CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction:

An attempt is made in this chapter to portray the various aspects of research methodology employed in the present study. To study and understand the CAS adoption in Small and medium business enterprises in North – East Mumbai zone, the following research methodology is adopted:

3.1 Introduction
3.2 Statement of the problem
3.3 Need of the study
3.4 Objectives of the study
3.5 Hypotheses of the study
3.6 Research design
3.7 Area and scope of the study
3.8 Sample and sample size of the study
3.9 Sources of data collection
3.10 Statistical tools and techniques used
3.11 Data analysis and interpretation
3.12 Model employed in the present study
3.13 Selected measures and indicators of assessing extent of computerization of accounting system
3.14 Measurement of dimensions and indicators
3.15 Operational definitions used in the present study purpose

3.2 Statement of the problem:

The importance of SMEs in economic development is a subject that has received great attention in the literature. SMEs play a vital role as they contribute significantly in terms of employment and income distribution in many countries and India is not an exception for it.

Small and Medium Enterprises (SMEs) play an important role in the growth of Indian Economy. SMEs provide numerous opportunities for employment and are believed to
alleviate poverty. Small and Medium Enterprises as vehicles for growth and
development of a nation thus require attention and policies to facilitate the growth of
these enterprises. With expansion of business, the number of financial transactions
has increased. A number of new tax regimes and regulations have come into effect.
Cash transactions are being replaced by credit / debit card usage, wire transfers and
payments through mobile phone. Banking institutions have adopted computerisation
and automation since long (so a document like transaction statement can be viewed
online, received on email and can be imported into an accounting system) and they
also discourage any use of paper.

Accounting was one of the first functional areas to benefit from computerisation when
computers were initially introduced organizations. With the arrival of first computers,
industry started moving towards computerized accounting system. This system is able
to handle financial data effectively but the true value of an accounting system was that
it was able to generate immediate reports regarding the company. Due to high demand
of globalization and increasing competition, SMEs have to develop innovative,
competitive strategies using latest technology. Computerized accounting system is
such tool that is necessary to be successful and also to survive.

When accounts are maintained manually an accountant faces many issues like
How to balance Trial Balance?
Whether ledger book entries are proper and correct?
Transaction entries require a lot time, etc.

When accounts maintenance is computerized, an accountant gains something like:
Postings are automatically correct as they are configured logically
Trial balance tallies automatically unless some opening balance is wrong
Transaction entries are faster

In this context, an attempt is made by the researcher in the present study to address
the following basic problems.

1. What are the owners' socio- economic characteristics of small and medium
business enterprises of North- East Mumbai area?
2. What are the organizational characteristics of small and medium business enterprises?
3. What is the perception of businessmen towards pattern of keeping and maintaining accounting system in SMEs?
4. What is the perception of businessmen towards CAS awareness, initiation and decision-maker?
5. What is the perception of businessmen towards benefits of CAS adoption to SMEs?
6. What is the perception of businessmen towards role played by CAS adoption in enhancing performance of SMEs?
7. What is the perception of businessmen towards role played by CAS adoption in development of SMEs?
8. To what extent computerisation of accounting system adopted for chart of accounts in SMEs?
9. To what extent computerisation of accounting system adopted for journals and subsidiary journals in SMEs?
10. To what extent computerisation of accounting system adopted for preparing ledgers in SMEs?
11. To what extent computerisation of accounting system adopted for maintaining the integrity of an accounting system in SMEs?
12. To what extent computerisation of accounting system adopted for types of accounting system in SMEs?
13. To what extent computerisation of accounting system adopted for other essential documents preparation in SMEs?
14. To what extent computerisation of accounting system adopted based on use of software in SMEs?
15. Whether CAS is adopted for recording with identification number and journalising chart of accounts related transactions?
16. Whether CAS is adopted for journals and subsidiary journals related transactions?
17. Do you agree that CAS is adopted for preparing ledgers?
18. Do you agree that CAS is adopted for maintaining the integrity of accounting system?
19. Whether CAS is adopted for types of accounting system and other essential documents?
20. Is Computerisation related software is purchased?
21. Is basic requirement for computer accounting framework and operating procedure is followed?
22. Is proper software service and maintenance contracted?

Mumbai is an industrially developed district and treated as financial capital of India. Hence researcher selected Mumbai city for his research area. And the statement of problem In order to investigate above questions, the researcher has taken up the study on CAS adoption in small and medium business enterprises. Hence the statement of problem is as under:

“A Study on Computerization of Accounting System in Small and Medium Business Enterprises in North-East Mumbai Zone”

3.3 Need of the study:

1. The studies undertaken in the field of CAS behaviour need to be updated time to time as per changing business environment, and technological up gradation. Therefore, the present study is an extension of the existing research on CAS and its related issues.

