomes challenging for service providers to due to multiple levels and different stages of implementing e-Governance services.

1.1. Objectives

Importance of service providers understanding about user's perception of service quality has been pointed out in some of the previous studies like, GAP model by [9] and [10] etc. Such studies disclose that a better understanding among service providers regarding user/customer perception of service quality , may lead the service providers to provide improved public services.

Following objective has been setup or the study proposed study.

- **To assess the citizen focused e-Governance service quality through service providers perception.**

- **To explore the relationship between dimensions of citizen focused e-governance service quality, and service providers' perception of overall e-governance service quality (citizen focused) in the state of Madhya Pradesh.**

To achieve the set up objective for the research , an extensive survey of literature from studies performed by various scholars and researchers was carried out in the domains of service quality, e-service quality, e-Governance and related researches. Based upon the literature review, consultation with domain experts, the study of service providers perception of citizen focused predictors and dimensions of e-Governance service quality is proposed.

II. REVIEW OF LITERATURE

The concept of service quality got recognized when the researchers focus the customers' feelings, satisfaction or dissatisfaction from an offered service. Studies in this domain came up with 'What is delivered' and 'How it is delivered' to be major dimensions to assess service quality [11] , [12], [13]. [9] proposed, the tool known as SERVQUAL, for assessment of service quality. The tool grouped predictors in with five dimensions and revealed interesting linkage of the reliability, assurance, responsiveness empathy and tangibles, with the service quality perception. SERVPERF, suggested by [14] asserts to measure the service quality based on perception scores.

Redefined version of the service quality assessment tool suitable for online mode of services, were later brought into the seen, like website quality [15], [16]. [17], [18] and [19] through their corresponding studies for measuring service quality examined variation in the e-government service quality, with administrative levels of a country. 'Users' overall assessment is recognized as the key factor in leading to success or failure of e-Government [20], [21] [22]. [23] proposed three dimensions, information content, response rate and customization for e-service quality assessment. Model proposed by [24] included 6 dimensions such as ease of use, reliability, responsiveness, competence and product portfolio for assessing e-service quality. Services of national level e-government found to be more advanced and of better quality as compared to those at state government level [25]. E-S-QUAL proposed by [26] comprised factors like reliability, responsiveness, tangibility, assurance, quality of information, empathy and integration of communication to assess e-service quality. The study revealed significant relation of efficiency and fulfillment with customer's overall perception o e-service quality. A critical contribution of system availability to the customer perceived e-service quality had been observed. However, the authors stated that tool the tool being suitable for assessing e-service quality related to product based services provided in online mode. They recommended customization in the tool before adapting it for assessment of e-service quality in the domain of service industry. Pointing out non-existence of empirical studies finding out the best one out of gap/discrepancy and perception based approaches, [27] proposed EGOSQ tool, for measuring online service quality of e-governance. The researcher demonstrated that gap approach is better than perception based approach. [28], during study of e-government portals of Thailand, observed that improved service quality, information quality and system quality can lead the citizens for continued use of e-Government services. [29]Re B. (2010) considers usability or utility to be important aspect of web portal quality. The model proposed by [8] attempts to investigate factors enhancing e-service quality of Indian government portals. In the study , researchers explored factors related to citizen's perspective of service quality of government portals. The model asserts to assess the demand side service quality of government portals, using seven dimensions including citizen centricity, transparency, technical adequacy, usability, complete information, privacy and security and usefulness of information.

Among various aspects and approaches for assessing service quality , e-service quality or online service quality, some researchers [9], [30] and [31] supported analysis of gap/discrepancy observed between expectations and performance at different levels of service. The approach of analyzing discrepancy is also known as the GAP model. The model explains following GAPs in delivery of services:

Gap1 – Customer's Expectation v/s provider's perception. It refers to the discrepancy is produced due to lack proper research orientation , poor vertical communication and too many management layers.

Gap2 – Provider's perception v/s service specifications. It is resulted due to inadequate commitment regarding service quality, lack of standardization and unfeasibility perception.

Gap3 – Service specification v/s service delivery : Resulted because of ambiguity in service delivery conflicts, improper job handling , lack of teamwork and supervisory control.

