



# Determinants of E-Governance Health Care Services Requirements and Rural Citizen Satisfaction

*M. Bhuvana and S. Vasantha*

## INTRODUCTION

The term “E-governance” is defined as the process of providing government services through ICT (Information and Communication Technology). ICT is considered to be a convenient mode for exchanging information among the government and the citizens (Varun Kumar & Venugopal, 2015). The phrase e-governance is referred to as the activity of facilitating government services through Information and Communication Technology (ICT). It is said to be a comfortable platform for

---

M. Bhuvana · S. Vasantha (✉)

School of Management Studies, Vels Institute of Science, Technology & Advanced Studies (VISTAS), Chennai, India

e-mail: [vasantha.sms@velsuniv.ac.in](mailto:vasantha.sms@velsuniv.ac.in)

M. Bhuvana

e-mail: [bhuvana.sms@velsuniv.ac.in](mailto:bhuvana.sms@velsuniv.ac.in)

transferring the information between the government and the citizens in the most productive manner (Varun Kumar & Venugopal, 2015). Experts termed e-governance services as Simple, Moral, Accountable, Responsible, and Transparent Model (SMART) for reaching the government services to all the citizens residing in our country. The preliminary objective of e-governance services is to perform its functions in a smooth, transparent, and effective manner in reaching people. It also acts as a guideline for greater communication and interaction between the government to government, government to citizens, government to employees, and government to businesses (Armstrong & Gandhi, 2012). This system has been already successfully implemented in various countries across the world. But the developing countries like India the usage of Information and Communication Technology seems to be in a growing state. Nearly 70 percentage of the entire population in India resides in rural villages. This shows that it seems to be a greater challenge for the officials in the government department to reach the rural people for delivering its services (GOI, 2020).

The Government of India has taken several initiatives for the development of rural areas in meeting the needs and requirements of the rural citizen. They have made different strategies for conducting awareness programs to create knowledge among the rural people for effectively accessing e-governance services. To meet these objectives the government has set up Common Service Centers at the nearby places of the rural citizen localities for accessing the government services in the field of Agriculture, Education, Health Care Services, Banking, and Insurance Services (Bhuvana & Vasantha, 2020a, b). Hence the research study has strongly focused on examining the rural citizen satisfaction in utilizing the e-governance health care services. Table 16.1 represents the list of Health Care Systems Maintained in the State of Tamil Nadu (Bolton, 2019).

This study aims at identifying the determinants of e-governance health care service requirements and analyzing the effect of e-governance health care services requirements and rural citizen satisfaction.

## DETERMINANTS OF E-GOVERNANCE HEALTH CARE SERVICES ON RURAL CITIZEN SATISFACTION

The phrase “Citizen Satisfaction” is defined as the collective perception of the citizen toward the quality in the production of the Government in providing their services (Van Ryzin, 2013). Researchers have examined

**Table 16.1** List of health care systems maintained in the state of Tamil Nadu, India

<i>S.No.</i>	<i>Health care management system</i>	<i>Services</i>
1.	Hospital Management System (HMS)	Maintaining information about the patients, doctors, and administrators
2.	Dr. Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS)	Facilitating cash assistance of Rs. 12,000 for pregnant and delivered mothers at rural villages
3.	Health Management Information System (HMIS)	Generating unique identification numbers for hospitals, doctors, and patients for facilitating e-health care services
4.	State Health Data Resource Centre (SHDRC)	It acts as a central repository for gathering data from the Health Management Information System (HMIS) in the state of Tamil Nadu
5.	Pregnancy and Infant Cohort Monitoring and Evaluation (PICME)	Generating PICME number for registering the details of pregnant women. The data can be utilized for monitoring high-risk cases during pregnancies
6.	National Teleconsultation Services	For providing healthcare services at home through structured video calls
7.	Tele Diabetology Services	For screening the diabetic patients and facilitating medical services at rural villages

*Source* Laura Bolton (2019)

that Information Quality, Usability, and Trust are the three important factors for examining the rural citizen satisfaction on using e-governance services (Bhuvana & Vasantha, 2020b, c). Many academicians have stated that service quality and customer satisfaction seem to be an associated construct even they are distinct (Irfan et al., 2016; Parasuraman et al., 1994; Oliver & Gregg, 2017). Various factors of service quality are considered for analyzing the satisfaction of the customers based on the performance of the institution or an organization (Connolly & Bannister, 2007). Each citizen in our country is considered to be a consumer in the field of receiving e-governance services. The regulations, policies, and decisions are to be executed productively for satisfying the needs of the citizens (Axelsson et al., 2013).