2. In India, studies on CAS, its usage, extent, factor affecting, pattern and practices level and performance among SMEs have received little attention as compared to large-scale industries and multinational industries. The present study is an attempt to understand and examine (i) the perceptions of SMEs on accounting system and computerised accounting system (ii) the extent of CAS adopted based on various dimensions. This aspect with reference to SME in North-East Mumbai zone is remained unaddressed.

3. Majority studies are on cross-borders (globalised studies) and review of literature show that the majority domestic studies fail to capture the CAS in SMEs in Maharashtra and particularly in Mumbai. Therefore for filling up, some research gap in existing studies, the present study is needed and hence undertaken.

4. Even Mumbai University and SNDT Women’s University and to some extent all other university in Maharashtra experts have not addressed CAS extensively. There exists many studies on implementation/adoption of computer and IT in SMEs
business but very few studies almost negligible on computerization of accounting system. In general even few studies are found on manual accounting system and very few on CAS. Empirical studies on CAS are non-existent in studied area. Therefore present study is very much necessary.

3.4 Objectives of the study:

Formulating proper objectives for research study is essential as whole study depends on it. Objectives give speed in the investigation process and also proper direction to researcher in research. Therefore the main objectives for this study are formed by the researcher as follows:

1. To study and assess owners’ and organisational characteristics of small and medium business enterprisers.
2. To study and assess the perception of businessmen towards pattern of keeping and maintaining accounting system in small and medium business enterprises.
3. To study and assess the perception of businessmen towards
   a. CAS awareness, initiation and decision-maker
   b. Benefits of computerization of accounting system to small and medium business enterprisers.
   c. The role played by computerization of accounting system adoption in enhancing performances and development of small and medium business enterprise.
4. To measure, identify and analyse the extent of CAS adoption in small and medium business enterprises towards (i) chart of accounts, (ii) journals and subsidiary journals, and (iii) ledgers.
5. To measure, identify and assess the extent of CAS adoption in small and medium business enterprises towards (a) maintaining the integrity of an accounting system (b) types of accounting system, (c) preparing other essential documents, and (d) use of software.
6. To know and understand the highest and lowest CAS adoption indicator within the dimension.
7. To study and assess the difference in CAS adoption between small and medium business enterprises and its relationship.
8. To measure and identify extent of computerisation of accounting system adoption in small and medium business enterprises.

3.5 Hypotheses of the study:

Considering the nature of the study, the researcher has formulated following hypotheses to fulfil the research objectives.

Hy1: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in preparing chart of accounts dimension.

Hy2: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in preparing journal and subsidiary journal dimension.

Hy3: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in preparing ledger dimension.

Hy4: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in maintaining the integrity of an accounting system dimension.

Hy5: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in preparing types of accounting system dimension.

Hy6: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in preparing other essential documents dimension.

Hy7: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption in use of software dimension.

Hy8: There is no significant difference between small business enterprises and medium business enterprises on CAS adoption.

3.6 Research design:

The study is descriptive to the extent that it explains the owners’ socio-economic characteristics, their perception towards CAS adoption in SMEs. It is also analytical to the extent that it measures, identify analyses the extent of CAS adoption in SMEs.
Hence research is a systematic and scientific endeavour to a large extent. Hence following research design is employed.

**Chart 3.1**

Research design employed in the present study

- **Objectives of this study**
  - To study & assess the extent of CAS adoption in Small & Medium Business Enterprises

- **Survey Method**
  - Simple random & conveniencemethod

- **Types of research**
  - Descriptive & Analytical

- **Sample**
  - Small & Medium Business Enterprises in North East Mumbai Zone

- **Sample Size**
  - 288 SMEs from North East Mumbai Zone

- **Data Collection**
  - Primary -> Pilot survey, questionnaire, personal interview, Observation, Discussion
  - Secondary -> Books, Journals, Articles, reports, internet, websites, etc.

- **Statistical tools Used**
  - Percentage, Chi-square, averages, correlation

- **Data analysis & interpretation**
  - Frequency, percentage, Tables, Charts, Graphs, average, chi-square, comparison, CAS model

- **Testing of Hypothesis**
  - logical method, tables, Chi-square,

- **Summary**
  - Findings, Conclusion & Suggestions
3.7 **Area and scope of the study:**

Mumbai - North East Mumbai zone is purposefully chosen as study area. Mumbai is modest city for understanding the application of technological innovation (i.e. here computerization of accounting system) in small and medium enterprises due to:

i. Mumbai industrially and technologically advanced city in Maharashtra as well as in India.

ii. Mumbai North East Zone is one of the industrial belts.

iii. Mumbai occupies a prominent position in the social, economic, political, cultural and business environmental activities in the country. Recently make in India / Maharashtra event was organized by Maharashtra Government for boosting start-ups, stand –up, Make in India, etc. and attract investments in various industries in Maharashtra.

iv. Every selected area for study purpose from Mumbai suburban district has its unique features and contributing in development of Mumbai in a large extent.