Gap4 – Service delivery v/s external communication to customers : Caused due to lack of proper horizontal communication and susceptible over-promise.

Gap5 – The discrepancy between customer's expectation v/s their perceptions of delivered service : Outcome of customer side influences and shortfalls at service provider's end.

Gap6 – Customer expectations v/s employee's perceptions : They are resulted due to mismatch in understanding of customers expectations by frontline interface of service providers.

Gap7 – Employee's perceptions v/s provider's perceptions: Resulted due to difference in understanding of customer's expectation at provider's end.

Study of [32], [30] and [31] described three gaps, Gap1, Gap5 and Gap6 to be more important . [33] considered the GAP model to be one of the best contribution to the domain of service quality.

A significant analysis of GAP between user's own perception of service quality and government service providers perception of user perceived service quality , is presented in study performed by [10]. The study revealed important discrepancies between the two percepts.

Study performed by [34], described the importance of including social and management aspects while evaluating e-Governments.

Improper understanding of user's percepts as well as lack of interaction with the users may lead to discontent among citizens [8].

Ahead of the conceptual approach followed in most of the previous studies for assessing service quality of e-Governance. In the first part of our empirical study based on perception approach, we attempted to get insight into citizens perception of e-Governance service quality. In the exploratory study of public services offered in the state of Madhya Pradesh, we gave proposed a model with 22 attributes to assess the e-Governance service quality.

The above reviewed studies lead to considerable implications for service providers in order to provide more efficient and trustworthy e-governance services to the citizens.

2.1 Rationale

Our encompassing study that proposed citizen focused model to assess e-governance service quality, demonstrated significant relationship, between dimensions of e-Governance service quality (including reliability, efficiency , assurance , content and utility) and citizens perception of overall service quality of e-Governance service. However as discussed in the GAP model , there may exist GAP between citizens' perception of service quality and service providers perception of user perceived service quality.

Based upon importance of service providers understanding of user's perceived service quality of e-governance, explained by [10] and some other researchers, there arises need to explore service providing stake holders' perception of citizen perceived service quality of e-Governance.

This signifies the need of research to explore the factors that enhance the citizen focused e-governance service quality from service providing stakeholders' perception.

III. RESEARCH METHODOLOGY

The present research is based on our model proposed to assess citizen's perceived e-Governance service quality. The model comprises of Twenty two predictor items grouped in to five dimensions of e-Governance service quality (reliability , efficiency, content, utility and assurance). Earlier research with citizen's sample, came up with significant factor loads of above dimensions on citizen's perceived e-Governance service quality. Also significant relations of the service quality dimensions with citizens perception of overall service quality have been observed. As our objective is to assess the same citizen focused e-Governance service quality from service providers' perception, we used the same model to examine the service providing stakeholder's perception of e-Governance service quality (citizen focused).

The questionnaire used to collect the primary data consists of following items :

- Twenty Two items on e-governance service quality. Items stated citizen's response on different aspects of the online public service they have accessed. The responses were measured on five point Likert scale as 1-Strongly Disagree, 2-Somewhat Disagree, 3- Neither/Undecided, 4-Somewhat Agree, 5- Strongly Agree.

- Set of two items rating citizen's satisfaction from the accessed e-governance service. Measured on five point Likert scale (1-Very Poor, 2-Poor/Below Average, 3-Neither/Average, 4-Good/Above Average, 5-Excellent).

- Set of two items measuring return value perception from the concerned e-governance service (1-Very Poor, 2-Poor/Below Average, 3-Neither/Average, 4-Good/Above Average, 5-Excellent).

- One global measure to rate overall quality of the e-Governance service over 5-point likert scale (1-Very Poor, 2-Poor/Below Average, 3-Neither/Average, 4-Good/Above Average, 5-Excellent).

- Nine items on demographic and usage related questions.

3.1 Demographic detail of participants

Primary data collected using online questionnaire form hosted on Google forms . Request links for participating in the online survey, were circulated through 198 employees of various departments of state government (including Govt. Universities and Colleges, Municipal Corporations, Professional examination board, RTO etc.) providing public services in online mode. 198 Respondent service providing stakeholders were selected using convenience sampling. Responses for a period of more than 4 months were collected for the research.

