CHAPTER:3:

RESEARCH METHODOLOGY

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EXECUTIVE SUMMARY:

A summary is given in this chapter, of the specifications and an explanation of the different research methodological procedural steps that the researcher in this research study followed. It contains important details on the numerous operational, procedural, and conceptual procedures and details taking into account the execution and application of the research technique used for this research.

This chapter has discussed many research steps, including essential words, the justification for the study, its breadth and coverage, its design, its goals, its research questions, and its hypotheses. In addition to that, it has incorporated secondary data sources, a sampling strategy, to achieve the main aims of the research, analysis of the primary data and its linked interpretation are also essential.

This chapter also has included information on the construction of the structured questionnaire, which includes information on the scale that was utilised, the number of questions that were generated, as well as the utilisation of and rationale for a review of the relevant literature.

In addition to this, it has provided information on the computation and calculation of an appropriate sample size for this research project. The concluded pilot study's assistance was used to collect the primary data used to determine the reliability and validity of the structured questionnaire. This information can be found in the previous section. In addition to that, it gave information regarding the normality test that was performed in order to find out how the primary data that was acquired for this study project was distributed. Additionally, the chapter gave specifics on the statistical methods utilised for the initial data analysis and supplied factual data on the associations, connections, and relationships among the variables chosen for this research study that were investigated. The researcher has also offered to supply the framework for the doctoral dissertation in the form of a chapterization plan.

3.0: INTRODUCTION:

The citizens and residents in India use various schemes and offers of the Government being offered electronically for easy access to the services provided. e-Governance popularity and utilization amongst residents can be arrived by its convenience, ease, and access.

The objective of the current research project was to better assimilate the variables that affected how users used e-Governance platforms and programmes. The intention of the research was to comprehend, investigate, and assess the effect of e-Governance Processes elements on the e-Governance schemes of the City and State Government, such as given in the Table Number 3.1 below:

Table Number: 3.1:
Attributes of e-Governance Variables

Sr No	Variables for e-Governance Research Study
01	Accessibility
02	Extensibility
03	Integration
04	Benefits
05	Problems faced
06	Availability
07	Affordability
08	Perceived Usefulness
09	Behavioural Intention
10	Attitude

Following that, the influence of e-Governance schemes was examined on a number of values developed as a result of utilising the chosen e-Governance systems, as per Table Number 3.2 below:

Table Number: 3.2:
Values of e-Governance Variables

Sr No	Variables for e-Governance Research Study
01	Functional value
02	Social value
03	Emotional value
04	Monetary value

The impact of attributes mentioned in Table Numbers 3.1 and 3.2 above was explored by selected users who were inhabitants of the chosen 04 cities as given in Table Number 3.3 below:

Table Number: 3.3: Selected Cities in State of Gujarat for Research Study	
Sr No	**Cities in State of Gujarat**
01	Ahmedabad
02	Surat
03	Rajkot
04	Vadodara

3.1: KEY TERMS USED IN RESEARCH STUDY:

The following are brief definitions of the research study's key terms:

e-Governance Initiatives, Perceived Usefulness, Attitude, Behavioural Intention,Value Creation

3.1.1: e-Governance Initiatives:

e-Governance, which also refers to the online accessibility of Government services, can be defined as the online operation of a Government or the delivery of its services to its people at their doorstep.

The tools and techniques employed in the e-Governance initiative establish a road map for the prompt delivery of services to each user's door. (Nikita Yadav, et al., 2012).

The e-Governance efforts included in the electronic regulatory regime share the following characteristics: accessibility, extensibility, integration, and time convenience:

3.1.1.1: Accessibility:

In websites with user-generated material, accessibility means having easy access to the knowledge, users, and users themselves (Wixom et al.,2005).

3.1.1.2: Extensibility:

When consumers make inventive use of already-existing features, this is called extensibility. (Prahalad, et al., 2004). The adaptability of Internet apps is giving users of the applications additional opportunities to contribute fresh information and co-create value (Di Gangi, 2010).

3.1.1.3: Integration:

Integration is the practise of merging content from several sources to collaborate more effectively with other internet users (Wixom et al., 2005).

3.1.2: Perceived Usefulness:

The definition of perceived usefulness is consumers' personal views regarding the utility of using any specific technology (Yang, 2006). In the Technology Acceptance Model, it is significant (Davis, 1989).

3.1.3: Attitude:

It is the total level of favorability or un-favorability to any peripheral thing (Ḟishbein, 1963).

3.1.4: Behavioural Intention:

It is the owner's perceived likelihood that he or she will engage in a particular behavior (Ḟishbein and Ajzen, 1975). A person's behaviour is influenced by the existence of the necessary options and resources, such as time, money, talents, and other people's collaboration (Ajzen,1985).

3.1.5: Value:

It is defined as sum of anticipated costs and assistances to users, including both tangible and intangible

benefits. It is a collection of advantages provided by businesses to their clients in order to meet their requirements (Ḱotler et al., 2009).

The following is a concise explanation of the various values that e-Governance can give and create:

3.1.5.1: Functional Value:

It is a utility that develops from the programmes and services' intended purpose and perceived excellence, according to Ṡweeney and Ṡoutar (2001).

3.1.5.2: Social Value:

It is the impression people get after utilising a company's good or service and becoming more sociable (Sheth, Newman and Gross, 1991).

3.1.5.3: Emotional Value:

It is described as a product or service's capacity to invoke particular memories, concepts, or relationships with the past (Ramaswamy and Namakumari, 2018).

3.1.5.4: Monetary Value:

It is defined as users' pleasure with a company's product or service in terms of price, time, or effort spent using it (Sweeney and Soutar, 2001). When compared to similar products or service delivery models, it offers "price premium or higher profit potential to the users of the goods or services" (Ramaswamy and Namakumari, 2018).

3.1.6: Value Creation:

It can be defined as technological advancements that develops or raises the users appraisal of the advantages of consuming, that is, use value. The whole bundle of benefits that the consumer derives from the core product and its surroundings, or the added values that complement its fundamental characteristics such services and support, constitutes the value that the customer obtains from the items (Payne, 2002).

3.2: RATIONALE OF THE RESEARCH STUDY:

An assessment was done with this research to assess the perceived value of a few e-Governance initiatives of the Local Municipal Corporation and Government of Gujarat, from chosen Four cities in Gujarat State. And also to assess how users feel about the initiatives' in relation to a few variables as mentioned in Table Numbers 3.1 and 3.2.