### *Information Quality*

The term information quality is defined as the quality of information facilitated by the system (Madnick et al., 2009). Information quality includes both subjective and objective elements such as reliability, validity, credibility, trust, and transparency of information that is being shared with the users (Diakopoulos & Essa, 2008). It is defined as the high quality of information that is acceptable when a new system is designed. Professionals have stated that believability, interpretability, and accuracy are the important dimensions of Information Quality (Embury et al., 2009). Information consists of actual data and facts that are organized for decision making (Jung, 2004). The issue occurs where the information and data quality are found to be inconsistent and it may result in quality problems (Lyytinen, 2009; Bhuvana & Vasantha, 2020a). Information quality on e-governance websites is considered to be a preliminary and essential requirement for obtaining the benefits by the people (Tayyaba Rasool et al., 2018a, 2018b).

### *System Quality*

A system is defined as the association of several components that perform its functions for a common objective (Hardcastle, 2011). It is also described as the outcome of an information system that concern with reliability, convenience, ease of use, and other various system-associated metrics and components (Bhuvana & Vasantha, 2019; Petter & McLean, 2009). It has the most important features of the Information system such as response time, flexibility, and sophistication (Saxena, 2005). The phrase system quality is also referred to as an efficiency and productivity of e-governance information system for ease of using the systems by the citizens (Shareef et al., 2010). The variable "System Quality Functionality" is referred to as the outcome of the e-governance information system that is strongly associated with the reliability and functionality of the citizens (Kolsaker & Lee-Kelley, 2008). The paper has highlighted that high-quality software improves information system quality (Gabriel & Obara, 2013). By accessing e-governance websites both the government and citizens receive better and convenient services with lesser management and operating cost (Sivaporn et al., 2005).

### *Service Quality*

The phrase “Service” is described as the collection of perishable, intangible, and inseparable performance of the system that satisfies the requirements of the system. Six sigma of ISO, TQM (Total Quality Management) practices, benchmarking, and balance card are the concepts of the service quality dimensions that measure the system of e-governance (Bhuvana & Vasantha, 2020b, d; Gupta et al., 2016). Assurance, Tangibility, Responsiveness, and Empathy are the various components of service quality in banking, tourism, and transport industries (Parasuraman et al., 1988). Attitude, Behavior, credibility, recovery, and trust are the preliminary factors that measure the service quality of an organization (Gronroos, 1984). To analyze the overall satisfaction of the customer that dimensions of service quality such as responsiveness, quality, reliability, and personalization are to be considered and measured (Lee & Lin, 2005).

### *Behavioral Intention*

The term “Behavioral Intention is referred to as the likelihood of the person who adopts an application to improve his/her performance” (Davis et al., 1989). Zeithaml et al. (1996) has structured the model of intentions that represents the repurchase intentions, loyalty, behavior, word of mouth, and price sensitivity. High service quality results in favorable behavior intention among the consumers for adopting technology-based services (Bhuvana & Vasantha, 2017; Chen & Chen, 2010). Burton et al. (2003) has stated that customer experiences are highly related to their intentions for buying products or services. Furthermore, the loyal consumer recommends their friends and relatives to buy the product or service by performing as an advertising agent (Shoemaker & Lewis, 1999). Nzaramyimana and Susanto (2019) have done an investigation of the dimensions affecting the behavioral intention of the people in using e-governance services. The authors have measured behavioral intention with four different variables namely Social Influence, Trust, Propensity, and the Internet. The study strongly supported that the dimension of trust was found to be highly significant with the factor loading of 0.584.

