CHAPTER 2
RESEARCH METHODOLOGY

2.1 Location and Demography

Chennai Corporation area is located on the Coromadel Coast in the central eastern coastal region of the Deccan Plateau and the northern end of the state of Tamil Nadu. The city stretches along the coast covering about 43 km of sandy beach and extending about 19 km inland, encompassing an area of 426 sq km. The estimated population is about 6.5 million.

2.2 Research Methodology

Research Methodology is a systematic way to solve a Research problem. It may be understood as a science of study how research is done scientifically. It is necessary for the Researcher to know not only the technique but also the methodology.

This study was concerned with Chennai Corporation and it has been confirmed to Chennai City.

2.3 Research Design

In order to achieve the objectives of the study and to analyze the variables involved in this exploratory study, an appropriate methodology was developed. The employees working in Chennai corporation were considered as appropriate as they are in threshold of their easy and enthusiastic work.

2.4 Sampling procedure and sampling technique

The area of the study at Chennai Corporation Avadi, Perambur, Ambattur, Villivakkam, Anna nagar and Corporations which comes under Chennai Corporation. The employees working in Chennai corporation and the People who are living under the Chennai Geographical area were the target audience under the probability sampling method, simple random sampling technique was used. The Chennai Corporation in Chennai city were divided into four zones and 3
Corporations from each zone were selected on the basis of Convenience for the study. From this sampling frame, five employees from each corporation were asked to volunteers to indicate their interest of their work in E-Governance.

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2.5 Sample size

Two types of Questionnaire were prepared and was administered to selected employees of the Five corporations and to the General public to get the required information. Totally 10 filled up Questionnaire from each type of Questionnaire were obtained from each Corporation and 50 Questionnaire were obtained from each Corporation and 50 Questionnaires were for analysis. 12 branches were selected from near by Chennai city, totally 500 Questionnaires were collected for analysis and interpretation.

2.6 POPULATION

Table No: 2.1

<table>
<thead>
<tr>
<th>Name of the Corporation</th>
<th>Number of Employees Working</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chennai Corporation Main (Ripon building)</td>
<td>726</td>
</tr>
<tr>
<td>Perambur Corporation</td>
<td>218</td>
</tr>
<tr>
<td>Ambattur Corporation</td>
<td>175</td>
</tr>
<tr>
<td>Villivakkam Corporation</td>
<td>235</td>
</tr>
<tr>
<td>Anna nagar Corporation</td>
<td>246</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1600</strong></td>
</tr>
</tbody>
</table>

Source: Primary data

The sample size is determined by a sampling proportion method using the following formula

\[
\text{Sample size “n”} = \frac{Z^2 \cdot p \cdot q \cdot N}{e^2 (N-1) + Z^2 \cdot p \cdot q}
\]
Where

\[ n = \text{Sample Size} \]

\[ Z = \text{Value of standard variant at given confidence level} \]

(for 95% confidence level the value of \( Z = 1.96 \))

\[ e = 0.04 \] (Since the estimate should be within 4% of the true value)

\[ N = 1600 \quad Z = 1.96 \quad N = 1600 \quad p = 0.5 \quad q = 1 \quad e = 0.04 \]

\[ n = \frac{1.96^2 \times 0.5 \times 0.5 \times 1600}{[0.04^2 \times (1600-1)]+[1.96^2 \times 0.5 \times 0.5]} \]

\[ n = \frac{1536.64}{3.5188} \]

\[ n = 436.70 \]

To get the approximate value the researcher used 500 samples for data analysis

2.7 Pilot Study and Pre – Testing of Questionnaire

A Pilot study was considered with a sample size of 130 including employees of all 5 branches and the general public from the 5 regions. Under this study who are in the age group of 21-60 in and around Chennai city. Employees and General public were asked to rate their E-Governance intentions, competencies and the related barriers to work in E-Governance. Both the Employees and the General public were motivated and found they are all coming from difference educational back grounds. Most of them were not aware of using ERP tools and they were pre occupied with more of theoretical subjects only. The researcher went into five branches of corporation i.e., Avadi, Ambattur, Villivakkam, Anna Nagar and Perambur and distributed the Questionnaire to both Employees of the above said corporation and the general public and got back the 130 filled up questionnaires. Men respondents were 68 and women were 62. The researcher went in to all the five branches and collected 130 Questionnaires out of 130 Questionnaires, 100 Questionnaire were found to be good and correct for analysis.

With the help of pilot study, both the Questionnaire was tested, which measures the attitude of employees towards E Governance and impact of ERP based E-Governance, their subjective norms perceived behavioral control and their intention to become familiar in ERP tools and ERP based E Governance was compiled. The perceived behavioral control was found
to be the strongest factor, which has a strong influence on E Governance of the employees and the General public.

Thus found that the theory of planned behavior is capable of predicting both employees and the General public attitude towards ERP tools and E Governance and further explains the factors, which determine the decision of becoming familiar in using the ERP tools in future. This study would give an idea for the policy makers in Government, Universities and Colleges to expand their activities to improve IT education, infrastructure local conditions etc.,

The content validity and the items selected for inclusion were based on the literature survey and the experts opinion were obtained by the researcher and the reliability of all the questions in different branches were tested by statistical reliability test. If the Cronbach value for a set of Questions in the Questionnaire were less than 0.75 the Questions were modified and again given to 10 respondents in each branch and the 5 respondents of general public and got the feedback from the 10 respondents from each branch selected. Totally 50 employees and 50 General public were selected at random. To predict the outcome, and existence of current conditions were also tested by using co-efficient correlation test scores and found they were in the range of 0.65 to 0.75. Both the tests were done to make both the Questionnaire a perfect one and to get desired responses from the sample.