The key intention of the research study was to explore how the e-Governance initiatives of the Gujarat Government are appraised in terms of their various values as given in Table Number 3.2. To address this, the researcher has put up a conceptual model that was created after conducting a brief literature review and gathering evidence from past research studies that other researchers on the proposed research study's chosen research subject had conducted. It demonstrates how e-Governance efforts contribute to the value creation and subsequent value addition for e-Governance users. Its primary objective is to research and develop an understanding of the relationships among e-Governance programmes and the value creation that results among a select group of e-Governance users in Gujarat. This study shall culminate in assessing critical success factors for implementing e-Governance practices of the Government.

3.3: SCOPE AND COVERAGE OF THE RESEARCH STUDY:

Due to a rise in e-Governance usage, this research study will try to investigate the characteristics of e-Governance initiatives, including information access, users perspective, experimentation, networking, in creating the various values as per Table Number 3.2. This would be done amongst users of e-Governance in four chosen cities as per Table Number 3.3.

3.4: OBJECTIVES OF THE RESEARCH STUDY:

The key objective of this Research Study is to examine the Gujarat Government's e-Governance activities, which include e-Government programmes, plans, and services,. These initiatives are implemented in the selected cities as per Table Number 3.3 above, and are directed at generating value for citizens, who are known as e-Government users, as well as integrating new e-Governance mechanisms for citizen-centric schemes and services. The following are the additional goals for the research study.

- To research the relationships between the e-Governance projects of Government's perceived usefulness and user-friendly attitudes;
- To measure the perceived usefulness of e-Governance initiatives amongst chosen e-Governance users;
- To evaluate the experience of selected e-Governance users vis-a-vis Accessibility, Extensibility and Integrated Content of e-Governance Projects of the Gujarat Government;
- To investigate relationship between monetary worth and other values such as social, emotional, monetary and functional values. Gujarat's e-Governance programmes' perceived usefulness, as indicated by users; and
- To research what e-Governance users think about the areas of knowledge, availability, accessibility, and affordability of the services.

3.5: RESEARCH QUESTIONS OF THE RESEARCH STUDY:

By doing a brief review of the relevant prior research, the researcher has made an effort to close some of the knowledge gaps that were discovered in this investigation, with the end goal of achieving the objectives that are outlined below. The following research topics have been examined in this effort.

1) How do users of e-Governance view the value of the Gujarat Government's numerous e-Governance initiatives?
2) How are the users of e-Governance using the various e-Governance Initiatives of the Gujarat State Government?
3) What kind and nature of relationship exists between the experiences of selected e-Governance users on e-Governance initiatives vis-a-vis Accessibility, Extensibility, and Integrated Content?
4) What type of relationship does various values (Table Number 3.2) have with regard to how useful e-Governance efforts in Gujarat are considered by users?
5) What is the opinion of the e-Governance Users about the aspects of Awareness, Availability, Accessibility and Affordability of the e-Governance Services?

3.6: RESEARCH DESIGN OF THE RESEARCH STUDY:

The exploratory and descriptive research strategy utilised in this study is appropriate given its Scope, objectives, and research areas. The information was gathered from 1249 e-Governance users in selected cities as per Table Number 3.3.

3.7: RESEARCH METHODOLOGY:

The researcher has offered an explanation of the multiple methods that are the central and conceptual facets of the research technique in this research. These characteristics mainly consisted of the core terms of the research, the purpose for the research, and the methodology of the research. The research design, objectives, and hypotheses; the model used in the research study; primary and secondary data sources; sample design; the research study's data analysis and interpretation.

3.7.1: Secondary Data:

Researcher considers the facts that was obtained and provided in the past, either in written or electronic form. The data used in this investigation came from a wide variety of sources, including retail reports, books, newspapers, journals, working papers, unpublished studies, and numerous search portals located on the internet.

3.7.2: Primary Data:

The data was collected from a sample of users who participated in a cross-section of selected e-Governance Initiatives. These users belonged to a variety of different categories, ranging in age, occupation, gender and profession and different cities as per Table Number 3.3.

3.7.3: Research Instrument Used:

The information was gathered in 2022 from a chosen group of users in the Gujarat's 04 cities as per Table Number 3.3. From 1400 questionnaire forms wherin the data sample was collected; of these, 1249 qualifying replies were ultimately taken into account for analysing the data and interpretation for the purpose of hypotheses testing, draw relevant conclusions, and provide suggestions for research.

3.7.4: Sampling Decisions:

The following would be the primary sample choices in the proposed research study**.**

3.7.4.1: A Representative Sample:

The e-Governance active users who reside in four major cities make up the research study's representative samples. A pre-test was administered to certain responders, who provided input that was taken into account to improve the general design and comprehension of the questionnaire items.

3.7.4.2: Sampling Design:

A non-probability sampling design was used for the study for this research. The method is based on convenience sampling techniques and was utilised to gather information from users of e-Governance in the chosen cities as per Table Number 3.3.

3.7.4.3: Sampling Method:

The researcher used convenience sampling method for the current research.

3.7.4.4: A Sampling Frame of the Research Study:

The sample was drawn from the chosen cities as per Table Number 3.3 of State of Gujarat, taking into account the cross-section of users of e-Governance Initiatives based on data published by Gujarat State Data Centre/GIL.

3.7.4.5: Determination of the Sample Size:

For the data, the sample sizes of 1249 respondents were drawn as an adequate number of representative samples in the four key cities. Ahmedabad-415, Vadodara-240, Rajkot-220 and Surat-350.

As the demand for research is on an increasing trend in the current scenario, a effective sample size determining methodology which give true representation of a specific population has been done.

Below is the formula for calculating sample size.

The formula for determining Sample Size:

$n = \pi (1 - \pi) z^2 \div D^2$

Where,

n = required sample size.

π = the estimated population proportion based on the estimate of 'eTaal'—electronic transaction aggregation and analysis layer—a Central government portal that disseminates e-transaction statistics, Gujarat accounts for 27 per cent (Users of e-Governance service- make the use of e-Governance services) of the total 373 crore e-transactions recorded in the services provided by all state government services in the past two years (https://www.financialexpress.com/ industry/ gujarat-goes-the-e-way /138740/).

z = suppose the level of confidence is 95 per cent, then the associated z value is 1.96

D = the level of precision and desired precision are such that the allowable interval is set as D = p(sample proportion) – π (population proportion) = + or – 0.05.

This formula was adopted from Malhotra and Dash's book "Marketing Research - An Applied Orientation" (2011).