### *Research Gap*

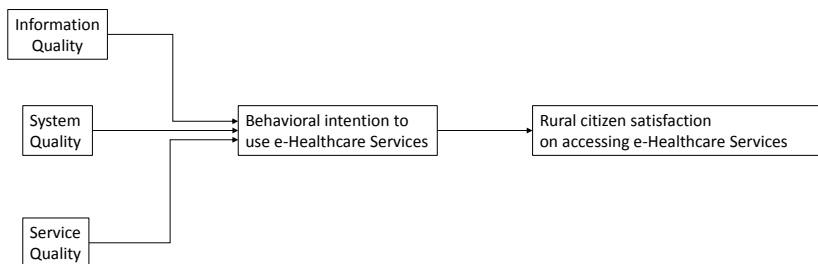
Several research studies have focused on the challenges faced by rural people for using e-governance services. Various authors have theoretically explained the initiatives taken by the government toward e-governance services. Very few researchers have examined rural citizen satisfaction toward e-health care services. Our Indian Government has taken huge initiatives and spent lakhs and lakhs of money for redesigning the process of facilitating its services to the rural citizens through ICT (Information and Communication Technology). But still accessing ICT-based services are found to be lacking in rural villages particularly in acquiring health care services. Hence this research study has focused on the rural citizens' satisfaction toward accessing e-governance health care services. The study has found the most predominant gap from the previous literature reviews on measuring the rural citizen satisfaction on e-governance health care services. The present research study has also analyzed the dimensions of e-health care service requirements for measuring the behavioral intention of rural citizens for accessing e-governance health care services.

## THEORETICAL MOTIVATION

The study has adopted DeLone and McLean (2003) Information System Model for analyzing rural citizen satisfaction by identifying the determinants of e-governance health care service requirements. The authors have considered Information Quality, Service Quality, and System Quality as the dimensions of e-governance health care services requirements which has an impact on behavioral intention to use e-health care services. Through analyzing the behavioral intention to use e-health care services, the outcome variable Rural Citizen Satisfaction has been measured Fig. 16.1 represents the Determinants of e-governance on health care services requirements and Rural Citizen Satisfaction.

## METHODOLOGY

The research has structured a questionnaire to analyze the rural citizen satisfaction for accessing e-governance health care services in villages of Kancheepuram District. The survey questionnaire framed for the research study has 31 questions with two different sections. Section “[Introduction](#)” analyzes the demographic profile of the respondents and



**Fig. 16.1** Determinants of e-governance on health care services requirements and rural citizen satisfaction (*Source* Authors)

**Table 16.2** Displays the number of items for the variables used in the study and its sources

<i>S.No</i>	<i>Variable name</i>	<i>Number of items</i>	<i>Sources</i>
1.	Information quality	5	Ibrahim et al. (2014), Karunasena and Deng (2012)
2.	System quality	5	Ibrahim et al. (2014), Nabafu and Maiga (2012)
3.	Service quality	5	Barnes and Richard (2006), Ibrahim et al. (2014)
4.	Behavioral intention	5	Delone and McLean (2003), Davis et al. (1989)
5.	Rural citizen satisfaction	5	Mohammed et al. (2016), Malik et al. (2016)

section “[Determinants of E-Governance Health Care Services on Rural Citizen Satisfaction](#)” measures the study variables (Information Quality, System Quality, Service Quality, Behavioral Intention to use e-governance health care services, and Rural Citizen Satisfaction). Descriptive research design is adopted for the study. Table 16.2 displays the number of items for the variables used in the study and its sources.

### *Data Collection*

A Descriptive research design is adopted for the study. The primary data for the study has been collected from randomly selected 500 respondents residing in the villages of Kancheepuram district through the purposive

sampling technique since the rural literacy rate of Kancheepuram district is found to be 75.9 percentage that is lesser than the average literacy rate of Tamil Nadu (80.33%).

### *Hypothesis Framed for the Study*

H<sub>1</sub>: e-health Care Services Requirements is positively associated with Behavioral Intention

### *Sub Hypothesis*

- H<sub>a</sub>: Information Quality influences the e-health Care Services Requirements
- H<sub>b</sub>: System Quality influences the e-health Care Services Requirements
- H<sub>c</sub>: Service Quality influences the e-health Care Services Requirements

H<sub>2</sub>: Behavioral Intention positively associated with the Rural Citizen Satisfaction

## ANALYSIS AND FINDINGS

SPSS 21 (Statistical Package of Social Sciences) has been used for data analysis and AMOS 22 has been used for generating the factor loadings, measuring Construct Reliability, Discriminant validity, and Model fit for the proposed conceptual framework. Table 16.3 displays the demographic profile of rural respondents.