v. Mumbai is already financial hub of India and Mumbai has been described as a beehive for supplying cheap labour to industry. Therefore, five prime locations namely, Mulund (155), Vikhroli (156), Bhandup (157), Ghatkopar (West 169 and East 170) and Mankhurd (171) are selected as study area from Mumbai North-East zone, which is a parliamentary constituency. The Mumbai North-East zone is a part of Mumbai suburban district and selected locations- Mulund, Vikhroli, Bhandup, Ghatkopar, Mankhurd are belong from Mumbai Suburban district. In other words, Mumbai suburban district is the area selected for study purpose and from it 5 locations are purposefully selected. The area and scope of the study is presented in Chart 3.2.
Chart 3.2
Area and Scope of the study

Area and Scope of the Study

5 Areas of Mumbai Suburban District (Map : Figure 3.1)

- Mulund: 41 SMEs
- Bhandup: 35 SMEs
- Vikhroli: 31 SMEs
- Ghatkopar: 156 SMEs
- Mankhurd: 25 SMEs

258 Small Business Enterprises and 30 Medium Business Enterprises, 288 SMEs

288 Male and Female SMEs from 5 Areas of Mumbai Suburban District – Mulund, Bhandup, Vikhroli, Ghatkopar and Mankhurd

Perception of Businessmen towards CAS
The map of area selected (i.e. North East Mumbai Zone) is presented and shows the area and scope of the study.

Map 3.1

Map showing Area and Scope of the Study
3.8 Sample and sample size of the study:

3.8.1 Universe of the study:

Mumbai consists of two distinct region, Mumbai city / greater district and Mumbai Suburban district. The present study’s area- North –East – Mumbai zone, falls in Mumbai Suburban district. Hence Small and Medium Enterprises (SMEs), who are running business in the area of Mumbai suburban district and particularly Mulund, Vikhroli, Ghatkopar (East and West), Bhandup and Mankhurd, is the Universe or Population of this study. In other words, SMEs registered upto March 2014 in suburban district Mumbai is considered as universe of the Study. North –East Mumbai zone or selected five locations are the part of Mumbai suburban district. Owner/ manager/ business organiser/ businessmen SMEs unit etc. are treated synonymous can be referring as universe also. There were total 3852 units registered in Mumbai suburban district as SMEs upto March 2014. The chart 3.3 shows the distribution of universe as per small and medium enterprises out of total universe.

<table>
<thead>
<tr>
<th>Types of business enterprises</th>
<th>No. of registered unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>3751</td>
</tr>
<tr>
<td>Medium</td>
<td>101</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3852</strong></td>
</tr>
</tbody>
</table>

(Source: District Industries Center, Chunabhatti, Mumbai)

The researcher has faced lot of difficulties in finding out the exact universe. The researcher has made effort to find out the exact universe by visiting associations of merchants i.e. Maratha Chamber of Commerce, Merchant of Commerce, as well as government agencies like DIC (District Industries Center, Chunabhatti, Mumbai) and to collect units registered as SMEs in Mulund, Bhandup, Vikhroli, Ghatkopar, and Mankhurd suburb. But it was observed that they had SMEs registered list for Mumbai suburban district but not area wise/ location wise. Therefore it is not possible to know the exact number of SMEs in the selected areas. Hence units registered as SMEs in Mumbai suburban district under manufacturing and services sector up to March 2014.
is the universe of this study. They are 3751 small, 101 medium and together 3852 units.

3.8.2 Selection of the sample:

In order to study and assess the CAS adoption status in North-East Mumbai zone, all types of SMEs’ entrepreneurs/ businessmen/ units who are running business are selected as sample of the study. Mulund, Bhandup, Vikhroli, Ghatkopar, and Mankhurd of North-East Mumbai zone belongs from Mumbai Suburban district are chosen as sample for this study. Male and female SMEs, who are running business in the selected area, are also considered the sample of the study and selected 5 locations are selected to represent Mumbai as samples. For selecting samples, a pilot survey was conducted. Few visits were paid to Merchant’s associations and government agencies that are looking after SMEs development affairs. A list of SMEs was collected from above segments. From this actual sample size is finalised after administrating questionnaire. Finally 288 SMEs are selected, consisting of 258 small and 30 medium registered units/ enterprises in Mulund, Bhandup, Vikhroli, Ghatkopar and Mankhurd from North-East Mumbai zone of Mumbai suburban district as sample.