Calculation of Sample Size:

$$n = \frac{\pi (1 - \pi) z^2}{D^2}$$

$$n = \frac{0.27 (1 - 0.27) (1.96)^2}{(0.05)^2}$$

$$s = \frac{0.27 (0.73) (3.8416)}{0.0025}$$

$$s = \frac{0.75717936}{0.0025} = 302.87 \text{ so sample size is } 303$$

Based on total 303 sample size, the total sample size was determined considering four selected cities as four strata, by multiplying 303 with four strata that is 303 x 4 = 1212.

Total Sample size for four selected cities is shown in Table Number 3.4.

The Stratified Random Sampling method (Proportional Allocation) is employed because the population sizes in the four cities chosen are all different. The sample is allocated according to each city, and the results are determined as follows.

Stratified Random Sampling (Proportional Allocation): $n_i = \frac{n N_i}{N}$

$n_1 = \frac{n N_1}{N}$, $n_2 = \frac{n N_2}{N}$, $n_3 = \frac{n N_3}{N}$, $n_4 = \frac{n N_4}{N}$

Where,

n = required total sample size (1212).

n_1, n_2, n_3 and n_4 = required total sample size for each group.

N_1, N_2, N_3 and N_4 = Size of population for each group (2268845, 1912551, 1310073, & 1196518).

N = Sum total of population of all four group (6687987).

By applying formula sample size is calculated as follows:

N_1 (Ahmedabad) = $\frac{1212 \times 2268845}{6687987}$ so n_1 is 411 Sample size for Ahmedabad.

N_2 (Surat) = $\frac{1212 \times 1912551}{6687987}$ so n_2 is 347 Sample size for Surat.

N_3 (Vadodara) = $\frac{1212 \times 1310073}{6687987}$ so n_3 is 237 Sample size for Vadodara.

N_4 (Rajkot) = $\frac{1212 \times 1196518}{6687987}$ so n_4 is 217 Sample size for Rajkot.

Table Number: 3.4 City Wise Distribution and Computation of Sample Size for Calculating Total Sample Size					
Sr. No.	**Name of the City in the State of Gujarat**	***Total Estimated Population as Per India Census of India, 2022**	** users of the e-Governance service **(27per cent)**	**Calculated Sample Size**	**Adjusted Sample Size**
01	Ahmedabad (N_1)	8403129	2268845	411	415
02	Surat (N_2)	7083524	1912551	347	350
03	Vadodara (N_3)	4852121	1310073	237	240
04	Rajkot (N_4)	4431549	1196518	217	220
Total Estimated Sample Size		**24770323**	**6687987**	**1212**	**1225**
Note: * https://www.indiacensus.net/district/ahmadabad, Accessed on 14/01/202022. ** Report of National e-Governance Services Delivery Assessment (NeSDA) (2019). https://nesda.gov.in/publicsite/NeSDA_2019_Final_Report.pdf, Retrieved on 13/01/2022					

3.7.4.6: Sampling Media:

A Google form and a Website Link were prepared by researcher and circulated it among e-Governance users living in the selected cities as per Table Number 3.3.

An empirical analysis with the purpose of obtaining primary data from 1,249 e-Governance users in the four major cities was carried out with the help of an exploratory and descriptive research design. Participants were chosen at random using a sample method called non-probability sampling in order to collect responses to an open-ended and non-disguised questionnaire.

3.8: HYPOTHESES OF THE RESEARCH STUDY:

Several theories were investigated during the course of this research. The following is a list that serves as an explanation.

01: Hypotheses-1

Ho:Awareness of citizens about e-Governance services is high (Dr Pradeep Mittal, Amandeep Kaur,2013).

H1: Awareness of citizens about e-Governance services is not high

02: Hypotheses-2

Ho: The e-Services provided in the e-Governance system initiatives are user-friendly. (Ajay Kr Singh & Vandana Sharma 2009).

H1: The e-Services provided in the e-Governance system initiatives are not user-friendly.

03: Hypotheses-3

Ho: Utilizing e-Governance services is less expensive than using manual services in comparison (Yudhishthira Sapru and RK Sapru, (2014).

H1: Utilizing e-Governance services is expensive than using manual services in comparison.

04: Hypotheses-4

Ho: The greater the perceived usefulness, the more positive e-Governance users' attitudes toward using e-Governance services (Yang Kiseol, 2006).

H1: The greater the perceived usefulness, the more negative e-Governance users' attitudes toward using e-Governance services

05: Hypotheses-5

Ho: Users will have a better experience utilising e-Governance services if Government programmes are more accessible, extensible, and integrated (Paul Michael Di Gangi, 2010).

H1: Users will not have a better experience utilising e-Governance services if Government programmes are more accessible, extensible, and integrated

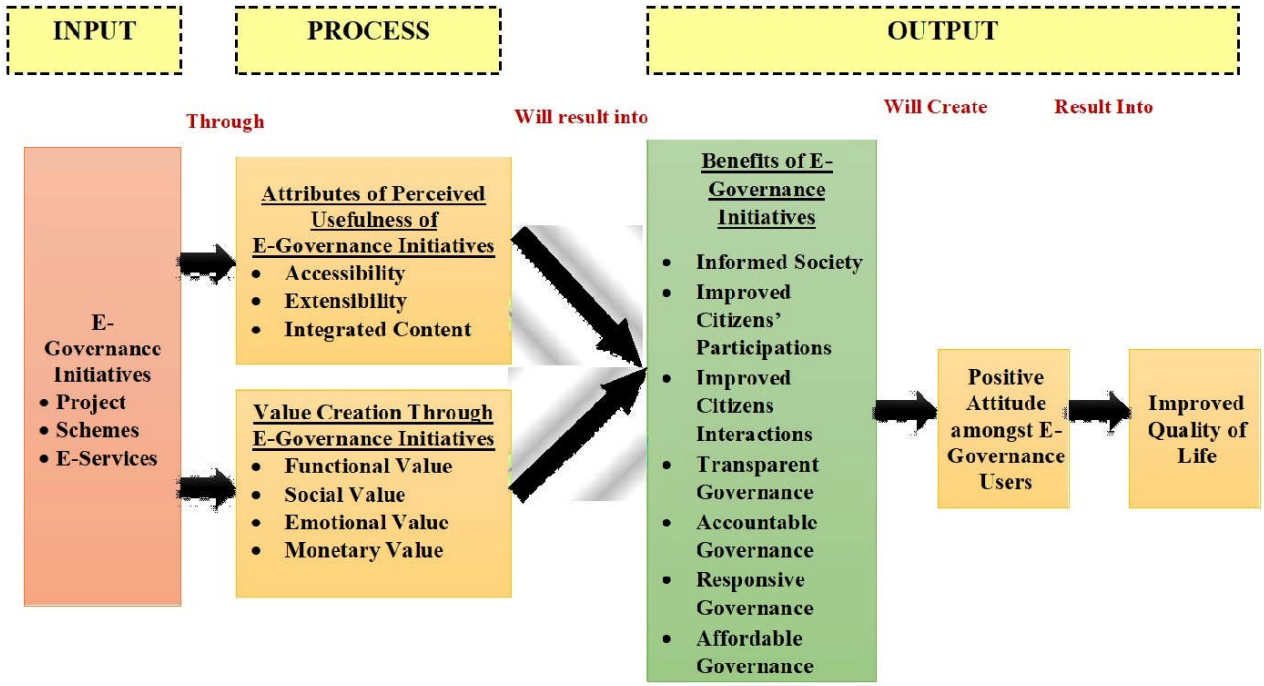
3.9: CONCEPTUAL MODEL OF THE RESEARCH STUDY:

The researcher conducts a brief analysis of the previous research for attaining the key objectives of the current research.. A conceptual structural model was then created and is depicted in Figure 3.1. Ideas from the area of perceived usefulness and value development for users of e-Governance were incorporated into the approach.

The degree of perceived usefulness was evaluated based on the quality characteristics as detailed out in Table Number 3.1, all of which were made possible by the application of various e-Governance strategies.

In addition, many forms of value created by using e-Governance, including values as mentioned in Table Number 3.2 above, have also been researched. In addition, throughout this research study, the impact of perception of the many useful features and related creation of its respective values of e-Governance initiatives were explored among the residents who were suitably chosen cities of the State.

Figure Number: 3.1:
CONCEPTUAL MODEL OF EVALUATION OF PERCEIVED USEFULLNESS OF e-GOVERNANCE PROGRAMMES IN VALUE CREATION



3.10: DRAFTING OF THE STRUCTURED NON-DISGUISED QUESTIONNAIRE:

The questions on the research questionnaire were written with the primary objective of the research project in mind, and the questionnaire was structured to be clear and brief in order to remove any potential of misinterpretation. Users of e-Governance services were asked to assess their perceptions and experiences on a Likert scale for the impartial questions structured in the questionnaire.

Among the criteria included in the demographic characteristics are age, gender, family status, family structure, educational status, profession, and annual income. The study's independent variables were modified from previously published works. The researcher prepared the structured, unmasked questionnaire that can be seen in Table Number 3.7 on the basis of an investigation of the previously published material that was already readily available public domain.

In order to validate the structured questionnaire, we first conducted a pilot research. As a consequence, Table Number 3.5 shows the structured non-disguised questionnaire's reliability, and Table Number 3.6 shows the questionnaire's validity. Additionally, a pre-test with the help of a structured questionnaire, for the chosen e-Governance users was conducted, and their responses were used to enhance and complete the its development.

3.10.1: Reliability and Validity of the Structured Non-Disguised Questionnaire:

In order to assess the validity and reliability of various questionnaire components, Cronbach's Coefficient Alpha, which is equivalent to the mean of all the split-half correlation coefficients, was utilised. Internal reliability was demonstrated by the values that were produced through the use of e-Governance for Local Municipal Corporation, which ranged from 0.789 to 0.954, and by the values that were produced through the use of e-Governance for Government of Gujarat programmes, which ranged from 0.834 to 0.957.

The importance of the view of particular e-Governance factors that related to the assessment of the efficacy of e-Governance schemes and the various values provided by their employment was proved by Cronbach's Alpha score (Cronbach, 1951).

Cronbach's Alpha score also showed that the importance of the view of specific e-Government variables was definite. It was evidence of how well the selected concepts and expressions were integrated together (Malhotra, 2007., Nunnally, 1981).

Table Number: 3.5 Reliability of Opinion towards e-Governance Services on Selected Criteria			
Sr. No.	**Selected Criteria**	**Cronbach's Alpha Co-efficient** (Local Municipal Corporation)	**Cronbach's Alpha Co-efficient** (Gujarat Government)
01	Accessibility	0.934	0.940
02	Extensibility	0.917	0.917
03	Integration	0.925	0.924
04	Perceived Usefulness	0.922	0.924
05	Benefits	0.954	0.957
06	Problems faced	0.935	0.913
07	Availability	0.857	0.872
08	Affordability	0.789	0.834
09	Functional Value	0.909	0.910
10	Emotional Value	0.896	0.905
11	Social Value	0.913	0.920
12	Monetary Value	0.869	0.853
	Overall Reliability of all Criteria	**0.995**	

By evaluating scale mean scores to extra measures of the same concept, the researcher determined the legitimacy of the scales. Table Number 3.6 contains the outcomes. Least difference was discovered in the supplied question groups and the derived satisfaction score when the mean of the same construct was measured. Most users' experiences fell into the Highly Satisfied to Neutral range. As a result, the various question constructions meet the requirement for validity.

Table Number: 3.6 Comparison of Mean Scores of Experience/Satisfaction from e-Governance				
Users considering Criteria. Rating Scale 1 [Very Poor] to 5 [Excellent]	**Mean Score**	**Users considering Criteria. Rating Scale 1 [Very Poor] to 5 [Excellent]**	**Mean Score**	**The difference in Mean Count [Column B - Column D]**
Average Score		**Average Score**		**Mean Score**
(Q-7 -1 to 80)	**(Rank)**	**(Q-9 -1 to 10)**	**(Rank)**	**(Rank)**
A	**B**	**C**	**D**	**B-D**
Accessibility	3.50	Accessibility	4.12	-0.62
Extensibility	3.41	Extensibility	3.99	-0.58
Integration	3.51	Integration	4.19	-0.68
Perceived Usefulness	3.57	Perceived Usefulness	4.34	-0.77
Benefits	3.50	Benefits	4.24	-0.74
Problems faced	3.20	Problems faced	3.93	-0.73
Functional Value	3.37	Functional Value	4.05	-0.68
Emotional Value	3.41	Emotional Value	3.54	-0.13
Social Value	3.38	Social Value	3.85	-0.47
Monetary Value	3.47	Monetary Value	4.07	-0.6
Overall Average	**3.43**	**Overall Average**	**4.03**	-0.6

The questionnaire was designed with the major goal of this study as well as the secondary goals that were formed after discovering gaps in the body of knowledge based on a quick literature review that was previously a part of it. The questions on the structured surveys with open-ended responses were phrased in an impartial manner. On a scale based on the Likert scale, the users were asked to evaluate their views on the various variables mentioned in the questionnaire as per Table Numbers 3.1 and 3.2.

