A brief description of the scientific procedures followed in conducting this study is presented under the following headings:

3.1 Statement of the problem
3.2 Scope of the present study
3.3 Objectives of the study
3.4 Hypothesis
3.5 Methodology
3.6 Sources of data
3.7 Sampling design
3.8 Variables used in the study
3.9 Development of scale
3.10 Data collection instruments
3.11 Field work
3.12 Plan of analysis
3.13 Organization of the report
3.14 Limitations of the study
3.1 STATEMENT OF THE PROBLEM

Literature revealed that most of the organizations in India which implemented TQM dropped their initiatives within the first two years because they faced all kinds of new problems on account of less background preparation for implementing TQM. TQM in Indian organizations is not working up to its optimum capacity because of lack of team spirit, operational problems and a failure on the part of the steering committee to review the process of TQM practices constantly.

The present study is undertaken to find the answers to the following:
1. What is the level of practice of TQM in Respondent Banks?
2. What is the level of Economic performance in Respondent Banks?
3. What is the Relationship between TQM and Economic performance in Respondent Banks?
4. What is the influence of TQM on Economic Performance in Respondent Banks?

3.2 SCOPE OF THE STUDY

The study is on the practice of TQM and its impact on economic performance of the respondent banks before and after implementing TQM which are operating in Mangalore region. The results of the investigation would throw light on TQM components contributing to Economic Performance of Respondent Banks. The study is based on the effective statistical analysis of extensive data collected from selected banks.
3.3 OBJECTIVES OF THE STUDY

1. To study the identified components of TQM in Respondent Banks.
2. To study the level of Economic Performance of Respondent Banks.
3. To study the relationship between TQM and Economic Performance in Respondent Banks
4. To study the Influence of TQM on Economic Performance in Respondent Banks
5. To recommend suggestions based on the findings

3.4 HYPOTHESIS

Based on the objectives of the study, the following hypotheses are formulated for testing.

H1: There is a significant enhancement in the Quality practice after implementing TQM.

- H1a. There is a significant improvement in the Quality practice of Leadership style after implementing TQM.
- H1b. There is a significant enhancement in the Quality practice of Training & Development system after implementing TQM.
- H1c. There is a significant improvement in the Quality practice of Human resource planning and Management after implementing TQM.
- H1d. There is a significant improvement in the Quality practice of Quality of work life program after implementing TQM.
- H1e. There is a significant improvement in the Quality practice of Employee involvement & Development scheme after implementing TQM.
- H1f. There is a significant improvement in the Quality practice of Social responsibility after implementing TQM
- H1g. There is a significant improvement in the Quality practice of Information and communication after implementing TQM.
- H1h. There is a significant improvement in the Quality practice of Resource management after implementing TQM
- H1i. There is a significant improvement in the Quality practice of Strategic quality planning after implementing TQM
- H1j. There is a significant improvement in the Quality practice of Quality assurance after implementing TQM
- H1k. There is a significant improvement in the Quality practice of Process management after implementing TQM
- H1l. There is a significant enhancement in the Quality practice of 5’s concept and work place management after implementing TQM
- H1m. There is a significant enhancement in the Quality practice of Customer orientation after implementing TQM

H2: There is a significant enhancement in the Economic performance, after implementing TQM, as compared to its performance before implementing TQM.

H3: There is a significant relationship between TQM and Economic performance.

H4: There is a significant influence of TQM components on Economic performance.
3.5 METHODOLOGY

In the present investigation Expost Facto research design used. This design was considered as appropriate since the variables chosen for the study had occurred already.

3.6 SOURCES OF DATA

Both primary and secondary data were collected for the present study.

**Primary data:** Primary data was collected from the respondents of different quality improvement teams in respondent banks through structured questionnaire in detailed form.

**Secondary data:** Secondary data was collected from annual reports, magazines, journals, books and news papers related to present study.

3.7 SAMPLING DESIGN

The study was conducted in banks, which satisfied the following criteria.

1. Practicing TQM in the banks
2. Obtained an ISO 9000 certification

From each of the quality improvement teams, 20 members were selected randomly from each of the 10 selected banks, thus making the total number of respondents in 200 for the study.
TABLE 3.1 DETAILS OF THE SAMPLES

<table>
<thead>
<tr>
<th>No</th>
<th>Name of the bank</th>
<th>Number of members of QIT’s selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Canara bank</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Corporation bank</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Bank of India</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Punjab national bank</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Union bank of India</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Bank of Baroda</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Indian overseas bank</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>Central bank of India</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>Oriental bank of commerce</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>Indian bank</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>

3.8 VARIABLES USED IN THE STUDY

Keeping the objectives of the study in view, Economic Performance is considered as the dependent variable (DV) and TQM is considered as independent variable (IV). Eight components of dependent variables are included to study the level of economic performance and thirteen components of independent variables are included to study the level of TQM practice in Banks.