### *Factor Loadings, Construct Reliability and Average Variance Extracted Values for All the Variables Used in the Study*

Through the generated factor loading, the construct reliability and AVE (Average Variance Extracted) values of all the variables used in the study are computed. Table 16.4 highlights the calculated CR and AVE values for all the variables used in the study. From the table, it is clear that the factor loadings are greater than 0.5 for all the variables. The extracted CR for all the variables is greater than 0.7 and AVE values are found to be



**Table 16.3**  
Demographic profile of  
the respondents

<i>Variable</i>	<i>Description</i>	<i>Frequency</i>	<i>Percentage</i>
Gender	Male	246	49.0
	Female	254	51.0
Age (years)	18–25 years	151	30.0
	26–35	150	30.0
	36–45	112	22.0
	46–55	60	11.0
	Above 55	27	5.0
Marital status	Married	460	91.8
	Unmarried	40	8.2
Occupation	Farmer	141	28.2
	Employed	265	53.0
	Business	75	15.0
	Student	19	3.8
Education	Below 10th Std.	111	22.2
	Passed 10th Std.	127	25.4
	Passed 12th Std.	144	28.8
	Graduate	118	23.6
	Income	Rs. 25k to Rs. 50k	278
	Rs. 51k to 1 Lakh	186	37.2
	Above Rs. 1 Lakh	36	7.2

*Source* Authors

higher than 0.5. This shows that the construct validity for all the variables used in the study is found to be reliable (Fornell & Larcker, 1981).

### *Discriminant Validity*

Discriminant Validity represents the interdependence of the variables used in the research study. It also evaluates the extent to which items of the variable differ from the items used in the other variables in the study (Bagozzi, 2007). According to Fornell and Larcker (1981), discriminant validity can be measured by comparing the range of variance extracted by the variable and the amount of variance shared by the other variables. Table 16.5 displays the discriminant validity of all the constructs used in

**Table 16.4** Factor loadings, construct reliability and average variance extracted values for all the Variables used in the study

<i>Construct name</i>	<i>Item name</i>	<i>Factor loadings</i>	<i>CR value</i>	<i>AVE value</i>
Information quality	IQ1	0.845	0.712	0.901
	IQ2	0.834		
	IQ3	0.883		
	IQ4	0.852		
	IQ5	0.841		
System quality	SQ1	0.852	0.708	0.898
	SQ2	0.791		
	SQ3	0.830		
	SQ4	0.825		
	SQ5	0.814		
Service quality	SEQ1	0.795	0.748	0.852
	SEQ2	0.869		
	SEQ3	0.842		
	SEQ4	0.811		
	SEQ5	0.823		
Behavioral intention	SEQ1	0.846	0.702	0.921
	SEQ2	0.823		
	SEQ3	0.878		
	SEQ4	0.832		
	SEQ5	0.889		
Rural citizen satisfaction	RCS1	0.828	0.708	0.932
	RCS2	0.834		
	RCS3	0.872		
	RCS4	0.838		
	RCS5	0.815		

*Source* Authors' data analysis

**Table 16.5** Discriminant validity

<i>Construct</i>	<i>IQ</i>	<i>SQ</i>	<i>SEQ</i>	<i>BI</i>	<i>RCS</i>
IQ	0.901				
SQ	0.351	0.898			
SEQ	0.473	0.231	0.852		
BI	0.521	0.170	0.421	0.921	
RCS	0.531	0.430	0.321	0.621	0.932

*Source* Authors

**Table 16.6** Variables of structural equation model (SEM)

<i>Variables</i>			<i>S.E</i>	<i>Standardized coefficient</i>	<i>t value</i>	<i>P value</i>	<i>Result of hypothesis</i>
Behavioral intention	<--	e-health care services requirements	0.505	0.20	4.367	0.000	H <sub>1</sub> is supported
Rural citizen satisfaction	<--	Behavioral intention	0.038	0.20	5.865	0.000	H <sub>2</sub> is supported
Information quality	<--	e-health care services requirements	0.321	0.841	4.261	0.000	H <sub>a</sub> is supported
System quality	<--	e-health care requirements	0.254	0.788	3.432	0.000	H <sub>b</sub> is supported
Service quality	<--	e-health care requirements	0.395	0.751	4.358	0.000	H <sub>c</sub> is supported

*Source* Author's data analysis

the study. This shows that the variance extracted for all the variables is higher than the square of the correlation values of all the variables.

### *Hypothesis Validation*

For examining the gathered primary data from the respondents and analyzing the relationship between the study variables Structural Equation Modeling (SEM) is utilized. Table 16.6 displays the relationship that exists between the variables. It is proved that the *p*-value is found to be less than 0.05. Hence the hypothesis framed for the study is accepted and remains a significant relationship between the constructs.