Research examined various demographic details for each e-Governance user, which was helpful in ascertaining the details of the background and its inter-relation with various attributes of the study. Additionally, the earning members in the family was linked to the number of dependents in a family. Based on the brief literature review shown in Table Number 3.7, the researcher created the structured, non-disguised questionnaire.

Table Number: 3.7: List of References of Selected Criteria Used for Drafting the Structured Non-Disguised Questionnaire		
Name of Author and Research Papers	**Conduct of the Time Period of Research Study**	**Total Number of Criteria Items**
General information regarding use of e-Governance Services through; Use of Internet, Access to Internet, Awareness about e-Governance services of State Government, Awareness about e-Governance Services of Local Municipality [Q-1 T0 Q-4]		
Kumbhar, Manisha	2012	**04**
Statements that reflect e-Governance Services for Local Municipal Corporation, Government of Gujarat, Comparison of e-Governance Vs Manual Services [Q-5]		
Kumbhar, Manisha	2012	**14**
Experience of e-Governance Services in Government of Gujarat and Local Municipal Corporation [Q-6]		
Criteria No. 01 & 02: Accessibility, Extensibility		
SP, Kumar	2013	**10**
Criteria No. 03, 04, 05: Integration, Perceived Usefulness, Benefits		
Adeshara, Priti & Juric, Radmila & Kuljis, Jasna & Paul, Ray	2004	**14**
Kaur, Manjot., Singh, Amitoj	2015	**06**
Criteria No. 06 Problems Faced		
Kumbhar, Manisha	2012	**08**
Criteria No. 07, 08 & 09 Availability, Affordability, Functional Value		
AI Athmay, A.A.A.R. A	2015	**09**
Criteria No.10, 11, 12 Emotional Value, Social Value, Monetary Value		
Okunola, Olaseni Muritala	2015	**12**
Criteria for mapping Attitude of Users of e-Governance Services [Criteria No 02 from Q-7]		
N., Prajakta & Diwakar, Hemalatha	2015	**05**
Criteria for mapping Behavioural Intention of Users of e-Governance Services [Criteria No 01 from Q-7]		
Camilleri, Mark Anthony	2019	**03**
Manoharan, Bhuvana & Shanmugam, Vasantha	2020	**02**
Overall Perceived Importance and Satisfaction of Users of e-Governance Services [Q-08]		
Al-Kaseasbeh HM, Harada Y, Saraih UNB	2019	**12**
Demographic Criteria [At the End of the Questionnaire]:		
Kumbhar, Manisha	2012	

3.10.2: Assessing Normality of the Distribution of Data:

The normality of the data gathered from 1249 e-Government users, in the chosen four cities as per Table Number 3.3, was attempted to be tested. The Kolmogorov-Smirnov test was used to determine whether the data were normal because the sample size was more than 100. The Table Number 3.8 displays the results of the test, which were deemed to be critical at a 5% level of significance. It indicated that the irregular dispersal of the primary data-set.

Table Number: 3.8:
Kolmogorov-Smirnov Test of Normality

	Kolmogorov-Smirnov(a)		
	Statistic	df	**P-Value**
Accessibility Overall	0.117	1249	0.000[c]
Extensibility Overall	0.125	1249	0.000[c]
Integrity Overall	0.128	1249	0.000[c]
Perceived Usefulness Overall	0.112	1249	0.000[c]
Benefits Overall	0.113	1249	0.000[c]
Problems Faced Overall	0.105	1249	0.000[c]
Availability Overall	0.127	1249	0.000[c]
Affordability Overall	0.130	1249	0.000[c]
Functional Value Overall	0.145	1249	0.000[c]
Emotional Value Overall	0.145	1249	0.000[c]
Social Value Overall	0.156	1249	0.000[c]
Monetary Value Overall	0.156	1249	0.000[c]

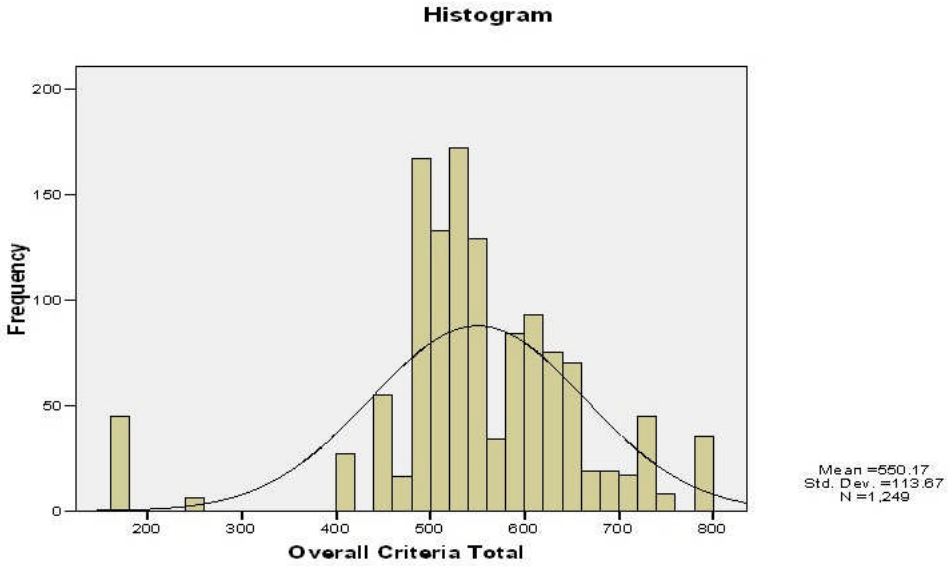
Note: c. Lilliefors Significance Correction.

The histogram of users of e-Governance is shown below. The midpoints of the value ranges on the horizontal axis represent the total scores provided by e-Governance users for the qualities, whereas the numbers along the vertical axis show the number of instances in each category of variable.

From the derived Histogram depicted in Graph Number 3.1, it is clearly evident deduced as per histogram depicted in the Graph Number 3.1, that the data were negatively skewed. On the contrary hand, it was found that the fundamental information obtained as per the list of descriptive statistics and the graph of the Q-Q Plot displayed in Graph Number 3.2 are quite similar to the normal distribution.

