CHAPTER 2

RESEARCH METHODOLOGY

2.1 Introduction

E-governance projects in the district are implemented and maintained under the district Collectorate office through their subsidiary offices. Officers and staffs under the Collectorate office are responsible for maintenance and running of projects. The citizens of the district are the real consumers of the government service. There is a need of the study of the e-governance services provided by the government to the government’s customers that is citizens. The research methodology is a systematic study plan for conducting research through the various research methods to achieve the desired objectives. This chapter deals with the design and methodology of the research to achieve objectives of this study.

2.2 Management Problem

Before implementation of ICT and e-Governance in district administration there is a manual process of issuing various certificates. So, the citizens stay in the queue for a couple of hours. Citizens personally visit the offices which are located far away from their villages. Time tale to process the application is several hours to several days due to lack of communication channels and infrastructure to process the applications received from citizens. Due to these problems a lot of applications were pending in the district administrative office. Technical staffs are not available for implementation of the e-governance projects in the district administration. Maharashtra state government implemented the e-Governance projects various projects in the state. Among these projects, Maha E-Seva Kendra (CSC/SETU), Land Record System and Public Distribution System are the most and directly related with the common citizens. The Satara district administration is responsible for the smoothly running and maintenance of these projects in the district. These e-governance projects fail during peak times. For example, CSC/SETU got a lot of applications for issue income certificates in the month of April to June, because various students apply in these three months for income certificates for their school/college admissions. It has been observed that SETU fails to issue the certificates during peak period.
Land Record System is one of the important initiatives for the farmers as well as the government for keeping the land related documents. In the state, there is no real-time land record management system. Common citizens cannot get the online 7/12 extract from the revenue department. Mutation process of the lands and properties is very tedious. It may happen that the brokers create duplicate records of the land and sell it out without knowing to the real owner of the land. There is no integration of the service related to the lands and the properties of the citizens in the state.

Public Distribution System in Satara district, the entire process is manual and there is no real-time record of the actual distribution, beneficiaries of the subsidies and actual number of ration cards excluding the fake ration cards. Pilferage may occur at the different level in the distribution network. There is currently no automated system to track the total number of active ration cards in Food and Civil Supplies department (FCS). Middlemen typically try to take advantage of this manual process by procuring fake cards on the basis of the registered cards which may not directly correlate with the actual number of active cards. The entire system needs tracking and efficient real-time data to reach the core of the issue and to establish new architecture assisted by technology.

The government is unable to provide the good governance to the common citizens due to lack of the integration of the various government services and the data. For giving the good governance to the peoples, there is a need of strong political as well as social willpower. There are some factors which are responsible for the good governance and these are strong communication channel throughout the country, citizen centric e-governance project development, adequate hardware infrastructure, capacity building in the government departments, implementation and maintenance plan, pre and post e-governance project assessment and awareness of the e-governance initiatives in the common citizens. The internet connectivity is very poor in the villages especially in hilly and mountain areas in the district. There is a need of basic hardware infrastructure including the internet connectivity with high-speed bandwidth. The government should concentrate and workout on these factors.

2.3 Statement of the Problem

The present research would attempt to identify and establish linkages between the factors responsible for creating conducive environment for effective implementation
of e-Governance in government offices, e-Governance issues and challenges, demography, economy, geography, culture and others, especially in the Indian context.

The study focuses on the frequency of the use of the ICT driven services, and priority for improving the service through good ICT implementation/E-Governance/use of IT. Hence this research titled "An Empirical Study of E-Governance Initiatives in Satara District".

2.4 Significance of the Study

This research is helpful to the Government Offices like Collector Office, Divisional Offices and Tahasil Offices to implement effectively e-Governance projects and significance to e-governance policy designing, hardware/software acquisition policy. The government able to assess the impact of the citizen centric e-governance services in the district and came to know the effectiveness and efficiency of the initiatives. This study is useful to optimize the human resource in the government offices. It is also useful to deliver all services at single window and saves the expenditures on getting the various certificates from the government offices. Effective ICT and e-governance minimize the gap between the government departments, offices and the citizens. This study is also helpful for various organizations involved in IT infrastructure development for e-governance projects.

2.5 Scope of the Study

Present empirical study is related to the e-governance initiated or run under the Satara Collectorate in Satara district in Maharashtra state. This study focuses on the awareness of e-governance services in the district and to assess the e-readiness, effectiveness, efficiency, performance evaluation of the e-governance applications and the technical issues in implementation of e-governance projects in the district. Furthermore, the study finds out technical issues in e-governance projects. The scope of the research is limited to the Satara district political area only. It includes the CSCs running throughout the district and government offices under the Collectorate office.