### *Assessment of Model Fit*

Table 16.7 represents the model fit assessment of the conceptual model framed for the study. It shows that the P-value is greater than 0.05 this shows that the model is said to be a complete fit model. The values of GFI, CFI, NFI, and AGFI are found to be greater than 0.9. The value of RMSEA is found to be lesser than 0.08. This represents the conceptual model framed for the research study is a completely fit model (Hu & Bentler, 1999; Hair et al., 2006).

**Table 16.7** Model fit summary for structural equation model

<i>Goodness of fit statistics</i>	<i>Value</i>
Chi square value (CMIN)	93.860
<i>P</i> value	0.07
Chi square/Df (CMIN/Df)	2.890
Goodness of fit index (GFI)	0.978
Root mean square error of approximation (RMSEA)	0.072
Adjusted good of fit index (AGFI)	0.961
Comparative fit index (CFI)	0.978
Normed fit index (NFI)	0.902

*Source* Authors' data analysis

## GENERAL DISCUSSION

It is found that out of 500 rural respondents 246 are male and the remaining 254 are female respondents. The majority of the respondents belong to 18–25 years of age category. Out of 500 respondents, 460 respondents are married and 265 respondents are employed and 144 respondents have passed 12th Std. 278 respondents belong to the income group between INR 25,000 to 50,000.

It is proved that there exists a positive relationship between the e-health Care Requirements and Behavioral Intention to use e-governance health care services. This research findings have been coincided with the findings of Verma et al. (2019). They have examined that behavior intention found to be an important dimension for analyzing the acceptance of e-health Care services among the citizen. It is verified that there exists a significant relationship between the variables Behavioral Intention and Rural Citizen Satisfaction.

The study has found that there exists a significant relationship between behavioral intention to access e-governance health care services and rural citizen satisfaction. This research findings have been coincided with the findings of Wayan Ardani et al. (2019), they have highlighted that the relationship that exists between the satisfaction of the customer and their behavioral intention for accessing any services has drawn a most significant observation in the market space of any kind of industry. DeLone and McLean (2003) have measured the net benefits attained by the users toward accessing an information system. The authors have developed the conceptual model by considering System Quality, Information Quality,

and Service Quality as the dimensions for measuring behavioral Intention. The present research study has tested the model and it has derived the outcome, out of these three dimensions (Information Quality, System Quality, and Service Quality), the dimension “Information Quality” is found to be a highly significant factor of e-health care requirement with the standardized coefficient value of 0.841 for measuring the Behavioral Intention of rural citizens for using e-health care services. Table 16.3 represents the model fit of the conceptual framework.

## IMPLICATIONS

The research study has explored the maximum information related to rural citizen satisfaction in e-governance health care services. The findings of the study can be effectively utilized by the government institutions, policymakers, financial institutions, medical practitioners, Website developers, and many funding agencies for analyzing the needs and requirements of the rural citizens for accessing e-governance health care services. The information about e-governance health care services acts can be used as guidance for supporting the general public in understanding the importance of e-governance health care services.

The study has highlighted the association that exists between the variables “Information Quality”, “System Quality”, “Service Quality”, “Behavioral Intention to Use e-governance service” and “Rural Citizen Satisfaction”. From the research findings, it has been evaluated that the dimension “Information Quality” highly significant with the behavioral intention of the rural citizen for attaining satisfaction in accessing e-governance health care services. This finding helps the regulators and implementers of e-governance services for achieving maximum satisfaction among rural citizens for frequently accessing e-health care services.

## CONCLUSION

Health care services under e-governance initiatives are said to be an originating field toward transferring medical informatics, public health, delivering information, and providing health care services with innovative technologies Rushender et al. (2016). It remains a greater challenge in developed countries in India for facilitating its services to the rural villages, make them adopt the services through ICT, and meet their needs and requirements. The present study has made a contribution to

the existing literature on measuring the rural citizen satisfaction on using e-governance health care services. Hence the researchers conclude that to satisfy the requirements of the health care services, the Information Quality of the system has to be given more importance for developing the applications.