Graph Number: 3.1: Histogram of Normality Test for Distribution of Primary Data collected for Selected e-Governance Criteria

Graph Number: 3.1:
Histogram- Distribution of Data

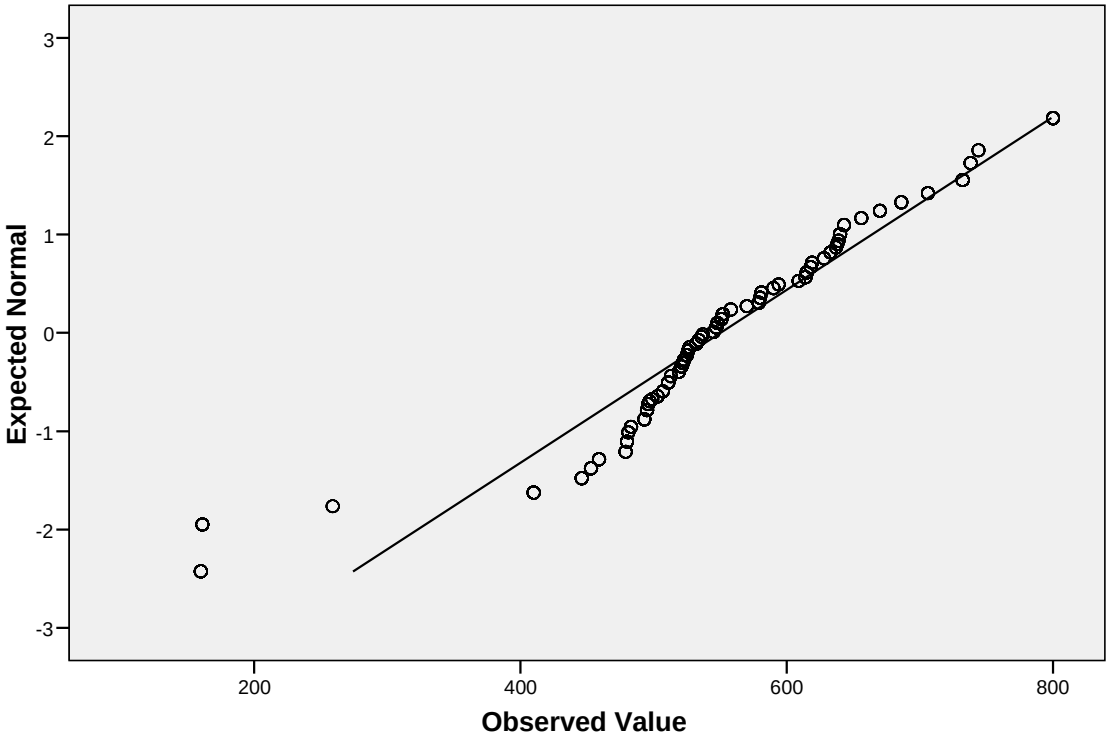


A skewness of -0.997 and a kurtosis of 3.405 observed with primary data which was received. The Table Number 3.9 depicts the values for skewness and kurtosis. If the distribution that was observed was completely normal, then the skewness and kurtosis values would both be equal to zero. Positive skewness and kurtosis suggested skewed and peaked distributions, respectively. Negative kurtosis values indicated a flatter distribution, whereas positive skewness values indicated that the distribution was skewed in the different direction. The kurtosis value of 3.405 and the skewness value of -0.997, both of which are negative, suggest that the distribution under consideration is flatter than is typically observed.

Table Number: 3.9:
Descriptive Values for Normality Test of e-Governance Users

Particulars		Statistic	Std. Error
Mean		550.17	3.216
95% Confidence Interval for Mean	Lower Bound	543.86	
	Upper Bound	556.48	
5% Trimmed Mean		556.34	
Median		545.00	
Variance		12920.921	
Std. Deviation		113.670	
Minimum		160	
Maximum		800	
Range		640	
Interquartile Range		119	
Skewness		-0.997	0.069
Kurtosis		3.405	0.138

Graph Number: 3.2:
Q-Q Plot- Normality of Distribution of Data of e-Governance Users



3.10.3: Reliability Test of the Structured Non-Disguised Questionnaire:

The coefficient alpha, which measures a scale's dependability, takes into account the degree of coherence between its variables (Malhotra, 2007; Ńunnally, 1981). For the research, the factor under investigation's resilience was assessed by performing reliability checks and calculating a composite index. The various variables as considered for the research given in Table Numbers 3.1 and 3.2, were observed in relation to each other. An overall total was also calculated to evaluate the resilience of the considered variables.

Table Number: 3.10:
Reliability of Responses of e-Governance Users

Variables	Number of Statement	Cronbach's Alpha		
		LMC	GoG	Total
Accessibility	09	0.932	0.943	0.968
Extensibility	06	0.915	0.919	0.959
Integration	07	0.929	0.927	0.964
Perceived Usefulness	07	0.929	0.928	0.964
Benefits	12	0.956	0.959	0.978
Problems faced	09	0.936	0.914	0.962
Availability	05	0.854	0.869	0.934
Affordability	03	0.837	0.862	0.928
Functional Value	06	0.920	0.917	0.960
Emotional Value	05	0.909	0.911	0.956
Social Value	06	0.916	0.926	0.961
Monetary Value	05	0.861	0.846	0.932
Behavioural Intention	05	0.903	0.906	0.952
Attitude	05	0.742	0.758	0.883
Total	90	0.991	0.991	0.995

Note: LMC= Local Municipal Corporation, GoG= Government of Gujarat

All aspects of the structured questionnaire relevant to the study's measuring variables were evaluated, and the scale's internal reliability was shown by a range of Cronbach's alpha values from 0.883 to 0.978. Table Number 3.10 provides a summary of the Cronbach's Alpha score for each of the fourteen categories of e-Government user replies (Cronbach, 1951).

3.10.4: Validity Test of the Structured Non-Disguised Questionnaire:

The researcher had measured discriminant validity using HTMT and Fornell & Larcker Criteria. The validity score for the research instrument designed with a scale ranging from Strongly Agree (SA) to Agree (A), which satisfies the requirement of Discriminant validity, is displayed in the accompanying Table Numbers 3.11 and 3.12. The following step in confirming a measure's validity is to evaluate its discriminant validity, which refers to the degree to which a structure is empirically distinct from other structures in the structural model (Fornell and Larcker, 1981). The results of the PLS discriminant validity assessment in this research are shown in Table Numbers 3.11 and 3.12. The diagonal elements are all greater than the correlation coefficients for the other constructs, which supports the validity of the variables used to measure the relationship between the various selection criteria made by the Gujarat Government (GOG), viz., all the varaibles being studied from Table Numbers 3.1 and 3.2.

The most conservative criterion advised to evaluate discriminant validity is that mentioned by Fornell and Larcker (1981). The method compares the Average Variance Extracted (AVE) Value for each structure with the Squared Inter-Construct Correlation, a measurement of the shared variance of each structure with all other structures in the SEM. A structure's AVE value should be the upper limit for any shared variance with any other structure.