3.8.3 Sample size and its selection process:

Taking into consideration the time and cost factor, researcher had distributed / administered 350 questionnaire based on pilot survey and simple random as well as convenience method. The questionnaire was also emailed to some SMEs based on list provided by Chamber of Commerce, Churchgate, Mumbai. The chart 3.4 shows the process followed for selecting final sample size.
Chart 3.4
Process of Selection Sample Size and Selected Final Size

<table>
<thead>
<tr>
<th>Location</th>
<th>Questionnaire administered</th>
<th>Questionnaire received</th>
<th>Questionnaire Rejected</th>
<th>Final selected sample size</th>
<th>% of sample size to administered questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.M</td>
<td>40 10 50 38 07 45 04 00 04</td>
<td>34 7 41 82.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. B</td>
<td>35 05 40 30 05 35 00 00 00</td>
<td>30 5 35 85.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.V</td>
<td>35 05 40 30 05 35 04 00 04</td>
<td>26 5 31 75.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.G</td>
<td>165 15 180 150 15 165 06 03 09</td>
<td>144 12 156 87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.Ma</td>
<td>35 05 40 27 03 30 03 02 05</td>
<td>24 01 25 62.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>310 40 350 275 35 310 17 05 22</td>
<td>258 30 288 82.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universe of the study</td>
<td>3751 101 3852</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample selected % to universe</td>
<td>6.9 29.7 7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(M- Mulund, B- Bhandup, V- Vikhroli, G- Ghatkopar, Ma- Mankhurd)

(1= Small business enterprises; 
2= Medium business enterprises; 
3=Small and medium business enterprises)

In all, 350 questionnaires were administered and out of it, 310 questionnaires actually received. 288 questionnaires were usable in all respect. It means 22 questionnaires were rejected due to incompleteness. Hence, effective sample size that is selected is 288. Questionnaire administered among Mulund, Bhandup, Vikhroli, Ghatkopar and Mankhurd were to the extent of 50, 40, 40, 180 and 40 respectively, total being 350 questionnaires. Out of it, questionnaire received from Mulund, Bhandup, Vikhroli, Ghatkopar and Mankhurd were 45, 35, 35, 165 and 30 respectively, total being 310 and questionnaire that were rejected due to incompleteness were 4, 0, 4, 9 and 5 respectively. Hence sample size selected location wise for Mulund, Bhandup, Vikhroli, Ghatkopar and Mankhurd were 41, 35, 31, 156 and 25
respectively. Thus the percentage of sample size to administered questionnaire was 82.3 percent.

There are 3751 small business enterprises registered in Mumbai Suburban district up to March 2014. Selected sample size of small business enterprises is 258 for the study. It shows that selected sample size of small business enterprises is 6.9 percent of total universe / population (i.e. small business enterprises). Whereas there are 101 medium business enterprises registered in Mumbai Suburban district up to March 2014, out of which 40 are manufacturing units and 61 are service units. Selected sample size is 30 medium business enterprises, which shows that sample size of medium business enterprises is 29.7 percent of total universe (i.e. medium business enterprises). Overall small and medium business enterprises are registered in Mumbai Suburban district were 3852. Selected sample size is 288 of small and medium enterprises. Hence sample size of total small and medium enterprises is 7.5 percent of total universe (i.e. small and medium business enterprises).

3.9 Sources of data collection:

In the present study, both primary and secondary sources of data are used as under.

3.9.1 Secondary sources of data collection:

Secondary data are collected from the following sources:

1. Books, Magazines, Newspapers and periodicals
2. Visit to various libraries such as SNDT, Mumbai University, IIT Powai, Mumbai, Savitribai Phule Pune University, Pune and TISS, Mumbai
3. International and National Trade and Research Journals
4. Reports and Publications
5. Website, Internet
6. M. Phil. and Ph.D. Theses – Shodh Ganga
7. Association of Merchants (Chamber of Commerce)
8. Directorate of SMEs, Sakinaka, Mumbai

3.9.2 Primary sources of data collection:

The Primary Data are collected through following process:
1. Primary Data collected on the basis of interview, observation, discussion, pilot survey and questionnaire.

2. Before final administering questionnaire, a pilot study was conducted to gain some systematic knowledge about the problem to be investigated and units to be selected. A sample of 20 SMEs i.e. 2 small and 2 medium enterprises from each location (here 5 locations namely, Mulund, Vikhroli, Bhandup, Ghatkopar and Mankhurd are considered) formed the respondents to the pilot study. Total being (5 X 2 X 2 = 20). Twenty SMEs were selected and pilot survey was conducted. The results of the flexible and intensive interviewing during the pilot study was properly recorded and then carefully analysed for finalised the questionnaire. Based on pilot study measures / indicators of CAS were selected and included in final questionnaire. Then final questionnaire were administered among 350 owners / managers of SMEs and primary data was collected.

3.10 Statistical tools and techniques used:
After completion of data collection, questionnaire were edited and coded properly to make them ready for data entry. The excel is used to prepare master tables and graphs. The frequency, frequency converted into percentage (i.e. ratio), average, and chi-square are used as statistical tools and techniques. Correlation, comparison, tables, charts, graphs, etc. is also prepared and used.