Out of 121 responses received in the survey, 110 complete responses were selected for analysis. [35] recommended 1:10 item-to-response ratio, to be acceptable for analysis. The response ratio in the present study is 55.55 percent, which is adequate. Table I presents demographic detail of respondents.

IV. ANALYSIS AND FINDINGS

We performed EFA with the help of SPSS 20.0, using principal axis factoring method with varimax orthogonal rotation. Sample adequacy is determined by Kaiser-Meyer-Olkin (KMO) test. [36] recommended KMO >0.5 to adequate for conducting factor analysis. In the present research the KMO valued measured to be .897. Bartlett Sphericity test measured Chi-square value 1793.214 with df 231 at 0.0 level of significance.

Results of factor loading are displayed in table II. Predictors demonstrated good inter-item correlations with other items under same dimension.

4.1 Validity and Reliability of the scale

[37] suggested verification of two important aspects for a model, that are validity and reliability. Validity can be established by verifying content validity, convergent validity and discriminant validity. [38] recommend content validity of a measure to be a minimum psychometric requirement. The content validity in this study is ensured as the scale development and pre-test analysis was administered by group of academicians and subject experts.

Convergent validity proves the internal consistency of predictors in a construct. Discriminant validity verifies that no two constructs measure the same variable i.e. all the constructs measure different criteria. While examining correlations , predictors under each factor have shown good association with other items under the same factor in the scale. Inter-item correlations of the constructs are given table III to table VII. For convenience of observation, the correlation tables have been split factor wise. Predictors measuring a factor in the table are replaced with their corresponding variable names as

shown in tables. [39] suggested correlation value >0.4 can be considered as acceptable to verifying convergent validity. All inter-item correlations under same factor are found to be >0.4 , i.e. all the items under same factor show strong correlations. The results of correlations verify convergent validity of the model. Also correlations < 0.2, of each item of a factor , with items of other factors measured to be <0.2, verified discriminant validity.

Along with ensuring convergent and discriminant validity, we also verified predictive validity of the model. For this purpose, the global measure of overall quality was examined for regression analysis with the summed up score of each factor extracted (Total of score of predictors under each factor). The regressions observed are listed in table IX.

To determine reliability of a model, researchers commonly use Cronbach's alpha (α) to be measured. [39] described $0.7 \leq$ α , to be acceptable. In this study cronbach's alpha for the is measured to be 0.950, while alpha values of extracted factors were found (See tableVIII) as , Factor1-Reliability (0.922), Factor2-Efficiency (0.928), Factor3-Content (0.877), Factor4-Utility (0.824), Factor5-Assurance (0.857) at sig. level < 0.05 . The alpha values of all the factors, and that of the overall e-Governance service quality scale, confirms the reliability of the model examining service providers perception.

After confirming the validity and reliability of the scale, The relationship between e-GSQual dimensions and overall e-Governance service quality perceived was examined. We used regression analysis taking e-GSQual (summed-up scores) as dependent variable and the overall e-Governance service quality perceived (OEGSQ) as dependent variable. The results of regression analysis as displayed in table IX reflected significant positive influence of all e-GSQual factors on OEGSQ. The table disclosed highest strong influence of reliability (REL) with beta:0.441 and t:8.523 sig. at p<.01 , followed by efficiency (EFF) with beta:0.323, t:4.303 at p<0.01 and assurance (ASR) beta:0.228, t:3.030 , p<0.01. Utility (UTL) with beta:0.114, t:1.985 and content (CNT) with beta:0.112, t:1.991 observed to moderately influence the overall e-Governance service quality perception at significance level 0.05. F-value (ANOVA) in the regression analysis is measured to be 74.064 at p<0.01 , degree of freedom from 5 to 104 and R^2:0.781.

