CHAPTER IV
RESEARCH METHODOLOGY, RESEARCH DESIGN, OBJECTIVES, HYPOTHESIS
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RESEARCH METHODOLOGY, RESEARCH DESIGN, OBJECTIVES, HYPOTHESIS

4.1 INTRODUCTION

After the completion of the literature review on Cost Management practices, Strategic Costing and Profitability shown their cumulative impact on the SME profitability. In this chapter aspects of research methodology including research design, data collection and data analysis methods and hypothesis testing to support the model designed are seen. End of the chapter, It states the individual impact of cost management, strategic cost management and their cumulative impact on the profitability of engineering industries are studied.

The objectives of this chapter are outlined as follows, 1) To justify the research methodology used in this research study 2) To explain in detail the research methodology used in this study 3)To justify how research design and data collection and data analysis is utilized in this study to answer the research questions outlined in chapter 1. This chapter is structured in to eight sections.

Section 4.1 introduces the chapter which includes details of the contents, objectives of the methodology and the general structure of the chapter. Section 4.2 reviews the research methods used by the previous researchers. The objective of this section is to justify the research methodology used in this study. Section 4.3 explains how this research design selected is useful for answering the research questions. Section 4.4 concentrates on defining and measuring of the variables and developing the model, which will be tested by the empirical data. Section 4.5, 4.6, 4.7 respectively present methods of data collection, data transformation and data analysis, which will be conducted in chapter 5 of the research study. Section 4.8 gives the
conclusions of the chapter, and Figure 4.1 depicts a visual chapter outline and the links among the sections.

4.2 RESEARCH METHODOLOGY AND APPRISAL OF PRIOR RESEARCH METHODOLOGIES USED.

Research Methodology is a way to systematically solve the research problem. A researcher has to know all the techniques of research but it is not enough as if he does not know which technique to be used, when to be used, how to be used and what kind of results it will yield and how to interpret those yielded results. So, Research Methodology answers all the above questions. A researcher has to formulate research methodology for his research questions. Research methodology differs from one research problem to other. Research methodology is nothing but the logic behind various research methods used. So scope of Research Methodology is much wider than research methods/techniques. Research methodology stands to answer the following questions and likewise. Why a research study has been undertaken? How the research problem has been defined? In what way and why hypothesis has been formulated? What data have been collected and which particular method was adopted? Why particular technique for analysis data has been used? And similar kind of questions gets answered with the help of Research Methodology. So Research Methodology justifies for all the research techniques used in the research. The scope of Research methodology does extend right from generation of research idea and up to data analysis and interpretation. Following steps will summaries the research process.

1. Initial Research idea (Based on researchers experiences etc.)
2. Literature Review
5. In depth Qualitative interviews to capture practitioners views and refine the research idea
6. Questionnaire preparation
7. Pilot Survey and hypothesis formation
8. Quantitative survey / Data Collection / Field work
9. Data Analysis & Interpretation

Justification of Research Methodology is essential in respect of the following components of Research Design for our research.

1. Research Problem & Objectives
2. Hypothesis formation
3. Research Design
4. Sample Selection
5. Data Collection methods
6. Data Analysis methods

**Figure No. 4.1 Component Flow in Research Design**
So from the above figure no. 4.2, it could be found that justification related to defining of research problem and the research objectives need to be given at the first instance. After that the hypothesis formation process also requires sound back up of research methodology, then detailed explanation of the selection of particular research design and the justification for such selection is required. Selection of particular type of research design is based on type of research, characteristics of variables under study, type of hypothesis, sample size etc. After defining the research design, now justification and explanation related to sample selection is done. The researcher has to justify the configuration of the sample selected and how far it is representing the population. Next logical step after sample selection is the data collection, where the researcher needs to justify why he is using a particular method of data collection. At the last, data analysis is done where in the researcher has to use such data analysis methods in order to achieve research objectives and through that to prove the hypothesis defined at the beginning.

4.3 RESEARCH DESIGN

This subsection enumerates the type of business research in terms of classification, purpose and techniques and then, it explain the adequacy of the research design selected for this study. There are many definitions of ‘research design’ which have been evolved but the following definition of ‘research design is considered as definite. ‘Research Design is a plan, structure and strategy of investigation conceived so as to obtain answer to research questions and control variance. The plan is the overall scheme or program of research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of the data’. (Kerlinger, 1973)
So from the analysis of the above definition, the concept of research design could be interpreted in the following way. “A research design is the arrangement of conditions for collection and analysis of data that aims to combine relevance to the research purpose with economy in procedure” (Clarie Sellitz and others, Research Methods in Social Science, 1962). The research design is the conceptual structure within which particular research is conducted. It is the Blueprint for the collection, measurement and analysis of data. Research design starts with writing the hypothesis and its operational implications to the final analysis of the data.