During the present study, the research has been focused on the identifying key indicators of assessment of e-governance initiatives in the Satara district by considering the parameters like number of trips, distance of service office/centre,
waiting time for availing the service, elapsed time and cost for availing the service. The researcher also did the comparative study between the manual and e-governance system running in the district.

2.5.1 Geographical Scope

This geographical scope of study is confined to the e-governance projects implemented under the Collector Office and its subsidiary offices which are located in Satara District. Satara district is located in Sahyadri mountain range of the Western Ghats under Pune Administrative division in the Maharashtra state in India. Geographical location of the district is on north latitude 17.5° to 18.11° and east longitude 73.33° to 74.54°. District spread across 10475 km² area surrounded by Pune district to the north, Raigad district to the north-east, Ratnagiri district to the west, Sangli district to the south and Solapur district to the east. The Satara district has four sub-divisions namely Satara, Phaltan, Karad, Wai and 11 talukas namely Satara, Karad, Koregaon, Khatav, Patan, Phaltan, Man, Wai, Khandala, Mahabaleshwar and Jaoli. There are 8 assembly constituencies, 15 towns and 1739 villages [1]. Marathi is the official language and is written in Devanagari script [2]. Following figure depicts the geographical scope of Satara district.

![Geographical scope of Satara district](image)

**Figure 2.1 Geographical scope of Satara district**
2.5.2 Topical Scope

The focus of this study is related to the concept of e-governance, ICT, methods for implementation of e-governance, awareness of e-governance initiatives, its impact on the services given to citizens and technical issues and challenges while using and sustaining the e-governance projects in the district.

2.5.3 Analytical Scope

As part of the study, data collected and analyzed to fulfil the objectives by using the statistical analysis tools like average, percentage, mean, standard deviations and weighted average. The hypotheses are tested by using the z-test statistics.

Key Indicators to assessment of effectiveness of e-governance

1. Distance of Office/CSC from citizen’s residence
2. Usual mode of travel from residence to Office/CSC
3. Number of trips to avail the service
4. Average travel cost of each trip
5. Average travel time of the trip
6. Average waiting time to avail the service
7. Proportion of paying bribes to the functionaries

For evaluating the performance of e-governance projects, following parameters are considered.

1. Comparative analysis of new business processes
2. User friendliness of e-Governance service
3. Citizen’s perception about quality of e-Governance service
4. Service timeliness and responsiveness
5. Error in the documents require the correction
6. Financial and time saving
7. Preference of the service centre

2.6 Objectives of the Study

The objectives of this research are:

1. To study the present status of various e-governance projects in Satara District.
2. To study e-readiness for e-governance initiatives in Satara District.
3. To identify key indicators to assessment of effectiveness of e-governance initiatives in Satara District.
4. To evaluate performance of e-governance projects.
5. To identify technical issues in implementation of e-governance projects.
6. To suggest a policy framework for implementation of e-governance services.

2.7 Hypothesis of the Study

In consistent with the objectives, following hypotheses are formed by the researcher:

1. “Awareness of Citizens about e-Governance initiatives is very high.”
2. “Success of e-Governance is dependent on business process reengineering.”
3. “The services provided in e-Governance are user friendly.”
4. “E-Governance project implementation made a significant change in the quality of services provided to Citizens.”

2.8 Research Methodology

Present empirical research is inferential descriptive in its nature and based on systematic collection, analysis and interpretation of the data related to the e-governance implemented in various government offices under the district Collectorate.

2.8.1 Data Required

The study requires the profile of Satara District Administration, Profile of e-Governance projects running under Collectorate, e-governance infrastructure, equipment and problems observed at the ground level in implementation of e-governance projects.

2.8.2 Data Collection Methods

The study has used both primary as well as secondary data for research purpose. In this research, proportionate stratified random sampling method for collecting primary data is adopted.

For collecting the data, survey method was used to gather the relevant information pertaining to fulfilling the objectives of the study. The comparative data of manual
system and the online system are collected in the form of responses from the citizens of the district.