Table Number: 3.11:
Findings of AVE Values Fornell–Larcker Test of Discriminant Validity for responses for e-Governance schemes/ apps for the Government of Gujarat

Selected Constructs	ACC GOG	AFF GOG	ATT GOG	AVA GOG	BEN GOG	BI GOG	EV GOG	EXT GOG	FV GOG	INT GOG	MV GOG	PF GOG	PU GOG	SV GOG
ACC GOG	**0.83**													
AFF GOG	0.80	**0.89**												
ATT GOG	0.62	0.67	**0.72**											
AVA GOG	0.84	0.87	0.69	**0.81**										
BEN GOG	0.88	0.86	0.75	0.88	**0.83**									
BI GOG	0.69	0.78	0.87	0.76	0.82	**0.85**								
EV GOG	0.83	0.82	0.74	0.84	0.85	0.81	**0.86**							
EXT GOG	0.92	0.79	0.64	0.87	0.89	0.71	0.84	**0.84**						
FV GOG	0.81	0.84	0.72	0.87	0.90	0.80	0.88	0.85	**0.84**					
INT GOG	0.91	0.82	0.66	0.85	0.88	0.70	0.79	0.90	0.80	**0.84**				
MV GOG	0.80	0.84	0.73	0.77	0.82	0.77	0.86	0.81	0.81	0.81	**0.79**			
PF GOG	0.78	0.71	0.58	0.82	0.79	0.61	0.75	0.77	0.79	0.75	0.76	**0.77**		
PU GOG	0.89	0.84	0.70	0.85	0.90	0.72	0.82	0.87	0.83	0.95	0.86	0.79	**0.84**	
SV GOG	0.83	0.77	0.67	0.82	0.81	0.73	0.87	0.86	0.88	0.79	0.86	0.80	0.81	**0.86**

Table Number: 3.12:
Findings of AVE Values Fornell–Larcker Test of Discriminant Validity for e-Governance schemes/ apps for Local Municipal Corporation (LMC)

Selected Constructs	ACC LMC	AFF LMC	ATT LMC	AVA LMC	BEN LMC	BI LMC	EV LMC	EXT LMC	FV LMC	INT LMC	MV LMC	PF LMC	PU LMC	SV LMC
ACC LMC	**0.81**													
AFF LMC	0.80	**0.87**												
ATT LMC	0.70	0.81	**0.81**											
AVA LMC	0.70	0.81	0.77	**0.82**										
BEN LMC	0.70	0.80	0.75	0.82	**0.83**									
BI LMC	0.70	0.80	0.74	0.82	0.82	**0.85**								
EV LMC	0.69	0.80	0.74	0.82	0.82	0.85	**0.86**							
EXT LMC	0.68	0.79	0.73	0.81	0.81	0.83	0.83	**0.83**						
FV LMC	0.68	0.79	0.73	0.80	0.81	0.83	0.83	0.84	**0.85**					
INT LMC	0.66	0.77	0.72	0.80	0.81	0.79	0.82	0.83	0.83	**0.84**				
MV LMC	0.66	0.76	0.72	0.80	0.81	0.77	0.82	0.82	0.80	0.79	**0.81**			
PF LMC	0.65	0.75	0.70	0.79	0.80	0.75	0.81	0.80	0.80	0.79	0.79	**0.82**		
PU LMC	0.65	0.73	0.68	0.77	0.80	0.74	0.78	0.78	0.79	0.71	0.79	0.81	**0.84**	
SV LMC	0.64	0.73	0.68	0.73	0.80	0.69	0.78	0.73	0.70	0.70	0.75	0.79	0.77	**0.84**

Note: Diagonals represent the square root of the AVE, while the off-diagonals represent the correlations. Accessibility (ACC), Extensibility (EXT), Integration (INT), Affordability (AFF), Availability (AVA), Benefits (BEN), Problems Faced (PF), Perceived Usefulness (PU), Functional Value (FV), Social Value (SV), Emotional Value (EV), Monetary Value (MV), Behavioural Intension (BI), Attitude (ATT), Government of Gujarat (GoG)

The constructs' discriminant validity is shown in Table Numbers 3.11 and 3.12. The aforementioned tables show that the correlation between the construct and its square root of average extracted variance (AVE) was greater than those of the other constructs. As a result of this, every single construct that was investigated in the study was distinct from each other. Cross-loadings can help establish the construct's discriminant validity. In the SEM, a few statements from the construct had more weight than the other constructions (Hair et al., 2017). The construct is considered to have discriminant validity if the indicators consistently exhibit strong loadings on the construct to which they are linked.

Table Number: 3.13:
Findings of AVE Values and Heterotrait–Monotrait (HTMT) Ratio Test of Discriminant Validity for Users of Schemes of Government of Gujarat (GoG)

Selected Constructs	ACC GOG	AFF GOG	ATT GOG	AVA GOG	BEN GOG	BI GOG	EV GOG	EXT GOG	FV GOG	INT GOG	MV GOG	PF GOG	PU GOG	SV GOG
ACC GOG														
AFF GOG	**0.88**													
ATT GOG	0.75	**0.80**												
AVA GOG	0.93	0.99	**0.86**											
BEN GOG	0.92	0.94	0.85	**0.96**										
BI GOG	0.74	0.89	0.95	0.84	**0.88**									
EV GOG	0.89	0.92	0.89	0.94	0.91	**0.89**								
EXT GOG	0.99	0.89	0.77	0.97	0.95	0.77	**0.91**							
FV GOG	0.87	0.94	0.86	0.97	0.95	0.88	0.96	**0.93**						
INT GOG	0.97	0.91	0.79	0.93	0.93	0.76	0.85	0.97	**0.86**					
MV GOG	0.89	0.98	0.91	0.89	0.91	0.87	0.97	0.91	0.91	**0.92**				
PF GOG	0.82	0.78	0.76	0.92	0.83	0.66	0.80	0.83	0.85	0.80	**0.85**			
PU GOG	0.96	0.94	0.84	0.93	0.95	0.78	0.88	0.94	0.89	1.01	0.96	**0.84**		
SV GOG	0.89	0.86	0.82	0.92	0.86	0.79	0.94	0.93	0.95	0.84	0.97	0.87	**0.87**	

Table Number: 3.14:
Findings of AVE Values and Heterotrait–Monotrait (HTMT) Ratio Test of Discriminant Validity for Users of Schemes of Local Municipal Corporation (LMC)