The eight dependent variables used to study the Economic Performance of the banks are: Recovery of loans, Deposit mobilization, Customer satisfaction, Improvement in service level, Housekeeping, Price level, Profit after tax, Return on net worth.

The thirteen independent variables used to study the practice of TQM in banks are: 1) Leadership style, 2) Training and development system, 3) Human resource planning and management, 4)
Quality of work life program, 5) Employee involvement and development scheme, 6) Social responsibility, 7) Information and communication, 8) Resource management, 9) Strategic quality planning, 10) Quality assurance, 11) Process management, 12) 5s concept and workplace management and 13) Customer orientation.

3.9 DEVELOPMENT OF SCALE

A Likert scale was used developed by Likert (1932)

3.9.1 Identification of various statements of TQM: Based on the review of literature on TQM and detailed discussion with management consultants, a questionnaire was prepared. Initially 191 statements, consisting of thirteen independent variables which reflected the various dimensions of TQM and one dependent variable i.e. Economic Performance with eight statements were included in the questionnaire.

3.9.2 Editing statements: The statements were randomly arranged and presented to the management consultants who were specialists in the area of quality management. A Likert scale was used developed by Likert. The management consultants were requested to indicate the relevance or importance of each statement based on Four point continuum viz most relevant, relevant, somewhat relevant, and not relevant. They were also requested to suggest additional relevant statements, if any, for inclusion in the list. Thus the opinion furnished by twenty management consultants 10% was taken into consideration for ascertaining the relative importance of 191 statements. Further four, three, two and one scores respectively were assigned to the responses of most relevant, relevant, somewhat relevant and relevant.
3.9.3 Selection of statements: Based on the responses received from the management consultants, relevancy weightage were calculated for each statement under consideration. Relevance weightage is defined as the ratio of actual score obtained by statement to the maximum possible score of that statement.

Relevancy weightage = \( \frac{\text{Actual score obtained}}{\text{Maximum possible score}} \)

The responses received from the management consultants supported after the analysis the relevancy of 161 items out of 191, established more than 75% of the experts rated them as relevant.

3.9.4 Statement of analysis: The respondents were asked to fill in the questionnaire prepared on a 5 point Likert scale viz very high, high, average, low, and very low. After obtaining the responses, the weightage for the statements were given as mentioned below:

<table>
<thead>
<tr>
<th>Nature of statement</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very high</td>
</tr>
<tr>
<td>Positive</td>
<td>5</td>
</tr>
<tr>
<td>Negative</td>
<td>1</td>
</tr>
</tbody>
</table>

By summing up the scores obtained for each of the statement included in the scale, the total scores of each of respondent was obtained.

3.9.5 Item analysis: Based on the total scores obtained by the individual respondents, they were arranged in the descending order. After this listing, two criterion groups were selected. These criterion groups are 25% of respondents with the highest scores and 25% of respondents with the lowest scores. These two groups were subjected for the evaluation of individual statements. To evaluate if each
statement differentiated between higher and lower groups” test were established, using the formula given by Edward (1969). Thus, the ‘t’ values for each of these 161 statements were worked out and only those statements, which are found to be statistically significant, were selected (64) and the remaining statements were rejected.

3.9.6 Validity of the scale: To test the validity of the scale, the methods namely, content validity and construct validity as proposed by Kerlinger (1973) are adopted in the present study.

Content and construct validity: Content validity of the TQM and Economic Performance scale was established in two ways: (i) the items included in the scale are based on extensive review of the literature. (ii) The opinions expressed by experts were obtained to find out whether or not the items suggested were suitable for inclusion in the scale.

In this study, the application of correlation technique is adopted to test the construct validity. The criterion to test the validity of the present scale was done by means of studying the relationship between the scores of TQM and Economic Performance. For this purpose, the scores for TQM and Economic Performance relating to 20 respondents from the non-sample area were correlated and it was found that the coefficient of correlation was 0.83, which was highly significant (p< 0.01). Thus, the content validity and construct validity were established with respect to the present constructed scale.

3.9.7 Reliability of the scale: Reliability refers to the precision of the instrument i.e., the extent to which repeated measurements produces the same results. Any newly
constructed scale has to be tested for its reliability before it is used. In the present study, the reliability test was determined by Cronbach’s Alpha, method.