**A. Primary Data:**

The primary data is collected through the interview and schedules from the stakeholders of the e-governance initiatives in Satara district. The researcher focused on the technical aspects of e-governance initiatives. Therefore, data collected from such stakeholders who are directly associated with the e-governance project implementation and maintenance. These stakeholders are the e-District Project Manager, Project Coordinator, Technical Staffs from the Collectorate Office, Tahasil Office. Village Level Entrepreneur (VLE) or operators are the stakeholders who are directly interact with e-governance applications. Finally, the citizens are one of the important stakeholders who are the consumers of the government services. The data collected from these stakeholders for evaluation of the e-governance services. The schedules are formulated with close-ended qualitative and technical questions with multiple choice responses. Here, in this research study has been given the three types of profile of respondents and these are Citizens, Operators and Technical Staff.

The researcher collected primary data by formulating three separate schedules. First schedule was designed for the citizens who had been availing the e-governance services at the CSC or SETU in the district. Second schedule was designed for the collecting data from the CSC operators had are the interface between the e-governance service applications and the citizens. Third schedules was designed for technical staffs who were directly associated with the e-governance projects working under the Collectorate office and its subsidiary offices.

**B. Selection of the District**

This research has used proportionate stratified random sampling method to select the district for the purpose of the study. The researcher has chosen the Satara district as the district is having a historical background and is geographically dispersed. Satara district has 11 Talukas in which Satara, Karad Talukas have business and educational institutions, industrial area and most of the land has been used for the sugarcane production. Koregaon and Khandala are well known for different crop production. Mahabaleshwar, Wai, Jaoli and Patan Talukas are located in the hilly mountain
ranges. Khatav, Man, Phaltan receives less rainfall and categorized as drought affected part of the district.

C. Selection of Respondents from Taluka and Offices in Satara District

The Satara district has four sub-divisions and 11 talukas. The population of the district is 3003741 of which 14.17% are urban and the literacy rate is 82.87% [3]. The researcher has used proportionate stratified random sampling methods for selection of citizen respondents from 11 talukas and offices in Satara district.

D. Selection of Technical Staff and Operators

In order to study the business process reengineering, technical issues after implementation of e-governance projects, user friendliness of the e-governance applications, the researcher has chosen those technical staffs who are directly associated with e-governance initiative in the Satara district. Technical staff is very less in number, therefore, census method is used for selection of the technical staff. CSC operators are called VLEs who are directly interacting and intermediate between the e-governance application and citizens i.e. actors of the e-governance application system. Therefore, the researcher has chosen the CSC operators for finding the technical difficulties, efficiency, effectiveness and performance of the e-governance applications. The researcher has used proportionate stratified random sampling methods for selection of CSC operator respondents from 11 talukas of the Satara district.

2.8.3 Secondary Data

The necessary secondary data is collected from the notified policies, technical documents, manuals, and government reports published, Gazetteer published by the state and central government, census data published by the Census of India. Furthermore, various websites, technical papers published by various agencies, research papers published in national international journals and conferences, policy documents are also referred. In addition to this, reports and statistics published by the various government departments like NeGP, NISG, NIC, DIT of Maharashtra state, Department of Electronics and Information Technology (DEITY), Government of India and Electronics Transaction Aggregation and Analysis Layer (eTaal), Ministry of Electronics and Information Technology (MEITY) etc. are used for the study.
2.8.4 Data Analysis

To accomplish the objectives of the study, the data collected from the primary and secondary source have been analysed using the statistical analysis tools viz. average, percentage, mean, standard deviations and weighted average. Hypotheses have been tested using the z-test statistics.

2.8.5 Sample Design

The researcher has used proportionate stratified random sampling method and collected the responses from technical, operational level staff related to e-governance project. There are three e-governance projects implemented in Satara district and that are CSC (Maha e-Seva Kendra), Land Record System (Bhoomi Abhilekh), and Public Distribution System (Sarvajanik Vitaran Pranali).

The present research is related to the implication of e-governance initiatives which includes the survey related to identify the awareness and usage of e-governance services and its impact on citizens of Satara district. It is concerned with the efficiency of various technical staff of Collectorate office those are working on the e-governance system to deliver government services to the citizens. The researcher intends to collect the information from the technical staff of the Collectorate office and its subsidiary offices, VLEs/operators and citizens. The purpose of the study is to find out the awareness levels of the citizens about e-governance and it is useful to citizens to interact with the government for their needs. To know the perception about the usage of e-governance services among the citizens in Satara district, the researcher has visited Tahasil Offices and CSCs within the district. To attain the objectives, it is necessary to collect both primary and secondary data for the research. The primary data has been collected from i) Citizens of Satara district ii) Operators and iii) Technical staff.