V. DISCUSSION AND IMPLICATIONS

The research aims to explore service providing stake holders' perception of citizen perceived e-Governance service in the state. We have used to the model proposed in study by [40], for assessing the perceived e-Governance service quality. The tool have been tested to measure citizens' perceived e-Governance service quality, of the public services offered in the state. As accentuated by previous studies, in the domain of e-Governance and service quality assessment, it is important for the service providers to be aware of end user's expectation and perception of the services being offered. Following the recommendations of experts, suggestions made in these studies, we performed the analysis of service providers perception of the citizen focused dimensions of e-Governance service quality. Results of EFA of responses collected , correlation results imply that the dimensions of our model to assess citizen perceived e-Governance quality, do also have influence on service providers perception of citizen perceived e-Governance service quality

The model used in the research defines reliability through predictors like privacy of data, completion of requested service operation within time frame, keeping due transparency in payments for the service. Higher factor loadings and regression score of this factor with overall service quality score, reveals that, service providing stakeholders consider reliability to be having impact on citizens' overall perceived quality of e-Governance services. Next to Reliability (REL), the dimension efficiency (EFF) contributed by attributes like robustness of navigation, global accessibility of the portal, automated paperless hindrance- free uploading of data /images and simplified time efficient process higher value of regression co-efficient beta (0.42) at 0.01 sig. level. Followed by this , assurance (ASR) with regression value (0.29) significant at 0.01 level The regression values of the two dimensions imply that the stakeholders at service providers end consider reliability and efficiency to be having more influence over OEGSQ as compared to utility and content . Still their influence on perceived overall e-Governance service quality is significant.

VI. CONCLUSION AND LIMITATIONS

Many researches, have [10] disclosed that self assessment of e-Governance projects by the service providers by themselves, showing the project to be quite successful are away from the ground level reality. [41], [42] argued that there are gaps between design and reality.

The Objective of this study is to assess e-Governance service quality from service providers end. The analysis came up with the conclusion that the dimensions like , Reliability (comprised of privacy and security , in-time completion operations, transparency of payment). Content (predicted by timely updated content, visual tutorial , guides), Efficiency (

robustness, global accessibility, faster uploading of data) etc. are understood by the service providers to be having more significant influence on citizens perception of overall e-Governance quality. While utility (multiple services, single point solution and portability of UI) and assurance (failure control, substitutive service , empathetic support for grievance resolution in time) are supposed to be less contributing factors , as far as service providers understanding of citizens' perception of e-Governance quality is concerned.

[43], [44] mentioned that citizen services may be reshaped with open communication and public dialogue along with public participation in formulating national regulations.

Along with important and useful findings regarding e-Governance perceived service quality, the present research has certain limitations such as :

• The findings of the present research are based on present state of awareness, skills and understanding citizen expectations and perception, among participating service providing stakeholders. The results may vary with changing skill levels as well as ICT awareness and understanding of citizens' perception.

• The role of status of technology infrastructure in the state is quite important while analyzing the survey responses. Any upgrade in technology as well introducing any new technology, may cause the analysis with varying results. adding new dimensions or changing existing variables.

• The present study considers only operational performance of the portal as perceived and experienced by the citizens and reported by the participating service providers.

• The data collected (in the present study) from service providing stakeholders is based only upon their perception.

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APPENDIX-A

List of Table:

Table I: Demographic details of respondents (N=110)

	Frequency (Citizens)	%
Age Group		
<25	29	27%
25-40	57	52%
41-55	24	22%
Gender		
Male	94	85%
Female	16	15%
Access Location type		
Urban	74	67%
Rural/Tehsil/Town	36	33%
Education Level		
Higher Secondary	29	26%
Graduate	63	57%
PG or above	18	16%
Dept. Service Type		
Govt. College/Univ./Edu. dept. (Admission, exam fee etc.)	49	45%
Other than educational dept. (Tay/Bill/Job Appl /Other Payments)	61	55%
Tenure (in years) of exp. with Internet and Online Services		
Less than 6 yrs.	48	44%
6 yrs. or above	62	56%

Table II: Factors loadings

Attribute	Factor1 (REL)	Factor2 (EFF)	Factor3 (CNT)	Factor4 (UTL)	Factor5 (ASR)
Protection of privacy and user's personal data (REL1)	.782				
In-time completion of operation (REL2)	.797				
Free of Jams and crashes (REL3)	.762				
Transaction security (REL4)	.691				
Due Transparency of Payment (REL5)	.731				
Robust navigation and downloading (EFF1)		.755			
Global Accessibility of portal (EFF2)		.766			