3.11 Data analysis and interpretation:
After completion of data collection, questionnaires were edited properly. Questionnaire codification, tabulation, was processed. Well designed chapter plan is prepared and chapter wise analysis and interpretation of data after taking proper objectives and hypothesis as well as research methodology into consideration is undertaken based on frequency distribution, percentage, tables, graphs, charts, figures, comparative approach, average, correlation, chi-square etc. Logical conclusions are drawn and summarised in a systematic manner based data analysis and interpretation. The hypotheses are tested with the help of chi-square test.

3.12 Model employed in the present study:
Based on Iacovou et al. (1995) and Schulz et al. (2010) model, CAS adoption is evaluated with 5 items by Quang and Lin (2013) namely (1) the usage of computer for accounting practices, (2) the usage of accounting software, (3) the usage of internet – accounting within the company, (4) the usage of internet – accounting with other outside agencies, (5) the usage of internet- accounting for other purposes. A 5 point linear numeric scale ranging from ‘1’ = never considering CAS to ‘5’ = under implementation of CAS is employed. On the other hand, 4 categories of indicators are used to know the extent of CAS adoption by Oladipupo and Agape (2013) such as:

1. Level of accounting system automation (LSA),
2. Types of software / package in use (TSP),
3. Transaction processing models (TPM), and

According to Yap and Thong (1995) the main computerization components are IT investment, hardware type (i.e. mini- micro, computer network), application type (i.e. Transaction processing e.g. accounts receivable/ payable, general ledger, sales, payroll etc, planning and control e.g. budgeting, job scheduling etc.) and specialised applications e.g. CAD/CAM, MRD, EDR etc.)and software complexity.

Based on above experts study, a research model is developed for present study to measure and identify the extent of CAS adoption. 7 dimensions namely (1) chart of accounts, (2) journals and subsidiary Journals, (3) ledgers, (4) keeping and maintaining integrity of an accounting system, (5) types of accounting system, (6) other essential documents, and (7) use of software are considered. They consists of in all 35 indicators or attributes and 3 indicators or attributes are included in the stated dimensions. The employed model for measuring and identifying extent of CAS adoption is given as under.

**Chart 3.5**

Research model for measuring and identifying extent of CAS adoption
Using computer for preparing chart of accounts, preparing journals and subsidiary journals, preparing ledgers, keeping and maintaining integrity of an accounting system, preparing types of accounting system, preparing other essential documents, and purchasing and using software is called extent of computerisation of accounting system. In other words, using and applying computer in keeping and maintaining accounting system is referred computerization of accounting system in the present study.

3.13 Selected measures and indicators of assessing extent of computerization of accounting system:

There are multiple measures and indicators available to judge and know the extent of CAS adoption in large-scale industries’ accounting system. But the state of a nation’s small and medium industry is a barometer of the vibrancy of its economy at any given time. However, small and medium business especially small businesses lack financial resources and internal technical expertise and generally have a poor appreciation of the benefits from utilising computers (Delone, 1988; Gable 1991; Edison et al., 2012; Yap and Thong, 1997). In addition, SME businesses face difficulties in recruiting and retaining internal professionals and IT experts. Hence indicators or attributes selection must be undertaken carefully. Those are suited and can be applicable within available resources. Hence, in the present study 35 indicators or attributes are selected to measure the extent of CAS adoption in SMEs and classified them into 7 dimensions. In other words, the extent of CAS in SMEs is measured, identified and assessed by taking 35 indicators as under.

A1. Recording with identification number and journalising the personal, real and nominal accounts in SMEs.

A2. Recording with identification number and journalising the assets related transactions.

A3. Recording with identification number and journalising the liabilities related transactions.

A4. Recording with identification number and journalising the net assets related transactions.
A5. Recording with identification number and journalising the revenue related transactions.
A6. Recording with identification number and journalising the expenses related transactions.
A7. Cash disbursement journal
A8. Cash receipt journal
A9. Inventory journal
A10. Payroll journal
A11. Account payable and account receivable journal
A12. Posting Journal entries into general ledgers
A13. Giving relevant number/ code number to each ledger (folio number)
A14. Preparing debtors and creditors ledger
A16. Balancing ledgers as per accounting principles
A17. Preparing bank reconciliation
A18. Preparing trial balance
A19. Preparing Trading, Profit and loss account
A20. Preparing balance sheet
A21. Analysing and interpreting financial statement
A22. Standard cost accounting system
A23. Marginal cost accounting system
A24. Management accounting system
A25. Human resource accounting system
A26. Taxation accounting system
A27. Environment accounting system
A28. Budget preparation
A29. Vat preparation
A30. Cash flow statement preparation
A31. Source document preparation
A32. Original entry book preparation
A33. Software purchased
A34. Arrangement of basic requirement
A35. Proper service and maintenance arrangement contracted for software
Above 35 indicators are classified into 7 dimensions as under Chart 3.6.