A. Citizens of Satara district

There are 11 talukas in Satara district and all talukas were considered for the empirical survey among citizens. For the present study, the samples were selected from respective 11 talukas by using proportionate stratified random sampling technique. Researcher has taken the relevant information from respondents from each taluka. Whichever number was higher was selected as a sample based on various
parameters like age, gender, education, occupation, awareness of e-governance services, Internet literacy etc. from each Tahasil of Satara district. At the same time, the researcher included various segments of the society like students, farmers, professional, businessmen, housewives etc. The responses have been collected from the wherever available in each taluka of the district. The universe is infinite and sample size 385 is calculated by using following formula \([4] [5]\).

\[
n=(zs/e)^2
\]

where:
- \(z = 1.96\) for 95% level of confidence
- \(s = 0.5\) estimated standard deviation
- \(e = 5\%\) desired margin of error

The total sample size is 385 (Three Hundred and Eighty Five) on the basis of the proportionate stratified random sampling method. During this study, equal weightage has been given to all talukas in the district. The information from the respondents has been taken wherever they were available. Following table depicts the taluka wise sample distribution of citizens.

**Table 2.1 Taluka wise Sample Distribution of Citizens**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahasil</th>
<th>Population</th>
<th>Taluka wise Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Satara</td>
<td>502049</td>
<td>64</td>
</tr>
<tr>
<td>2</td>
<td>Karad</td>
<td>584085</td>
<td>74</td>
</tr>
<tr>
<td>3</td>
<td>Koregaon</td>
<td>257500</td>
<td>33</td>
</tr>
<tr>
<td>4</td>
<td>Khatav</td>
<td>275274</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>Patan</td>
<td>299509</td>
<td>38</td>
</tr>
<tr>
<td>6</td>
<td>Phaltan</td>
<td>342667</td>
<td>44</td>
</tr>
<tr>
<td>7</td>
<td>Man</td>
<td>225634</td>
<td>29</td>
</tr>
<tr>
<td>8</td>
<td>Wai</td>
<td>200269</td>
<td>26</td>
</tr>
<tr>
<td>9</td>
<td>Khandala</td>
<td>137418</td>
<td>18</td>
</tr>
<tr>
<td>10</td>
<td>Mahabaleshwar</td>
<td>72830</td>
<td>10</td>
</tr>
</tbody>
</table>
B. Operators

CSC operators play a crucial role in delivering the e-governance services to the entire district. There are 151 active CSC are giving services in the district. For this study, 109 respondents of 151 have been selected by using the proportionate stratified random sampling method from the 11 Talukas of the Satara district. The operator respondents were identified on the basis of their job level and working experience in selected CSC. The universe is finite and sample size 109 is calculated by using following formula.

\[ n = \frac{(N(zs/e)^2)}{(N-1+(zs/e)^2)} \]

where:
- \( z = 1.96 \) for 95% level of confidence
- \( s = 0.5 \) estimated standard deviation
- \( e = 5\% \) desired margin of error
- \( N = 151 \) population size

Total sample size of operators selected is 109. Required primary data has been collected by using personal interview and through the schedule from the selected respondents by the researcher. Following table depicts taluka wise distribution of respondents of CSC operators.

**Table 2.2 Taluka wise distribution of respondents**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Tahasil</th>
<th>CSC</th>
<th>Active CSC</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Satara</td>
<td>56</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>Karad</td>
<td>67</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Koregaon</td>
<td>45</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Khatav</td>
<td>40</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>Patan</td>
<td>38</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Phaltan</td>
<td>30</td>
<td>13</td>
<td>9</td>
</tr>
</tbody>
</table>
C. Technical Staff

For the present study, technical staff has been selected only those staffs which are directly or indirectly working with or associated with the e-governance initiatives. In Satara district Collectorate office staff includes one e-District Project Manager (managing the e-governance system), one CSC Coordinator (for the district level technical solution) and one technical person in each Tahasil Office (for Taluka level technical solution) were selected. It has been observed that most of the technical staff were working on contract basis. The universe is finite and the sample selected by using census method. The selected respondents were personally interviewed. Following table shows the technical staff associated with e-governance projects.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Technical Staff</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E-District Project Manager</td>
<td>01</td>
</tr>
<tr>
<td>2</td>
<td>CSC Coordinator</td>
<td>01</td>
</tr>
<tr>
<td>3</td>
<td>Technical Staff (Each Tahasil)</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

Primary data was collected by following steps

1. Online form was designed and sent to the concerned respondents
2. Collected responses from the stakeholders directly in the soft copy
3. Personally visiting the Tahasil Offices and CSC in Satara district
4. Personal interviews or telephonic interviews of the technical staff and higher officers to find out the present status of e-governance services. Wherever personal interview was not possible, information was collected through the telephonic conversation.