Hindrance free uploading (EFF3)	**.810**			
Automated Paperless operation (EFF4)	**.702**			
Simplified and Time Efficient process (EFF5)	**.825**			
Timely Content updates (CNT1)		**.744**		
Visual guide or tutorial (CNT2)		**.727**		
Relevant FAQs (CNT3)		**.720**		
Useful complete contents (CNT4)		**.589**		
Wide range of useful public services (UTL1)			**.598**	
Compatible soft copy of useful reports (UTL2)			**.510**	
Device portable User Interface (UTL3)			**.533**	
Single point solution for the concerned service (UTL4)			**.584**	
User friendly grievance redressing from service provider (ASR1)				**.743**
Responsibility and control on failure of service (ASR2)				**.760**
Substitutive service (ASR3)				**.611**
Timely resolution of grievances (ASR4)				**.750**

Table III: Inter-Item Correlation Matrix of Factor1 (Reliability- REL)

Items	REL1	REL2	REL3	REL4	REL5
REL1	1	.868**	.695**	.674**	.715**
REL2		1	.683*	.688*	.693**
REL3			1	.625**	.672**
REL4				1	.725*
REL5					1

** - Correlations is significant at 0.01 level (2-tailed),

* - Correlation is significant at level 0.05 (2- tailed)

Table IV: Inter-Item Correlation Matrix of Factor2 (Efficiency- EFF)

Items	EFF1	EFF2	EFF3	EFF4	EFF5
EFF1	1	.717*	.716*	.772*	.756**
EFF2		1	.688*	.679*	.764*
EFF3			1	.645**	.784**
EFF4				1	.698*
EFF5					1

** - Correlations is significant at 0.01 level (2-tailed),

* - Correlation is significant at level 0.05 (2- tailed)

Table V: Inter-Item Correlation Matrix of Factor3 (Content-CNT)

Items	CNT1	CNT2	CNT3	CNT4
CNT1	1	.615**	.746**	.690**
CNT2		1	.575*	.541*
CNT3			1	.672**
CNT4				1

** - Correlations is significant at 0.01 level (2-tailed),

* - Correlation is significant at level 0.05 (2- tailed)

Table VI: Inter-Item Correlation Matrix of Factor4 (Utility-UTL)

Items	UTL11	UTL2	UTL3	UTL4
UTL1	1	.664**	.568**	.691**
UTL2		1	.400*	.609*
UTL3			1	.459**
UTL4				1

** - Correlations is significant at 0.01 level (2-tailed),

* - Correlation is significant at level 0.05 (2- tailed)

Table VII: Inter-Item Correlation Matrix of Factor5 (Assurance-ASR)

Items	ASR1	ASR2	ASR3	ASR4
ASR1	1	.604*	.587*	.719*
ASR2		1	.471**	.633**
ASR3			1	.586**
ASR4				1

** - Correlations is significant at 0.01 level (2-tailed),

* - Correlation is significant at level 0.05 (2- tailed)

Table VIII: Cronbach's Alpha values of Dimensions

Factor	Cronbach's Alpha
Factor1 (Reliability-REL)	0.922
Factor2 (Efficiency-EFF)	0.928
Factor3 (Content-CNT)	0.877
Factor4 (Utility-UTL)	0.824
Factor5 (Assurance-ASR)	0.857

Table IX: Regression Model of e-GSQual scale dimensions (Summed up) and perceived overall e-Governance service Quality – Service providers

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	-.066	.198		-.336	.737
RELIABILITY	.070	.008	.441	8.523	.000
EFFICIENCY	.050	.012	.323	4.303	.000
CONTENT	.024	.014	.112	1.991	.050
UTILITY	.025	.013	.114	1.985	.050
ASSURANCE	.045	.015	.228	3.030	.003

Dependent Variable: Overall e-Governance Service Quality Perception, R^2 (.781), F-value (ANOVA) = 74.064 sig. p=0.0, df1=5, df2=104