For the reliability test, data was collected from 20 respondents from non sampling area, and reliability assessment was done by Cronbach's Alpha, which measures internal consistency. Cronbach's Alpha (α) was 0.916. Formula is given below:

\[ \alpha = \frac{n}{n-1} \left( 1 - \frac{\sum Vi}{V_{test}} \right) \]

n = Number of questions  
Vi = Variance of scores on each question  
V test = Total variance of overall scores on the entire test is more than 0.90

The reliability classified as High reliability (>0.90), Good reliability (0.80-0.89), Acceptable reliability (0.70-0.79) and Marginal reliability (0.65-0.69)

**3.10 DATA COLLECTION INSTRUMENTS**

The final scale consisted of 161 statements. These statements were then administered to the selected 10 public sector banks practicing TQM and based in Mangalore. Further, 20 members were selected from each of the 10 selected public sector bank with total sample size comprising of 200 for the research study.

The method adopted to collect data was questionnaire method. The questionnaire was designed according to European Foundation for quality management Model.
<table>
<thead>
<tr>
<th>NO</th>
<th>TQM components</th>
<th>No. of statements included</th>
<th>Techniques adopted for measurement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Dependent variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic performance</td>
<td>8</td>
<td>Scale developed</td>
</tr>
<tr>
<td>B</td>
<td>Independent variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X₁ Leadership style</td>
<td>10</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₂ Training &amp; development system</td>
<td>18</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₃ Human resource planning and management</td>
<td>13</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₄ Quality of work life program</td>
<td>15</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₅ Employee involvement and development scheme</td>
<td>16</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₆ Social responsibility</td>
<td>11</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₇ Information and communication</td>
<td>12</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₈ Resource management</td>
<td>13</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₉ Strategic quality planning</td>
<td>5</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₁₀ Quality assurance</td>
<td>5</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₁₁ Process management</td>
<td>8</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₁₂ 5s concept and workplace management</td>
<td>13</td>
<td>,,</td>
</tr>
<tr>
<td></td>
<td>X₁₃ Customer orientation</td>
<td>14</td>
<td>,,</td>
</tr>
</tbody>
</table>
3.11 FIELD WORK

The field work on the project started during November, 2008 and continued up to May, 2009. From each of the 10 banks, 20 members were selected randomly, thus making the total number of respondents 200 for the present study. The collection of data from the banks involved much time and data could be obtained from them only after visiting personally six to seven times and sending reminders five to seven times.

3.12 PLAN OF ANALYSIS

The data obtained was analyzed and interpreted based on Mean, Percentages, Standard deviation, Paired’ test, Analysis of Variance Karl Pearson’s correlation coefficient and Regression analysis.

3.13 ORGANIZATION OF THE REPORT

The outcome of the research study is presented in the form of a thesis which is divided under the following six chapters.

Chapter-1: Theoretical Background: This chapter provides a general description of Introduction, origin and need for TQM, quality defined, TQM: Meaning & some definition, 5 pillars of TQM, basic principles of TQM, concepts of TQM, potential benefits of TQM, action plan for a TQM Program, TQM techniques tools and systems, roadblocks in implementing TQM, organizational structure for TQM, the TQM model, TQM in Indian Banks, need for the study.

Chapter-2: Review of literature: This chapter lays out related literature review, Research gap, Conceptual model, operational definition of concepts, and QIT’s.
Chapter-3: Design of the study: This chapter lays out the research design to the study, where Statement of the problem, scope of the present study, objectives of the study, hypothesis, methodology, sources of data, sampling design, variables used in the study, development of scale, data collection instruments, field work, plan of analysis, organization of the report, limitations of the study is discussed in detail.

Chapter -4: Profile of the Respondent Banks: This chapter deals with profile of the bank, where the factors like history of the bank, vision and mission statement, quality principles, banking products are described in detail.

Chapter-5: Analysis and interpretation

1. Components of TQM
   In this chapter the results relating to components of TQM are analyzed and interpreted, hypothesis are either rejected or accepted the significance of the results is explained.

2. Economic performance
   In this chapter the results relating to economic Performance of the banks are analyzed and interpreted, hypothesis are either rejected or accepted the significance of the results is explained.

3. Relationship between TQM and Economic performance
   In this chapter the results relating to relationship between TQM and Economic performance are analyzed and interpreted, hypothesis are either rejected or accepted, the significance of the results is explained.
4. Impact of TQM on Economic performance

In this chapter the results relating to impact of TQM on economic performance of banks are analyzed and interpreted, hypothesis are either rejected or accepted, the significance of the results is explained.

Chapter -6: Summary, conclusion and suggestion

The major findings of the study along with suggestions and conclusions are presented in this chapter.

3.14 LIMITATIONS OF THE STUDY

- The present study has the normal limitations of time, funds and other facilities commonly faced by student researcher.

- The limitations led to the purposive selection of only 10 banks situated in and around Mangalore as the locale of the study.

- The sample size limited to only 20 members in each of the selected bank.