The constituents and size of sample are shown in following table.

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Constituents</th>
<th>No. of sample points in the sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Citizens of Satara districts</td>
<td>385</td>
</tr>
<tr>
<td>2</td>
<td>Operators</td>
<td>109</td>
</tr>
<tr>
<td>3</td>
<td>Technical Staff</td>
<td>13</td>
</tr>
</tbody>
</table>

2.8.6 Instruments

Data has been collected by using two separate structured schedules. First schedule was executed for conducting the survey throughout the district and responses were collected from the citizens. Schedule having structured closed type questions are asked to the respondent and recorded the responses. Schedule is divided into six parts as follows respondent identification details, respondent profile, awareness and uses of CSC (Maha e-Seva Kendras), services availed, cost of service availed and quality of service. Second schedule is designed for collecting the responses from operators of the CSC. This schedule included the identification details, respondents profile and technical and performance related questions. Third schedule is designed for collecting responses from the technical staff and operators who are directly involved in e-governance initiatives in the district. This schedules having the identification details, respondents profile and business processes questions and performance questions

2.9 Limitations of the Study

The limitation in this study is the limited access to the users of e-governance initiatives, evident in the sample size. Due to the small sample size, the results/outcomes of the study should be viewed with caution. However, the better
results with the large sample size depend on the adequacy and quality design of the schedules. To some degree, other related limitation maybe biased sample of more experienced respondents of the internet, highly income group and relatively younger age of the sample. These attributes of the sample should be thought about. There is a possibility that vast majority of the users of e-governance initiatives have these attributes. There is a need to confirm this assumption by conducting study to profile the users of e-governance initiatives in the district. Thus, without such study, it cannot be established that the sample represented in this study is truly biased. Another limitation is the nonappearance of dependant factors which ought to be utilized to test the predictive validity of proposed measurement instrument. The dependant factors utilised in this study are derived from the related field of e-services, which represent business organizations. Qualitative studies involving the users of such e-governance services which provides more information and knowledge in this field. In addition to this, the researcher having the background of technical area may not able to understand some terminologies which are not associated with the study like process of mutation, food grain distribution etc. A number of e-governance initiatives have been launched by the government for expanding the e-governance services in the district. This study has to stick with number of e-governance initiatives in the sample size.

2.10 Chapter Scheme

The study is divided into following chapters as below

CHAPTER 1 INTRODUCTION

This chapter covers introduction, Concepts and Definition of e-Governance, What e-governance is NOT!, Technology Specific e-Governance, What is Good Governance, Need of e-Governance, Objectives of E-Governance, Benefits of e-Governance and United Nations E-Government.

CHAPTER 2 RESEARCH METHODOLOGY

This chapter includes Management Problem, Statement of the Problem, Significance of study, Scope of the study, Objectives of the Study, Hypotheses of the Study, Research Methodology, Data Analysis, Sample Design and Limitations of the Study.
CHAPTER 3 LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This chapter divided into two parts. First part includes the literature review and covered brief summaries of referred books, Research Articles and Conference Proceedings, thesis, Reports Published, Observation and Usefulness of Review of Literature. Second part includes the conceptual framework of e-Governance.

CHAPTER 4 DATA ANALYSIS AND INTERPRETATION

This chapter covers profile of Respondents, Present status of e-governance initiatives in Satara district, E-readiness for e-governance initiatives in Satara district, Awareness of Citizens about e-governance initiatives, Assessment of effectiveness of e-governance initiatives in Satara District, Performance evaluation of e-governance projects and technical issues in implementation of e-governance projects.

CHAPTER 5 FINDINGS, SUGGESTIONS AND CONCLUSION

This chapter summarizes the findings, conclusions drawn and suitable suggestions made for effective e-governance implementations and to improve the efficiency of various e-governance initiatives.

BIBLIOGRAPHY

APPENDIX

Conclusion

This chapter has provided the management problem, problem statement and significance, scope of the e-governance initiatives in Satara district. Research objectives and hypothesis of the study and research methodology has been defined. Sample size, sample design and data collection methods for the study are stated. Also, the details of the data collection instruments used during the study. Finally this chapter ends with stating the limitations of the study and followed by the chapter scheme.
References