## REFERENCES

- Ardani, W., et al. (2019). Customer satisfaction and behavioral intentions in tourism: A literature review. *International Journal of Applied Business & International Management*, 4(3), 85–93.
- Armstrong, L., & Gandhi, N. (2012). Factors influencing the use of information and communication technology (ICT) tools by the rural famers in Ratnagiri District of Maharashtra, India. In *Proceedings of the Third National Conference on Agro-Informatics and Precision Agriculture 2012* (pp. 58–63).
- Axelsson, K., Melin, U., & Lindgren, I. (2013). Public e-services for agency efficiency and citizen benefit—Findings from a stakeholder centered analysis. *Government Information Quarterly*, 30(1), 10–22.
- Bagozzi, P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, 8(4), 244–254.
- Barnes, J., & Vidgen, R. T. (2006). An integrative approach to the assessment of e-commerce quality. *Journal of Electronic Commerce Research*, 3, 114–127.
- Bhuvana, M., & Vasantha, S. (2017). A structural equation modeling (SEM) approach for mobile banking adoption—A strategy for achieving financial inclusion. *Indian Journal of Public Health Research and Development*, 8(2), 175–182.
- Bhuvana, M., & Vasantha, S. (2019). An outlook of financial inclusion with mediating effect of direct benefit transfer in LPG subsidy towards actual usage of banking technology. *International Journal of Engineering and Advanced Technology (IJEAT)*, 8(6S), 804–811.
- Bhuvana, M., & Vasanth, S. (2020a). Determinants of behavioral intention to access e-governance services by rural people with the mediating effect of information and communication (ICT) literacy. *Journal of Advanced Research in Dynamical & Control Systems*, 12(2), 176–187.
- Bhuvana, M., & Vasantha, S. (2020b). Assessment of rural citizens satisfaction on the service quality of common service centers (CSCS) of e-governance. *Journal of Critical Reviews*, 7(5), 302–305.
- Bhuvana, M., & Vasantha, S. (2020c). Role of information and communication technology (ICT) for rural development through e-governance initiatives. *International Journal of Psychosocial Rehabilitation*, 24(8), 2705–2713.

- Bhuvana, M., & Vasantha, S. (2020d). Neural network machine learning techniques using R studio for predicting the attitude of rural people for accessing e-governance services. *Journal of Advanced Research in Dynamical & Control Systems*, 12(2), 2552–2562.
- Bolton, L. (2019). *E-governance innovations in India, K4D*. Institute of Development Studies.
- Burton, S., Sheather, S., & Roberts, J. (2003). Reality or perception? The effect of actual and perceived performance on satisfaction and behavioral intention. *Journal of Service Research*, 5(4), 292–302.
- Chen, C.-F., & Chen, F.-S. (2010). Experience quality, perceived value, satisfaction and behavioral intentions for heritage tourists. *Tourism Management*, 31(1), 29–35.
- Connolly, R., & Bannister, F. (2007). Consumer trust in Internet shopping in Ireland: Towards the development of a more effective trust measurement instrument. *Journal of Information Technology*, 22(2), 102–118.
- Davis, F. D., et al. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003.
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30.
- Embury, M., Missier, P., Sampaio, S., Mark Greenwood, R., & Preece, D. (2009). Incorporating domain-specific information quality constraints into database queries. *Journal of Data and Information Quality*, 1(2), 1–3.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 382–388.
- Gabriel, J., & Obara, L. C. (2013). Management information systems and corporate decision-making: A literature review. *The International Journal of Management*, 2(3), 78–82.
- Gronroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing*, 18, 36–44.
- Gupta, K. P., Bhaskar, P., & Singh, S. (2016). Critical factors influencing e-government adoption in India: An investigation of the citizens' perspectives. *Journal of Information Technology Research*, 9(4), 28–44.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Pearson University Press.
- Hardcastle, E. (2011). *Business information systems*. Ventus Publishing ApS.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.