The face validity of a Questionnaire has been examined with the test group of employees by interviewing them, either face to face or over the phone, after they have given in the Questionnaire agrees with their real opinions.

Reliability is defined as an assessment of the reproducibility and consistency if an instrument. For self-complete Questionnaire two aspects of reliability should be examined. The researcher made the reliability test by randomly choosing 5 from each branch, and totally to 25 employees and 25 general public were asked to complete the Questionnaire on two separate occasions approximately with a gap of 2 – 3 weeks apart, assuming that their circumstances will not have changed in the interim. The two sets of Questionnaires and the responses have been compared statistically and the responses have been compared statistically using the scores of all the Questions and the scores of the actual questions chosen and they found to be the same.

The acceptability of Questionnaire was tested by getting the reliability score. The researcher asked the subjects to include in their comments about the Pilot study in the
Questionnaire or on a separate sheet. I have also asked them over the telephone how they found while answering the Questionnaire to test the validity of the Questionnaire and most of the respondents felt that the Questionnaire consisted exhaustive for conducting the survey.

2.8 Survey Instrument

Predominantly Likert’s five point scale used in the Questionnaire for data collection. Questionnaire was developed based on the typologies used by previous researcher and after pilot survey. In order to validate the questions for each variable under consideration was got approved from the Research supervisor and Guide, Experts from St.Peter’s University, Experts from Chennai Corporation, Statisticians and from eminent personalities in the field of business and education. Their opinions were obtained taking all their suggestions in to account. The Questionnaire was further revised after the reliability and validity test. The detailed Questionnaire has been enclosed in the annexure.

2.9 Data collection procedure

The primary data was collected through Questionnaire. The respondents were not personally ad they were explained in detail about the research work in progress before the Questionnaire was handled over to them. They were given sufficient time of 40 minutes to 60 minutes for dialogues and they were asked to fill up the questionnaire. The following table 2.2 shows the list of corporations visited to get the data from the respondents.

<table>
<thead>
<tr>
<th>Corporations visited data collection zone wise</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Chennai</td>
</tr>
<tr>
<td>I. Tiruvottiyur</td>
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<tr>
<td>II. Manali</td>
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<tr>
<td>III. Madhavaram</td>
</tr>
<tr>
<td>IV. Tondiarpet</td>
</tr>
<tr>
<td>V. Royapuram</td>
</tr>
<tr>
<td>Central Chennai</td>
</tr>
<tr>
<td>VI. Thiru. Vi. Ka. Nagar</td>
</tr>
<tr>
<td>VII. Ambattur</td>
</tr>
<tr>
<td>VIII. Annanagar</td>
</tr>
</tbody>
</table>
The other zones of Corporations which were not taken into account for the study were Vellore, Salem, Coimbatore and Trichy etc.

2.10 Outline of the analysis of data

The research methods and tools of analysis were selected based on the requirement of the problem one had, the analysis were planned and the theoretical compatibility in terms of their implicit assumptions were taken into consideration.

Predominantly the percentage analysis were used to find the most influencing variable, since there are more than one variable in each objective. For analyzing the data computerized statistical package were used extensively.

Factor analysis, correlation, and regression are being used to find the cause and effect of variables. Attitudes forms a linkage value between personality, education and the IT tools utilization. Individuals with high risk taking ability with more internal locus of control have positive attitude towards ERP based E Governance ad found the employees and the General public who perceived contextual factors are favorable had a very strong intensions irrespective of his attitude towards E Governance and vice versa.

Linkers five point scale was used ad the Pilot study were made with the help of Avadi, Ambattur, Villivakkam, Perambur ad Anna nagar Corporation employees in “Chennai city and the General Public with 100 Questionnaires. The context validity of Questionnaire was framed after making an elaborate literature survey and tested with Research supervisor with the trainers who gives training on ERP tools.
The reliability of the Questionnaire was tested with the Cronbach’s Alpha method using statistical software. All the Descriptive analysis and statistical inferential analysis was done using SPSS ad P-value details only exhibited for interpretations.

The hypothesis was formed to test all the Research objective the hypothesis were tested using Chi-square analysis and the inferences were arrived to indicate the influence of employees and the General public attitudes on the ERP tools and E Governance.

Correlation study was also conducted to find the impact of ERP based E Governance awareness program ad their ability to understand its usefulness in managing the ERP tools.

Factor analysis also used to find the most influencing factors which determine the attitude of employees and the General public towards E Governance and IT Tools. The negative attitude inherent in the minds of people for not taking ERP tools and E Governance were studied with the help of factor analysis.

SEM stands for structural equation modeling. Structural equation modeling is used. SEM is a multivariate statistical analysis technique that is used to analyze structural relationships. This technique is the combination of factor analysis and multiple regression analysis, and it is used to analyze the structural relationship between measured variables and latent constructs. This method is preferred by the researcher because it estimates the multiple and interrelated dependence in a single analysis.