**Chart 3.6**

**Coverage and no. of indicators in the model of CAS adoption**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Coverage of indicator as per dimension</th>
<th>No. of indicators in the dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chart of Accounts</td>
<td>A1 to A6</td>
<td>6</td>
</tr>
<tr>
<td>2. Journals and subsidiary journals</td>
<td>A7 to A11</td>
<td>5</td>
</tr>
<tr>
<td>3. Ledgers</td>
<td>A12 to A16</td>
<td>5</td>
</tr>
<tr>
<td>4. Keeping and maintaining integrity of an accounting system</td>
<td>A17 to A21</td>
<td>5</td>
</tr>
<tr>
<td>5. Types of accounting system</td>
<td>A22 to A27</td>
<td>6</td>
</tr>
<tr>
<td>6. Other essential documents preparation</td>
<td>A28 to A32</td>
<td>5</td>
</tr>
<tr>
<td>7. Use of software</td>
<td>A33 to A35</td>
<td>3</td>
</tr>
<tr>
<td><strong>Extent of CAS adoption</strong></td>
<td>A1 to A35</td>
<td>35</td>
</tr>
</tbody>
</table>

**3.14 Measurement of indicators (i.e. Extent of CAS) and dimensions:**

Adopting computer for preparing seven dimensions is referred here extent of computerisation of accounting system. In simple using and application of computer in keeping and maintaining double entry accounting system is called CAS. Higher the preparation of seven dimensions with help of computer is the higher the extent of CAS, assuming this the extent of adoption CAS in above 7 dimensions is expressed as under.

\[ E = \frac{RS \times 100}{N} \]

\[ \text{(1)} \]

E Stands for extent of CAS adoption in indicator say first indicator or any indicator.
RS  Stands for total number of responses received for respective indicator i.e. frequency say for first indicator of SBEs and MBEs, Yes responses are 110 and 18.

N  Stands for total sample respondents say for SBEs 258, MBEs 30, and SMEs 288.

The extent of CAS adoption in 1st indicator for SBEs, MBEs, and SMEs is calculated as an example / specimen.

(A) For SBEs : ‘Yes’ CAS adopted
$I^{st}$ indicator extent $= \frac{110*100}{258}$ .................................. (2)

$= 42.6$

(B) For MBEs : ‘Yes’ CAS adopted
$I^{st}$ indicator extent $= \frac{18*100}{30}$ .................................. (3)

$= 60$

(C) For SMEs : ‘Yes’ CAS adopted
$I^{st}$ indicator extent $= \frac{A+B}{N}$ .................................. (4)

$= \frac{(110+18)*100}{288}$

$= 44.4$

Thus extent of CAS adopted (Yes adopted) is SBEs, MBEs and SMEs is 42.6 percent, 60 percent and 44.4 percent.

Extent of CAS adopted in chart of accounts, journals ad subsidiary journal, ledger, keeping and maintaining integrity of an accounting system, types of accounting system, other essential documents preparation and use of software together called CAS adoption in SMEs. Average of 1 to 6, 7 to 11, 12 to 16, 17 to 21, 22 to 27, 28 to 32 and 33 to 35 is the extent of CAS adoption in dimension chart of accounts, journal and subsidiary journals, ledger, keeping and maintaining integrity of an accounting system, types of accounting system, other essential documents preparation and use of software. Averages are calculated for each dimension with the help of following formulae.

$$\bar{X} = \frac{A_1 + \ldots + A_6}{6}$$

Mean extent of CAS adoption for Chart of accounts ..........................(5)
### Mean extent of CAS adoption

<table>
<thead>
<tr>
<th>Formula</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\bar{X} = \frac{A_7 + \ldots + A_{11}}{5}$</td>
<td>Mean extent of CAS adoption for Journal and subsidiary journals</td>
</tr>
<tr>
<td>$\bar{X} = \frac{A_{12} + \ldots + A_{16}}{5}$</td>
<td>Mean extent of CAS adoption for Ledger</td>
</tr>
<tr>
<td>$\bar{X} = \frac{A_{17} + \ldots + A_{21}}{5}$</td>
<td>Mean extent of CAS adoption for Integrity of an accounting system</td>
</tr>
<tr>
<td>$\bar{X} = \frac{A_{22} + \ldots + A_{27}}{6}$</td>
<td>Mean extent of CAS adoption for Types of accounting system</td>
</tr>
<tr>
<td>$\bar{X} = \frac{A_{28} + \ldots + A_{32}}{5}$</td>
<td>Mean extent of CAS adoption for Other essential documents preparation</td>
</tr>
<tr>
<td>$\bar{X} = \frac{A_{33} + \ldots + A_{35}}{3}$</td>
<td>Mean extent of CAS adoption for Use of software</td>
</tr>
<tr>
<td>$\bar{X} = \frac{A_1 + \ldots + A_{35}}{35}$</td>
<td>Mean extent of CAS adoption in SMEs</td>
</tr>
</tbody>
</table>

For example: Mean extent of CAS adoption for chart of accounts (Yes responses only)

\[
\bar{X} = \frac{(A_1+A_2+A_3+A_4+A_5+A_6)}{N} \quad \text{......... for SBEs} \quad \text{............. (13)}
\]