- Ibrahim, M., Rahman, M. A., & Yasin, R. (2014). Determining factors of students' satisfaction with Malaysian skills training institutes. *International Education Studies*, 7(6), 9–24.
- Irfan, M., Shamsudin, M. F., & Hadi, N. U. (2016). How important is customer satisfaction? Quantitative evidence from mobile telecommunication market. *International Journal of Business and Management*, 11(6), 57–69.
- Jung, W. (2004). A review of research: An investigation of the impact of data quality on decision performance. *Proceedings of the 2004 international symposium on Information and communication technologies*, 90, 16–171. ACM International Conference Proceeding Series.
- Karunasena, K., & Deng, H. (2012). Critical factors for evaluating the public value of e-government in Sri Lanka. *Government Information Quarterly*, 29(1), 76–84.
- Kolsaker, A., & Lee-Kelley, L. (2008). Citizens' attitudes towards e-government and e-governance: A UK study. *International Journal of Public Sector Management*, 21(7), 723–738.
- Lee, G.-G., & Lin, H.-F. (2005). Customer perceptions of e-service quality in on-line shopping. *International Journal of Retail & Distribution Management*, 33(2), 161–176.
- Lyytinen, K. (2009). Data matters in IS theory building. *Journal of the Association for Information Systems*, 10(10), 715–720.
- Madnick, S. E., Lee, Y. W., Wang, R. Y., & Zhu, H. (2009). Overview and framework for data and information quality research. *Journal of Data and Information Quality*, 1(1), 1–22.
- Malik, B. H., Shuqin, C., Shuqin, C., Mastoi, A. G., Mastoi, A. G., Gul, N., Gul, N., Gul, H., & Gul, H. (2016). Evaluating citizen e-satisfaction from e-government services: A case of Pakistan. *European Scientific Journal*, ESJ, 12(5), 346.
- Mohammed, M. A., Aboobaidar, B. M., Ibrahim, H., Abdullah, H. A., Ali, M. H., Jaber, M. M., & Shawkat, A. (2016). E-government and its challenges in developing countries: Case study Iraqi e-government. *The Social Sciences*, 11(17), 4310–4319.
- Nabafu, R., & Maiga, G. (2012). E-government principles: Implementation, advantages and challenges. *International Journal of Electronic Business*, 9(3), 255–270.
- Nicholas, D., & Essa, I. (2008, November 28–30). An annotation model for making sense of information quality in online video. In *Proceedings of the 3rd International Conference on Pragmatic Web, ICPW 2008* (pp. 31–34).
- Nzaramyimana, L., & Susanto, T. D. (2019). Analysis of factors affecting behavioural intention to use e-government services in Rwanda. *Procedia Computer Science*, 161, 350–358.



- Oliver, J., & Gregg, G. (2017). Motivated reasoning about public performance: An experimental study of how citizens judge the affordable care act. *Journal of Public Administration Research and Theory*, 27(1), 197–209.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: Implications for further research. *Journal of Marketing*, 58, 111–124.
- Petter, S., & McLean, E. R. (2009). A meta-analytic assessment of the DeLone and McLean IS success model: An examination of IS success at the individual level. *Information & Management*, 46(3), 159–166.
- Prachi, V., et al. (2019). Understanding the factors affecting consumer's acceptance of e-healthcare services. *International Journal of Recent Technology and Engineering (IJRTE)*, 8(2S10), 468–473.
- Rushender, R., Balaji, R., & Parasuraman, G. (2016). A study on effective utilization of health care services provided by primary health centre and sub-centres in rural Tamil Nadu, India. *International Journal of Community Medicine and Public Health*, 3(5), 1054–1060.
- Saxena, K. B. C. (2005). Towards excellence in e-governance. *International Journal of Public Sector Management*, 18(6), 498–513.
- Shareef, M. A., et al. (2010). E-Government implementation perspective: Setting objective and strategy. *International Journal of Electronic Government Research*, 6(1), 59–77.
- Shoemaker, S., & Lewis, R. (1999). Customer loyalty: The future of hospitality marketing. *Hospitality Management*, 18, 345–370.
- Tayyaba Rasool, N., et al. (2018a). A study of the information quality of e-government websites in Pakistan. In *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance* (pp. 433–442).
- Tayyaba Rasool, N., et al. (2018b). Information quality of e-government websites as perceived by university students in Pakistan. *Journal of Political Studies*, 25(2), 181–195.
- Van Ryzin, G. (2013). An experimental test of the expectancy-disconfirmation theory of citizen satisfaction. *Journal of Policy Analysis and Management*, 32(3), 597–614.
- Varun Kumar, M., & Venugopal, P. (2015). E-Governance and rural development (A study specially focused on villages of Katpadi Taluk, Vellore District of Tamil Nadu). *International Journal of Applied Engineering Research*, 10(92), 319–324.
- Wangpipatwong, S., et al. (2005, November 19–20). Factors influencing the adoption of Thai eGovernment websites: Information quality and system

quality approach. In *Proceedings of the Fourth International Conference on eBusiness* (pp. 14.1–14.7).

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31–46.

#### WEBSITE

Government of India. (2020). [Online]. Available: <https://www.mygov.in/aar-ogya-setu-app/>