4.3.1 Classification of Research Design.

While selecting the Research Design, the researcher has to analyze the following:

a) Type of business research
b) Purpose and technique of research

The business research can be classified in the following way:

A) Historical Research – This involves studying, understanding and explaining past events.

B) Descriptive Research – Which involves collecting and examining data in order to get the answers concerning the status or the condition of the research subject at a point of time.

C) Associative Research – Which attempts to determine whether and to what degree of relationship exist between the status or the condition of the research subject at some point of time and other factors which can't be manipulated by researcher.

D) Causal or Comparative Research – This attempts to determine cause of the status or the condition of the research subject at some point of time on the basis of knowledge of the factors which can’t be manipulated by the researcher.
E) **Experimental Research** – This attempts to determine cause of the status or the condition of the research subject at some point of time on the basis of knowledge of the factors which can be manipulated by the researcher.

Because there are variety of research approaches, it better to categorize the research type. Business research can be classified based on the either technique or function. Based on technique business research can be classified in to three types experiments, surveys, observational studies. Based on function business research can be classified as –

1) **Exploratory**  
2) **Descriptive**  
3) **Causal (Hypothesis testing)**

**Exploratory Research** – Exploratory research aims at discovery of ideas and insights Exploratory research is conducted with the expectation that subsequent research will be required to provide conclusive evidence.

**Descriptive Research** – Descriptive research concerned with describing the characteristics of particular individual, or of a group. It sets to answer Who, What, Where, When, How etc. questions.

**Causal Research** – Cause and effect relationship is defined between independent and dependent variables in the Causal research. It is also termed as Hypothesis testing research.

Following figure gives detailed visual explanation of types of research and research methods.
In short there are numerous research design approaches but unfortunately there is no simple classification system that defines all the variations to be considered. Following table summarizes the classification of research design

*Developed for the thesis (referred to C R Kothari, 2007)
based on seven different perspectives, indicated by Emory (1985) of which (*) indicates the type of research design selected for the study.

Table No. 4.1

# Classification of Research Design

<table>
<thead>
<tr>
<th>Classification Criteria</th>
<th>Type of Research Design</th>
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<tbody>
<tr>
<td>Degree of Problem Crystallization</td>
<td>Exploratory Research- To develop hypothesis or questions for further research</td>
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<tr>
<td></td>
<td>(*) Formal Research - To test the hypothesis and answer the research questions posed</td>
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<tr>
<td>Data Collection Method</td>
<td>Observation - The researcher monitors and record information about subject without questioning them.</td>
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<tr>
<td></td>
<td>(*) Survey- The researchers interrogates the subject and collects the responses</td>
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<tr>
<td>Researchers Control on variables</td>
<td>Excremental Design- The researcher can manipulate the variables under the controlled situation.</td>
</tr>
<tr>
<td></td>
<td>(*)Ex Post Facto Design – Researcher does not have any control over variables in order to manipulate them.</td>
</tr>
<tr>
<td>The Purpose of the study</td>
<td>(*)Descriptive research - Concerned with defining who what when where how of the data</td>
</tr>
<tr>
<td></td>
<td>(*)Causal Research – Concerned with learning ‘Why’ i.e. Cause and Effect relationship</td>
</tr>
<tr>
<td>Time Dimension</td>
<td>(*) Cross Sectional Research - Carried out once</td>
</tr>
<tr>
<td>Longitudinal Research – Repeated and studied changes over time</td>
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<tr>
<td>The Topical Scope</td>
<td>(*) Statistical Study - emphasis on the breadth of coverage and interested in the frequency of certain characteristics.</td>
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<tr>
<td></td>
<td>(*) Case Study – emphasis on the detailed analysis of a limited number of events or conditions and there relationship</td>
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<tr>
<td>The research environment</td>
<td>(*) Field Study – Field Work</td>
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<td></td>
<td>Laboratory Study – Controlled experiments</td>
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</table>

# Developed for the thesis (*) Selected for this research.

4.3.2 Selecting the Research Design

Based on the theoretical framework of the research and the research problems structured, it is clear that, this research is of ‘Formal’ type as the researcher is interested in testing the hypothesis and answering the research questions posed at the beginning. In this study, initially researcher wanted to answer the research questions which are as follows.
1. How important are the cost management practices and strategic cost management to SME profitability?

2. What are the relationship between financial management practices, intangible resources management, financial characteristics and SME profitability in Maharashtra? Add the relevant research question/objective.