For SBEs:

\[
= \frac{(110+82+142+49+99+185)}{6} \\
= 667/ 6 \\
= 111 \quad \text{Frequency} \\
= 111*100/ 258 \\
= 43.0 \text{ in percent}
\]
For MBEs:–

\[ \bar{X} = \frac{(A1+A2+A3+A4+A5+A6)}{N} \]  ........................................................................................................(14)

\[ = \frac{(18+21+27+12+17+28)}{6} \]

= 123/ 6

= 20 Frequency

= 20*100/ 30

= 66.7 in percent

For SMEs average  ..............................................................................................(15)

\[ = \frac{(111+20)}{288} \]

= 131 Frequency

= 131*100/288

= 45.5 in percent

The extent of CAS adoption in chart of accounts dimension for SBEs, MBEs and SMEs is 43.0 percent; 66.7 percent and 45.5 percent respectively.

3.15  Operational definitions used in the present study purpose:

3.15.1  Small and medium business enterprises Owners:

The owner is the person who own and run business. In the present study the entrepreneur who is an organiser, united all the means of production or service for which he/ she pays them interest, wages and rent and hopes to earn profit for him/ herself is referred as owner. He performed in different roles like organiser, manager, financer, seller and promoter. Therefore all businessmen, entrepreneurs, owners, organisers, one who owns and runs small or medium business enterprises in area of Mulund, Bhandup, Ghatkopar, Vikhroli and Mankhurd is considered as owner for this study.

3.15.2  Small business enterprises:

According to the definition of MSMED Act 2006, an enterprise having investment in plant and machinery for more than 25 lakhs but less than 5 crores in case of manufacturing unit and investment in equipment for more than Rs. 10 lakhs but less
than 2 crores in case of service unit is considered as Small business enterprises in India. Therefore for the present study all industries, enterprises, businesses, entrepreneurships of North- East Mumbai Zone which are coming under this definition are considered as small business enterprises.

3.15.3 Medium business enterprises:

MSMED Act 2006 states that an enterprises having investment in plant and machinery in the range of 5 crores to 10 crores in case of manufacturing unit and investment in equipment in the range of 2 crores to 5 crores in case of service unit is medium business enterprises. The same definition is accepted by the researcher for all entities, enterprises, businesses, and entrepreneurships of North East Mumbai zone.

3.15.4 Accounting system:

The term ‘system’ may be defined as a set of elements which operate together in order to attain a goal. A system does not consist of random sets of elements but elements which may be identified as belonging together because of a common goal. It consists of three activities,

a. Input
b. Processing of Input
c. Output.

Accounting includes a series of different activities, which are linked with each other. Accounting process involves the accumulation, analysis, measurement, interpretation, classification, and summarization of the results of each of the transactions of the organizations. It is a system which is responsible for recording, analyzing, monitoring and evaluating the financial condition of companies, preparation of documents necessary for tax purposes, providing information support to many other organizational functions like marketing, planning, human resource management and so on.

In the present study accounting system is referred to method adopted for preparation of chart of accounts, journals and subsidiary journals, ledgers, financial statements, different types of accounting, and preparation of other essential documents of reporting as per accounting principles and conventions. Thus accounting system is
recording of accounting data, monitoring, controlling of system which is used for accounting purpose and examine its performances.

3.15.5 Manual accounting system:

Manual accounting system is the process of performing the whole accounting system/process/cycle manually on a periodic basis.

3.15.6 Computerised accounting system:

Using computer for preparing chart of accounts, preparing journals and subsidiary journals, preparing ledgers, keeping and maintaining integrity of an accounting system, preparing types of accounting system, preparing other essential documents, and purchasing and using software is called extent of computerisation of accounting system. In simple words, using and applying computer in keeping and maintaining accounting system is referred computerization of accounting system in the present study. In other words in the present study Computerised accounting system referred to use of computers in chart of accounts, in journals and subsidiary journals, in preparation of ledgers, in maintaining the integrity of accounting system, in types of accounting system, in preparation of other essential documents.

3.15.7 CAS adoption in small and medium business enterprises:

Recording, processing, analysing, monitoring and evaluating 7 dimensions as per accounting principles, rules and procedures by using computer is referred adoption of CAS in SMEs. Practicing CAS means adoption of CAS. It is 3 stage process-initiation, adoption and implementation. Adoption and implementation stage is treated here one and same.

3.15.8 Measures and indicators of CAS adoption:

Using computer for chart of accounts, general ledgers, journals and subsidiary journals, check book, accounting procedures, maintaining the integrity of accounting system are the some of the indicators of computerised accounting system. In other words, using computer for recording, analysing, monitoring and evaluating the assets, liabilities, net assets, revenues, expenses, general ledger, cash disbursement journal, cash receipts journal, payroll journal, accounting payable journal, accounting receivable journal, check book, paying bills, depositing cash, trial balance, trading, profit and loss account, balance – sheet, bank reconciliation statement, etc. are the
indicators to measure and identify the adoption of computerization of accounting system in small and medium size or any size of companies in the present study.