Selected Constructs	ACC LMC	AFF LMC	ATT LMC	AVA LMC	BEN LMC	BI LMC	EV LMC	EXT LMC	FV LMC	INT LMC	MV LMC	PF LMC	PU LMC	SV LMC
ACC LMC														
AFF LMC	**0.87**													
ATT LMC	0.78	**0.90**												
AVA LMC	0.95	0.98	**0.89**											
BEN LMC	0.95	0.95	0.85	**0.97**										
BI LMC	0.85	0.94	0.92	0.82	**0.89**									
EV LMC	0.87	0.92	0.89	0.89	0.90	**0.83**								
EXT LMC	1.00	0.90	0.80	0.97	0.96	0.80	**0.91**							
FV LMC	0.87	0.96	0.90	0.97	0.93	0.79	0.94	**0.94**						
INT LMC	0.97	0.84	0.76	0.95	0.94	0.80	0.81	0.99	**0.83**					
MV LMC	0.88	0.96	0.94	0.93	0.93	0.87	0.97	0.90	0.92	**0.87**				
PF LMC	0.85	0.72	0.76	0.94	0.83	0.69	0.76	0.84	0.79	0.83	**0.81**			
PU LMC	0.94	0.88	0.82	0.97	0.97	0.84	0.84	0.95	0.87	0.98	0.94	**0.87**		
SV LMC	0.86	0.85	0.90	0.94	0.83	0.76	0.96	0.90	0.96	0.75	0.95	0.84	**0.82**	

Note: Diagonals represent the square root of the AVE, while the off-diagonals represent the correlations. Accessibility (ACC), Extensibility (EXT), Integration (INT), Affordability (AFF), Availability (AVA), Benefits (BEN), Problems Faced (PF), Perceived Usefulness (PU), Functional Value (FV), Social Value (SV), Emotional Value (EV), Monetary Value (MV), Behavioural Intension (BI), Attitude (ATT), Government of Gujarat (GoG)

According to recent studies, this measure of discriminant validity could not be accurate, especially when the indicator loadings on a construct are just marginally different (Henseler et al., 2015). Voorhees et al. (2016) specifically looked at the heterotrait-monotrait (HTMT) ratio of the correlations as an option. This ratio is defined as the mean value of the correlations throughout constructs in comparison to the (geometric) mean of the average correlations for the measurement items the same construct.

The results of the PLS-HTMT ratio assessment selected criteria of e-Governance are shown in Table Numbers 3.13 and 3.14. According to the findings of our research, all of the HTMT ratios are very close to reaching the cutoff value of 0.90 for all of the selected criteria that are related to the measuring of the relationship between selected criteria established by the Government of Gujarat (GOG), viz., variables given in Table Numbers 3.1 and 3.2, thereby confirming the validity of the variables.

3.11: DATA ANALYSIS AND INTERPRETATIONS OF THE RESEARCH STUDY:

This conclusions of the research were inferred using a variety of statistical techniques. The researcher used elements such as frequency analysis, mean computation, factor analysis application, and structural equation modelling. In addition, the Chi-Square Test and the T-Test are utilised in order to establish the significance of the statistical hypotheses that were formulated for the purpose of presenting the findings and conclusions obtained from this research study.

The demographic details of the selected e-Governance subscribers in the four cities in Gujarat that were chosen for the study were displayed as a result of an analysis of the data.

The data analysis has provided findings on specific criteria, such as the regularity of the use of e-Governance programmes, knowledge and understanding of e-Governance programmes, impressions and experiences with the e-Governance based schemes and services attributes and to use e-Governance programmes. In addition, the data analytics has provided consequences on specific measures, such as the frequency of the usage of e-Governance programmes, knowledge and understanding of e-Governance programmes, perception.

3.12: FINDINGS AND IMPLICATIONS OF THE RESEARCH STUDY:

Researcher made an effort to give the findings of the statistical tools and methodologies that were utilised to derive conclusions and generate major usage of e-Governance based Government initiatives, adaptability of Government schemes, and integrated applications of this research done. Additionally, correlation testing being used to look at the connections between perceived usefulness and the schemes based attributes, their values creation, attitudes, and behavioural intentions of a sample of e-Governance users.

The Chi-Square Test has also been used by the researcher to examine the links between specific e-Governance users' backgrounds and their observations of various scheme based characteristics. These characteristics include all the variables and attributes as detailed out in Table Numbers 3.1 and 3.2 above.

The study's findings are based on the PLS-SEM method, which use the Structural Equation Model to forecast the relations between the variables (SEM). The researcher made an effort to offer broad conclusions bases the results of the research.

3.13: RECOMMENDATIONS AND SUGGESTIONS OF THE RESEARCH STUDY:

In order to create and provide unique features in e-Governance websites and processes upon the assessment of the gathered primary data, testing of hypotheses, and creation of the Structural Equation Modeling (SEM), researcher specifies that e-Governance designers could possibly understand the needs of the e-Governance users taking into account disparities in their age categories, gender, academic background, and profession. Furthermore, it demands that Government departments conduct frequent surveys and regular feedback of e-Governance users. The impact of perceived usefulness across a selected population of e-Governance users was great with regard to the adoption of particular e-Governance schemes.

3.14: LIMITATIONS OF THE RESEARCH STUDY:

- It is challenging to get factual information on e-Governance beneficiaries as it keeps fluctuating over time. This thing has affected deciding the suitable size of the sample.
- Due to the time constraint in research study's as also existing financial constraints, the findings will also have a significant impact.
- The research study is restricted to the major towns of Gujarat.
- The hurdles that any researcher can face are the “Don’t know”, “Undecided”, and “Neutral” replies of respondents. But, unfortunately, that biased opinion of consumers may not reveal the facts.
- The research study's sole basis would be the intended use of representative samples.
- Various models and assessment approaches have been created for determining how beneficial various e-Governance Initiatives are deemed to be. The opinions of professionals in this regard may vary from user to user.

3.15: DIRECTIONS FOR FUTURE RESEARCH STUDIES:

Research for the future times could be considered as per schemes in-vogue and e-Governance services introduced by the various State and Central Governments to understand their usefulness and integration with citizen-centric requirements.

3.16: CHAPTERISATION OF Ph.D THESIS:

Chapter No.	Title of the Chapters
01	Reviewing Manifestations of Different e-Governance Initiatives;
02	Review of Literature & Conceptualization of Perceived Usefulness and Value Creation for e-Governance Users
03	Research Methodology
04	Data Analysis and Interpretations of the Research Study
05	Findings and Implications of the Research Study
06	Conclusions, Recommendations and Suggestions of the Research Study

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