3. How do cost management practices and strategic cost management affect engineering unit’s profitability?

From the analysis of above research questions it is clear that seeking answer to these questions cost management, strategic cost management and SME profitability are defined and investigated in detail. As such for the same Descriptive Research is more adequate than Exploratory Research because Descriptive Research designs to describe characteristics of population in precise manner. There is one important research question which is seeking answer about the impact of cost management, strategic cost management on SME profitability. Here cost management, strategic cost management are independent variables and Profitability is a dependent variable and we need to study the impact of independent variables on dependent variable. So Causal research is adequate method to propound a Cause and effect relationship between two variables. So Causal Research method is also used in place of other available methods.

4.3.3 Selecting Research Methods/Techniques

Based on the methods of data collection C.R.Kothari (2004) classified the research type in the following way: Library Research, Field Research, Laboratory Research and after that the author classified various methods of research under each research type enumerated above in the following way.

a) Library Research – Under Library Research, analysis of historical records and analysis of documents are classified as methods.
b) Field Research – Under Field Research, non participant direct observation, participant observation, mass observation, mail questionnaire, opinionnaire, Personal Interview, Focused Interview, Group Interview, Telephone Survey, Case Study and life history were used as methods of research.

c) Laboratory Research – Under Laboratory Research, Small group study of random behavior, play and role analysis are some of the methods used.

So from the above classification, various methods / techniques of research are identified but following techniques are predominantly used in the context of business research (Maire Jahoda, Morton Deutsch, Stuart W.Cook, Research Methods in Social Science, pg. no. 6 C.R.Kothari)

- Survey is a research technique by which data is gathered from a sample of people by recording their individual notions through questionnaire. This method of mailing the questionnaire to respondents is most extensively used in various business research.
- Experiments are of great use in developing cause and effect relationship between two variables. This method is used in the controlled conditions of laboratory and is very useful in the physical sciences.
- Observation allows the researcher to record the changes occurs in the variables under study with out questioning them. The observation is most commonly used in the studies related to behavioral sciences.
- Secondary data means data that are already available. It is also referred to the data which have already been collected and analyzed by someone else. Secondary data is either published data or unpublished data.
From the context of this research, both Survey and secondary data collection methods are used in this research. For the investigation of strategic cost management practices of SMEs Survey method was used for the collection of primary data. Profitability status of SMEs are studied with the help of graphical question in the questionnaire i.e. Primary data from the SMEs as well as while selecting the sample for the research the annual report MIDC was used for selection of industries.

From the analysis of above research questions, it is clear that seeking answer to these questions Cost management and Strategic Cost management are defined and investigated in detail. As such for the same Descriptive Research is more adequate than Exploratory Research because Descriptive Research designs to describe characteristics of population in precise manner. There is one important research question which is seeking answer about the impact of cost management, strategic cost management and SME profitability. Here cost management, strategic cost management are independent variables and Profitability is a dependent variable and we need to study the impact of independent variables on dependent variable. So Causal research is an adequate method of research to propound a Cause and effect relationship between two variables. So Causal Research method is also used in place of other available methods of research.

Apart from survey, telephonic interviews of the respondents are simultaneously conducted in the context of avoiding the bias and assurance of the genuineness of the information. Some of the respondents preferred telephonic survey to furnish the required details so the same was also used in the collection of primary data. So, in short personal interviews with filling up of questionnaires and telephonic survey were used as the methods for collection of primary
data. Also entrepreneurs meet is conducted to record the views of the
entrepreneurs from the sample.

Mail questionnaire method was specifically avoided and personal
interviews were stressed more for the reasons enlisted below also
conference method was used where the meet of entrepreneurs was
held to record their opinions. So the advantages of personal interview
with online questionnaire filling are advocated on the following
grounds.

- **Misunderstanding of the respondents** - In order to avoid
  misunderstanding and to maintain the validity of the gathered
data, it is very important that the researcher should also work as a
facilitator for the respondent. If the respondents answer is brief or
unclear the researcher/interviewer may be able to get clear and
more comprehensive answer.

- **Item non-response** - In the case of Mail questionnaire there always
  remains a probability for non response to a particular important
question which may upset the very basis of the research itself. So it
is very important to ensure that the researcher collects the holistic
crucial information and there is no item non-response from the
respondents.

- **High Participation** – The interaction between the interviewer and
  the respondents increases the crystallization of the research
problems and clarity of the terms. The presence of the interviewer
also results in to increased interest of the respondents and the
completion of all the responses. So the response rate increases to
higher level.

As mentioned above in addition to the personal interview, secondary
data is collected through the MIDC reports.

In view of all this, researcher was in search of a method which will
satisfy the curiosity of researcher in understanding and applying
these techniques to small scale engineering units. In this search, it is observed that “Case study method” will be directly useful in arriving at some conclusions about the use of at least selected techniques in selected small scale engineering units.

The analysis and discussion of case problems has been the most popular method of teaching strategy and policy for many years. The case method provides the opportunity to move from a narrow specialized view that emphasizes functional techniques to a broader, less precise analysis of the overall corporation.

Case present actual business situation and enable us to examine both successful and unsuccessful corporations. Case analysis involves critical analysis of situation in which manager has to take a decision of long term corporate importance. This approach gives feel of what it is like to be faced with making strategic decisions and implementation of it. Burgess has used the words “the social microscope” for case study method.

a) **Interview method** – The Questionnaire is prepared and given to 25 selected industries (entrepreneurs). After due discussions and personal meeting the same was completed.

b) Conference of small scale engineering units owners / office bearers to understand closely the views about the cost management, strategic cost management, application of strategies and practical difficulties in implementation. The object is to search better ways and means for effective business policies and ethics.

### 4.4 VARIABLE DEFINITION, SURVEY INSTRUMENT AND MODEL DEVELOPMENT

This section discusses variable definitions and measurements, model development representing cause and effect relationship between variables.
4.4.1 Variable measurement and survey instrument

This study is designed to measure the Causal relationship through model development between cost management and strategic cost management and SME profitability. Variable definitions are the prerequisites before developing the hypothesis to test the association between the variables and also measurement of variables is very important factor in the development of the hypothesis. Variables are classified as dependent and independent variables. Variable is defined as any attribute or property in which organisms (objects, events, and people) vary. So variable definition and the measurement of the variable is required.

In every Causal relationship there exist two types of variables i.e. independent variable which is presumed cause and dependent variable which is presumed effect. Detailed consideration of the each independent variable and dependent variable is done below which are defined and utilized in this research.

Dependent Variables

This study examines the effect of cost management practices, strategic cost management on the profitability of the SMEs. Profitability in this study is a dependent variable however profitability is a subjective and abstract concept and it need to be defined and measured in absolute terms. To overcome this obstacle the researchers often use indicated variables to indirectly measure profitability.

Chapter three discussed the variables used by the previous researchers to measure the profitability. For example Maria Angeles Montoro Sanchez, Fansisco Mas-Vedru (2008) studied the financial performance and non financial performance of Spanish SMEs. The authors analyzed the financial performance using two types of variables, which were Profitability ratios and Growth/Activity ratios. Richard G.P. McMahon, Anthony M.J. Stanger (1995) measured and
related the performance of Small and Medium scale industries with the financial objectives of the organization. There were following factors focused in the research like Returns, Risk, Liquidity, Diversification, Accountability, Flexibility. These financial objectives are attained and then same are measured with the help of following formulas, for Returns (Profitability) Gross Profit Ratio, Net Profit Ratio, Operating Profit Ratio, Return on Equity, and Return on Investment. Michael Dennis (2006) has elaborately classified the key financial ratios as Liquidity ratio, Leverage ratio, Efficiency ratio, Profitability ratio. Carles Mulford (1985) emphasized on the relationship between Leverage ratios and the business performance. Jerome Osteryoung, Richard L. Constand and Donald Nast (1992) studied the following ratios including Liquidity ratios which comprised of Current Ratio (CR) and Quick Ratio (QR) also Leverage ratio examined Short-Term Debt Ratio (STDR), Long-Term Debt Ratio (LTDR) and Total Debt Ratio (TDR). The assessment of Activity ratio included Assets Turnover Ratio (ATR) and Receivables Turnover Ratio (RTR). The category of Profitability ratio includes the study of Returns on Assets (ROA), Returns on Sales (ROS) and Return on Net worth (RONW).

In this study, profitability of SMEs was left to be identified and recorded on the part of respondents and they were requested to mark the profitability position of their business on the scale of axis provided in the questionnaire through Break-even chart. As it was found that majority of the respondents were hesitant in reporting the actual figures of profitability, so scales were used to mark the profitability position of the respondents.

The said chart is considered in the topic Case Studies and Findings from Case studies separately. Majority of the business organisation cross the breakeven point and gone through both the periods of prosperity and recession. The present graph shows that all the units
are having better capacities and sustaining power in the present scenario.

**Independent Variables**

An independent variable is that factor that cannot be varied or manipulated in an experiment and which affect the changes in the dependent variables. There are two types of independent variables i.e. Quantitative and Qualitative. In this study, the independent variables involved includes variables used to define the efficiency of cost management practices, strategic cost management variables used to define the status of cost management practices amongst the SMEs.

As mentioned in the previous chapter, various researchers contributed in defining and limiting the scope of strategic financial management but at the same time, the impact strategic cost management could be assessed with the study of the application of various techniques of strategic cost management, which are as follows.

**Organization Chart** –

Predefined organizational chart is a prerequisite for the effective utilization and monitoring of costs. In the absence of predefined organizational chart, responsibility fixing is not possible also cost control process cant be implemented effectively. There are four levers, which need to be considered in the process of designing an organizational chart, which includes Strategy, Accountability, Ladders, Self Interest. (Robert Simmons, Levers of Organization design, Robert Simons, 2005). So accountability for costs is one of the important components in organizational chart. In the present research, knowledge about organizational chart and its usage is recorded through close ended questionnaire.
**Analysis of Financial A/Cs (Mfg & P&R, B/S)** –
Measurement of financial performance is an important prerequisite of organizational success. “If you don’t keep the score, how do you know if you are winning? The same notion applies to the business world: How can you manage your organization’s performance if you can’t measure its progress” (Karen Colteryahen & Patty Davis, Development Dimensions International, 2000) It is very important to account for and measure the financial performance based on which cost management decisions are facilitated. In the present research, knowledge about analysis of financial accounts and its usage is recorded through close ended questionnaire.

**Department-wise Analysis** –
With the advent of Globalization and Liberalization, the scale of business operations have expanded to the mammoth size, which required work specializations in the form of departmentalization. It is very difficult to monitor and control costs in the centralized organization rather decentralized organizations are preferred for better control and administration of costs as well as the whole organization. (Henry Fayol). In the present research, awareness and knowledge about department-wise analysis and its usage is recorded through close ended questionnaire.

**Work Sampling** –
Work Sampling is a statistical technique for determining the proportion of time spent by workers in various defined categories of activities, which includes setting up time of machines, assembly time etc. It is as important as other statistical techniques because it permits quick analysis, recognition, enhancement of job responsibility, tasks allotment, performance competencies and organizational work flows which ultimately results in to improved efficiency due to better cost administration and control. In the present research, knowledge about
‘Work Sampling’ and its usage is recorded through close ended questionnaire.

**Priority Setting** –
Priority Settings in manufacturing SMEs is extremely challenging as the resources available with the SME owners are very limited with multiple alternative uses. In the absence of effective priority setting, the probability of incurring of losses increases which leads to increased cost structure and lesser profitability. In the present research, knowledge about ‘Priority Setting’ and its usage is recorded through close ended questionnaire.

**Target Setting** –
In the same way it is mentioned above ‘Target Setting’ is also important prerequisite for effective administration and control of costs. Planning of targets or Target Setting helps an organization to better plan the costs associated with those targets. In the present research, knowledge about ‘Target Setting’ and its usage is recorded through close ended questionnaire.

**Ranking of Prod Activities** –
Planning and scheduling of production activities and effectively executing them will result in to increased efficiency in operations and reduction in costs. In the absence of ranking of production activities there is higher probability of increased inventory costs and unnecessary labour overheads. In the present research, knowledge about ‘Ranking of Production activities’ and its usage is recorded through close ended questionnaire.

**Production Planning** –
Production Planning & Control is an integral function of the manufacturing organization, if it is absent from a manufacturing SME
in such case overall costs of the organization will be hiked up. So all SMEs must be aware of Production Planning activities. In the present research, knowledge about ‘Production Planning’ and its usage is recorded through close ended questionnaire.

**Make or buy decision –**

An entrepreneur always remains in a dilemma for certain components to be manufactured in-house or to source the same from outside the organization. Each options has different cost inclinations depending upon the size of the organization, financial conditions, geographical location etc. These decisions need to be taken very carefully as it requires lot of capital expenditure to be incurred which affects the organizational financial health. In the present research, knowledge about ‘Make or Buy decisions’ and its usage is recorded through close ended questionnaire.

**Purchase Function (Policy) –**

Inventory cost is one of the principal or major cost of the manufacturing SMEs. Purchase Policy has to be developed so as to reduce the inventory costs. In the present research, knowledge about ‘Purchase Policy’ and its usage is recorded through close ended questionnaire.

**Inventory Control –**

Inventory control is one of the major control point in manufacturing engineering industry. Inventory cost is one of the principal or major costs of the manufacturing SMEs. Nearly seventy percent of the total fund outflow goes in to acquisition of inventory. So it is of strategic importance. In the present research, knowledge about ‘Inventory Control’ and its usage is recorded through close ended questionnaire.
**Codification**

Codification of materials is required to have control over inventory usage as well as inventory handling. Codification helps to identify the excess consumption as well as it helps to fix the responsibility for the usage. In the present research, knowledge about ‘Codification’ and its usage is recorded through close ended questionnaire.

**ABC Analysis**

ABC analysis includes segregation of material based on the value of an item and its consumption. Stricter controls are applied depending upon the class of material, where ‘A’ stand for utmost valuable items and ‘C’ stand for lower value items. In the present research, knowledge about ‘ABC Analysis’ and its usage is recorded through close ended questionnaire.

**Value Analysis**

Value is the aggregate benefit derived over the cost. Value added activities need to be identified and in each activity cost reduction should be attempted. In the present research, knowledge about ‘Value Analysis’ and its usage is recorded through close ended questionnaire.

**Separate Raw Mat. Stores & Finished Goods Stores**

There should be separate provision of Raw material stores and finished goods store as the same would facilitate the administration and issue of inventory which in turn result in to lower inventory costs. In the present research, knowledge about ‘Separate Raw Material & Finished Goods Store’ and its usage is recorded through close ended questionnaire.
**Existence of dedicated stores Dept. –**
Inventory handling & management is one of the pilferage area amongst the engineering SMEs. As the movement of inventory is not properly facilitated, it results into over consumption of material and indiscipline in inventory receipt and issue. In the present research, knowledge about ‘Existence of dedicated stores Dept’ and its usage is recorded through close ended questionnaire.

**Design Dept. i.e. Product Development (Redesigning) –**
New Product Development is many times neglected by SMEs which results into monotonous job work or manufacturing activities which leads to limitation to creative designing or redesigning process by which costs may be lowered. In the present research, knowledge about ‘Product Redesigning’ and its usage is recorded through close ended questionnaire.

**Sales Forecasting –**
In the absence of accurate sales forecasting, estimation or budgeting of expenses is not possible. If adequate sales forecasting is absent even functions such as production planning and control are impossible. In the present research, knowledge about ‘Sales Forecasting’ and its usage is recorded through close ended questionnaire.

**Sales promotion activities / programme –**
The most important function of the organization is to fetch revenue for the organization. It is found that there are severe limitations to the sales promotion activities of the SMEs. In the present research, knowledge about ‘Sales Promotion activities’ and its usage is recorded through close ended questionnaire.
Pricing system –

Pricing decisions are the most important decisions of the SMEs. At many instances pricing is dictated by the external parties i.e. Big corporate customers. SME remains a price-taker rather than price maker. In the present research, knowledge about ‘Pricing System’ and its usage is recorded through close ended questionnaire.

Cost reduction Areas –

Identification of cost reduction areas and implementing upon the same is very much required for the better administration and control of costs. If cost reduction areas are aptly worked on it would result in the decreased organizational costs. In the present research, knowledge about ‘Cost reduction areas’ and its usage is recorded through close ended questionnaire.

Sundry Debtors Management (Cr. Sales) –

Credit Policies of the SMEs should be drafted in such a way so that the working capital management should get facilitated. The costs associated with Debtors Management are very crucial and important. In the present research, knowledge about ‘Sundry Debtors Management’ and its usage is recorded through close ended questionnaire.

Customer care –

Customer Care now a days gaining a glaring importance and allocation of expenses in the annual budgeting process. Such expenditure should be realistically assessed and administered. In the present research, knowledge about ‘Customer Care’ and its usage is recorded through close ended questionnaire.

Systems Analysis –

System is a set of interrelated components arranged in sequential manner in order to bring synergy in operation. The basic function of
any organizational system is to bring ‘synergy’ in the operations of the organization. Synergy is followed by cost simplification and control. In the present research, knowledge about ‘System Analysis’ and its usage is recorded through close ended questionnaire.

Restructure

**Budgeting (Zerobase / Functional / Traditional) –**

Instead of traditional budgeting methods the SME owners should follow Zero Based Budgeting (ZBB) for the effective cost management. Functional Budgeting is also of great use in the administration of costs. In the present research, knowledge about ‘Budgeting’ and its usage is recorded through close ended questionnaire.

**Time Management –**

Time and motion study is required at every stage of manufacturing activities for the standardization of the costs. In the absence of the same, the inventory costs as well as other operational overheads tends to get increase. In the present research, knowledge about ‘Sales Forecasting’ and its usage is recorded through close ended questionnaire.

**Research & Development –**

Research and Development expenditure is regarded as one of the wasteful expenditure by SMEs but it needs to consider in a different way as in the long run it is an important expenditure in its own way. In the present research, knowledge about ‘Research & Development’ and its usage is recorded through close ended questionnaire.

**Staff Welfare**

**Social Responsibility –**

In majority of SME owners cases, they do not consider the social responsibilities and the associated costs. Higher inclination towards
social responsibility will help them to develop long term competitive advantage. Also it may lead to reduction in various types of costs such as promotion, advertising, recruitment, training etc. In the present research, knowledge about ‘Social Responsibility’ and its usage is recorded through close ended questionnaire.

**Professional Management Approach –**
Holistic professional management approach is one of the preconditions in the way of strategic cost management, in the absence of which cost reduction initiatives are not possible. In the present research, knowledge about ‘Professional Management Approach’ and its usage is recorded through close ended questionnaire.

**Profit Maximization Planning, Ploughing back –**
One of the basic objective of any commercial venture is to maximize the profitability of the business and at the same time maximization of value or wealth both the things are not possible without cost management as the better the cost management higher the profitability and so the wealth of the owners. Ploughing back of profits is also necessary in order to have reduction in the cost of capital. In the present research, knowledge about ‘Profit Maximization, planning, ploughing back and its usage is recorded through close ended questionnaire.

**Cost Consciousness Awareness –**
Basic orientation and awareness towards ‘Cost consciousness’ is must in the process of strategic cost management. In the present research, knowledge about ‘Cost consciousness awareness’ and its usage is recorded through close ended questionnaire.
4.5 DATA COLLECTION & PREPARATION

Data Collection Methods.

The process of data collection soon starts after the completion of the definition of research problem and planning/designing of the research plan. There are two types of data i.e. Primary data and Secondary data. The Primary data is that which is collected for the first time and original in character, whereas the Secondary data is one which has already been collected by someone else and which have already passed through the statistical process and it is already published.

Primary data is basically collected through surveys and experiments. In addition to the above Interview method, Observation method, method of collecting data through questionnaire, collection of data through schedules etc. In the case of secondary data collection, basic caution has to be taken by the researchers with respect to reliability of the data, suitability of the data, and adequacy of the data. The method through which Secondary data is collected is published literature review.

In the context of the present research, Concerning data collection methods above others ‘Survey Method’ has been selected for this research as survey is the method by which information is collected from the respondents through questionnaire, actually. Experiments holds the greatest potential for developing cause and effect relationship but it allows researcher to manipulate the variables. Also, Observations allows researcher to monitor record information about variables without questioning them as both the above methods are not suitable as researcher wanted unbiased responses from SME owners/ managers which are not intended to be manipulated. Also, researcher want to question the respondents and expecting to have their clarification and opinion on the same, so observation method is also not used. In order to justify the requirement of the research
subject and research questions, Survey method for data collection is used wherein data is collected with the help of Questionnaire and personal interviews in selected cases in combination. As data is collected through Questionnaire with the help of field work and as this study is not belong to the category of Experiments it is carried out in the environment of Field work rather than Laboratory. Also, this research is carried out only once, it is not a longitudinal study. So time dimension is involved is Cross Sectional. Also the research is based on the study of a sample of 25 industries. So, it is Statistical study based on information gathered through Questionnaire rather than a Case Study approach.

**Secondary data collection**

Secondary data is one which has already been collected by someone else and which had gone passed through the statistical process and it is already published. Secondary data is historical in character and previously worked on and used by other researchers also. It is generally in assembled form and do not require any data processing. Also it does not require access to respondents or subjects.

**Primary data collection**

The Primary data is that which is collected for the first time and original in character and Primary data is basically collected through surveys and experiments. Almost no research is carried out on Strategic Cost Management amongst SMEs in Pune in the past by the previous researcher, hence the availability of secondary data was almost nil. So, the researcher has decided to collect the primary data to relate the empirical relationship between dependent variable and independent variable. Data is collected from the questionnaire and in addition to that simultaneous interview was taken of the respondent for getting the justification for the options chosen by the respondents.
Target Population
Due to the limitation of time and the availability of the resources and the attitude of the respondents, the target population in this study does not able to cover all SMEs of Pune. Moreover this research study is not designed to study all the SMEs of Pune but was only designed to study the impact of strategic cost management on the SME profitability on a representative sample of SMEs with evidences from Pune. So it does not require to define the target population as the whole of SMEs in Pune. In this research only a sample was drawn from Pune which was defined as a target population. In the present research all the forms of business organization were included i.e. Sole Proprietor, Partnership, Private Limited company which qualifies the criteria of the definition of Micro, Small and Medium scale Industries Act, 2006 has given.

Sampling Frame
Selecting a Sampling Frame was the next logical step after the determination of target population. A sampling frame is defined as the list of elements from which the sample may be drawn. In this research the list of Industries registered under Pune Industrial area was provided by MIDC office, Pune, so, the same list was been chosen as the sampling frame for this research.

Sampling Methods
Sampling methods are classified in two ways i.e. Probability and Non-Probability sampling. In probability sample each element of it has equal and known opportunity or chance of being selected while in non-probability sample some elements has better and unknown chance over other in the process of selection. Bias is inherent in non-probability samples and it is absent in probability sample. This research used probability sample with the use of Stratified Sampling initially. But due to the practical difficulties Judgmental sampling or
the convenient sampling is used to the minor extent and while selecting the sample the researcher has taken care that the sample had to reflect the population.

**Sampling Units**

The Sampling unit is a simple element or group of elements subject to selection in the sample. It is the characteristic or the parameter based on which the sample is determined or selected. As mentioned above this research study used random sampling technique.

### 4.6 DATA TRANSFORMATION

Data transformation is the alteration of the existing form of a data to the format that it is suitable to perform the data analysis through which the research objectives could be achieved. Data transformation compels the researcher to change the original form of data in the required manner. So, as per the requirements of the data analysis data has been transformed in the required format.

### 4.7 DATA ANALYSIS

Data Analysis is the computation of certain indices or measures along with the searching for patterns of relationship that exist among the data group. Once the data is collected and tabulated it is easy to perform various statistical tests for their accuracy, validity and significance. At the end, it should be kept in mind that the analyzed data should be presented in such a manner that even the layman will understand the presented data holistically. Data analysis particularly in the case of survey involves estimating the values of unknown parameters of the population and testing the hypothesis for drawing the inferences. So data analysis can be categorized as Descriptive Analysis and Inferential Analysis (which is also known as statistical analysis) In this Research study, both the methods are used. Research data has been collected through Questionnaire and analyzed by using
Descriptive Analysis and Associative Analysis which is explained below.

Table No. 4.2 Selection of Research Design for the Study.

<table>
<thead>
<tr>
<th>Classification Criteria</th>
<th>Type of Research Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Data Collection</td>
<td>(*)&amp; Questionnaire</td>
</tr>
<tr>
<td></td>
<td>Opinioonnaire</td>
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<tr>
<td></td>
<td>(*)&amp; Group Interview</td>
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<tr>
<td></td>
<td>Personal Interview</td>
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<tr>
<td></td>
<td>Telephone Survey/Interview.</td>
</tr>
<tr>
<td>Secondary Data Collection</td>
<td>Financial Statements/Reports</td>
</tr>
<tr>
<td></td>
<td>Research Database</td>
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<tr>
<td></td>
<td>Tax Departments of the state</td>
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<tr>
<td></td>
<td>Report of Chamber of Commerce &amp; Industries</td>
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<tr>
<td></td>
<td>Local University Statistical Report</td>
</tr>
<tr>
<td>Sampling Method</td>
<td>Deliberate Sampling</td>
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<tr>
<td></td>
<td>(*)&amp; Simple Random Sampling</td>
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<tr>
<td></td>
<td>Systematic Sampling</td>
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<tr>
<td></td>
<td>Stratified Random Sampling</td>
</tr>
<tr>
<td></td>
<td>(*)&amp; Judgmental Sampling</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>(*)&amp; Calculation of Averages</td>
</tr>
<tr>
<td>(Descriptive Analysis)</td>
<td>(*)&amp; Frequency Distribution</td>
</tr>
<tr>
<td></td>
<td>(*)&amp; Percentage Distribution</td>
</tr>
<tr>
<td></td>
<td>(*)&amp; Tabulation and Cross Tabulation</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>Simple Correlation</td>
</tr>
<tr>
<td>(Associative Analysis)</td>
<td>(*)&amp; Pearson’s Correlation Coefficient</td>
</tr>
<tr>
<td>a) Bivariate Analysis</td>
<td>Partial Correlation</td>
</tr>
<tr>
<td></td>
<td>Association of Attributes</td>
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<tr>
<td></td>
<td>Factor Analysis</td>
</tr>
<tr>
<td></td>
<td>(*)&amp; Multiple Regression</td>
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<tr>
<td></td>
<td>Multiple Discriminant Analysis</td>
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<tr>
<td></td>
<td>(*)&amp; Multivariate Analysis of Variance (MANOVA)</td>
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<tr>
<td></td>
<td>Canonical correlation</td>
</tr>
<tr>
<td>b) Multivariate Analysis</td>
<td>(*)&amp; ‘F’ Test</td>
</tr>
<tr>
<td></td>
<td>(*)&amp; ‘T’ Test</td>
</tr>
</tbody>
</table>

# Developed for the thesis | (*) Selected for this research
4.8 OBJECTIVES OF RESEARCH

1. To analyze various elements of cost and establish linkage with performance management.
2. To study the shades of cost elements in variety of industrial and business activity.
3. To identify the relationship between cost effectiveness and performance.
4. To explore the significance of strategic cost management in various functional areas like production, marketing, finance, administration in small scale engineering units.

4.9 STATEMENT OF HYPOTHESIS

“Cost Management awareness is pre condition for Strategic Cost Management.”

“Recent Trends in materials and stores management are leading to Strategic Cost Management.”

“Strategic Cost Management is a pathway to profitability and productivity.”

4.10 LIMITATIONS OF THE STUDY

The present study is restricted to 25 SMEs. Therefore conclusions are relevant in context of these units. Though units are representative in character the conclusions should not be over generalised.