3.15.9 Perception of businessmen towards benefits of CAS adoption in SMEs:
Conscious on (1) Reduces fraud, (2) improves quality of accounts and accounting system, (3) improves accounting information system, (4) improves quality of reports and reporting, (5) provides flexibility in information generation, (6) saves time and cost of keeping and maintaining accounting system, (7) eliminates duplication of efforts, is referred as perception of businessmen towards benefits of CAS adoption in SMEs.

3.15.10 CAS adoption in enhancing performance of SMEs:
Evaluating performance of SMEs sales, profitability, efficiency of staff, quality of decision making, satisfaction of running business and service quality after CAS adoption is referred here CAS role in enhancing performance.

3.15.11 Extent of CAS adoption for Chart of accounts:
The chart of accounts is a list of each item which the accounting system tracks. Accounts are divided into 5 categories, consisting of (1) assets, (2) liabilities, (3) net assets or fund, (4) revenues and (5) expenses. Each account is assigned an identifying number for use within the accounting system. CAS adoption in chart of accounts means to what extent computer is used for assigning an identifying number in respect of assets, liabilities, net assets balance, revenues and expenses. It means to examine usage of computerization in chart of accounts. In other words, in order to measure, identify and assess to what extent CAS is adopted in Chart of accounts - assets, liabilities, net assets balance, revenues and expenses giving folio number as per accounting principles, rule and procedures six indicators / attributes are considered.

3.15.12 Extent of CAS adoption for Journals and subsidiary journals:
Journals are books of original entry, which are used to systematically record all accounting transactions before they are entered into the general ledger. Journals organise information chronologically, and by transaction type (receipts, disbursement, other). As organisation mature, and handle greater numbers of financial transactions, they may develop subsidiary journals to break out certain kinds of activity from the
primary journals. The journal and subsidiary journal is a list which the accounting system tracks. Hence using computer for journals and subsidiary journals like cash disbursement, cash receipts, inventory, payroll and accounts payable or receivable is called extent of CAS adoption for journals and subsidiary journals.

3.15.13 Extent of CAS adoption for preparing ledgers:

It means using computer for posting general ledgers, relevant numbers to general ledgers, preparing debtors or creditor’s ledger, preparing cash ledger and balancing ledgers.

3.15.14 Extent of CAS adoption for maintaining the integrity of an accounting system:

Maintaining the integrity of accounting system referred for this study as a list of each item that the accounting system tracks. The key tasks for maintaining the integrity of an accounting system include (1) bank reconciliation statement, (2) Trial Balance, (3) Trading, Profit and Loss account, (4) Balance sheet, and (5) Financial statement. Hence using and applying computer for preparing (i) bank reconciliation statement, (ii) trial balance, (iii) trading, profit and loss account, (4) balance sheet and (5) financial statements is referred maintaining the integrity of accounting system.

3.15.15 Extent of CAS adoption for Types of accounting system:

Adopting computer for preparing different types of accounting systems, such as (1) Standard cost accounting, (2) Marginal cost accounting, (3) Management accounting, (4) Human resource accounting, (5) Taxation accounting and (6) Environmental accounting is known as extent of CAS adoption for types of accounting system.

Six types of accounting are considered as follows.

1. Standard costing system referred as a system which calculates various variances (i.e. difference between standard data and actual data) and gives analysis of variances.

2. Cost accounting system is a framework used by firms to estimate the cost of their products for profitability analysis, inventory valuation and cost control. Cost techniques play a useful role in operation and control of SMEs.
3. Management Accounting is an integral part of management, requiring the identification, generation, presentation, interpretation, and use of information relevant to formulating business strategy, planning, controlling activities, decision making, performance evaluation, value enhancement.

4. Human resource accounting is the process of assigning, budgeting, and reporting the cost of human resources incurred in an organization, including wages and salaries and training expenses.

5. Tax accounting system involves preparation, analysis and presentation of tax returns and tax payments. In India, multiple taxes have to be paid by SMEs viz. sales tax, service tax, vat, corporate tax, excise duty, custom duty etc.

6. An environmental Accounting system measures the effects of the natural environment on SMEs in monetary terms. Ecological accounting measures the influence a SMEs has on the environment.

Using Computer in preparing above six types of accounting system means extent of CAS adoption.

3.15.16 Extent of CAS adoption for other essential documents:

To what extent computer is used in preparation of budget, vat, cash flow statement, source documents, original entry book, is the extent of CAS adoption for other essential documents.

3.15.17 Extent of CAS adoption based on Use of Software:

Use of software is one of the measures, can be used for measuring and identifying the extent of CAS adoption. In this study it refers to software purchased, arrangement of basic requirement, and proper service and maintenance arrangement contract.
References:


