

**A QUANTITATIVE EVALUATION OF THE BARRIERS  
HINDERING THE GROWTH OF SMALL SIZED ENTERPRISES  
IN A DEVELOPING ECONOMY**

*A thesis submitted in partial fulfillment of  
the requirement for the award of the degree of*

**MASTER OF ENGINEERING  
(PRODUCTION AND INDUSTRIAL ENGINEERING)**

*Submitted By*

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PATIALA – 147004, INDIA, JULY, 2012**

## DECLARATION

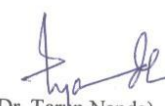
I, **Manjeet Kharub** hereby declare that the work which is being presented in this thesis report entitled, '**A Quantitative Evaluation of the Barriers Hindering the Growth of Small Size Enterprises in a Developing Economy**' by me in partial fulfillment of the requirements for the award of degree of Master of Engineering in Production and Industrial Engineering from MED, Thapar University is an authentic record of my own work carried under the supervision of Dr. Tarun Nanda, Assistant Professor, Mechanical Engineering Department, Thapar University, Patiala.

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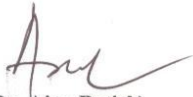
  
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## CERTIFICATE

This is to certify that the report entitled, 'A Quantitative Evaluation of the Barriers Hindering the Growth of Small Size Enterprises in a Developing Economy' submitted by Manjeet Kharub Regd. No: (801082021), in partial fulfillment of the requirement for the award of Master of Engineering in Production and Industrial Engineering from MED, Thapar University, Patiala, is a record of candidates own work carried out by him under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.



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*Manjeet Kharub*  
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## ABSTRACT

Global competition, technological changes, changing economies and demanding customers are creating a more knowledge-intensive, turbulent, complex and uncertain environment. In such a challenging, volatile and hyper-competitive environment, any manufacturing firm, which is able to compete on all dimensions of competitive priorities such as fast delivery, high quality, low price, volume and product flexibility can be considered as a competitive firm. Organizations should develop core competencies, which will give them a competitive advantage over their competitors in meeting fast changing market requirements. The foundation of organizational competitiveness has shifted from physical and tangible resources to knowledge.

Micro, Small, and medium enterprise (MSMEs) development is identified by the government as a priority in creating jobs to solve the high unemployment rate. MSMEs play a particularly important role in a country's economy, because of their number and because of their large share of the workforce involved. The government has for many years carried out a variety of programmes to support these enterprises, although not great deals of these programmes are known by MSMEs. In India, MSMEs lag well behind in terms of know-how, number of technical employees, skill levels, capital investment to support their activities, and access and ability to take advantage of modern technologies. As in most countries they find it difficult to obtain financing. Apart from the lack of funding, MSMEs appear to suffer from a lack of information and efficient production technologies, scant use of management and control systems, inability to access consulting services and other related deficiencies.

Therefore the need for this study is to set an action plan for MSMEs to increase their efficiency, to sustain themselves and guard against factors contributing to failure. In order to carry out this plan, there is a need to understand the MSMEs operations and the role they play in the global economy. Furthermore, it is of particular importance to understand the factors contributing to the failure of MSMEs since it is suggested that a large percentage of MSMEs mostly fail within the first five years of their operation. The pressure on organizations to adapt to new technologies and external threats requires resourcefulness, creativity and innovation by combined effort of all departments (Finance, HRM, Marketing etc.). The organizations should develop learning habits in their organization to overcome the problems faced by them in the competitive environment at the global as well as local front.

The report is divided into five main chapters; the first chapter introduces MSMEs, their importance, and contributions etc. The second chapter explores the literature regarding factors that lead to the failure of MSMEs. The third chapter puts forward the methodology to be adopted for carrying out the research. The fourth chapter explores the status of each factors, the classification of manufacturing units each factors, the correlation analysis between the input and output factors. This descriptive and empirical analysis has been carried out for seven main factors identified through an extensive literature review. These factors include Lack of *'Strategic Financial management'*, *'Entrepreneurship and managerial skills'*, 'Human resource management', 'Planning and Decision making', 'Marketing Research', 'Infrastructure as well as Government Support',

In chapter forth study followed a quantitative approach by gathering data from 25 small firms (cutting tool industries) in the region of Patiala, Punjab. Assumed factors leading to their failure are characterized by 'Lack of Strategic Financial management', 'Lack of Entrepreneurship and managerial skills', 'Lack of Human Resource management', 'Lack of Planning and Strategy making', 'Lack of Marketing Research', 'Lack of Infrastructure and Technological know-how', 'Lack of Government Support'. The chapter fifth chapter present the result major conclusions of work.

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# CHAPTER - I

## INTRODUCTION

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### 1.1 General

The process of liberalization and market reforms since 1991 has brought challenges as well as a bouquet of opportunities. The challenges are intense competition both in domestic and overseas markets which makes imperative for the enterprises to maintain, improve and sustain competitiveness through lower cost, improved quality, making available wider choice by initiating various measures including innovation and up-gradation of technology. Globalization has forced small and medium enterprise to change its business models with innovative capabilities (Lee, 2008).

In the last few decades, many micros, small and medium enterprises (MSMEs) have successfully set up activities beyond their home markets and their role is increasingly crucial in contributing to future growth. A significant development within the broad internationalization trend has been the increasingly active role played by SMEs in international markets. The internationalization of SMEs can be expected to gain further momentum because the world economy is becoming increasingly integrated with continued declines in government-imposed barriers and continued advances in technology. Generally, most of these SMEs are generating earnings in the global markets more than in the home countries. These firms, can be described as ‘born global’ or ‘instant internationals’ (traditional SMEs which enter international field almost from inception), ‘back sources’ (SMEs who re-concentrate their international activities back to the home base) and ‘born regional’s’ (SMEs that gain their force out of a local embeddedness and never shift capacity beyond export activities) (Angela, 2005).

When the domestic competitive environment gradually and steadily progresses towards resembling international competitive environment, ‘dynamic’ SMEs might prefer to take risk to face a more competitive environment internationally to obtain ‘higher returns’ relative to less competitive environment domestically for ‘lower returns’ (Bala Subrahmanya *et al.*, 2010).

As a result of globalization and liberalization, Indian SMEs have been passing through a transitional period. With slowing down of economy in abroad, particularly USA and European Union and enhanced competition from China and a few low cost centres of production from abroad, many units have been facing a tough time. Those SMEs who have

strong technological base, international business outlook, competitive spirit and willingness to restructure themselves shall withstand the present challenges. The foundation of organizational competitiveness has shifted from physical and tangible resources to knowledge (Woolthuis, 2005).

Organizations should develop core competencies, which will give them a competitive advantage over their competitors. Organizations, which are able to continually build new strategic assets faster and cheaper than those of their competitors, will create long-term competitive advantages (Momaya *et al.*, 2004).

## 1.2 MSMEs in India

In the literature, several definitions of MSMEs are given. There is no universal definition of micro small and medium scale industries. In some countries, there are certain objective standards, which classify the units as micro, small or medium enterprises depending on the number of employees. In some countries, the classification is based on the investment in fixed assets in plant and machinery (Zenger, 1994). The European Union makes a general distinction between self-employment, micro, small and medium sized businesses based on the criteria shown in Table 1.1.

*Table 1.1 Classifications of SMEs on the basis of Employment*

Number of Persons Employed	Category
0	Self-employed
2-9	Micro business
10-49	Small business
50-249	Medium-size business

(UNIDO and OECD, 2004)

In the Indian context, micro, small and medium enterprises as per the MSME Development Act, 2006 are defined based on their investment in plant and machinery (for manufacturing enterprise) and on equipment for enterprises providing or rendering services. According to the Micro, Small and Medium Enterprises (MSME) Development Act of 2006 (India), the recent ceilings on investment for enterprises to be classified as micro, small and medium enterprises are shown in Table 1.2.

*Table 1.2 Classifications of SMEs in India*

Classification	Manufacturing Enterprise*	Service Enterprise**
Micro	₹ 2.5 million/ Rs. 25 lakh	₹ 1 million/ Rs. 10 lakh
Small	₹ 50 million/ Rs. 5 crore	₹ 20 million/ Rs. 2 crore
Medium	₹ 100 million/ Rs. 10 crore	₹ 50 million/ Rs.5 crore

(www.msme.gov.in)

\* Investment limit in plant & machinery

\*\* Investment limit in equipment's

### **1.3 Importance of MSMEs**

Small scale industry has gained popularity in the last 60 years by accomplishing to a great extent, the socioeconomic objectives like decentralization of industries and economic intrusiveness. Small scale industry generates employment opportunities for economically weaker section of society (Zenger, 1994).

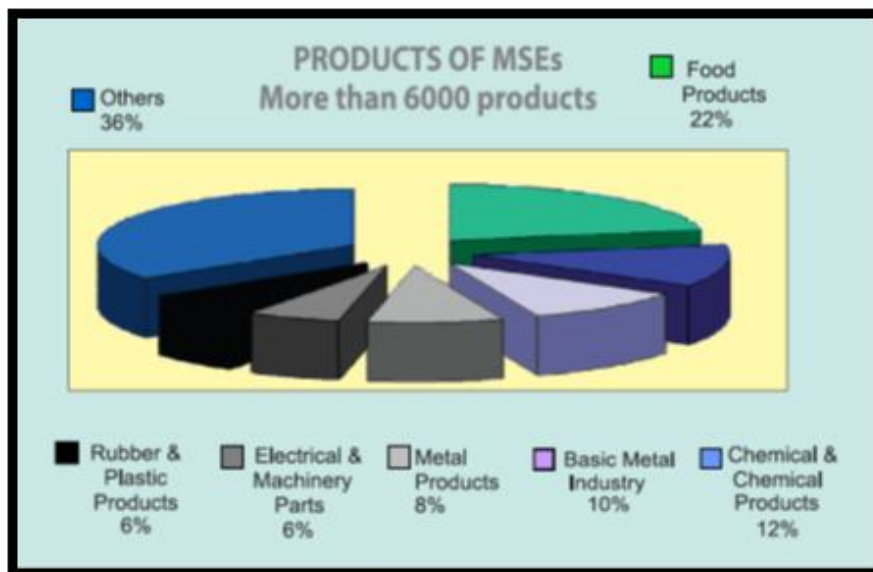
The development of small businesses is viewed as highly important for the Indian economy. This is due to the fact that growth-potential of small businesses in general and, on technology-based export-oriented small businesses in particular, can act as catalysis to further drive the industrialisation process in India. It is within this frame work that government support programmes for small businesses are potentially viewed as being highly important towards enhancing small businesses. Small and medium enterprises are known to have contributed significantly to economic development job creation and sustainable livelihood (OECD, 2004).

Small and medium enterprises have been regarded as the engine of economic growth and employments. As the growth of industry giants have been slowing, the role of MSMEs becomes more important. The contribution of this sector to manufacturing output, employment and exports is quite significant. Actually, developing countries have increased their share both of export and import over last decade, and are expected to be doing continuously in future (Romero *et al.*, 2012).

#### **1.3.1 Significance of MSMEs Sector**

The performance and development of micro small and medium sized enterprises (MSMEs) has been recognised throughout the world, because of their contribution in the development of economy and entrepreneurship (Huang, 2008).

The micro, small and medium enterprises (MSME) sector contributes significantly to the manufacturing output, employment and exports of the country. It is estimated that in terms of value, the sector accounts for about 45 percent of the manufacturing output and 40 percent of the total exports of the country. The sector is estimated to employ about 59 million persons in over 26 million units throughout the country. Further, this sector has consistently registered a higher growth rate than the rest of the industrial sector. Figure 1.1 show the different kind of products manufactured in MSMEs.



*Figure 1.1 Range of MSMEs Sector* (Annual report, 2010-2011)

It is well known that the MSME sector provide the maximum opportunities for both self-employment and jobs after agriculture sector (Annual report, 2010-2011).

### ***1.3.2 Size of Registered MSME Sector***

The size of registered MSME sector is estimated to be 15, 63,974. Of the total working enterprises, the proportion of micro, small and medium enterprises is presented in figure 1.2. This comprises of 67.10% manufacturing enterprises and 32.90% services enterprises. About 45.23% (7.07 lakh) of the units are located in rural areas.

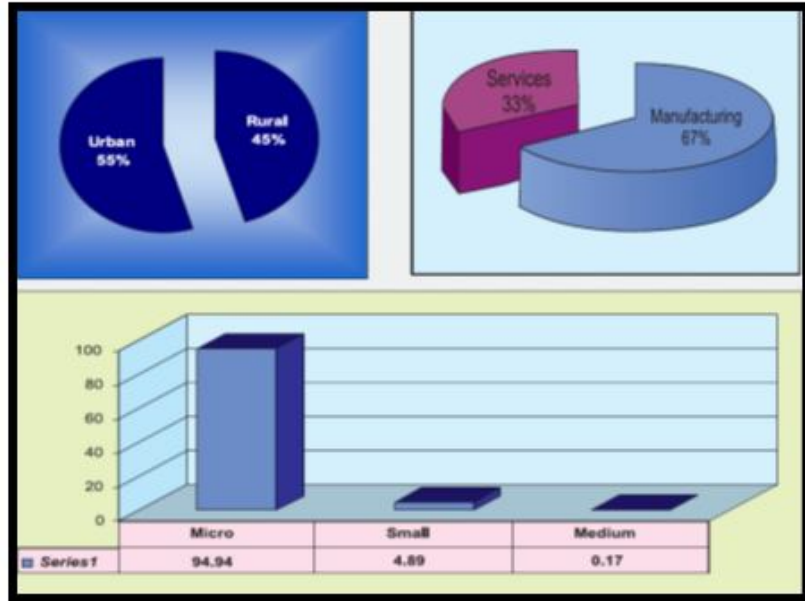


Figure 1.2 Size of Registered MSMEs (Annual Report, 2010-2011)

### 1.3.3 Employment and Production in MSMEs Sector

The total employment from the MSME sector in the country (as per the Fourth Census of MSEs with Reference Year 2005-06) was 294.91 lakh numbers. As per the estimates compiled for the year 2009-10, the employment is 695.38 lakh persons in the sector.

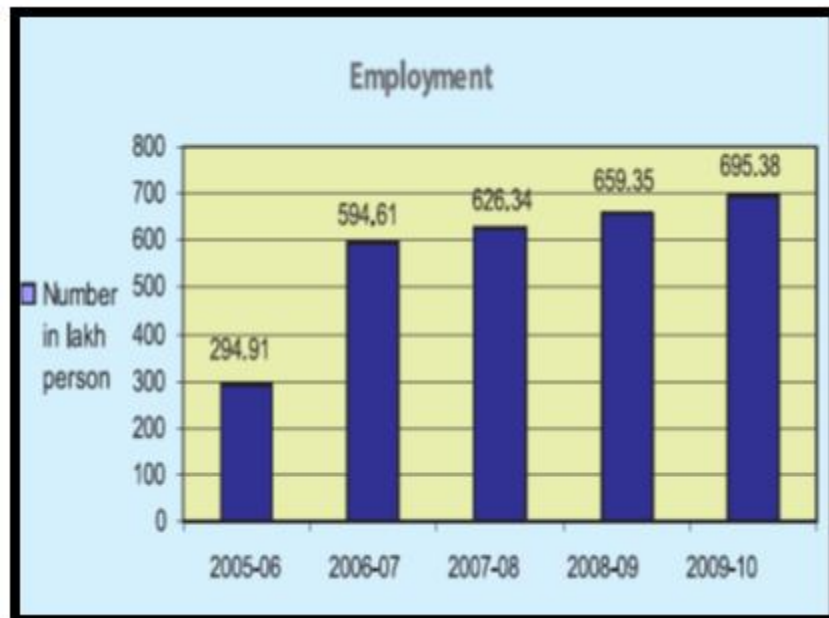
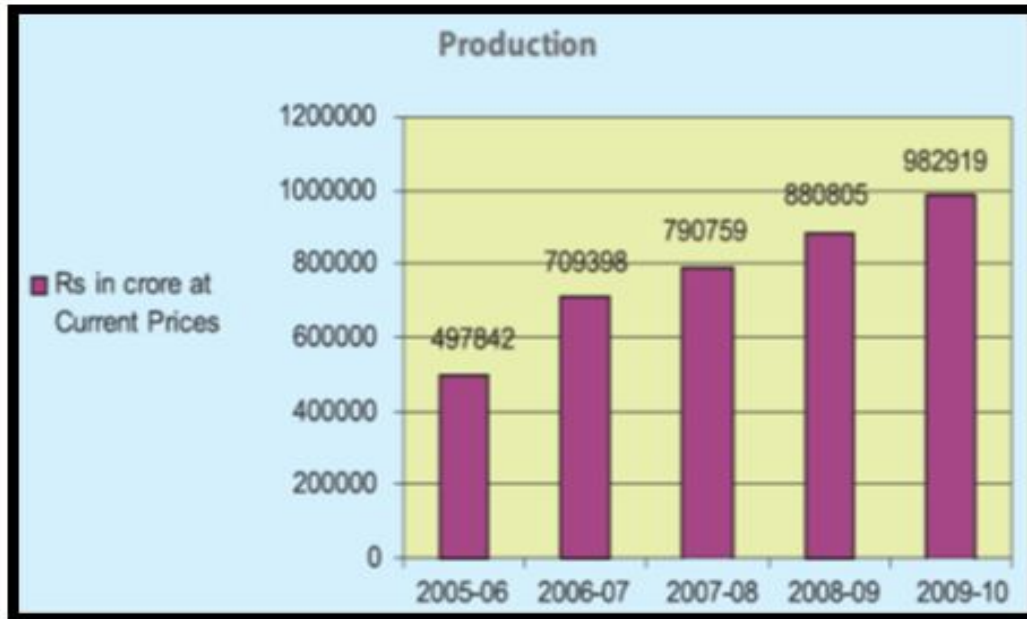


Figure 1.3 Employment in MSME sector (Annual Report, 2010-2011).

The production in terms of Gross Output in MSME Sector has steadily increased over the last five years as shown by Figure 1.4.



*Figure 1.4 Output from MSME sector* (Annual Report 2010-2011)

The number of MSMEs has increased steadily in India from 67.87 lakhs in 1990-91 to 133.68 lakhs in 2007-08. This could be possible due to the conducive policy environment during the liberalization era (post 1991). Similarly, the number of persons employed in MSMEs has risen from 158.34 lakhs in 1990-91 to 322.28 lakhs in 2007-08. The yawning gap between the two figures over the years indicates that employment elasticity this sector has improved. However, much of the labour absorption has taken place in the unorganized/informal enterprises (Annual Report, 2008-2009).

The exports from MSMEs sector has increased from Rs. 9,664 crore in 1990-91 to Rs. 1,50,242 crore in 2005-06. Since the late 1980s, exports from SMEs continues to be dominated by just eight product groups viz. readymade garments, engineering goods, electronic & computer software, chemicals & allied products, basic chemicals, pharmaceuticals & cosmetics, processed foods, finished leather and leather products and Plastic products accounting for over 90 per cent of total value of exports (Handbook of Indian Economy, 2009).

#### **1.4 Changes in Industrial Scenario**

The world has re-discovered India and the Indian economy in the recent past. The Indian economy is on a growth trajectory and one after another studies are projecting India as among the leading economies of the future. With a billion plus population and rising incomes, India offers enormous opportunities to both individuals and organizations. There is growing interest on exploring India among both researchers and practitioners (Pillania, 2012).

Governments all over the world have realized the importance MSMEs and have formulated comprehensive public policies to encourage, support and fund the establishment of MSMEs (John, 1998).

Micro, Small and Medium enterprise (MSMEs) development is identified by the new government as a priority in creating jobs to solve the high unemployment rate. MSMEs play a particularly important role in a country's economy, because of their number and because of its large share of the workforce involved. The government has been carrying out variety of programmes to support these enterprises (Sanusi, 2003).

Therefore the need for this study is to set an action plan for MSMEs to increase their efficiency, to sustain themselves and guard against factors contributing to failure. In order to carry out this plan, there is a need to understand the MSMEs operations and the role they play in the global economy. Furthermore, it is of particular importance to understand the factors contributing to the failure of MSMEs since it is suggested that a large percentage of MSMEs most fail within the first five years of their operation (Rankhumise, 2010)

In developing countries MSMEs lag well behind in terms of know-how, skill levels, capital investment to support their activities, and access and ability to take advantage of modern technologies. As in most countries they find it difficult to obtain financing. Apart from the lack of funding, MSMEs appear to suffer from a lack of information and efficient production technologies, scant use of management and control systems, inability to access consulting services and other related deficiencies such as high cost of credit and lease financing, high compliance cost, poor infrastructure, poor skill and training, market transaction cost, judicial constraints. lack of managerial planning skills, ineffective working capital management, inability to manage the competitive environment and growth over-expansion etc. Access to finance is typically a major problem for entrepreneurs without a track record or without any form of guarantee. The extent to which the financial system understands and supports the people starting and growing new businesses is therefore a critical factor influencing the performance of MSMEs. Further, the investment ideas of entrepreneurs in MSMEs are very poor and out of date. Lack of financial assistance and unable to access capital are most critical environmental failure factors (Huang, 2008).

Entrepreneurship training and education acts as a facilitator for entrepreneurial activities, with the main focus on stimulating entrepreneurial activity and performance. The importance of entrepreneurship education and training is well established. From an economic perspective, education is seen as a critical factor in promoting long term employment and economic growth. Managerial skills comprise of ability to manage work force and managing

accounts, environmental conditions consists of sufficient governmental support, access to the capital and support of family and friends. One of the most significant reasons for the failure of MSMEs is their inadequate application of essential business and management practices. Therefore training for small business owners/managers as well as their subordinates allows them to acquire the necessary skills to ensure the survival and success of their business (Khurana and Nohria, 2008)

Human resource planning is generally not seen by small and medium-sized enterprises as a strategic issue. Majority of the small firms identify staffing and training requirements in an informal manner focusing on immediate needs rather than long term strategic needs. MSMEs do not use a sophisticated approach to identify current and future staffing needs. Recruitment and staff development were addressed as and when required. Skills and knowledge of each staff member is of critical importance to a small firm, there is a lack of awareness of the opportunities for training and development, and a lack of contact with appropriate facilitators (training organisations) (Keogh and Stewart, 2000).

### **1.5 Research Problem**

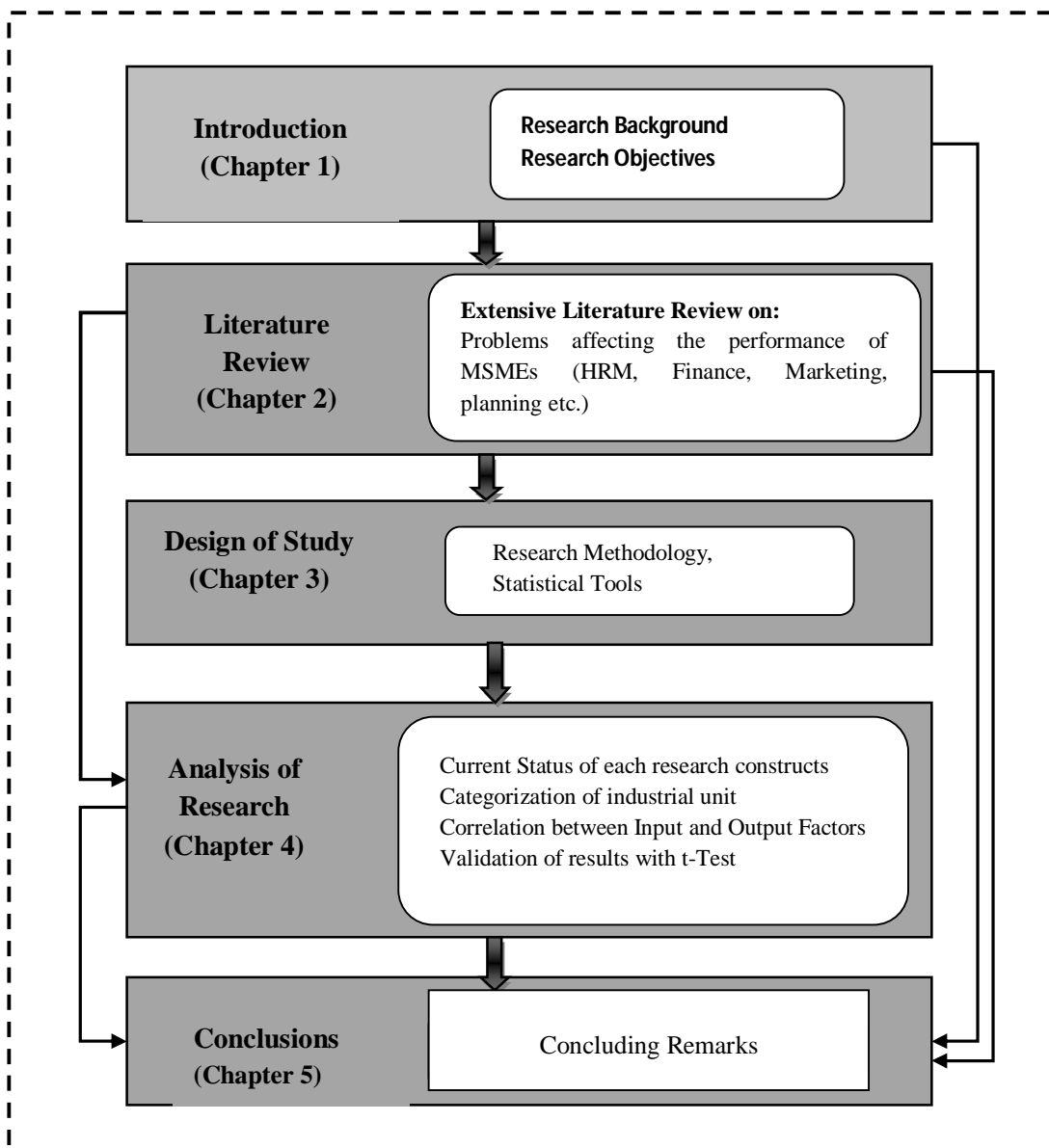
In today's competitive environment successful organisation are those, where the management develops a strategic approach towards proper functioning of each department (HRM, Finance, Marketing etc.) to increase performance . The present research work has been carried out for the small scale sector in the region. It aims to investigate the nature of problems in the small scale sector by identifying the key inputs and their effect on outputs parameter, determining their status in the industrial sector and determining the key input parameters which make a significant contribution to performance deterioration.

### **1.6 Organization of the Thesis**

The write up of the thesis is divided into six chapters as discussed as follows. The overall structure of thesis is presented in Figure 1.5

- **Chapter I** justifies the need of present work. It underlines the aim of research problem and covers the organization of thesis.
- **Chapter II** reviews in detail the previous studies in the field to identify the factors which affect performance in manufacturing enterprises. It identifies the key inputs and outputs issues affecting the research problem. The chapter identifies the main limitations in the existing academic writings.

- **Chapter III** introduces overall design of the study. It explains the methodology adopted for carrying out the research work. The details of work done in each phase of research, the tools and techniques used have been presented.
- **Chapter IV** presents the results of detailed survey conducted in various manufacturing enterprises. Descriptive and empirical analysis of data has been carried out to assess the status of present level of different dimensions of the research problem.
- **Chapter V** covers the summary of research work, its results, conclusions, and the recommendations. The limitations along with scope for future work have also been covered in subsequent sections of this chapter.



*Figure 1.5 Thesis Structure*

### **1.7 Concluding Remarks**

An organized attempt has been made to make this study exhaustive, intensive and broad based as possible to examine the perception of micro, small and enterprises (MSMEs) owners regarding the factors that lead to the failure of MSMEs.

Globalisation has changed the competitive environment for the manufacturing sector drastically. To be successful, companies have to compete not only against domestic competitors but also against the best companies in the world. In order to compete effectively companies must support each department (HRM, Finance, Marketing etc.) work properly. Presently, the Indian manufacturing industry is very small by global standards and heavily depends on foreign sources of technology. The over dependence of the Indian firms on external technology acquisition have rendered their available technologies and skills inefficient and out-dated. They should start managing innovation in research and development activities to develop cutting edge technologies and products.

## **CHAPTER - II**

### **LITERATURE REVIEW**

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#### **2.1 Introduction**

Micro, Small and Medium Enterprises (MSMEs), including manufacturing and service enterprises are credited with generating the highest rates of employment growth, account for a major share of industrial production and exports. They also play a key role in the development of economies with their effective, efficient, flexible and innovative entrepreneurial spirit (Narain and Antony, 2004).

In today's economic scenario, creativity and innovation are very important issue for organizations to survive in the competitive world. To do so, organization requires proper functioning of each department. In this chapter extensive literature survey has been presented to determine the constraints to proper functioning of departments (HRM, Finance, marketing etc.). There are some key areas which have to be taken care of. These include management skills, entrepreneur's education, vocational training, infrastructure abilities and up-to-date machinery.

#### **2.2 Main Problems of MSMEs**

Most of the MSMEs have a characteristic ownership structure base, which largely revolves around a key man or family. Though MSMEs have a huge contribution in the economic development of the country, this sector is still facing myriads of problems. Most of MSMEs die within their first five years of existence. Another smaller percentage goes into extinction between the sixth and tenth years. Thus only about five to ten percent of young firms survive, thrive and grow to maturity (Headd, 2003). Many factors have been identified as to the possible cause or contribution factor to the premature death of small scale industries.

Some of the main problems faced by the MSMEs are discussed as follows:

##### **2.2.1 Lack of Human Resource Management (HRM)**

HRM is a set of distinct but interrelated activities, functions and processes that are directed at attracting, developing, and maintaining human resources in the organisation. HRM focuses on conducting job analyses to identify tasks, duties, and responsibility that need to perform various jobs and then predicting the personal characteristics and behaviours that are needed for each specific position. Employees are then monitored and rewarded based on whether they properly perform their specific duties (Hayton, 2003).HRM problem have been an area

of interest because inability to identify and manage HRM problems is a common cause of failure for small firm. Developing competitive advantage through HRM is likely to be more important for MSMEs because MSMEs do not possess the tangible resources required to compete with large and more established firms. Research indicates that MSMEs owners and managers are not likely to focus on administrative issues such as HRM, unless they perceive such issue to be an acute concern of firm and don't focus until such issues become critical important to the firm (Cardon and Stevens, 2004)

MSMEs do not generally have an HRM department and so don't use HRM practices. They do typically rely on a mix of HRM practices in a variety of areas such as training, compensation, recruiting and selection, performance appraisal, employee involvement in decision making and total quality management.

#### ***2.2.1.1 Problems in Recruitment and Selection Practice***

Human resources practitioners and academicians worldwide hold the belief that, the survival; growth and development of an organization grossly depends on an effective and efficient culture of recruitment. Selection and placement of people endowed with broader and deeper range of core competencies, preferred attitude, knowledge, skills and experiences is always desirable. The ultimate goal of recruitment, selection and placement of people is to bring on organization, preferred attitude, behaviour and culture to elicit better performances (Hooi, 2006).

Recruitment provides the organization with a pool of potentially qualified candidates from which selection can be made to fill job opening. Recruitment and selecting the wrong candidates can have extensive negative cost implication, while effective processes can contribute to a reduction in turnover and therefore increase in productivity.

Small firms tend to recruit as required. They do not have formal graduate requirement schedules and are not tied to any set of recruitment or to a fixed recruitment programme, so vacancies may occur at any time of the year. Small firms also do not have a formal graduate recruitment brochure or application form. Interviews are likely to be informal and staff may not be trained in interview skills (Saru, 2007).

#### ***2.2.1.2 Lack of Talents in Labour Market***

Although some owner-managers of small businesses consider their human resource practices and problems as a high priority and they also acknowledge that HRM can play a significant role in developing competitive advantage, but one of biggest difficulties faced by them is

'gaining competitive edge form the improved capability of people'. The number of technical staff and managers are not sufficient in MSMEs and the management level is relatively low. As a result, this sector cannot meet the need of in-house innovation and other R&D activities. Small and medium enterprises are less attractive so it is difficult to attract high-quality technical personal and manager. Research indicates that the ratio of technical staff engineering and technical personal takes less than 10% in more than 80% enterprises. Many of small and medium enterprise still exists the phenomenon of senior management personnel and technical personnel erosion (Headd, 2003).

#### ***2.2.1.3 Difficulty in Retaining Talent***

One of the main problems of MSMEs is difficulty in finding and retaining high quality employees. Low-level employees may be easily found as and the cost is always cheap, but it is difficult to find qualified employees for businesses in the labour market (Price, 2007).

SMEs claim that it is expensive to employ and train graduates particularly given the risk that they will leave after training to go to a bigger firm. At the same time SMEs also believe that they cannot utilize graduate skills. Graduates generally want higher salary that is too high for their job role and for getting high salary and job career they move to a bigger firm. Several research conducted showed that, there is a growing body of evidence which suggests that large companies often pay significantly higher salaries when compared with SMEs for the same calibre of graduate (Schlogl, 2004; Saleh and Ndubisi, 2006).

A further barrier involves work bargaining and fringe benefits in SMEs compared with large companies. Fringe benefits (merit related pay to pension scheme) are significantly more common in large firms (Rigg and Trehan, 2002).

#### ***2.2.1.4 Lack of Vocational Training***

Vocational education or vocational training also called career and technical education (CTE), prepares trainees for job that are based on manual or practical activities, traditionally non-academic, and are totally related to a specific trade (electrical, mechanical, fitter etc.) Unfortunately, literature shows that despite the importance of small businesses to the economy of country, little attention has been given to the effectiveness of training programs for these businesses (Saru, 2007).

Although training is identified as an important HRM issue for many small firms, research shows formal training is less likely to be provided in these firms. The fact is that small firms are reluctant to invest in HRD training, resulting in ignorance of benefits, time issues, and

fears of increasing an employee's mobility. Further MSMEs feel that the cost of training is too high and worry that even though they invest on the vocational training, they cannot benefit from it. Many medium and small companies turn to focus on the short time benefits, instead of vocational training which can bring long term effects. They tend to overemphasize on the achievement of some goals, like hitting short term profit targets, while undervaluing other important objectives, like building new growth platforms etc. (Wani *et al.*, 2004; Zheng *et al.*, 2008).

### **2.2.2 Lack of Appropriate Entrepreneurial and Managerial Skills**

The activity and characteristics of small businesses, especially in the stage of their creation and the early phases of their development, are directly linked to the characteristics of the entrepreneur. Entrepreneurship is the process of creating something new with value by developing the necessary time and effort. It requires the devotion of time and effort. The most important is that the entrepreneurship required risks taking abilities and creativity which lead to development of the organisation (Hewitt, 2005).

#### **2.2.2.1 Use of Evolutionary Approach**

Majority, of MSMEs use evolutionary approach to solve problems. This type of thought is historical, longitudinal cumulative and absolute rather than relative in nature. In this form firms try to obtain the market allowed margins of profit by making more efficient use of available production resources. For this, cost cutting techniques and operations management techniques are utilized. On the other hand, a comparative thought compares various way of thinking zoned to various periods. In this, we disrupt the market place through the introduction of improved products or new technology products. For this innovation management techniques are used for becoming 'first-to-the-market' (Beaver and Prince, 2002).

The management style of MSMEs has many problems, and generally does not suit the modern economic environment and for long-term development. The owner-manager does not pay attention to different departments (HRM, Finance, Marketing etc.) with a professional role. The entire decision making in the company is done by owner manager (Zheng *et al.*, 2008).

#### **2.4.2.2 Lack of Entrepreneurship Experience and Qualification**

The characteristics of successful entrepreneurs may be developed through education as opposed to simply being inherent. The entrepreneurs with higher level of human capital are

associated with more successful MSMEs than those with only low level. This means that success of MSMEs is generally associated with those entrepreneurs who have higher level of qualification and knowledge (Sawaya, 1995).

Entrepreneurship training and education acts as a facilitator for entrepreneurial activities, with the main focus on stimulating entrepreneurial activity and performance. The importance of entrepreneurship education and training is well established. From an economic perspective, education is seen as a critical factor in promoting long term employment and economic growth. Entrepreneurs with stronger educational backgrounds can carry out a more professional and efficient management and organization of their businesses and, in this way, can be more successful implementing innovations (Romero *et al.*, 2012).

Small firms often employ family members or workers who are better educated than the owner, but it is clear that owners make all major decisions about assimilation of new product technology, incorporation of improvements, and investment in new machinery etc. Owners who are educated will certainly make better decisions about these because education helps them to understand new information that could help to develop higher technology capabilities. Technical education enables an entrepreneur to impress upon corporation towards forging subcontracting relationship and receive more technical assistance as compared to non-technical entrepreneur. Furthermore, it helps in developing new products and thus formation of high technology business (Jagersma, 2008).

Previous experience of entrepreneurs is another major condition which can significantly influence innovation in small businesses and start-ups. Majority of the entrepreneurs have little or no managerial experience prior to setting up their business and have no formal management training or qualifications. So they cannot operate their business well, because the lack of managerial training or qualification prevents them from creating strategies to compete with large or multinational enterprises. In addition, they have problems such as lack of knowledge about product design, product development, developing the right marketing strategy, marketing promotion, and use of marketing research as a marketing tool (Hill and Stewart, 2000).

Entrepreneur does not pay attention to employee's individual ability and cannot provide long-term business planning. Employees cannot see the long term business objectives and strategic intent. Staff in the company always arranged to inappropriate position.

### **2.4.2.3 Risky Decision Making**

In SMEs, owner-managers always use informal management practices and most of critical decisions are made only by high-ranked managers. In other words, the top-level decision making is affected by owner-manager's personal prejudice (characteristics, behaviours, attitude etc.), insufficient information and incomplete data. Small business managers do not have opportunity for mutual discussion with their employees or for sharing of problems which are generally possible to management in larger companies. That is to say decision-making by this way will lead to high risks, because owner does not have time to plan their development tasks and it is hard to deal with business issues accurately. The responsibility imposed on one or two persons for all management decisions usually leads managers into working long hours in an atmosphere of constant pressure. And finally they have to take all important decision under this high pressure. Because of which it is generally said that decision making in small firm is very risky (Beaver and Prince, 2002).

There should be freedom to experiment, to do things and fail, to challenge the *status quo* and to discuss dumb ideas, and no punishment for mistakes. It is important that a balance be reached in the degree to which risk-taking is allowed. This is achieved by spelling out the expected results, assigning responsibility for monitoring and measuring risk-taking to someone in the organisation, creating a tolerant atmosphere in which mistakes are accepted as part of taking the initiative, regarding mistakes as learning experiences and assuming that there is a fair chance of risks being successful (Ahmed, 1998a).

### **2.2.3 Lack of Planning and Strategy Making**

Successful organizations in today's business environment are those who plan in advance and use different planning tools. It includes effective manpower planning, recruitment and selection process, realistic performance plans, development oriented performance appraisal, effective learning system providing ample learning opportunities with the help of training, performance guidance and other mechanism such as mentoring. It also consists of mechanism to inculcate sense of pride in work, high degree of organization commitment etc.

#### **2.2.3.1 Lack of Strategy Making**

SMEs give less importance to planning even some of them do not have planning and strategy making team (Kim, 2002).

SMEs do not have corporate goal like projection of activities, planning of production or services, appropriate time horizon in scheduled frame etc. because of this they cannot observe

the development in a continuous way. They do not plan according to the situation at the market place: size of demand, intensity of completion and companies abilities. In SMEs planning happens just in case of emergency. Entrepreneurs are supposed to be prepared for each change regardless of the fact that it can turn to be positive or negative. SMEs frequently miss strategy goals and therefore they do not know where the company is directed or what is supposed to become. Unfortunately, planning is a sophisticated activity and can be done only by spending a lot of resources, time, and money. Primarily SMEs have not as much capacities to decide what to do, when to do, how, and who is in charge (Khurana and Nohria, 2008).

#### ***2.2.3.2 Poor Information System***

Small businesses are characterised by informality, poor information system, being operational rather than strategic in their decision making and being time poor. They just know how to implement informal management practices rather formal management practices (Numl and Marja, 2010).

Small firms tend to treat the organisation as a closed system by concentrating upon principal of internal functioning as they are independent of external environment. They tend to look for solutions to problems within the firm; however there is only limited information within a small firm because there is only one manager. They are isolated from other managers and specialists, and there is a general lack of resources including information and unawareness of market scenario (Berryman, 1983).

#### **2.2.4 Lack of Strategic Financial Management**

##### ***2.2.4.1 Low Capital Base***

Small firm in India are suffering from a great deal of indebtedness and are exploited in the credit market through high interest rate and lack of convenient access to credit. They need credit to fund their working capital needs as on a day-to-day basis as well as long term needs like emergencies or other income related activities. They need credit to smoothen out seasonal fluctuation in cash flow arising from business activity and consumer demand. They also need credit as an insurance against minor spikes and troughs with respect to income and expenditure. Since due to its their low capital base majority of small business do not have enough credit for other consumption needs like education, training, food, household function etc. for their employees. And this is backed by the fact that India has no social security net that will take care of basic amenities. To meet these credit needs they need access to financial institution which may provide credit at a high rate (Sabharwal, 2000).

The leaders of most of the MSMEs are lacking in theory and method of financial management, ignoring the role in enterprise's capital operation. The administrators do not pay attention to the financial affairs and participate in policy making and management activities themselves. Therefore, the function of financial management is unable to play, which leads to lack of modern financial management ideas habitually. SMEs do not pay attention to training of financial staff. They just pay close attention to account checking and calculating. They ignore financial administration (Kober, 2007).

#### ***2.2.4.2 Problems in getting loan***

The scale of small and medium enterprises is relatively small, the business is monotonous, fund input amount is great, and it is bad to resist risk. Therefore, the bank unavoidably has careful loan behaviour and further the examination for credits loan is extremely strict; secondly, the transparency of the business activities of small and medium enterprises is poor. Guarantee subject is unable to implement precisely, which may difficult in making good cooperation and communication with the bank; and thirdly, financing intermediary is imperfect. There are few financial intermediaries and loan guarantee organizations to grant loan for small and medium enterprises (Lokhande, 2011).

The capital sources of investment are mostly loan funds, which make their ability of investment relatively weak. So they often pursue the short-term goal on the investment project, MSMEs always want to regain investment as soon as possible (Kober, 2007).

#### ***2.2.4.3 Lack of Strategic Financial Management***

Strategic financial management refers to financial management theories according to which financing should be conducted in the most proper way. The functions of financing strategy lie in clarifying the guidelines for financing, laying down financing objectives, establishing the overall scale, channels and methods of financing, arranging strategic schemes of capital structure optimization, laying down relevant counter measures in order to achieve the financing objectives, and finally predicting and collecting the amount of capital the enterprise needs. They have no financial strategies at all, not to mention their implementation. As for some others, the effect of their strategic financial management is greatly affected due to their unscientific and irregular strategies, which are characterized by the following features: first, their strategic financial aims depart from their enterprises' overall ones; second, financial strategies are regarded equal to financial plans, hence neglecting the comprehensiveness of

financial strategies; third, financial strategies are not made based on their enterprises' long-term goals and therefore have great randomness (Yang, 2007).

Financial staff lack in scientific and advanced finance ideas including time value, risk value, marginal cost, opportunity cost and insufficient knowledge about financial management theories and methods. False accounting information and keeping of additional accountant in addition to authorized one, adopting irregular check of properties and cash, having no regular check of their bank deposits, claims and debts which cause their accounts inconsistent with items or funds, blindly promising bonuses and evading taxes by distributing bonuses before paying taxes are some other problems (Huang, 2008).

#### ***2.4.4.4 Poor Investment Abilities***

Small and medium enterprises suffer from poor investment ability. Focusing on short-term goals to recover investment, they have to rely on simple reproduction instead of expanded one. In addition, without any special institution for market analysis, their investment activities tend to be based on their perception and therefore blindness. The decision makers usually fail to have an overall grasp of the characteristics or principles of market economy or to pursue reasonable economic profits with their proper operation at the capital market (Yilmaz *et al.*, 2005).

First, loose cash management tends to cause inactive or insufficient capital. Therefore, a large sum of cash is not allocated to operations, failing to exert its role; for some others, their cash is overspent on real properties, hence failing to tackle some emergent uses. Second, slow turnover of accounts receivable causes great difficulty in recovering capital or even bad debts. Third, the control over stock is poor. Many enterprises have a stock over twice its turnover, leading to failures in capital turnover. Fourth, too much emphasis is put on money instead of properties, causing serious waste of assets. Actually, quite a few small and medium enterprises are lacking in effective management of their raw materials, semi-manufactured goods, fixed assets and so on, as a result of which asset wastes are quite serious (Sabharwal, 2000).

#### ***2.2.4.5 Lack of Systematic Budget System***

Budgeting mainly exerts its role in strategic financial implementation in two aspects. First, it further clarifies and specifies strategic financial ideas so as to be understood and conducted by all the staff. Budgeting can help to divide strategic goals into every section of an enterprise and even every employee. In addition, when implementing a task jointly, all

sections and all employees will have better cooperation and communication with each other. Second, budgeting also provides a standard for an enterprise's daily operation and performance. With a quantitative financial goal set in budget, the actual implementation can be compared with the budget to reveal the disparity between the goal and the reality and take effective countermeasures. Now, most small and medium enterprises in China have no systematic and complete budget system made up of sales budget, production cost budget, general indirect cost budget, loss and expense budget, cash budget and so on. Even if some have such a system, its shortage of careful budgeting and strict implementation also lessens the role of budgeting as well as the implementation of financial strategies (Yang, 2007).

Incomplete internal control system commonly exists in small and medium enterprises, hence failing to effectively restrain their own economic behaviour institutionally. A lot of enterprises have no department for internal audit to guarantee the strict implementation of their financial system. Even if some establish such a department, its lack of independence may lead to ineffective internal control. As a result, financial management as well as financial strategies will be greatly affected (Woolthuis, 2005).

## **2.2.5. Lack of Infrastructure and Technological knowledge and know how**

### ***2.2.5.1 Infrastructure Inadequacies***

It is one of the main problems of MSMEs. Even in the urban area and cities, infrastructure is continuously deteriorating, roads uncared for, water supply irregularities, power outage is a regular phenomenon, and even for people who can afford to use electricity-generating sets, petroleum products to power them might not be available as and when needed. These all non-functional infrastructure facilities, tend to increase the costs of operation as MSMEs are forced to resort to private provisioning of utilities such as road, water, electricity, transportation, communication etc. (Arinaitwe, 2006).

**Power Supply:** These industries cannot exist without electricity. As a matter of fact, their very existence is based on electricity supply since basically; all their operations in machine require one form of electrical energy or the other. These include lathe machine operations; grinding, power saw cutting, drilling, milling machine operations, etc. As is the case in developing countries generally, power supply has been very erratic (Omobowale, 2010).

Unreliable supply of power (too many cuts and that too unplanned) slows down production and most times, set targets are not met. On the other hand power supply from generating sets is costlier and also adds to the overall cost of production and ultimately the selling price of

these machines as cost of maintaining and fuelling the generator also comes into consideration. In developing power shortage is a major factor causing poor performance (Chiakwelu, 2010).

#### ***2.2.5.2 Problems with Raw Materials***

Small firm generally face quality related problem in their product because of improper raw materials. Because of the particular nature, small firm are forced to use the service of middlemen who provide them materials at high prices. Lack of finance in small firm may induce them to use cheap and substandard materials. The prices of good quality materials are too high for small firm. The only way to stay in business is through the control of various costs of operation. Shortage of raw materials often leads to frequent production shortfall and stoppages (Juan *et al.*, 2012).

MSMEs are mainly dependent upon local supplies and very rarely from suppliers in other states. As their capacity to purchase is low, they are not eligible to source their material from major suppliers. Because of this MSMEs rely on few local suppliers, the suppliers are empowered. It is the result of the MSMEs having little bargaining power with their supplies; have to purchase material from local suppliers at high price. Likewise, clients' and suppliers' power of negotiation is a factor which must be considered for its possible repercussions on the innovative and cost reduction activity of the MSMEs (Arinaitwe, 2006).

#### ***2.2.5.3 Lack of Equipment and Process Technology***

Small firms generally lack in quality and this is because they do not have proper equipment and machinery. One of the reasons is that they do not have adequate skilled workforce and the equipment has to be imported most of the time at great cost. Small firms don't have proper knowledge of design and patents etc. which may involve payment of royalties, technology transfer fees etc. and having capital outlay (Lvqun, 2006).

Small firms are not able to penetrate and compete favourably in export markets because of their inability to meet stringent international quality standards and poor quality of products, ignoring of export market strategies and networks. Further, the technology used in small manufacturing firm is out-dated; they try to get the maximum profit with the existing facilities and technology they have. Due to this small firm cannot get high productivity (Yongho *et. al.*, 2012).

#### **2.4.6 Lack of Marketing Research**

Market orientation has been recognized as a key theme in recent times helping in great deal by providing sustainable competitive advantage to the organizations by creating consistently superior value for customers. It is not only a concern of marketing department but it is a organization-wide activity facilitating coordination and responsibility sharing between the marketing department and others. The general management of the firm has responsibility towards the marketing and that should be guided by 'marketing concept'. But the lack of marketing training among the managers is the most important problem of small firms. (Chen, 2006).

The marketing concept holds the key to achieving organizational goals and consists in determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors. Under marketing concept, the emphasis is on selling satisfaction and not merely on selling the product. The objective of marketing is not the maximization of profitable sales volume, but profits through the satisfaction of customers. Marketing Function helps an entrepreneur to take decisions concerning the type of product, the price policy, the channel of distribution, and sales promotion can be made rightly with the help of marketing information at the right time. Being market-oriented means that companies try to understand and respond to customers' latent and future needs. Every company, irrespective of size, must research its market, customers and competition; initially to set it on the right course and then continually to monitor its performance. Small-scale firms are often unable to afford continuous marketing research (Lynn *et. al.*, 1996).

##### ***2.2.6.1 Improper Mode of Data Collection***

The consumer is the pivot point and all marketing activities operate around this central point. It is, therefore, essential that the entrepreneurs identify the customers, establish a rapport (systematic relationship and understanding) with them, identify their needs and deliver the goods and services that would meet their requirements. A large scale business can have its own formal marketing network, media campaigns, and sales force, but a small unit may have to depend totally on personal efforts and resources, making it informal and flexible. Marketing makes or breaks a small enterprise. An enterprise grows, stagnates, or perishes with the success or failure, as the case may be, of marketing. (Tajeddini, 2006).

MSMEs use personal contacts and other informal methods for collecting required information about market. Market information can be collected from the following sources:

- a) **Customers:** Consumers being the final users of products or service can be an invaluable source of primary data. A representative sample of consumers may be selected and information can be obtained from them regarding the quality, design package, price etc. of the firm's product.
- b) **Dealers:** The dealers can provide information about the marketing policies of the competitors.
- c) **Salesman:** Salesmen remain in personal contact with the customers. They can, therefore, supply data to the marketing manager relating to the buying habits and preferences of customers.
- d) **Press:** Newspapers like the 'Economic Times' and Magazines like 'Business Today' and trade directories regularly publish data about various industries.
- e) **Government Publications:** Bulletins, periodicals, journals and magazines of different ministries and departments of the central and state government.
- f) **Publications of Financial Institutions:** Publications of Reserve Bank of India, public financial institutions and commercial banks.
- g) **Foreign Governments and International Agencies:** Publications of agencies like the United Nations, World Bank, ILO, UNCTAD and the IMF.
- h) **Publications of Trade Associations:** Trade associations and Chambers of Commerce collect and publish useful data for the benefit of their members.
- i) **Private Concerns and Research Institutions:** Business data published by research institutes like National Council of Applied Economic Research, Indian Institute of Foreign Trade, etc. (Wani *et al.*, 2004).

#### **2.4.6.2 Lack in Market Segmentations Strategy**

A market consists of a large number of individual customers who differ in terms of their needs, preferences and buying capacity. Therefore, it becomes necessary to divide the total market into different segments or homogeneous customer groups. Such division is called market segmentation. They may have uniformity in employment patterns, educational qualifications, economic status, preferences, etc. Market segmentation enables the entrepreneur to match his marketing efforts to the requirements of the target market. Instead of wasting his efforts in trying to sell to all types of customers, a small scale unit can focus its efforts on the segment most appropriate to its market. In order to cater to the requirements of identified market segment, an entrepreneur has to develop an appropriate marketing mix. Marketing mix is a systematic and balanced combination of the four inputs which constitute

the core of a company's marketing system – the product (Features, Design, Variety, and Quality), the price structure (list price, discount, allowance, and payment period), the promotional activities (advertisement, personal selling, sales promotion, and publicity) and the place (location, transport, channels, and coverage) or distribution system. These are popularly known as 'Four P's' of marketing. An appropriate combination of these four variables will help to influence demand. The problem facing small firms is that they sometimes do not feel themselves capable of controlling each of the four variables in order to influence the demand (Zheng *et al.*, 2008).

### **2.2.7 Lack of Government Support**

This is doubtless that government fully appreciates the opportunities MSMEs create for employment, their contribution to economic growth as well as the constraints and difficulties in their operating environment. The government has established various supports institutes and relief measures especially structured to render assistance and succour to minimize the constraints. But these reliefs given by government have not been effective and productive.

#### **2.2.7.1 Improper Government Policies and Procedures**

Policy restriction and complex procedures greatly hinder the growth of small firms. Reforming the policies and simplifying regulations are thus preconditions for boosting the growth of small-scale sector (Beaver and Prince, 2002).

Government can encourage innovation by first, providing good data on scientific and totalities of the new technological trends, and networking, both nationally and internationally. Second, government policies have to reflect realities of new innovation process. Third, government has to increase investment in universities and technical education, and put effort on industrially-relevant research and training. Fourth, the government itself has to be innovative; its policies, regulations and laws need to be continually examined from the perspective of whether they support or constrain innovation (Gupta and Sinhhak, 1993).

The strength of small units lies in their flexibility in production. The multiple labour laws, however, sometimes restrict this flexibility. These different laws should be revised and combined into a single legislation. It is required to effectively deal with identification of new strategic priorities and possible market/system failures blocking materialization; for design and initial implementation of new, targeted programs/policies. Governments play a critical role in promoting conformity with global market requirements by building their capacity to

supervise the implementation of international quality standards (Avnimelech and Teubal, 2008; Asrawi, 2010).

Government should raise important policy issues. Firstly, there is a need for well-structured mechanisms or interfaces and intermediary agents for effective and efficient interaction between small units and research institutes. Secondly, developing innovative ability in this sector requires strategic training for owners of small firms so as to increase their absorption capacity for innovation (Oluwajoba *et al.*, 2007).

From all indications the policies are either defective in their formulation and conceptualisation or are not truly and religiously implemented. Now why the policies are not effective can be explained by the fact that the operators, managers, or proprietors of MSMEs are neither consulted nor involved in the formulation of policies. The entire stakeholder in MSMEs sub-sector should be involved for the effective implementation of policies (Avnimelech and Teubal, 2008).

#### ***2.4.7.2 Government Funded Programs***

Government can support programs to build infrastructure as well as incentives (such as tax incentives) and special start-up programs to develop private sector. Factors under infrastructure facilities are related to transport, market information, credit, power, water, telecom, technology upgradation and quality certification; non-infrastructure category includes interaction with government, taxation, and manpower availability. Government can assist organizations in several ways such as through collaborative training programs; R&D programs among government-funded research centers and universities for specific sectors; effective reward schemes; providing laboratories for R&D work; and funding R&D projects. Further, the absence of enterprise nurseries and centers of innovation, plus the lack of communication between universities and small-scale sector, are other factors that do nothing to facilitate access to the results of research and development (Berko, 2003; Hyland and Beckett, 2005).

Government support for small-scale sector is provided in the form of direct grants, subsidies or other forms of financial support. It includes free or subsidized information advice or consultancy and/or special treatment in relation to government regulations. Government support can be categorized as direct and indirect capital investment. Financial direct investment refers to the capital that the state applies to the field of science and technology. This expenditure is in the nation's financial budget. The ways in which governments fund science; in the institutions that distribute funding; and in organizations that carry out research

reflects far-reaching changes in the relationship between science, industry and society (Garrett *et al.*, 2005).

#### **2.4.8 Inefficient Inventory Management**

The Inventory Management (IM) concept implies the establishment of strategic objective and positioning for inventory (Sprague and Wacker, 1996). It is an active control program, which allows a firm to manage its manufacturing, sales, purchases, distribution and payment (Lavelly, 1996).

Inventories are a significant portion of the current assets of any business enterprise. Inaccuracy in inventory creates a range of problems, including loss of productivity, the manufacturing of unwanted items, and reduction in level of customer commitment. The accumulation of costly physical inventories influences a firm's financial strength and competitive position because inventory management activities directly approach to the working capital, production and customer service (Vergin, 1998).

##### **2.4.8.1 Lack of Strategic Inventory Control**

While the critical role of inventory management (IM) has been well recognized in theory and practical, but it does not necessarily drive practice in MSMEs and IM is not generally treated as a critical or strategic activity. The lack of accurate real time and suitable aggregate information of material flow and stock level prevents these enterprises from setting precise quantitative goal for IM (Sprague and wacker, 1996).

IM focuses and influences directly on the competitive factors such as cost, delivery and quality. In SMEs there is no proper inventory record keeping, and accounting, no decision making models are applied in the process, and there is lack of proper documentation and record. Most of MSMEs do not use computers, not because of their cost or availability of software but rather the attitude and knowledge of managers and workers (Chikan and Whybark, 1990; Adelaja, 2007).

Since MSMEs mainly produce to order, they generally believe that sales forecasts etc. do not play a very important role in business process. MSMEs are mainly dependent upon the local supplies and very rarely from suppliers in other states. As their capacity to purchase is low, they are not eligible to source their material from major suppliers (Yang, 2007).

##### **2.4.8.2 Inventory Systems for Small Firms**

*a) The Eyeball System:* This is the standard inventory control system for vast majority of small manufacturing operations and is very simple in application. The key manager stands in the

middle of the store or manufacturing area and looks around. If he happens to notice that some items are out of stock, they are reordered. Difficulty in this system is that some items may be out of stock for some time before anyone notices. Throughout the time it is out of stock, sales are being lost on it. Similarly some time small firm low stocks of some particular critical item may not be replenished.

**b) Reserve Stock System:** this approach is much more systematic than the eyeball system. It involves keeping a reserve stock of items aside, often literally in a brown bag placed at the rear of stock bin or storage area. When the last unit of open inventory is used, the brown bag of reserved stock is opened and the new order is placed. If the reserve stock quantity has been calculated properly, the new shipment should arrive just as the last of the reserve stock is being used. This is a very simple system to operate and one that is higher effective for virtually any type of organization. The variation on the reserve stock system merely involves the management of the reserve stock itself.

**c) Perpetual Inventory Systems:** Various types of perpetual inventory systems include manual, card-oriented and computer operated system. In computer operated systems, a programmed instruction referred to commonly as a trigger, automatically transmits an order to the appropriate vendor once supply fall below the prescribed level. This type of system helps to avoid stock-outs and to maintain a constant evaluation of the sales of different product (Lavelly, 1996).

## **2.5 Theoretical Models**

Some of the important theoretical models in context of creativity and innovation in SMEs are presented as follows:

**Keogh and Stewart (2000)** conducted a survey of 40 units with sample size 14 in Aberdeen area of UK, aim of this is to investigated human resource issues in depth to establishment of a skilled workforce, and find the extent to which future skill requirements. Research methodology involved a series of interviews with owner-managers, other staff within organisation. Respondents provided information about staff recruitment, retention and training, importance of education. It was found that the majority of respondent companies did not use a sophisticated approach to identify current and future staffing needs. Recruitment and staff development were addressed as and when required, thereby catering for immediate operational needs. MSMEs do not follow any job description before recruitments, training need analysis.

**Beaver and Prince (2002)** investigated that government and policy makers need to understand much better the motivations and requirements that shape and drive an innovative firm. In short, government and the business support infrastructure that it has created must also be innovative. Government can create the right economic, fiscal and regulatory framework within which innovation and entrepreneurship can flourish and remove the current ambiguities and anomalies, especially with regard to tax credits. It can also help raise the awareness of the benefits of innovation, of adopting progressive strategic management practice and provide sufficient financial resources for efficient business support services.

**Jayawarna *et al* (2007)** founded that formal training is likely to be targeted activity that contribute more significances to performance than informal training. SMEs that conduct management training show a significantly significant advantage in term of both employee and turnover growth, compared with those that either do not conduct training, of prefer to invest in formal training. In this research there is a clear and sibnificant finding that formal training is associated with performance over and above that provided by informal training in small manufacturing firms.

**Ozgen and Huseyin (2007)** conducted a survey; the population for this study is the 500 manufacturing companies determined by the Istanbul Chamber of Industry in Turkey. A sample size of 215 private sector companies was randomly drawn from the list of companies. Data were collected through questionnaire, and analysed by SPSS program. Concluded that organizations which are innovative, are having adequate strength of multi-skilled workforce. Strategies range from identification of areas of skills in which shortfalls either occur or can occur and efforts are made to generate those skills. These organizations encourage their employees to work in various departments and divisions in order to gain a well-founded experience. The varied exposure helps them to appreciate the problems and pressures of different parts of the organization, and to become better managers of the multifaceted innovation process.

**Ledwith and O'Dwyer (2008) conduct a survey by** collecting data from 48 small and large size firms in Ireland. Finding from 33 small and 15 large firms were compared. Aims of study were to find differences between marketing practices of small and large firms. Examine the impact of product launch, product advantage and market orientation on new product development performance and organisation performance in SMEs. The study has indicated several areas in which small firms can improve their new product and organizational performance. These include improving the product launch process; maintaining high levels of

customer orientation, competitor orientation and inter-functional coordination; and determining the new product characteristics linked with new product success.

**Singh *et al* (2008)** study the development of various competencies by small-, medium- and large-scale Indian organizations under various pressures and constraints. A questionnaire based survey was conducted. Out of 241 responding organizations, 193 were small- to medium-sized enterprises (SMEs) and 48 were larger organizations. Research showed that SMEs have not given due attention for developing effective strategies in the past. They are localized in functioning. On export fronts, SMEs face many constraints due to lack of resources and poor innovative capabilities. For sustaining their competitiveness, they have to benchmark their assets, processes and performance with respect to best in the industry. There is also need for developing a framework for quantifying the competitiveness by adopting a holistic approach. Major problems are related with knowledge loss, product design and development capability, training infrastructure and networking. SMEs are also not following any comprehensive framework for developing their strategies and quantifying their competitiveness.

**Vohra (2008)** conducted a survey by filling a questionnaire prepared on different categories of problems. Target population was the exporters who deal in hand tool and textiles in the industrial city of Ludhiana, Punjab. Finally, a sample of 65 exporters was chosen on the basis of their experience in the exports. This method of data collection has been used keeping in mind the attitude of the Indian managers and achieving high-response rate (61%) of the survey. According to them, small firms have scarce resources for market intelligence generation and thus, there is no room for marketing specialist. But they very much rely on secondary data (such as business journals, newspapers, or even personal contacts, word-to-mouth, suppliers, bankers, etc.) for generating sustainable market intelligence. It is evident that there exists a direct relationship between the firm's experience in the market and the market orientation. The result indicate the major problems in exports include: lack of competitive pricing, red tape in public institutions, poor organization of firms' export department, lack of personnel qualified in export marketing activities, lack of export marketing research, ineffective communication with overseas buyers.

**Rankhumise (2010)** refers to a study conducted in the United States among small businesses to determine failure rate. This objective of study was to examine the perception of small, medium and micro enterprises (SMMEs) owners regarding the factors that lead to the failure

of SMMEs. The researcher personally administered 120 questionnaires among the existing SMME entrepreneurs. The analysis is based on responses from 111 out of the 120 questionnaires that were administered to entrepreneurs, yielding a response rate of 92.5%. Cronbach's alpha was used to test the internal consistency of the questionnaire. The Cronbach alpha value for this research was 0.735, which reflects an acceptable directive. It was found that 23.7% of new businesses dissolved within two years of being started, while 51.7% of businesses dissolved within four years and 62.7% within six years. The major reasons were found to be the following: 47.5% failed for economic reasons, 38.4% failed as a result of financial trouble (including excessive debt, extremely high operating expenses, and insufficient working capital), 7.1% failed because of neglect by the owner (including poor work habits, business conflicts and family problems), 3.4% failed because of inexperience and 3.6% failed for various other reasons, such as disaster and fraud.

**Terziowski (2010)** studied the innovation practice and its effect on performance of Australian SMEs. Drawing data from a sample of 600 SMEs in the manufacturing sector, the study found that innovation strategy is a key driver to performance of SMEs, effect of innovation practice and its performance implications in Small and Medium Enterprises in the manufacturing sector. The impact of innovation factors like innovation strategy, formal structure, customer and supplier relationships and innovation culture on SMEs performance were studied which included number of product configurations, success of new products launched, faster speed to market, reduction in waste, increased market opportunities, increased delivery-in-full-on-time, improved product innovations, and increased quality. After analysis of all these factors a significant positive impact of innovation strategy and formal structure on SMEs performance was found. But other factors like customer and supplier relationships were not found to affect the SMEs performance significantly. The study concludes that SMEs' performance is likely to improve as they increase the degree to which they recognize that innovation culture and strategy are closely aligned throughout the innovation process.

**Chong (2011)** suggest that if managers in a competitive economy can improve the quality of their information acquisition and management, they can conduct better targeted experiments and thus optimize their effectiveness. During the survey the following factors are consider: managerial characteristics, firm characteristics, industry structure and attributes, and socioeconomic infrastructure as well as the interrelationships among these factors. He that if the foreign companies doing business or planning to do business with SMEs in a competitive economy they need to be aware that these SMEs are likely to change their strategies. But if

they can predict the type and direction of context changes, they can predict how the SMEs will behave when changes occur.

**Freel and Harrison (2011)** investigated the effect of innovation and cooperation on small firm sector. They investigated on two main issues: the frequency of innovation networking, and the association between firm-level innovation success and cooperation with a variety of potential network partners. With respect to the frequency of innovation networking, it was found that almost 60% of novel product innovators were engaged in at least one innovation related cooperative endeavour. Also it was concluded that innovation is primarily a process built upon internal capabilities, but even in circumstances where external know-how make a positive contribution firms require substantial in-house capacity in order to recognize, evaluate, negotiate, and finally adapt the technology potentially available from others. In this view, the thrust of public policy for innovation should be twofold: to develop the internal learning capabilities and absorptive capacity of firms, as a first principle; and, where necessary (as a supplementary measure), to increase the availability of external resources (including the facilitation of networks).

**Guzey and Tasseven (2011)** found a relationship between competitive advantage and cluster membership. As a results of the hypothesis tested, it is found, that there is a relationship between technique of production, raw materials and inputs & benefiting from cluster members, Cooperation opportunities with other companies & partnership with cluster members, company strategies & relationship among cluster members. Existence of raw material suppliers at nearest place gives advantage to them in terms of saving time and money (transportation and stock cost can be minimized so profitability can be maximized). Enterprises follow style and trend innovations from each other and they determine their manufacturing new product and growing decisions according to the leaders of the sector. The firms make use of other firms around their company by not only raw material and product technique but also directing their customers to the other firms around.

**Javadi (2011)** conduct a study during the month of March 2011. He selected 114 employees Out of 1983 from a manufacturing company. The data was conducted by different questionnaires: creativity, innovation, and productivity. By the use of SPSS software he found out correlation coefficient equal to 0.489 and examined the significant relation between creativity and innovation with productivity. He concludes that there is positive impact of creativity and innovation on human force productivity. He also found out that impact of participation in educational courses in invention process is effective on productivity growth and showed that education of creativity and innovation is leaded to productivity

enhancement, employees must be encouraged to represent modern and creative thinking. Moreover, suitable incentives should be considered for institutionalization of creativity and innovation culture in organizations and industries.

**Najib and Kiminami (2011)** conduct a survey in which they includes the companies only with fewer than 100 employees found a positive relationship between market orientation and performance by using the assumption that a market orientation provides a firm with a better understanding of its environment and customers. The findings indicate that business performance in clustered SMEs is significantly different than that in dispersed SMEs, market orientation and innovation level in clustered SMEs is significantly higher than that in dispersed SMEs.

**Necadova and Scholleova (2011)** investigated the motives and barriers of innovation behavior of companies and found that non-innovating firms see lack of financial possibilities as one of the main barrier. Economic factors and market barriers were leading to non-innovative nature of organizations. The economic factors included- difficult access to external financing, economic risks and cost on R&D, insufficient flexibility of the legislature. Market barriers included- customer resistance to new products, low dynamic and innovative market, lack of information about markets, lack of qualified workers and technical equipment (large enterprises feel it more significantly), inflexibility of business organizational structure and insufficient spaces.

**ObaiduUah and Khan (2011)** found out that entrepreneurs' characteristics have significant effect on Business Success of SMEs. This implies that small-business owners must have a missionary zeal about their products or services, be willing to be personally involved in it, be willing to stick with the business, be able to define the market clearly and pay attention to details. SMEs should ensure they have built a strong social network and good government relationship in order to ensure their business success. Business success is usually the outcome of the way of doing business and cooperation. Inter-firm cooperation, consultation, performance measurement, and flexibility may play an important role in business success. Inter-firm cooperation contributes positively to gaining organizational legitimacy and to developing a desirable marketplace reputation. Cooperation also may enable the small firm to improve its strategic position, focus on its core business, enter interactional markets, reduce transaction costs, learn new skills, and cope positively with rapid technological changes.

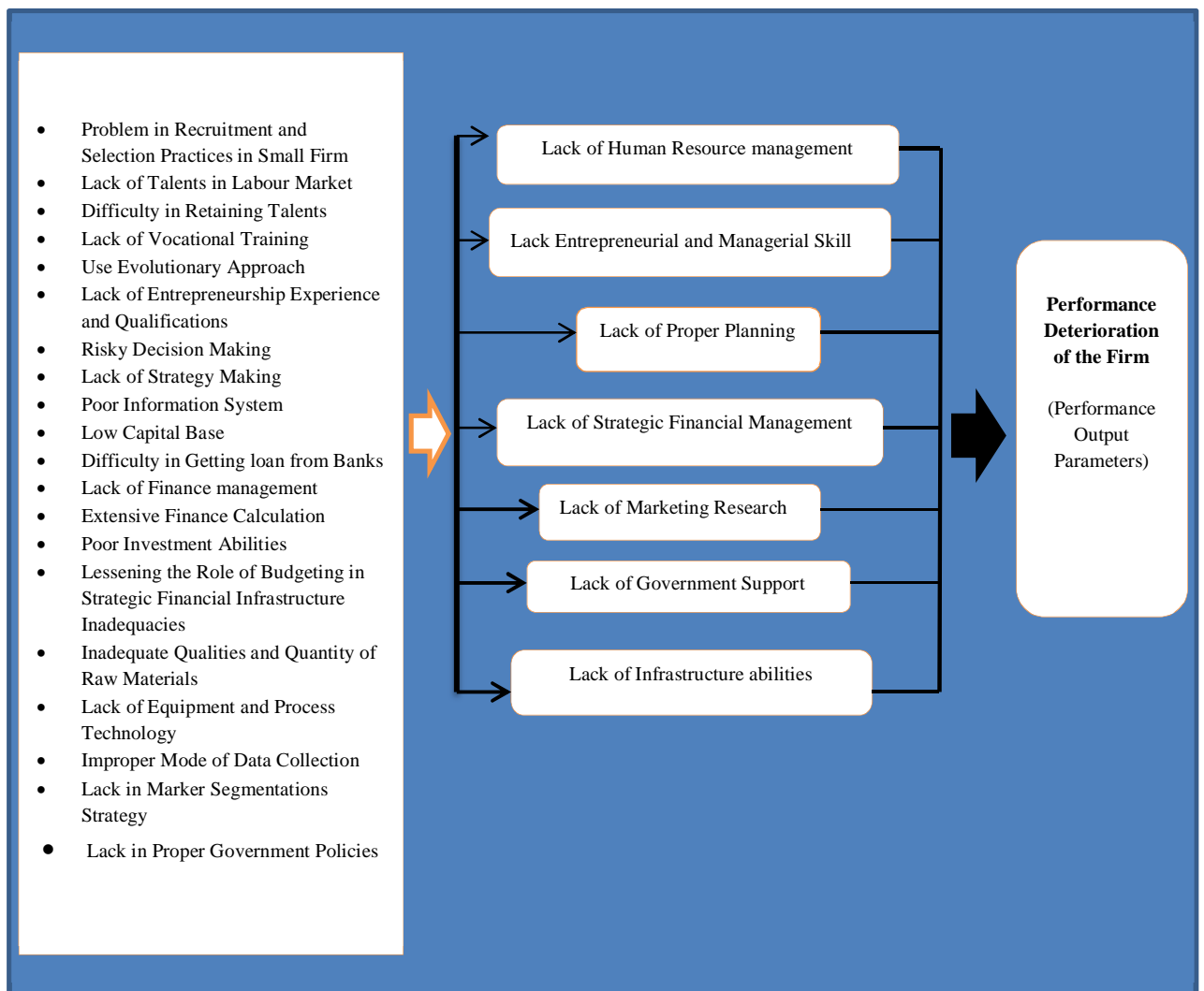
**Romero *et al* (2012)** found that the degree of innovation can be measure by the measuring internal and external variable of innovation. The external variable cover all the opportunities SMEs can seize from a surround environment include variable such as ‘collaboration with

other firm', 'Linkage with knowledge centers', 'Utilizing financial resources or support regulations', 'suppliers', 'business partners', or 'customers'. Internal variables include characteristics of SMEs and government policies for SMEs. Those can be roughly divide into 'Strategy', 'Structure', 'Technology policy', 'Level of education' and 'Investments in R&D' managerial factors such as organizational structure or corporate strategy etc.. He conducted the survey of 400 among 7731 small firm. The survey was supported by Korean Small & Medium Business Administration for the 'New technology commercialization program' this government program aims at finding SMEs at a technology frontier, and facilitating their next-generation technology commercialization. However, the selection is based not on R&D capability but mainly on excellence of technology and commercialization potential.

**Juan *et al* (2012)** conduct a survey by observing 750 units which have number of employee maximum up to 100 employees. The data was conducted by questionnaires which including queries about the innovation activities in small firm. The dependent variables are product innovation (radial and incremental) and process innovation (radial, incremental, and adaption of new technology) are the indicators for innovation. The independent variables are personal characteristics of entrepreneur viz. level business education and previous experience before setting business , firm size viz. number of employees, level of capital income, dependency on the main client and supplier, identification of new markets and business opportunities. Research show that personal characteristics of entrepreneur, firm size, and identification of new markets and business opportunities are the positive related to product and process innovation whereas dependency on the main client and supplier negative related to product and process innovation.

## **2.6 Conceptual Model**

Based upon the examination of the literature review and scope of the present research, a conceptual model has been derived and presented in figure 2.5. The issues which have come into picture from the literature review are broadly classified into four areas which include 'Lack of Human Resource Management (HRM)', 'Lack of Appropriate Entrepreneurial and Managerial Skill', 'Lack of Proper Planning and Strategy Making', 'Lack of Strategic Financial Management', 'Lack of Marketing Research and Strategy', 'Lack of Government support', and 'Lack of Infrastructure and Technological knowledge and know how'. It is proposed to focus on these seven dimensions of problems in an industry



*Figure 2.1 Conceptual Model of Research Work*

## Research Hypothesis

Prior studies of small businesses in developing countries have identified financial resources, lack of management experience, lack of human resource management, and poor infrastructure, lack of market research as main obstacles to small business development (Berko, 2003; Hayton, 2003; Hyland and Beckett; 2004 Price, 2007; Yang, 2007). While some of these studies have produced inconsistent findings, others have shown inconsistencies that render additional research necessary. So, these obstacles are taken as input parameters and the various indicators of tactical development of small units are taken as sales performance, product performance and innovation performance.

As a result, the following hypotheses are proposed so as to increase our understanding of the problems experienced by business owners in the region:

**Table 2.1 Research Hypothesis**

<b>Hypothesis 1</b>	There will be a significant negative relationship between ' <i>Lack of Entrepreneurship and Managerial Skills</i> ' and ' <i>Research Output</i> ' parameters.
<b>H1a</b>	There will be a significant negative relationship between ' <i>Lack of Entrepreneurship and Managerial Skills</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H2b</b>	There will be a significant negative relationship between ' <i>Lack of Entrepreneurship and Managerial Skills</i> ' and ' <i>Sales Performance</i> ' parameters.
<b>H3c</b>	There will be a significant negative relationship between ' <i>Lack of Entrepreneurship and Managerial Skills</i> ' and ' <i>Product Performance</i> ' parameters.
<b>Hypothesis 2</b>	There will be a significant negative relationship between ' <i>Lack of Strategic Financial Management</i> ' and ' <i>Research Output</i> ' parameters.
<b>H2a</b>	There will be a significant negative relationship between ' <i>Lack of Strategic Financial Management</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H3b</b>	There will be a significant negative relationship between ' <i>Lack of Strategic Financial Management</i> ' and ' <i>Sales Performance</i> ' parameters
<b>H3c</b>	There will be a significant negative relationship between ' <i>Lack of Strategic Financial Management</i> ' and ' <i>Product Performance</i> ' parameters
<b>Hypothesis 3</b>	There will be a significant negative relationship between ' <i>Lack of Government Support</i> ' and ' <i>Research Output</i> ' parameters.
<b>H3a</b>	There will be a significant negative relationship between ' <i>Lack of Government Support</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H3b</b>	There will be a significant negative relationship between ' <i>Lack of Government Support</i> ' and ' <i>Sales Performance</i> ' parameters.
<b>H3c</b>	There will be a significant negative relationship between ' <i>Lack of Government Support</i> ' and ' <i>Product Performance</i> ' parameters.
<b>Hypothesis 4</b>	There will be a significant negative relationship between ' <i>Lack of Marketing Research</i> ' and ' <i>Research Output</i> ' parameters.
<b>H4a</b>	There will be a significant negative relationship between ' <i>Lack of Marketing Research</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H4b</b>	There will be a significant negative relationship between ' <i>Lack of Marketing Research</i> ' and ' <i>Sales performance</i> ' parameters.
<b>H4c</b>	There will be a significant negative relationship between ' <i>Lack of Marketing Research</i> ' and ' <i>Product Performance</i> ' parameters.
<b>Hypothesis 5</b>	There will be a significant negative relationship between ' <i>Lack of Planning and Strategy making</i> ' and ' <i>Research Output</i> ' parameters.
<b>H5a</b>	There will be a significant negative relationship between ' <i>Lack of Planning and Strategy making</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H5b</b>	There will be a significant negative relationship between ' <i>Lack of Planning and Strategy making</i> ' and ' <i>Sales Performance</i> ' parameters.
<b>H5c</b>	There will be a significant negative relationship between ' <i>Lack of Planning and Strategy making</i> ' and ' <i>Product Performance</i> ' parameters.
<b>Hypothesis 6</b>	There will be a significant negative relationship between ' <i>Lack of Human Resource Management</i> ' and ' <i>Research Output</i> ' parameters.
<b>H6a</b>	There will be a significant negative relationship between ' <i>Lack of Human Resource Management</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H6b</b>	There will be a significant negative relationship between ' <i>Lack of Human Resource Management</i> ' and ' <i>Sales Performance</i> ' parameters.
<b>H6c</b>	There will be a significant negative relationship between ' <i>Lack of Human Resource Management</i> ' and ' <i>Product Performance</i> ' parameters.
<b>Hypothesis 7</b>	There will be a significant negative relationship between ' <i>Lack Infrastructure and Tech. Know-how</i> ' and ' <i>Research Output</i> ' parameters.
<b>H7a</b>	There will be a significant negative relationship between ' <i>Lack Infrastructure and Tech. Know-how</i> ' and ' <i>Innovation Performance</i> ' parameters.
<b>H7b</b>	There will be a significant negative relationship between ' <i>Lack Infrastructure and Tech. Know-how</i> ' and ' <i>Sales Performance</i> ' parameters.
<b>H7c</b>	There will be a significant negative relationship between ' <i>Lack Infrastructure and Tech. Know-how</i> ' and ' <i>Product Performance</i> ' parameters.

## **2.7 Gap in the Literature**

This chapter has presented the finding from literature on various factors contributing in failure of micro small and medium enterprises (MSMEs).The review of past literature indicated sufficient gap for the conduct of the proposed research work. The following limitations may be noted:

- Several researchers have worked on identifying the different factors which contribute in failure of MSMEs. However, most of the academic writings focus only on one factor or as various few factors individually at a time. There is a lack of literature providing holistic prospective on factors contributing in failure of micro, small and medium enterprises.
- Though a large number of theoretical models are available in subject area but literature lack data base studies and quantitative research undertaking in small scale sector.

The proposed research work intended to bridge the gaps in the literature and practices by suggesting a model for organization to be creative and innovative.

## Chapter - III

### DESIGN OF THE STUDY

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#### 3.1 Introduction

This chapter introduces the overall design of the study, which includes methodology adopted for carrying out the research work as well as various phases of the study. The details of work done in each phase; methodology adopted, statistical tools and models used in the work have also been described.

#### 3.2 Objectives and Issues

The main purpose of the present work is to study the factors that influence the performance of SMEs and contributes in its failure. Literature highlights the following areas and issues as critical to the success of the present research work:

- **Lack of Human Resource Management (HRM):** It contains following sub-factors:
  - ✓ Problem in Recruitment and Selection Practices
  - ✓ Lack of Talents in Labour Market
  - ✓ Difficulty in Retaining Talents
  - ✓ Lack of Vocational Training
- **Lack of Appropriate Entrepreneurial and Managerial Skill:** It contains following sub-factors:
  - ✓ Use Evolutionary Approach
  - ✓ Lack of Entrepreneurship Experience and Qualifications
  - ✓ Risky Decision Making
- **Lack of Proper Planning and Strategy Making:** It contains following sub-factors:
  - ✓ Lack of Strategy Making
  - ✓ Poor Information System
- **Lack of Strategic Financial Management:** It contains following sub-factors:
  - ✓ Low Capital Base
  - ✓ Difficulty in getting loan
  - ✓ Lack of Strategic Finance Management
  - ✓ Extensive Finance Calculation

- ✓ Poor Investment abilities
- ✓ Lack of Systematic Budget System
- **Lack of Infrastructure and Technological knowledge and know how:** It contains following sub-factors:
  - ✓ Infrastructure Inadequacies
  - ✓ Problems with Raw Materials
  - ✓ Lack of Equipment and Process Technology
- **Lack of Marketing Research and Strategy:** It contains following sub-factors:
  - ✓ Improper Mode of Data Collection
  - ✓ Lack in Marker Segmentations Strategy
- **Lack of Government Support**
  - ✓ Lack in Proper Government Policies and Procedures
  - ✓ Government Funded Programs

### 3.3 Phases of Research

The present study will employ both quantitative and qualitative research approaches. The quantitative approach will utilize a series of statistical techniques. The results obtained from quantitative study and literature review will be synthesized to develop a systematic plan using a qualitative research methods. Based on flexible systems methodology, the research work will be carried out in three phases, also shown in Figure. 3.1,

Phase I : Clarifying the context

Phase II : Understanding and assessing the situation

Phase III : Evolving a management process

### 3.4 Clarifying the Context

This phase involves extensive literature review on factors contributing to the failure of MSMEs industry with regards to lack of finance, government policies, infrastructure inabilities etc. Factors influencing the performance of SMEs have been assessed. Literature review regarding lack of entrepreneurship and managerial Experience, lack of finance management, lack of government support, lack of marketing research, lack of planning and strategy making, lack of proper human resource management, lack of infrastructure and technological know-how has also been carried out. The factors in terms of which research output can be expressed have also been identified in this phase.

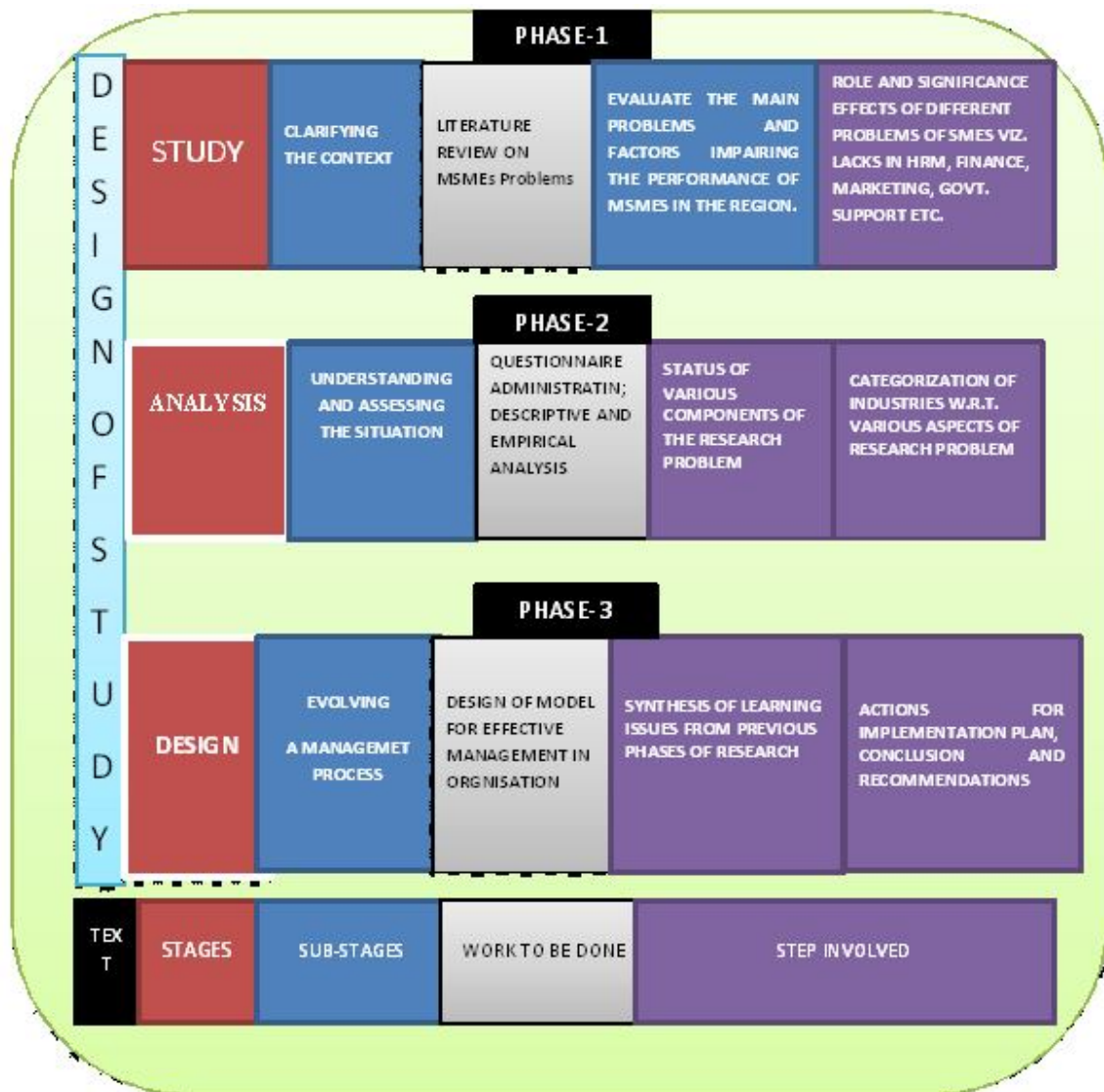


Figure 3.1. Phases of Research

### 3.5 Understanding and Assessing the Situation

The study is proposed to be carried out in small manufacturing units dealing with cutting tool, machine tool and auto-component part in Patiala district (Punjab) region. In the research work, the questionnaire was sent to large numbers (40 unites) of manufacturing units in Patiala region and out of these total 25 fully filled and usable questionnaires were receive and have been taken for analysis.

#### 3.5.1 Research Approach

The research approach (Qualitative, Quantitative, or Mixed Methods) is decided based on interrelated levels of decisions which when made dictate the approach and the research design process. These decisions are based on knowledge claims, strategies of inquiry, and research method used. ‘A quantitative approach is one in which the investigator primarily

uses post positivist claims for developing knowledge (i.e. cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories), employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data’. ‘A qualitative approach is one in which the inquirer often makes knowledge claims based on constructivist perspectives (i.e. multiple meaning of individual experiences, meanings socially and historically constructed, with an intent of developing a theory or pattern) or advocacy/participatory perspectives (i.e. political, issue orientated, collaborative, or charge orientated) or both. It also uses strategies of inquiry such as narratives, phenomenology’s, ethnography’s, grounded theory studies, or case studies. The researcher collects open-ended, emerging data with the primary intent of developing themes from the data’. ‘A mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g. consequence-orientated, problem-centered, and pluralistic). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information (e.g. on instruments) as well as text information (e.g. on interviews) so that the final database represents both quantitative and qualitative information’ (Creswell, 2003).

Based on these definitions and the work of O’Leary (2004) this can be summarized as shown in Figure 3.2

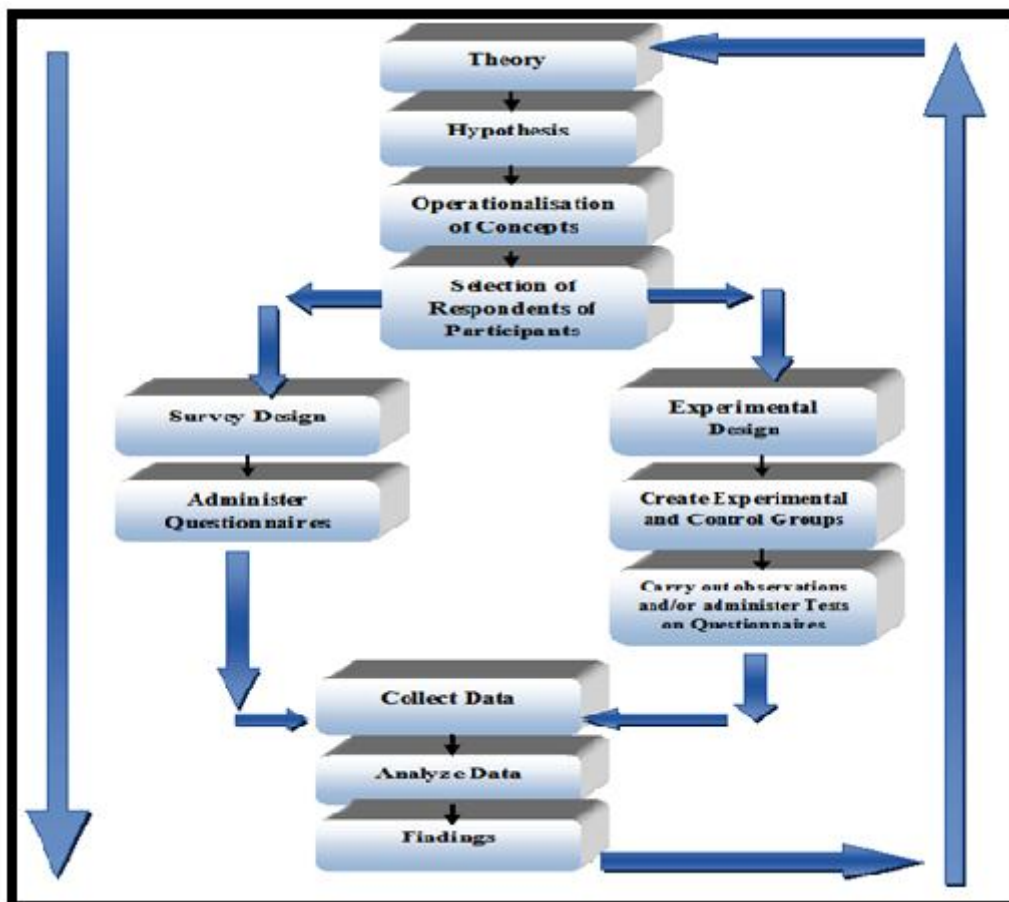


Figure 3.2 Research Approach Flow Charts (O’Leary, 2004)

Therefore, based on Figure 3.2, both Quantitative and Qualitative Research Approach would appear to be the approaches to be used in this thesis.

### 3.5.1.1 Quantitative Research Approach

Figure 3.3 shows the Quantitative Research Approach Model as described by Bryman and Cramer (2005). This is comprised of Theory, Hypothesis, Operationalisation of Concepts, Selection of Respondents, Survey or Experimental Design, Data Collection, Analysis and Findings.



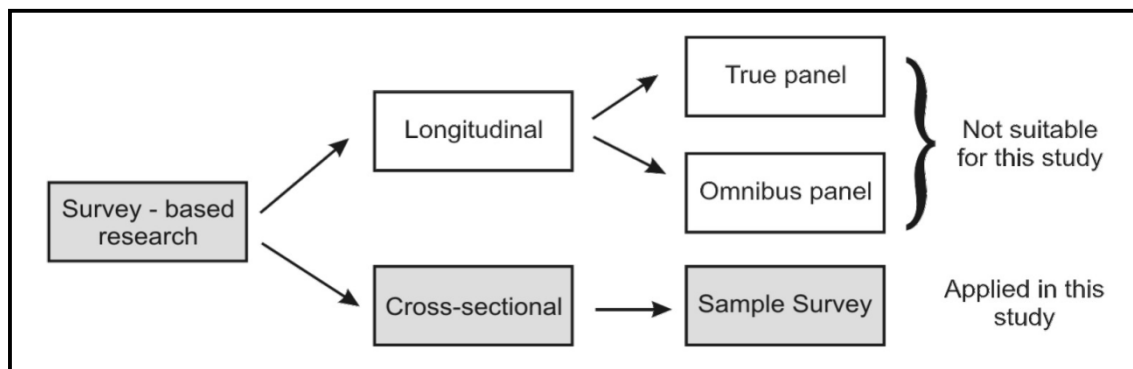
*Figure 3.3 Quantitative Research Approach Model (Bryman and Cramer, 2005)*

Research approaches can be categorized into two other types- survey based and non-survey based. Since our study will include collecting of data from industries, so the approach to be followed in this thesis will be survey based research approach.

There are different types of survey-based research (Churchill, 1995). An overview of these is presented in Figure 3.4. Cross-sectional research is primarily used to measure the various characteristics once, whereas longitudinal research considers the measurement over time.

Furthermore, cross-sectional research involves a sample of elements from the population of interest, whereas true and omnibus panels are used in longitudinal research. Even though longitudinal research could be useful in observing technological capabilities over time, there are some critical drawbacks to this method. The main disadvantage of panels is that they are non-representative. Furthermore, the agreement to participate involves a far-reaching commitment of the respondent, which is very difficult to achieve.

Instead, the use of cross-sectional research is far more useful in this study. Besides, it is also considered the most important type of survey-based research in terms of the number of times it is used as compared to other methods. First of all, cross-sectional research provides a snapshot of the variables of interest at a single point in time. Second, the sample of elements selected is considered to be representative of some known universe.



**Figure 3.4 Type of Survey Based Research**

*Questionnaire Development:* For effectively conducting the survey, the first task is to design a questionnaire. A questionnaire will be prepared through extensive literature review. A relevant and detailed questionnaire containing objective type questions with multiple choice answers pertaining to the desired conceptual framework will be designed. Information on various aspects related to tool and auto-component manufacturers of Patiala has been sought in it. Scale items would be used in the analysis, since the research interest is to examine the effects of independent variables on dependent variables (Ettlie and Hahn, 1994).

*Questionnaire Pre-testing and validation:* After preparing the questionnaire through extensive literature review, it has been pretested through peer review from academicians, and practitioners from the industry. To ensure the relevance and effectiveness of the questions to the manufacturing industry, the questionnaire will be pre-tested on a representative sample of industry. The suggestion received will be incorporated to make the questionnaire more relevant to the purpose so that it may bring out key outcomes. The objective is to confirm that

responses that will be obtained are based on correct interpretation of the questions. Cronbach's Alpha will be assessed for validation (Reliability Testing).

### **3.5.2 Conceptualization and Instrument Design**

With the exception of facts (like a person's age), a survey does not collect data it creates it. The answers to the survey are a description (this is a descriptive survey) of the respondents. Conceptualization and instrument design deals with ensuring that the concepts, in this case of technology development, are converted into questions such that relevant empirical data can be analyzed. In addition, the quality of the survey measurement is very important. Two techniques cover this, reliability and validity (Babbie, 1990).

#### **3.5.2.1 Reliability and Validity**

The quality of the survey research is established by examining the reliability and validity of the survey (Litwin, 1995).

##### **3.5.2.1.1 Reliability**

Measurement error is related to how well or badly a survey achieves its purpose in a given population. According to Litwin (1995) reliability is:

'A statistical measure of how reproducible the survey instruments data is'.

There are three types of reliability:

*Test-retest reliability* or (Stability Reliability) – This is the most commonly used indicator of instrument reliability. The same set of respondents are measured at two different points in time and the stability of the responses analyzed (in order to do this the survey must not be effected by time). The correlation coefficient value must be  $r \geq 0.70$ . This can be done for a group or an individual observer and the whole instrument can be tested (Litwin, 1995).

*Alternate-form* – This involves using different worded items (questions) to measure the same attribute. This is a method of getting around the practice effect, where respondent becomes familiar with the instrument and can respond with the answer they gave the last time.

*Internal consistency reliability* – This is applied to groups of items that measure different aspects of the same concept, not single items. It is a measure of how well the different items measure the same issue (Cronbach's Alpha) (Litwin, 1995).

The goal is to measure concepts in a way that helps us understand the world around us. As the survey is cross-sectional Test-retest cannot be used, also, alternate-form requires the addition of repeat question which in this case would make the survey too long. Thus, reliability will be checked using pre-testing and internal consistency.

### 3.5.2.1.2 Validity

According to Litwin (1995) validity is:

‘The measure of how well the survey measures what it sets out to measure’

Litwin (1995) explains that there are two types of validity, internal and external. External validity is concerned with how well the sample population findings apply to the entire population (generalization) and the ability of research to relate to a person’s experience i.e. can they connect to it (transferability).

Internal validity is concerned with how well the study was carried out i.e. the study’s design, what was and was not measured and how well it was measured. There are four types of internal validity (Litwin, 1995).

*Face Validity* – It is a review of items by untrained judges. It is the least scientific and considered worthless by some (Babbie, 1990; Litwin, 1995).

*Content Validity* – If a survey was conducted on mathematical skill and only asked about addition, the content of that survey would not be valid. This content is reviewed by people with knowledge of the research topic resulting in the identification of gaps in content.

*Criterion Validity* – The comparison of one instrument against another instrument has proved to be valid. Can be broken into two components, concurrent (measure of a variable against a gold standard) and predictive (the ability of a survey to forecast future events).

*Construct Validity* – This is the measure of how good a scale or survey instrument is in practical use and is based on years of experience with a survey instrument.

Validity will be checked for by using content validity – using the pre-testing.

### 3.5.3 Statistical Tools

The various statistical tools to be used in the analysis of data are discussed in this section.

The convergent and discriminant validities of the constructs and their measures will be carried out.

Firstly, in the analysis of questionnaire, the status of all the issues under each component (input and output parameters) of tactical upgradation of the manufacturing sector will be assessed. The *Percent Points Score (P.P.S)* for each set of questions which reflect different issues under each component will be calculated. These measures reflect as to how well the area (issue) represented by that question is being looked after in the industry.

Secondly, the status of manufacturing units in different key factors will be evaluated and the manufacturing units will be classified in to different categories. The score of each unit (in terms of Percent Points Score, PPS) in individual components will be calculated from the raw

score of issues under each component. The criterion reported in earlier research studies has been is used to classify the industries into different categories (Nanda and Singh, 2009b).

*Cronbach's Alpha Coefficient:* This parameter will be used for convergent validity. Convergent validity assesses the degree to which measures of the same concept (construct) are correlated. It is assessed by the correlation among items which make up the scale or instrument measuring the construct (internal consistency validity). The internal reliability of items (inter-item analysis) under each input and output parameter has been assessed by using Cronbach's alpha coefficient, as recommended for empirical research in operations management. The higher the score, the more reliable the generated scale is 'Cronbach's alpha' coefficient ( $\alpha$ ) is defined as per the following equations.

$$\alpha = \frac{N}{N - 1} \left( 1 - \frac{\sum_{i=1}^N \sigma_{Y_i}^2}{\sigma_X^2} \right) \quad \text{----- Equation 3.1}$$

Here, N is the number of components (items or testlets),  $\sigma_X^2$  is the variance of the observed total test scores, and  $\sigma_Y^2$  is the variance of component  $i$ .

*Principal Component Analysis:* It is a way of identifying patterns in data, and expressing the data in such a way as to highlight their similarities and differences. Since patterns in data can be hard to find in data of high dimension, where the luxury of graphical representation is not available, PCA is powerful tool for analyzing the data. The other main advantage of PCA is that once these patterns have been found in the data, the data can be compressed by reducing the number of dimensions, without much loss of information. The main objective of principal component analysis is to discover or to reduce the dimensionality of the data set and to identify new meaningful underlying variables.

*t-Test Analysis:* To find the relationship between key inputs and key outputs, Pearson's correlation coefficient values (r values) between various issues of inputs and the Development Indicators (output parameters) will be calculated. The correlation values obtained after this will be further validated using t-test. Pearson's correlation values and t-values (obtained from t-test) will be worked out to ascertain significant issues and factors contributing to the success of TD implementation program in industry. The t-values obtained (from t-test) can also be worked out through empirical expression indicated in Equation 3.3.

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \geq t_{n-2} \text{ (from 't' Tables)} \quad \text{----- Equation 3.3}$$

Here, '**n-2**' represents degrees of freedom (df) for a particular test, '**r**' represents Pearson's correlation coefficient between a particular input issue and an output parameter, '**t<sub>n-2</sub>**' is the t<sub>critical</sub> value from statistical 't' tables for (**n-2**) degrees of freedom.

*Canonical Factor Loading Analysis:* The significant correlations obtained after t-test analysis will be validated through 'Canonical Factor Loading' analysis. This analysis describes the combined effect of multiple inputs on individual output variables. Canonical loadings measure the correlation between an original observed variable in the dependent or independent set and the set's canonical variate. The canonical loading reflects the variance that the observed variable shares with the canonical variate and can be interpreted like a factor loading in assessing the relative contribution of each variable to each canonical function. The larger the coefficient, the more important it is in deriving the canonical variate.

*Multiple Regression Analysis:* Further, multiple linear regression analysis will be performed taking into account a set of all independent variables and each dependent variable individually. This technique can identify a set of variables which conjointly contribute significantly towards the criterion variable. The notations employed in this test include: β= Regression Coefficient (Beta Coefficient), R= Multiple Correlation Coefficient.

### **3.5.4 Analysis of Survey**

The analysis of questionnaire will be carried out from the following view points:

- To determine the status of industry with regards to existence of certain departments, facilities and programs for technology development through indigenous research.
- To assess the status of main factors and problems impairing the performance of small scale manufacturing industry.
- To review the status of each component (aspect) of Technology Development Implementation Program (TD Program) in the industry.
- To assess the overall standing of each manufacturing organization in different components of TD, leading to classification of organizations into various categories ranging from very good to very poor.

- To evaluate contributions of technology development initiatives (Technology Input Success Factors) towards achieving manufacturing performance improvements (Development Indicators).
- Correlation between key inputs and output performance parameters.

### **3.6 Concluding Remarks**

The methodology adopted for the study along with the step-by-step approach employed for the research has been elaborated in this chapter. Empirical studies will be used to yield rich data for statistical analysis. The learning issues from the literature review and results of questionnaire based survey will be synthesized to develop a systematic plan for tactical creativity and innovation of small and medium enterprises.

## **CHAPTER - IV**

### **SURVEY BASED RESEARCH RESULTS**

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#### **4.1 General**

This chapter presents the analysis and major findings of survey based research data. The survey explores the status of major problems of cutting tool industry in the region. The main factors affecting the performance of small units have been evaluated. The analysis also establishes the relationship of various problems as input factors with output performance parameters.

#### **4.2 Survey Methodology**

For conducting the survey, the questionnaire based technique has been used. A relevant and comprehensive questionnaire (from an earlier research finding) seeking information on problems in small scale manufacturing industry. For effective conducting the survey, the questionnaire has been designed through an extensive literature review and validating through peer review from academicians, consultants and practitioners from industry. To ensure relevance and effectiveness of questions to the manufacturing industry, the questionnaire has been pre-tested on a representative sample of industry. The feedback received has been incorporated to make the questionnaire more relevant for the purpose.

The present work considers seven key problems because of which the performance of small scale cutting tool industry in the region is deteriorating. These include

- Lack of Entrepreneurship and Managerial Experience
- Lack of Strategic Financial Management
- Lack of Government Support
- Lack of Marketing Research
- Lack of Planning and Strategy making
- Lack of proper Human Resource Management
- Lack of Infrastructure and Technological Know-how

##### ***4.2.1 Industrial Units Surveyed***

Small scale cutting tool manufacturing organizations in Patiala (Punjab, India) have been included in the survey. The main products of cutting tool industry in the region include metal

slitting saws, slotting cutters, side and face cutters, shank type milling cutters, reamers, gear hobs, milling cutters, broaches, harvester blades, jack plane blades etc.

A total of 55 cutting tool units were selected from the list of registered units provided by the office of District Industrial Centre, Patiala. Only those units with their minimum turnover of lakh rupees were selected for the survey. 55 questionnaires were distributed among these industries by making personal visits to the industrial units and having discussions with proprietors and senior executives. A total of 25 units (details of units in Appendix IV) responded to the questionnaire. This constituted a response rate of 45.45%.

### **4.3 Analysis of Questionnaire**

The analysis of questionnaire has been carried out to assess the following:

1. Main problems affecting performance of cutting tool manufacturing industry in the region.
2. Status of each problem (aspect) in cutting tool manufacturing sector in the region.
3. Classification of industrial units in various SMEs related problems.
4. Contributions of various problems towards deteriorating the performance of small scale industries in the region.

### **4.4 Main Factors Affecting Performance**

This section presents the status of each of these problems in the manufacturing sector. The present work considers eight key inputs and three output performance parameters for the overall assessment of problems related to the small scale sector. The input issues include, '*Lack of Entrepreneurship and Managerial Skills*', '*Lack of Strategic Financial Management*', '*Lack of Government Support*', '*Lack of Marketing Research*', '*Lack of Planning and Strategy Making*', '*Lack of Proper Human Resource Management*', and '*Lack of Infrastructure and Technological Know-how*'. The key outputs include '*Product Performance*', '*Sales Performance*', and '*Innovation Performance*'. The various issues under key output are being collectively referred to as '*Output Performance Parameters*'.

#### **4.4.1 Lack of Entrepreneurship and Managerial Experience**

This section presents the status of '*Lack of Entrepreneurship and Managerial Skills*' issues in small scale cutting tool industrial sector in the region.

Literature reveals that majority of SMEs entrepreneurs have little or no managerial experience prior to setting up their business and lack in formal management training or qualifications. So they cannot operate their business well, because the lack of managerial

training or qualification prevents them from creating strategies to compete with large or multinational enterprises (Hill and Stewart, 2000).

The questions on this component aim at collecting information on the following:

- i) Inability to make proper decisions because of production issues and/or other routine problems.
- ii) Education level of entrepreneur in this region.
- iii) Inability to attend managerial training at regional institutes, other large scale manufacturing enterprises or government centers. The response to individual questions (issues) on this component is presented in Table 4.1.

**Table 4.1 Evaluation of Lack of Entrepreneurship and Managerial Skills Issues**

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS) <sup>^</sup>	Percent Point Score (PPS) $\frac{TPS}{5 * N} * 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Lack of proper decision making	25	0	11	13	1	0	65	<b>52.00</b>	2.60
2	Inability to attend managerial training	25	0	9	16	0	0	66	<b>52.80</b>	2.64
3	Poor entrepreneur's education level	25	3	12	9	1	0	58	<b>46.40</b>	2.32
4	Lack of Working experience	25	1	17	6	1	0	57	<b>45.60</b>	2.28
5	Lack of awareness about new technology	25	1	15	6	3	0	61	<b>48.80</b>	2.44
6	Lack of awareness about govt. policy	25	3	4	5	11	2	80	<b>64.00</b>	3.20
<b>Overall Average (On the scale of 5.00)</b>										<b>2.58</b>
<sup>^</sup> Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

In SMEs owner-manager are always use informal management practices and most of critical decision made only by high-ranked manager. In other words, the top-level decision making is affected by owner-manager's personal prejudice (characteristics, behaviours, attitude etc.), insufficient information and incomplete data. That is to say decision-making by this way will lead to high risks, because owner do not have time to plan their development task and it is hard to deal with business issues accurately ((Beaver and Prince, 2002). However, the result of survey indicate that lack of proper decision making is only moderately affected the performance of small units (PPS=52.00 only).

There are two main reasons for lack of proper decision making first entrepreneurs are too busy with production issues and other routine problems. As a result they do not get time to discuss the decision with employees; the second reason is that entrepreneurs feel that their fellow employees are not capable enough to contribute effectively in decision making.

Inability to attend managerial training at regional institutes, other large enterprises or government centres has also been reason affected (PPS=52.80) the small units in the region. There are several reasons because of which such training programmes have not been beneficial the result indicated that training institute have not been very effective in imparting training or even understanding the specific needs of the small firms. Further training course are not accurately planned and marketed.

The characteristics of successful entrepreneurs may be developed through education. The entrepreneurs with higher level of human capital are associated with more successful SMEs than those with only a low level (Sawaya, 1995). Education level of entrepreneurs in the region is good and is not contributing towards lack of entrepreneurship and managerial skills. This is reflected in the low score (PPS=46.40 only). In most of the organizations (52%) are being run by entrepreneurs having either a post graduate or engineering degree, 44% organizations are run by entrepreneurs having either diploma or normal graduation degree. Lack of working experience of the entrepreneurs is not a significant problem (PPS=45.00). In most of the organisations the experience and tactical knowledge obtained by entrepreneurs by their previous work has been helped in innovation related activities.

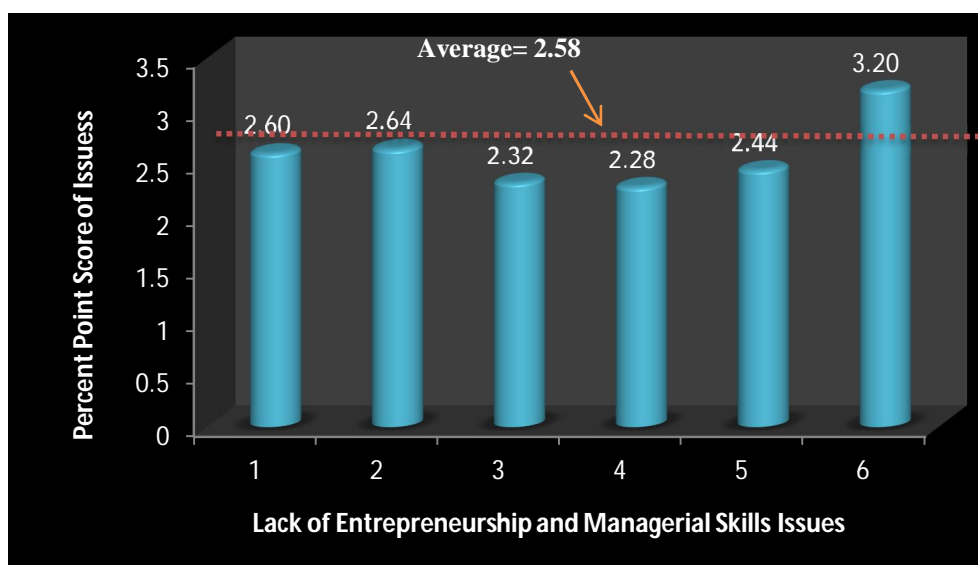


Figure 4.1 Lack of Entrepreneurship and Managerial Skills Issue

Though the education level of the entrepreneurs in the region is good but they still lack in awareness about the various government policies (PPS=64.00). In most then the half of the units (52%) the owner manager to a large extent are not aware of the various scheme offered by the MSMEs ministry.

The average of this aspect is 2.58 (out of 5.00) has shown in figure 4.1. This low score reflect that lack of entrepreneurship and managerial skills is not an area of concern, many of the issues like education level, prier working experience of the entrepreneur is good. However, there are few issues like managerial training, awareness regarding government schemes which need attention.

#### 4.4.2 Lack of Strategic Financial Management

This section presents the status of ‘*Lack of Strategic Financial Management*’ of small scale cutting tool sector in the region.

The questions on this component aim at collecting information on the following:

- i) Lack of finance for activities like training of employees, purchasing of new machinery etc.
- ii) Poor investment ability of small firms
- iii) Lack of knowledge regarding loan providing agencies and institutes

The response to individual questions (issues) on this component is presented in Table 4.2

**Table 4.2 Evaluation of Lack of Lack of Strategic Financial Management Issues**

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS) <sup>^</sup>	Percent Point Score (PPS) $\frac{TPS}{5 * N} * 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Insufficient credit for meeting requirement of routine operations	25	1	16	8	0	0	57	<b>45.60</b>	2.28
2	Difficulty in getting loan	25	1	1	5	17	1	91	<b>72.80</b>	3.64
3	Financial strategy for effective finance management	25	0	4	13	7	1	80	<b>64.00</b>	3.20
4	Channel to get loans	25	8	9	5	3	0	53	<b>42.40</b>	2.12
5	Inability to face emergency financial requirements	25	0	15	10	0	0	60	<b>48.00</b>	2.40
<b>Overall Average (On the scale of 5.00)</b>										<b>2.73</b>
<sup>^</sup> Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

Finance should be conducted in the most proper way, the collected capital should be utilize and managed in the most effective way in enterprises and decisions on the reinvestment and distribution of profits should be made most reasonably. Small firm are lacking because of their ill financial planning, poor investment abilities etc. (Huang, 2008).

Small firms need credit to fund their working capital needs or other income related activities on a day-to-day basis as well as long term basis. Small firm in region have enough credit to meet their day-to-day need as reflected by the low score (PPS=45.60 only) of this issue. Most of the units (64%) face this problem only to a small extent.

Although small units in the region are able to obtain sufficient credit for meeting requirements of routine operations and important work, however these funds are obtained in the form of loan at high interest rate. The banks unavoidably have 'careful loan behaviour' and examination for credit loan in the 'demand approval procedure' is extremely strict. Most of the units (72%) have to take loan at high interest rate, and thus difficulty in getting loan is the most critical problem in finance management in small firms as it reflected by the high score (PPS=72.80).

Lack of clearly defined financial strategy or plan for effective financial management is also a major area of concern (PPS=64.00) for the small manufacturing units. Almost one third of units (32%) do not have clear financial strategy to a large extent, this means before investing in any new project, these units do not calculate the exact amount of maoney and time with respect to different activities, do not know the amount to be invested internally with self-capital and how much to be taken as loan from external source. They do not have any profit distribution strategy in advance. They just focus on short term goal to recover investment. As a result they rely on simple reproduction instead of extended one. In addition, without any special institution for market analysis, their investment activities tend to be based on their perception and therefore blindness (Yilmaz *et al.*, 2005).

Availability of channels to get loans is not a major problem (PPS=42.40), there are several financial intermediates and loan guarantee institutes for small firms.

For small units it has been generally observed that if their income drops suddenly the units run out of money. However small units in the region have been facing this problem only to a small extent (PPS=48.00 only). In case units run out of money employee salaries or incentives are never cut down in such a situation the small units spent out savings from previous project or borrow money from private or nationalized bank.

The average score is 2.73 (out of 5.00) as shown in figure 4.2. There are two critical issues in this component which need urgent attention, small units must have a clear defined financial

plan further loan should be available to them with less collateral requirement and at low interest rate.

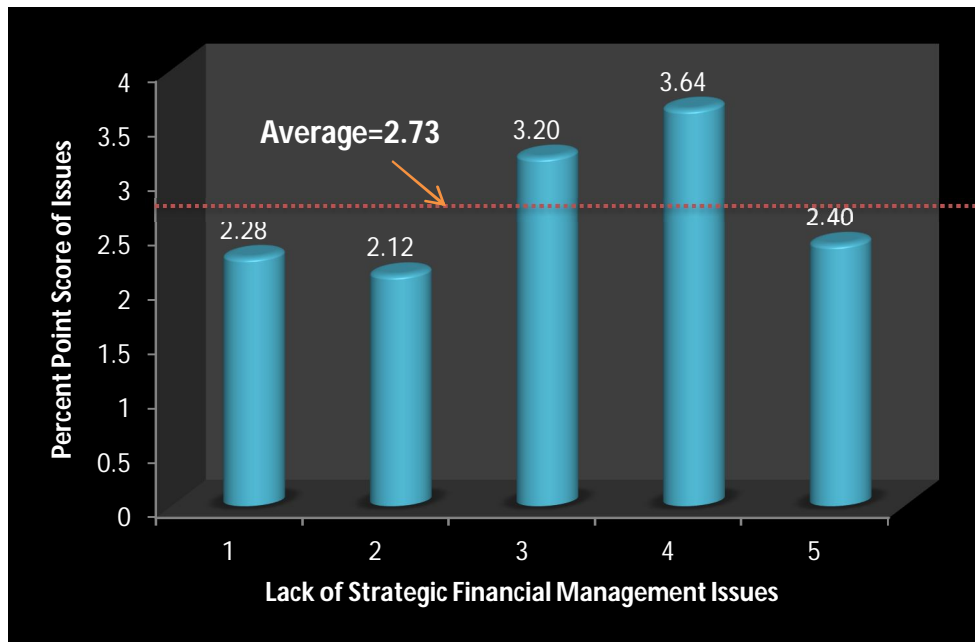


Figure 4.2 Evaluation of Lack of Strategic Financial Management Issues

#### 4.4.3 Lack of Government Support

This section presents the status of 'Lack of Government Support' for small scale cutting tool manufacturing sector in the region.

The questions on this component aim at collecting information on the following:

- i) Status of government funding for research initiatives and other business support mechanisms.
- ii) Government policies for micro and small units.
- iii) Availability of government labs for small units at lower rates, training facilities for small scale unit employees at government supported training centers.

The response to individual questions (issues) under this component is presented in Table 4.3.

Policy restrictions and complex procedures greatly hinder the growth of small firms. Reforming the policies and simplifying regulations are thus preconditions for boosting the growth of small-scale sector. Policy makers need to understand much better the motivations and requirements that shape and drive a small firm (Beaver and Prince, 2002; Hyland and Beckett, 2005). The survey results show that cutting tool sector in the region is extremely lagging behind (PPS=80.80) with regards to support received from government policies and

measures. Most of the organizations (88%) have termed government measures and assistance as inadequate and ineffective.

*Table 4.3 Evaluation of Lack of Government Support Issues*

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS)^	Percent Point Score (PPS) $\frac{TPS}{5 * N} * 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Government policies to support MSMEs	25	0	0	3	18	4	101	<b>80.80</b>	4.04
2	Lack of funds for R&D initiatives	25	0	0	3	18	4	101	<b>80.80</b>	4.04
3	Lack of labs facilities for development projects at low rate	25	0	0	2	12	11	109	<b>87.20</b>	4.36
4	Lack of training facilities at government funded institutes	25	0	0	3	14	8	105	<b>84.00</b>	4.20
5	Lack of free or subsidized information/consultancy for research activities	25	0	0	2	14	9	107	<b>85.60</b>	4.28
<b>Overall Average (On the scale of 5.00)</b>										<b>4.18</b>
^ Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

Government can assist organizations in several ways such as through collaborative training programs; R&D programs among government-funded research centres and universities for specific sectors; and funding R&D projects (Berko, 2003). There is serious shortage of funds provided by government for R&D related activities for small units in the region (PPS=80.80). Majority of the units (88%) have reported lack of grants by government for R&D related activities which is discouraging.

Government and policy makers need to understand much better the motivations and requirements that shape and drive an innovative firm. Government can support small scale industrial sector by establishing effective reward schemes and providing laboratories for R&D work. The manufacturing units of the region have shown extremely poor state (PPS=87.20) in this regard. Majority of the units (92%) have termed government assistance in providing labs for R&D related work as inadequate.

Resources can be provided to support training, which is linked to organization's longevity and success. Effective deployment of resources entails organization's participation in training activities. But the analysis of the result in the small sector units of the region reveal the inability of government (PPS=84.00) in providing necessary skill development training to

employees and employers of small units. Most of the units (88%) have either not received any training at government institutes or have received only to a small extent.

Government has failed to provide free or subsidized information/consultancy to small scale units of the region for carrying out the research related activities (PPS=85.60). Majority of the units (92%) have either not received any subsidized information from government or received it only to small extent.

The average score of this aspect is 4.18 (out of 5.00) as shown in Figure 4.3. Lack of initiatives by government for development work, no or very less allocation of funds by government for R&D, very few employee training centers and lack of subsidized information/consultancy services by the government for research initiatives are critical factors which need immediate attention.

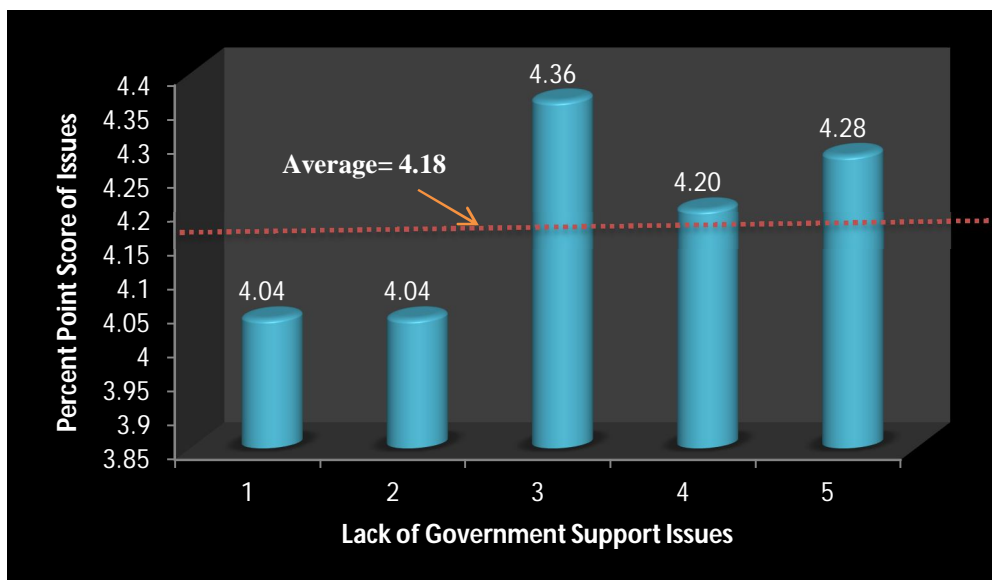


Figure 4.3 Evaluation of Lack of Government Support Issues

#### 4.4.4 Lack of Marketing Research

This section presents the status of 'Lack of Market Research' in small scale manufacturing sector in the region.

The questions on this component aim at collecting information on the following:

- i) Importance given by small scale cutting tool sector to its marketing function.
- ii) Knowledge regarding product and prevailing trend in the market
- iii) Data collection sources for making changes in existing products or for introducing new products.

The response to individual questions (issues) on this component is presented in Table 4.4.

**Table 4.4 Evaluation of Lack of Market Research Issues**

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS)^	Percent Point Score (PPS) $\frac{TPS}{5 * N} 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Importance of marketing function	25	0	15	10	0	0	60	<b>48.00</b>	2.40
2	Up-to-date knowledge of market position	25	0	1	8	16	0	90	<b>72.00</b>	3.60
3	Gathering data for fault analysis	25	0	8	10	7	0	74	<b>59.20</b>	2.96
4	Flexibility in marketing strategy	25	0	0	2	6	17	115	<b>92.00</b>	4.60
5	Inability to implement market-mix strategy	25	0	0	6	19	0	94	<b>75.20</b>	3.76
<b>Overall Average (On the scale of 5.00)</b>										<b>3.46</b>
^ Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

Marketing research means gathering, recording, and analysis of all facts about problems relating to the transfer and sales of goods from producer to consumer. Every company irrespective of size, must research its market, customer and competition. Small firm are often unable to afford continuous marketing research. However they can only use personal contact and informal methods for collecting data from market. The organisations in the region understand the value of marketing. There are only (40%) unit which face this problem up to a moderate extent. This is supported by low rating (PPS=48.00) in this issue. However, the manufacturing units in the region have shown a poor rating (a high PPS=72.00) in keeping up to date knowledge regarding position of their product with regard to competitors and also the prevailing trend in the market.

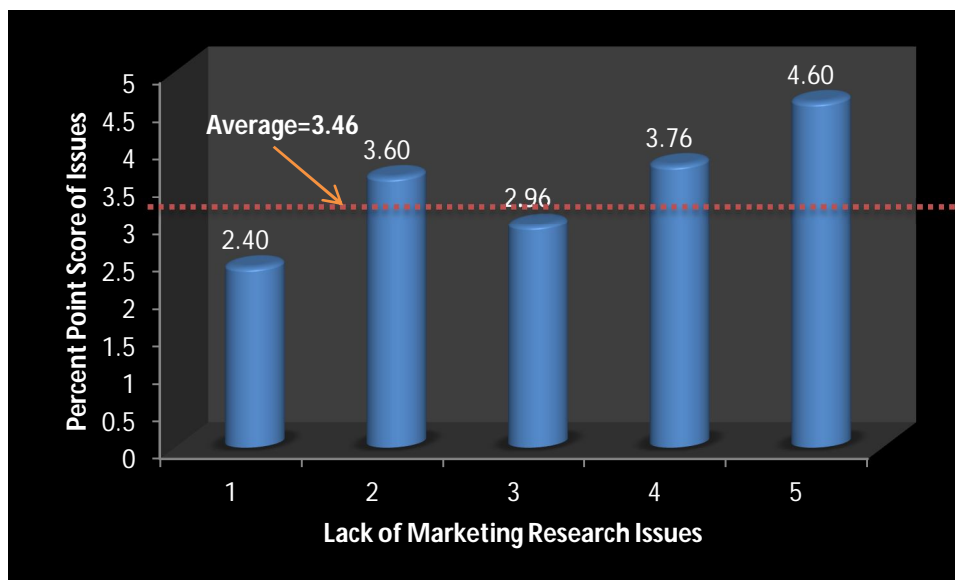
Marketing is consumer oriented; it has a positive impact on firm's business. It enables the entrepreneur to improve the quality of his products. Small firms do not have their own marketing network, media campaigns, and sales force. They are not able to gather data so as to find the facts related to problems which affect their product's performance. Small units in the region are facing this problem to a moderate extent (PPS=59.20) only.

Small scale units in the region are not able to fulfil the needs of different market segments and are unable to use the market segmentation strategy i.e. dividing the total market into different segments or homogeneous groups of customers (PPS=75.20). Most of the small scale units (76%) are not able to use this strategy extensively because they are not able to keep flexibility in product price, payment period, allowances etc according to economic

status of different customers and also they are not able to increase their distribution channels and make quick and efficient transportation channels to a large extent.

Small scale units in the region have failed to make changes in their marketing strategy in the last few years (PPS=92.00) as per the requirements. Most of the units (68%) have not been able to make any change in their marketing strategy. The units have neither been able to make unrelated diversification of their products nor have been able to adopt the relative diversification strategy to increase the features of existing products. Most of the small units are focusing and concentrating on their existing products by eliminating one or more business activities which are not directly linked with their core business.

The average score of this aspect is 3.46 (out of 5.00) as shown in figure 4.4. Although small scale units in the region have understood the value of marketing function but they need to concentrate on different issues like upto date knowledge of their product and the prevailing trend in the market, make changes in their marketing strategy so as to satisfy the needs of different groups of customers.



*Figure 4.4 Evaluations of Lack of Marketing Research Issues*

#### **4.4.5 Lack of Planning and Strategy Making**

This section presents the status of '*Lack of Planning and Strategy Making*' in the industrial sector in the region.

The questions on this component aim at collecting information on the following:

- i) Strategy/philosophy adopted by organizations to compete in the market place.
- ii) Inability to make use of production planning tools.

iii) Response of industrial sector to the changing market demands like size of demands, intensity of competition.

The response to individual questions (issues) on this component is presented in Table 4.5

Organizations should develop core competencies which will give them competitive advantage over their competitors in meeting fast changing market requirements. The ability to develop and launch innovative new products by using latest technology quickly before competitors is a key factor in gaining first-mover advantage. Small scale units in the region are performing poorly in this regard (PPS=78.20). This is due to the fact that nearly half of the units are not using ‘Competition through Innovation’ strategy to compete in the market place.

The decisions related to R&D initiatives for improvement in product features and specifications are taken by one or two person especially the owner manager. The owners do not involve other employees’ i.e. people from separate sections. As a result the decision making capabilities in small units in the region is poor and this is supported by a high rating (PPS=77.60). Owners in majority of the units (72%) do not get sufficient time to brainstorm with their employees regarding research initiatives for product and process related improvements.

**Table 4.5 Evaluation of Lack of Planning and Strategy Making Issues**

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS) <sup>^</sup>	Percent Point Score (PPS) $\frac{TPS}{5 * N} * 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Strategy adopted to compete in market	25	0	5	7	12	1	84	<b>67.20</b>	3.36
2	Lack of decision Making Capabilities	25	0	0	7	14	4	97	<b>77.60</b>	3.88
3	Lack of analysis of own potential before starting new project	25	2	15	6	2	0	58	<b>46.40</b>	2.32
4	Lack of planning as per market situation	25	0	4	7	13	1	86	<b>68.80</b>	3.44
5	Lack of use of production planning tools	25	0	4	7	5	9	94	<b>75.20</b>	3.76
<b>Overall Average (On the scale of 5.00)</b>										<b>3.35</b>
<sup>^</sup> Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

Literature reveals that it is very important to know own potential (availability of funds, availability of human resource etc.) before doing any new project. Small units in the region

follow a systematic approach to analyse their own potential (PPS=46.40 only) before undertaking a new project. Only 8% units are not following this activity systematically.

To respond to the changing market demands, data collection on customer needs and perceptions is very important. Small scale manufacturing units in the region are not using advance planning activities according to the market situation as indicated by a high rating (PPS=68.80). Majority of the units (56%) are not planning in advance according to size of demand, intensity of competition to a large extent.

To meet market demands accurately, the use of production planning activities and tools is essential. Small firms in the region rarely use these tools as reflected by a high PPS score (PPS=75.20). Only 16% of the units in the region are using production planning tools like demand forecasting, master product scheduling, material requirements planning, inventory control etc. to a large extent.



*Figure 4.5 Evaluation of Lack of Planning and Strategy Making Issues*

The average score of this aspect is 3.35 (out of 5.00) as shown in Figure 4.5. The analysis of this component reveals that small sector in this region is lacking because it gives less importance to planning activities and also lack in decision making ability and use of various production planning tools.

#### **4.4.6 Lack in Human Resource Management**

This section discusses status of 'Lack Human Resource Management' (HRM) in cutting tool industrial sector in the region. The aspect of HRM focuses on conducting job analyses to

identify tasks, duties and responsibility that need to perform various jobs and then predicting the personal characteristics and behaviours that are needed for each specific position. Further to select the employees with exact knowledge, skill and abilities necessary to perform each specific job. Employee are then monitored and rewarded based on whether they properly perform their specific duties (Hayton, 2003).

The keys and statements on this component contained in section 3 of the questionnaire aim at collecting information on the following:

- i) Ineffectiveness of organisation to recruit and retain of skilled/experienced workforces. Here information is collected regarding availability of workforce, education level of employees, availability of scientific personnel.
- ii) Ineffectiveness of management to collaborate with institute (technological incubator) to provide formal training to employees, reward schemes for innovative efforts, reaction to project failures.

The response to individual questions (issues) on this component is presented in Table 4.6

*Table 4.6 Evaluation of Lack of Human Resource Management Issues*

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS) <sup>^</sup>	Percent Point Score (PPS) $\frac{TPS}{5 * N} 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Job and behaviour analyses	25	0	3	4	14	4	94	<b>77.60</b>	3.88
2	Reward schemes to recognize contributions	25	0	0	22	3	0	78	<b>62.40</b>	3.12
3	Recruiting skilled workforce	25	0	0	2	20	3	101	<b>77.60</b>	3.88
4	Reaction of top management to project failure	25	1	5	8	9	2	92	<b>64.80</b>	3.20
5	Partnering with other for training opportunities	25	0	1	0	12	12	110	<b>88.00</b>	4.40
6	Retaining of skilled manpower	25	0	0	5	17	3	98	<b>78.40</b>	3.92
<b>Overall Average (On the scale of 5.00)</b>										<b>3.73</b>
<sup>^</sup> Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

Small scale units in the region seriously lack in use of specific human resource management (HRM) practices for requirement of their employees as reflected by the high score (PPS=77.60) in this issue. Although (72%) of the units do not conduct a thorough job

analysis to identify task and responsibilities that are needed to be performed for various jobs. They do not predict to a large extent the personal characteristics and behaviour that are needed for specific requirements positions. Also formal employee participation programmes, team based problem solving and other socialising programmes are not being used in most of the units.

Lack of proper recognition to contribution of employees through an appropriate reward scheme is also a significant problem (PPS=62.40). Most of the units do not give share in profit or promotion in designation to facilitate his contribution. In most of the organizations employee contribution is only moderately recognized and a fixed monetary reward is given. Inability to recruit technical workforce and employee of high quality is a major problem in small units as is reflected by very high rating as reflected by very high rating (PPS=77.60) in this issue. In most of the units the proportion of technical workforce is only upto 10% of total workforce. The result of survey reflects several reasons for this, small firms are not able to pay salaries/ perks etc. comparable to what are available in large counterparts, skilled and educated candidates are more willing to join large scale organizations because of better carrier growth and opportunities, small firms by themselves do not recruit graduate because the feel that they cannot utilize graduate skills.

Senior management support is very important for organisation (Jagersma, 2008). 36% of organisation to a large extent does not conduct any thorough analysis in situation of project failures. Some of the organisation give counselling from management side they does not conduct a though analysis, to pin point the root cause and plane for the future course. A few organizations (8%) take strict action against members of the project team when a failure occurs.

Vocational training is ignored by medium and small companies. Although training is identified as an important HRM issue for many small firms, research shows formal training is less likely to be provided in these firms. Small firms are reluctant to invest in HRD training, resulting in ignorance of benefits, time issues, and fears of increasing an employee's mobility (Saru, 2007). The survey results support the literature findings. Small firms in the region are not partnering (PPS=88.00) with any training institutes, large scale manufacturing firm, university and private agencies for delivering training opportunities to their employees. Most of the units (96%) are not collaborating for the said purpose to a large extent.

Small units in the region have also been finding it difficult (PPS=78.40) to retain their skilled and experienced staff. The main reason for this problem include an unreasonable low

remuneration system, lack of training and carrier development opportunities on long term basis and job security because staff do not see long term business for units.

The average score of this aspect is 3.73 (out of 5.00) as shown in Figure 4.6. The analysis of this component reveals that small sector in this region is lacking because the inability to provide formal training of employees, lack of availability of scientific personnel, and difficulty in retaining of skilled manpower.

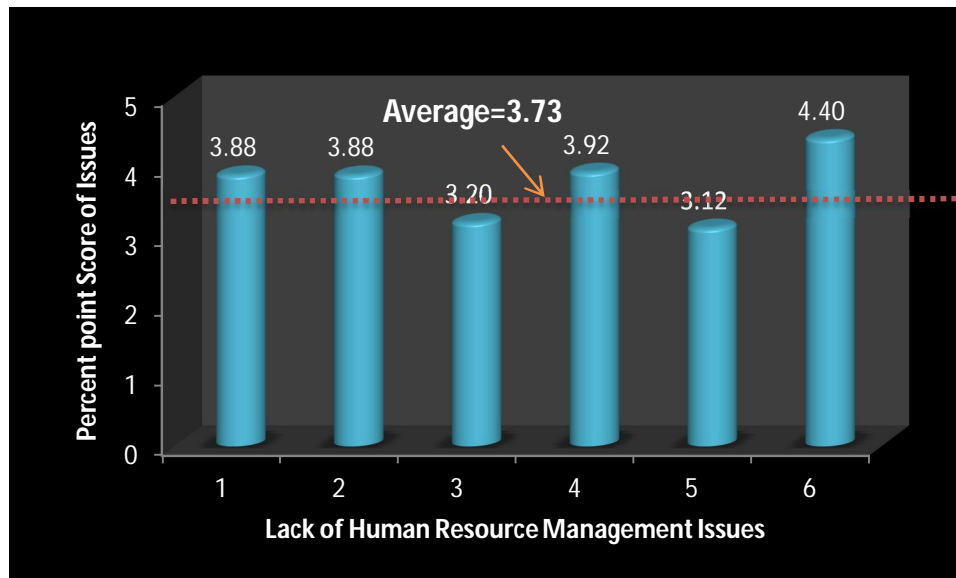


Figure 4.6 Evaluation of Lack of Human Resource Management

#### 4.4.7 Lack of Infrastructure and Technological Know-how

This section presents the status of ‘Lack of Infrastructure and Technological Know-how’ in cutting tool sector in the region.

The questions on this component aim at collecting information on the following:

- i) Status of raw material prices, availability and cost of electric power, condition of transportation infrastructure.
- ii) Awareness of new technology, current condition of plant and machinery.
- iii) Supplier monopoly to supply raw material at high prices.

The purchasing capacity of small firms is low in quantity so they cannot purchase raw materials from major source/suppliers. Small firms have to purchase material from local suppliers at high prices. The cutting units in the region are being extremely affected by this problem (PPS=78.40). Majority of the units (72%) are unable to procure materials from major suppliers at low cost due to their low quantity orders. As a result they have to purchase the material at high cost from local suppliers. Although the small unit owners have

complete knowledge about the best materials and suppliers for their products, these sources are not being used because of the high prices (PPS=74.40).

The response to individual questions (issues) on this component is presented in Table 4.7

**Table 4.7 Evaluation of Lack of Infrastructure and Technological Know-how Issues**

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS)^	Percent Point Score (PPS) $\frac{TPS}{5 * N} * 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Problem due to supplier monopoly	25	0	2	5	11	7	98	<b>78.40</b>	3.92
2	Unreliable power supply	25	0	1	23	1	0	75	<b>60.00</b>	3.00
3	Improper rail-road facilities	25	0	1	4	18	2	96	<b>76.80</b>	3.84
4	High pricing of raw material	25	0	1	7	15	2	93	<b>74.40</b>	3.72
5	Lack of R&D for proper material composition	25	0	9	6	8	2	78	<b>62.40</b>	3.12
6	Unable to investments in new machinery	25	4	13	8	0	0	54	<b>43.20</b>	2.16
7	Current condition of machinery	25	0	12	13	0	0	63	<b>50.40</b>	2.52
8	Lack of training to employees for new technology	25	0	2	10	11	2	88	<b>70.40</b>	3.52
<b>Overall Average (On the scale of 5.00)</b>										<b>3.22</b>
^ Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

Unreliable and erratic power supply is also a main problem being faced by small units in the region (PPS=60.00). Power outage is a regular phenomenon which is unplanned. Only 4% of the units are satisfied to a large extent with the situation of power supply in the region.

Good transportation infrastructure plays a vital role in increasing competitiveness of the manufacturing sector. Government is performing relatively poorly (PPS=76.80) in providing proper rail-road infrastructure for the development of industrial sector. Most of the organizations (80%) do not consider the current condition of rail-road infrastructure in the region as supportive for development of industrial sector.

Small firms generally face quality related problems in their products because of use of improper raw materials. They do not carry out required R&D for finding out the best material for their products (Juan et al., 2012). Survey results also indicate that small units lack (PPS=62.40) in this aspect. Many industrial units (40%) have not been carrying out R&D

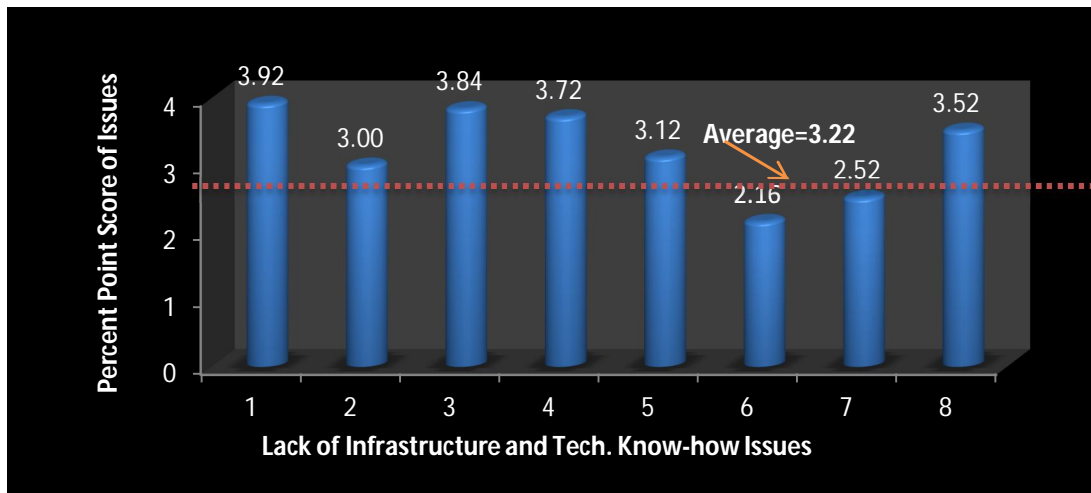
related activities for finding out the best material for their products. They simply copy and follow their competitors.

Small firms generally lack in quality of their products, due to improper equipment and machinery. However, small units in this region have been facing this problem only to a small extent (PPS=43.20). Majority of the small firms (68%) in the region have been able to continuously improve their production facilities (machinery, equipment, tooling etc.) by investing in tangible assets in the past few years.

The process technology used in small manufacturing units is generally outdated. They try to get maximum profit from existing facilities and technology that they have. Because of this small firms generally lag behind their competitors in terms of higher output and higher cost/benefit ratio. However, this aspect is not of major concern for small units in the region (PPS=50.40). A fairly large number of units (48%) are facing this problem to a small extent only.

In small scale units special training is less likely to be provided, they are generally reluctant to invest in training programmes because of fear of employee's mobility and also due to costs related to these training programmes (Saru, 2007). Small firms in the region have been found to be lacking in conducting special training programmes for their employees (PPS=70.40). Senior executives at only 8% of the units are giving special orientation and training to their employees, whereas majority of the units (84%) are either providing on the job training to their employees or are not following any explicit schedule for training.

The average score for this aspect is 3.22 (out of 5). There are three critical issues in this component which need immediate attention. Government should provide proper rail-road facilities to small units to help them flourish. Small units in the region should form clusters so that small units with similar need of raw material can jointly procure raw materials in large quantities from major outstation suppliers at lower price. Further they need to focus on providing special job training to their employees to enhance their innovative and creative skills.



*Figure 4.7 Evaluation of lack of Infrastructure and Tech. Know-how Issues*

#### **4.4.8 Status of Research Output**

The keys and statements pertaining to research output issues aim at collecting information on the following:

- i) Response of manufacturing sector to increased competition situation through increase in product mix, improvement in product features, proportion of new products introduced.
- ii) Increase in market share, penetration into new markets, and improvement in sales of products.
- iii) Status regarding improvement in technical characteristics of the product through higher level of technology development initiatives, improvement in quality level of the products and lowering of product cost through effective use of technology.

The response to various issues on this aspect is presented in Table 4.8.

The manufacturing units have shown a relatively poor rating (PPS=55.20) with regards to increase in product mix and product variants. Only a few units (16%) have been able to increase their product mix appreciably over last 3-5 years. About 40% units have been able to make these changes only to a small extent.

Improvement in existing products is an important indicator of the innovation activities of the organizations. The surveyed units have shown a relatively better rating (PPS=63.20) in making improvement in the existing product features. About one-third of the units have shown improvement in existing product features to a large extent. There are only few units (16%) which have shown such improvements only to a small extent.

**Table 4.8 Evaluation of Research Output Issues**

S. No.	Topics in the Component	No. of Responses (N)	No. of Units Scoring					Total Point Score (TPS) <sup>^</sup>	Percent Point Score (PPS) $\frac{TPS}{5 * N} * 100$	Central Tendency (CT) TPS/N
			1 (W <sub>1</sub> )	2 (W <sub>2</sub> )	3 (W <sub>3</sub> )	4 (W <sub>4</sub> )	5 (W <sub>5</sub> )			
1	Increase in product mix and product variants	25	0	10	11	4	0	69	<b>55.20</b>	2.76
2	Improvement in existing product features	25	0	4	13	8	0	79	<b>63.20</b>	3.16
3	Proportion of new products	25	18	6	1	0	0	33	<b>26.40</b>	1.32
4	Changes in response to market demands	25	1	0	7	15	2	92	<b>73.60</b>	3.68
5	Proportion of sales improvement due to new products	25	1	8	14	2	0	67	<b>53.60</b>	2.68
6	Increase in market share	25	0	9	15	1	0	67	<b>53.60</b>	2.68
7	Penetration into new markets	25	1	10	11	3	0	66	<b>52.80</b>	2.64
8	Increase in profit margins	25	2	6	11	6	0	71	<b>56.80</b>	2.84
9	Retention of existing customers/market	25	0	1	9	12	3	92	<b>73.60</b>	3.68
10	Improvement in sales	25	0	1	10	13	1	89	<b>71.20</b>	3.56
11	Improvement in quality level	25	0	0	15	10	0	85	<b>68.00</b>	3.40
12	High cost/benefit ratio	25	0	0	13	11	1	88	<b>70.40</b>	3.52
13	Improvement in product life	25	0	3	11	11	0	83	<b>66.40</b>	3.32
14	Improvement in technical characteristics of products	25	0	5	17	3	0	73	<b>58.40</b>	2.92
15	Lowering of cost of product	25	0	9	14	2	0	68	<b>54.40</b>	2.72
<b>Overall Average (On the scale of 5.00)</b>										<b>2.99</b>
<sup>^</sup> Total Point Score (TPS) = 1×W <sub>1</sub> +2×W <sub>2</sub> +3×W <sub>3</sub> +4×W <sub>4</sub> +5×W <sub>5</sub>										

One of the important indicators of product innovation is proportion of new products introduced as a percentage of total products. This issue has shown an extremely poor rating (PPS=26.40). Most of the units (72%) either have not introduced any new products or the proportion of new products has been less than 5% (of the total product range).

The manufacturing units have shown relatively good response (PPS=73.60) to changes demanded in product features due to market or customer needs. Most of the units (60%) incorporated changes in their products due to market demands to a large extent. Only few units (4%) do not responded to requirement of changes due to market needs.

The proportion of sales improvement as a percentage of total sales as a result of improved or new products has shown relatively a poor rating (PPS=53.60). About one-third of the units (32%) have improved their sales upto 1-5% only due to improved/new products. There are

only a few units (8%) who have improved their sales by 10-15% over the past three years by introducing new/improved products.

The increase in market share of organizations over the past 3-5 years of innovative outcome also shows a relatively low (PPS=53.60). Many of the units (36%) have increased their market share to a small extent only over the past 3-5 years. Only about 4% units have increased their market share to a large extent.

Penetration of the manufacturing units into new markets is also relatively poor (PPS=52.80). Only some of the units (12%) have penetrated into new markets to a large extent over the past few years. Many of the units (40%) have penetrated into new markets to a small extent only.

The profit margins of the cutting tool units in the region have increased only marginally (PPS=56.80) over the past few years. Only about one fourth (24%) of the units have been able to increase their profit margins to a large extent. Most of the units (44%) have been able to increase their profit margins only marginally.

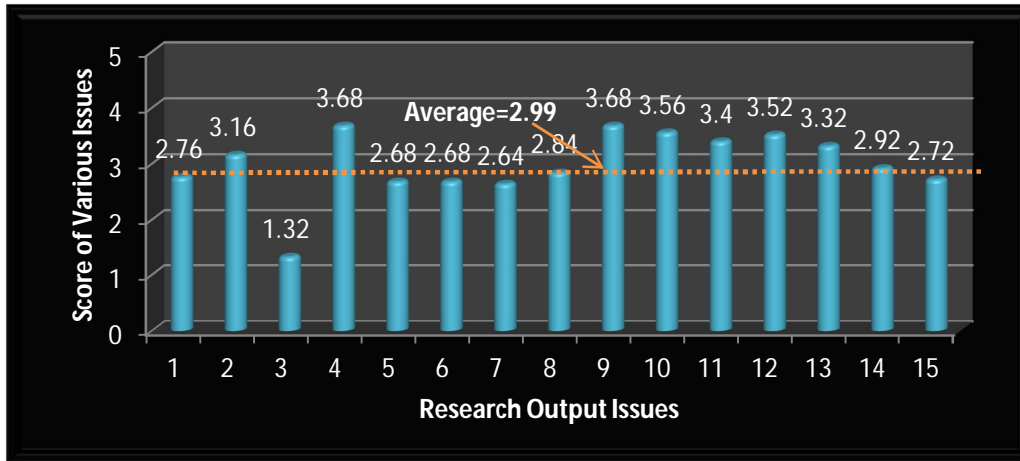
Manufacturing units have shown a good rating (PPS=73.60) in terms of retention of existing customers. Most of the units (48%) have been able to retain their customers to a large extent whereas 12% units have been able to retain their customers to an extremely large extent. Only a few units (4%) have not been able to retain their existing customers.

The sales of the firms products have shown a relatively good improvement (PPS=71.20). Most of the units (52%) have shown improvement in the sales of their products. Only a few units (4%) have shown improvement in sales only to a small extent. Further, the firms have also shown a relatively fair improvement (PPS=68.00) in quality level of their products. Most of the units (60%) have shown improvement in quality levels to a marginal extent.

Manufacturing organizations have been able to provide relatively good (PPS=70.40) cost/benefit ratio to their customers over the past few years. Many of the units (44%) have been able to provide products with more features at a lesser cost to their customers to a large extent as compared to their competitors.

Organizations have shown a relatively fair rating (PPS=66.40) in terms of improvement in the product life of their products. Most of the units (44%) have shown improvement in the product life of their products to a large extent.

Improvement in technical characteristics of the products have shown a relatively poor rating (PPS=58.40). Most of the units (68%) have shown only marginal improvement in the technical characteristics of their products. There are only a few units (12%) who have shown improvement to a large extent.



*Figure 4.8 Issue wise Performance regarding Research Output Issues*

The cost of production has increased over the past few years due to increase in the cost of raw materials, labor cost, power cost etc. This fact is validated by the survey results showing a poor rating (PPS=54.40) in terms of lowering of production costs. Only a few units (8%) have been able to reduce the production costs to a large extent. However most of the units (56%) have not been able to reduce the cost of production to an appreciable extent.

The overall score of this aspect is 2.99 (out of 5.00) as depicted in Figure 4.4. The analysis reveals that some issues need critical attention such as proportion of new product introduced as a percentage of total products, improvement in technical characteristics of the products, lowering in the cost of production and penetration into new markets.

#### **4.5 Classification of Cutting Tool Units**

The objective of this part of analysis is to evaluate the status of problems in the cutting tool manufacturing sector in the region and to classify the units into different categories in each problem area. The score of each unit (in terms of Percent Point Score, PPS) in individual components of *Lack of Proper Human Resource Management*, *Lack of Entrepreneurship and Managerial Experience*, *Lack of Strategic Finance Management*, *Lack of Government Support*, *Lack of Marketing Research*, *Lack of Planning and Strategy Making*, and *Lack of Infrastructure and Technology Know-how*, and *Research Output* has been calculated from the raw score of issues under each component.

The criterion used to classify the industries into different categories is presented in Table 4.9 (Nanda and Singh, 2009b). Since in this section, the PPS score is representing the extent of problems being faced by units in a particular area, a low PPS score indicates a good situation and vice-versa. So the criteria as proposed by Nanda and Singh (2009b) would be used in the reverse order. Thus, if the range of score is (PPS in the range 20-35) for a particular problem

area for a unit, the unit would be ranked as ‘Very Good’ in that factor. Table 4.10 presents the performance rating of industrial units in various problem areas (components).

*Table 4.9 Criteria for Classification of Industries*

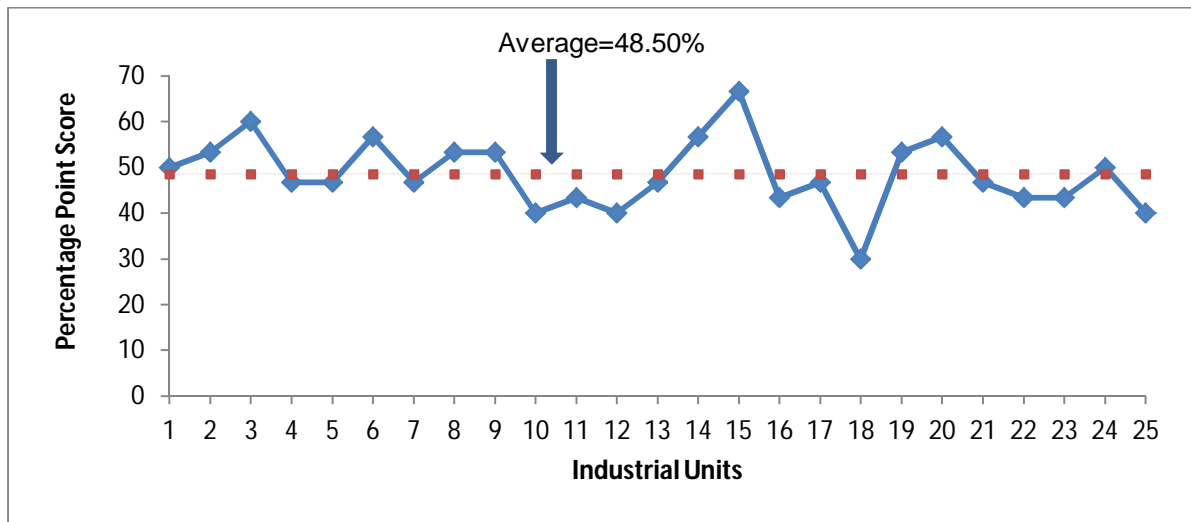
Range of Percent Score	Inference	Category
25-35	Industry at the lowest stage. Nearly all responses to the lowest choice box on an average.	Very Good
36-55	Industry at a poor stage. Nearly all responses to the third or fourth choice on an average.	Good
56-75	Nearly all responses to the second or third stage on an average.	Fair
76-90	Industry at a good stage. Nearly all responses to the first and second choice on an average.	Poor
91-100	Industry at a highest stage. Nearly all responses to the highest choice on an average.	Very Poor

(Nanda and Singh, 2009b)

*Table 4.10 Performance Rating of Units in Various Components*

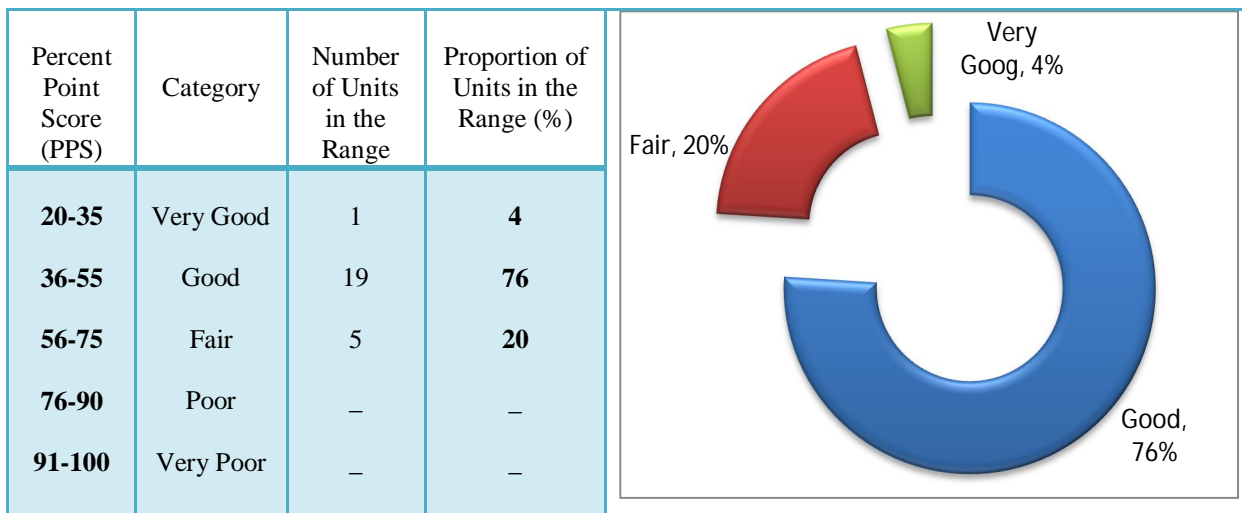
Range of PPS Aspect ↓	Number of Units in a given PPS Range														
	25-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85	86-90	91-95	96-100
Lack of entrepreneurship and managerial experience	--	1	3	4	8	4	4	0	1	--	--	--	--	--	--
Lack of strategic financial management	--	1	--	--	4	7	6	2	4	--	1	--	--	--	--
Lack of government support	--	--	--	--	--	--	--	--	--	1	3	11	5	4	1
Lack of marketing research	--	--	--	--	--	3	5	6	10	1	--	--	--	--	--
Lack of planning and strategy making	--	--	--	--	1	3	5	1	4	3	3	3	1	1	--
Lack of proper human resource management	--	--	--	--	--	--	1	2	1	3	14	1	2	1	--
Lack of infrastructure and technology Know-how	--	--	--	--	--	--	1	5	6	4	6	3	--	--	--
Sales Performance	-	-	-	-	1	6	2	2	6	5	-	2	1	-	-
Product Performance	-	-	-	-	-	-	4	6	1	7	5	1	1	-	-
Innovation Performance	-	1	-	2	10	3	5	3	-	1	-	-	-	-	-

The industry wise performance in the component ‘Lack of Entrepreneurship and Managerial Skills’ is presented in Figure 4.9. The classification of units in this component is presented in Figure 4.10.



**Figure 4.9 Performance of Units in Lack of Entrepreneurship and Managerial skills**

The performance of organizations in the component ‘*Entrepreneurship and Managerial Skills*’ is good with an average score of 48.50 %. Majority of the units (76%) fall in ‘*Good*’ category in this component. About 4% units are at a ‘*Very Good*’ level. One fifth of units (20%) are performing ‘*Fairly*’ well in this component. The manufacturing units can improve further in this component if entrepreneurs pay proper attention to training programmes to improve managerial skills.



**Figure 4.10 Classification of Units in Lack of Entrepreneurship and Managerial Skills Component**

The performance of industrial units in ‘*Lack of Strategic Financial Management*’ component is presented in Figure 4.11. The classification of units in this component is presented in Figure 4.12. The average score of units in the component, ‘*Lack of Strategic Financial*

'Management' is 57.20%. 4% units are at 'Very Good' level and around half (44%) are at 'Good' level. 48% of the units are 'Fairly Well' and around (4%) fall in 'Poor' category.

The manufacturing units further can improve performance in this component if they formulate and implement proper financial strategies. They should take benefit from the various financial schemes (credit linked subsidy scheme, market development assistance) offered by the government to help small scale units.

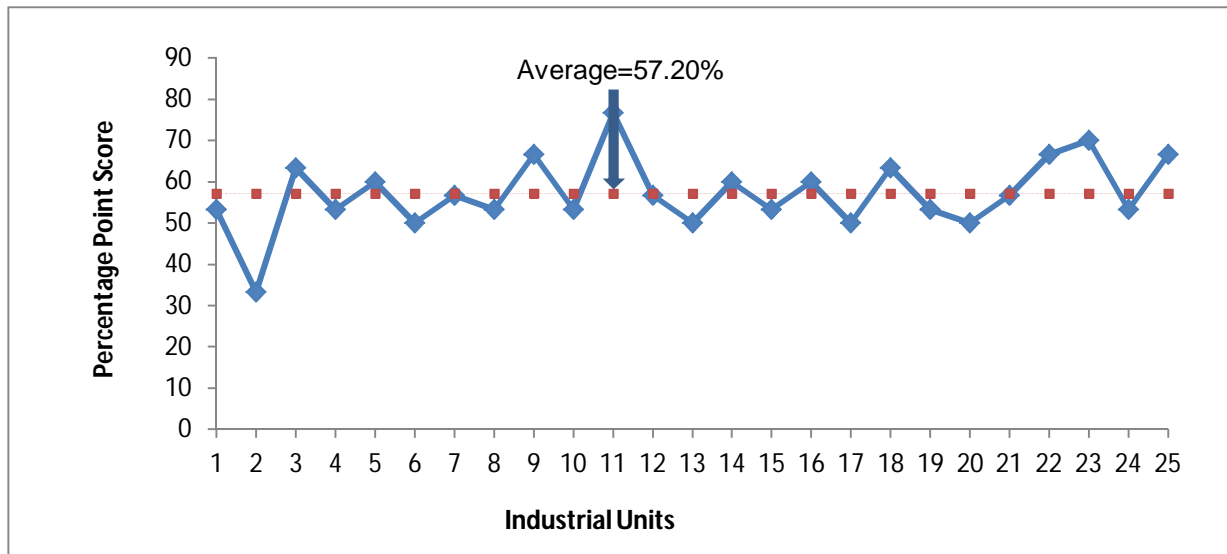


Figure 4.11 Performance of Units in Lack of Strategic Financial Management Component

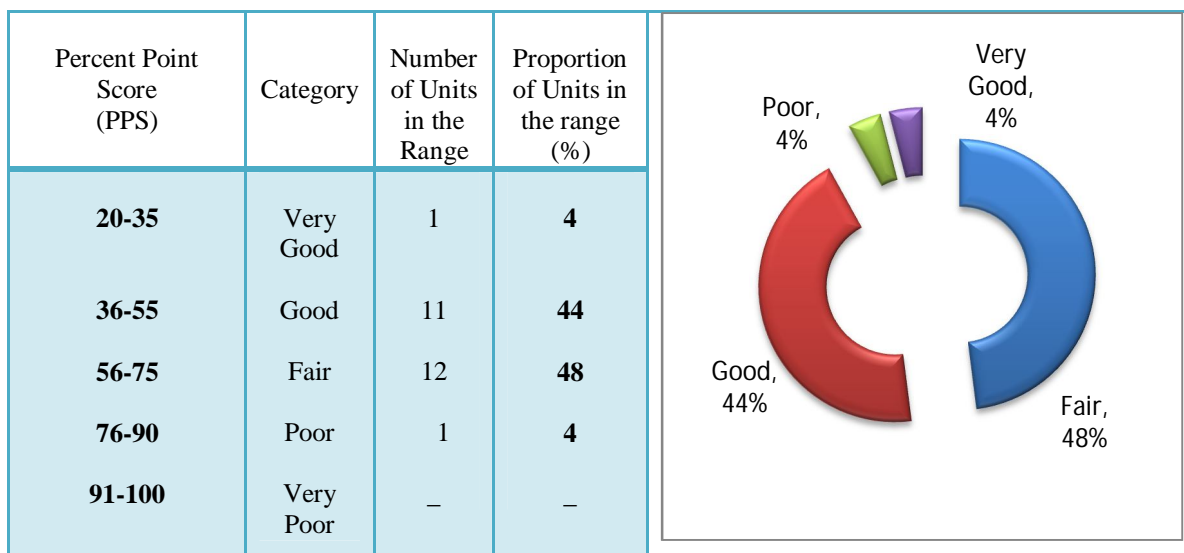


Figure 4.12 Classification of Units in Lack of Strategic Financial Management Component

The industry wise performance in 'Lack of Proper Human Resource Management' component is presented in Figure 4.13. The classification of units in this component is

presented in Figure 4.14. The average score of organizations in this component is 76.40%. The results show that 4% of the units are at a 'Very Poor' level and approximately one fourth (28%) units are at 'Fair' level. Most of the units (68%) are at 'Poor' level in this component.

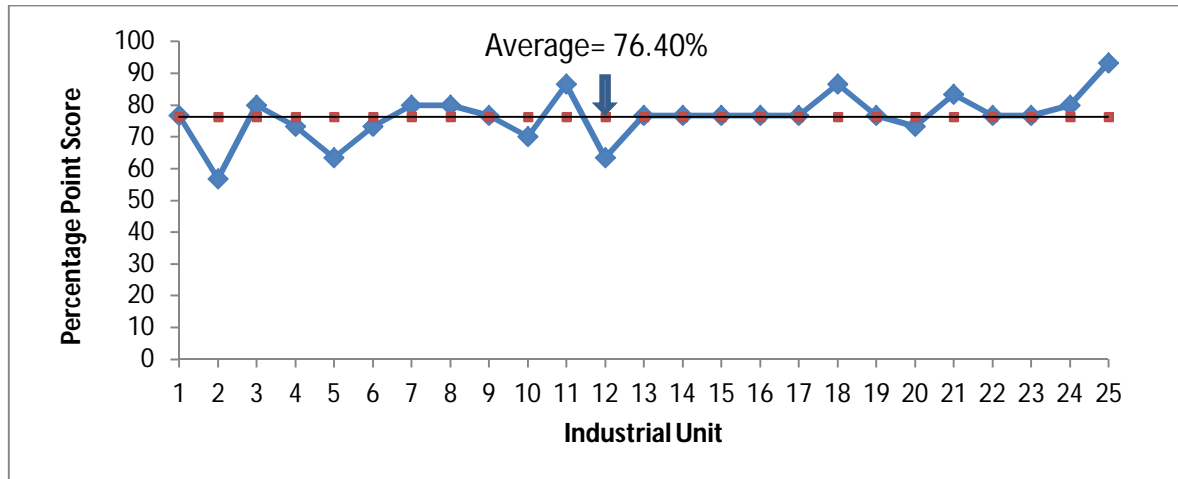


Figure 4.13 Performance of Units in Lack of Proper Human Resource Management Component

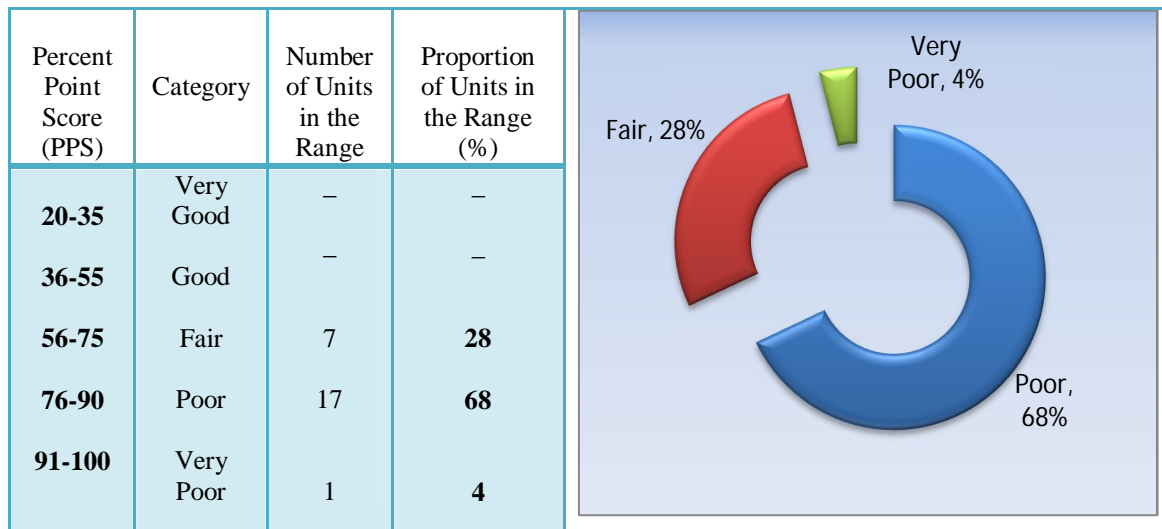
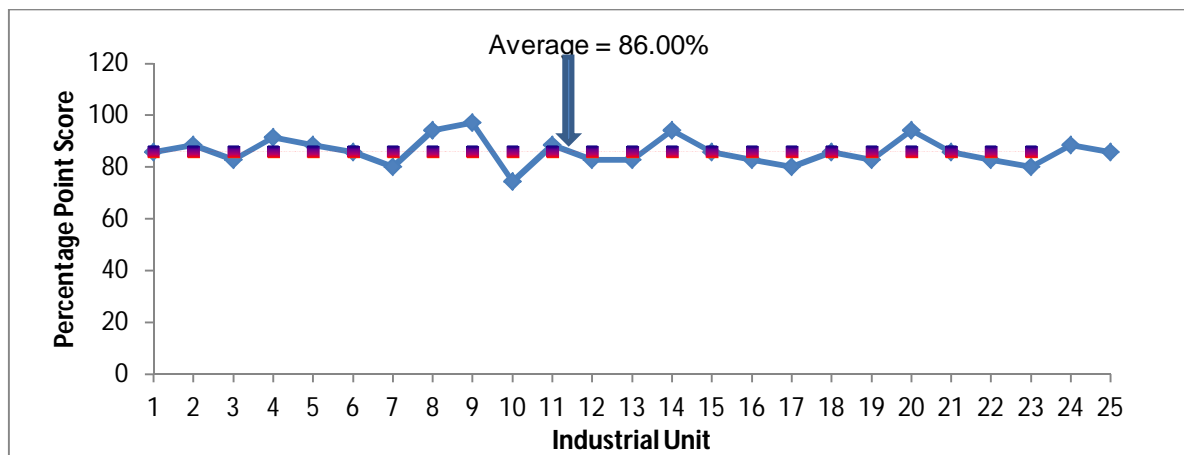


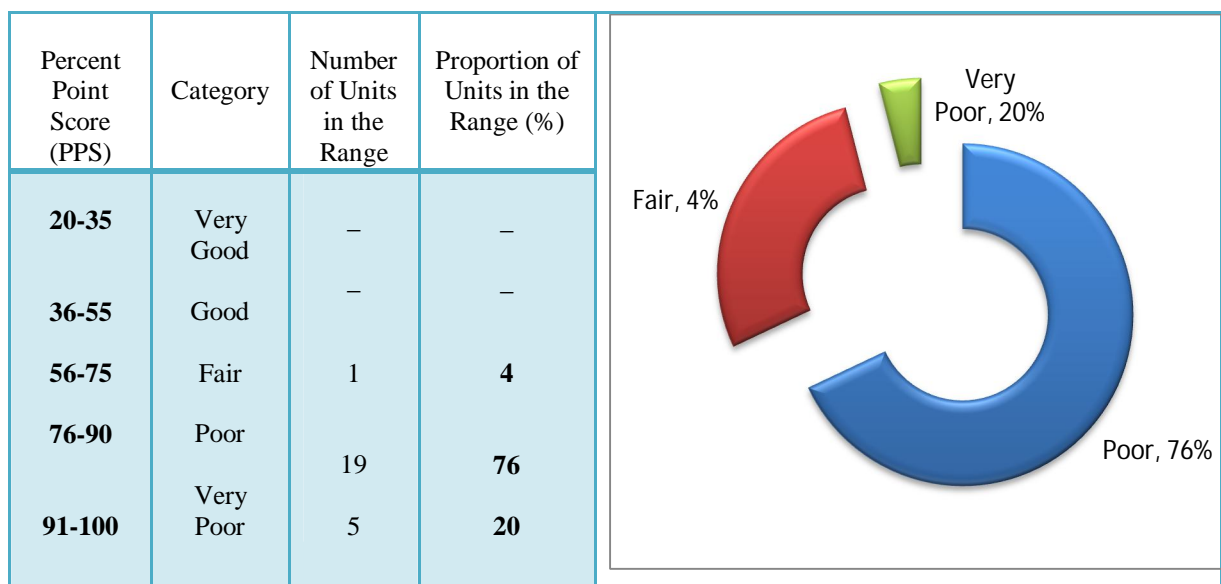
Figure 4.14 Classification of Units in Lack of Proper Human Resource Management Component

The manufacturing units further can improve performance in this component if they implement proper training programme to their employee. They should take benefit from various technological incubators for training purpose. Further, they should conduct a thorough job analysis to identify task and responsibilities that are needed to be performed for various jobs and also should implement activities like formal employee participation programmes, team based problem solving and other socialising programmes are not being used in most of the units.

The industry wise performance in factors ‘*Lack of Government Support*’ component is presented in Figure 4.15 and classification of units is presented in Figure 4.16.



**Figure 4.15 Performance of Units in Lack of Government Support Component**

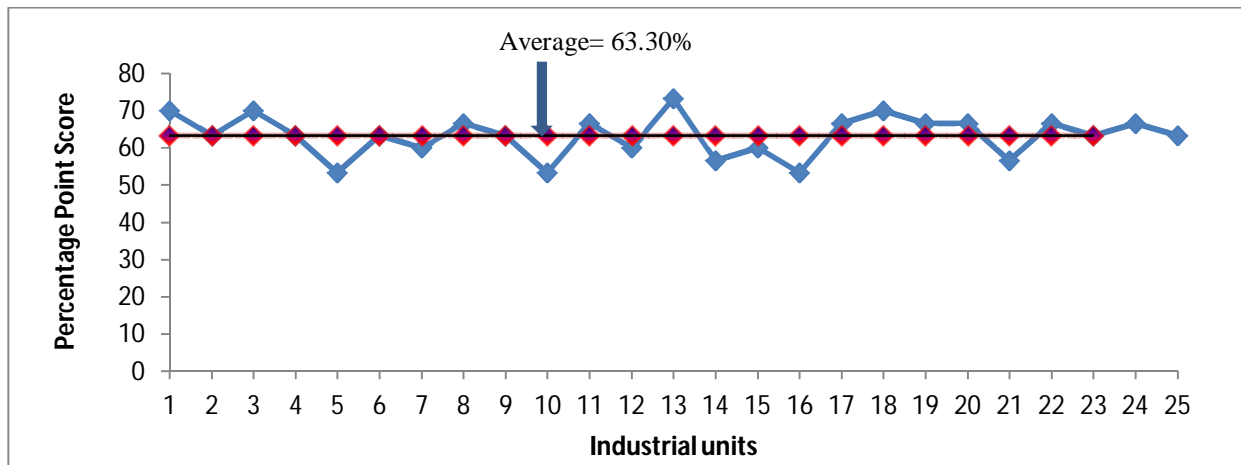


**Figure 4.16 Classification of Units in Lack of Government Support Component**

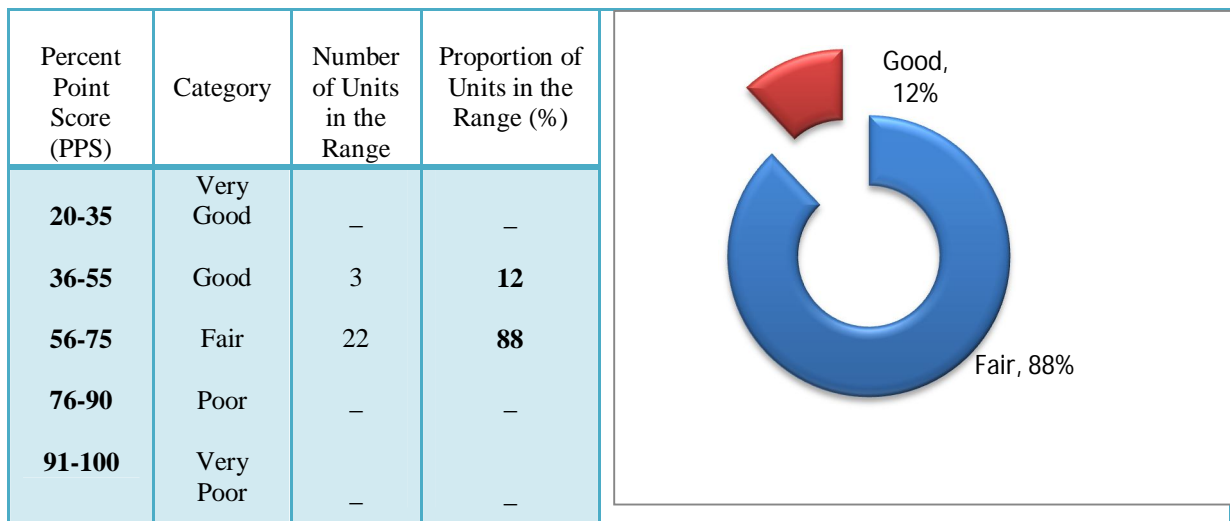
The average score of units in this component is 86.40%. The results show that one fifth (20%) units are at ‘*Very Poor*’ level and around three fourth (76%) are at ‘*Poor*’ level. Only 4% of the units are at ‘*Fairly well*’ level in the component. Though government has several schemes for small scale industrial sector but the benefits of these have not reached the industry because of large bureaucratic hurdles and tedious procedures involved in obtaining government support.

The industry wise performance in ‘*Lack of Marketing Research*’ component is presented in Figure 4.17. The classification of units in this component is presented in Figure 4.18.

The average score of organizations in this component is 63.30%. The results show that (12%) of the units are at a 'Good' level and (88%) units are at 'Fair' level. The manufacturing units further can improve performance in this component if they use proper market segmentation strategy. They should take market related information from various agencies i.e. Press, newspapers, magazines, etc. to know current prevailing trends in the market.



**Figure 4.17 Performance of Units in Lack of Marketing Research Component**

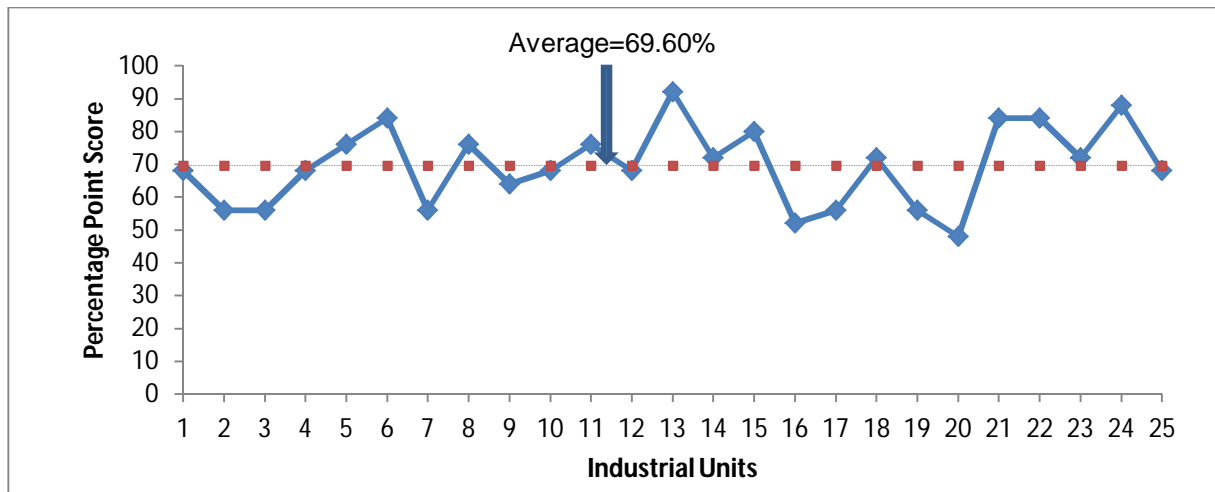


**Figure 4.18 Classification of Units in Lack of Marketing Research Component**

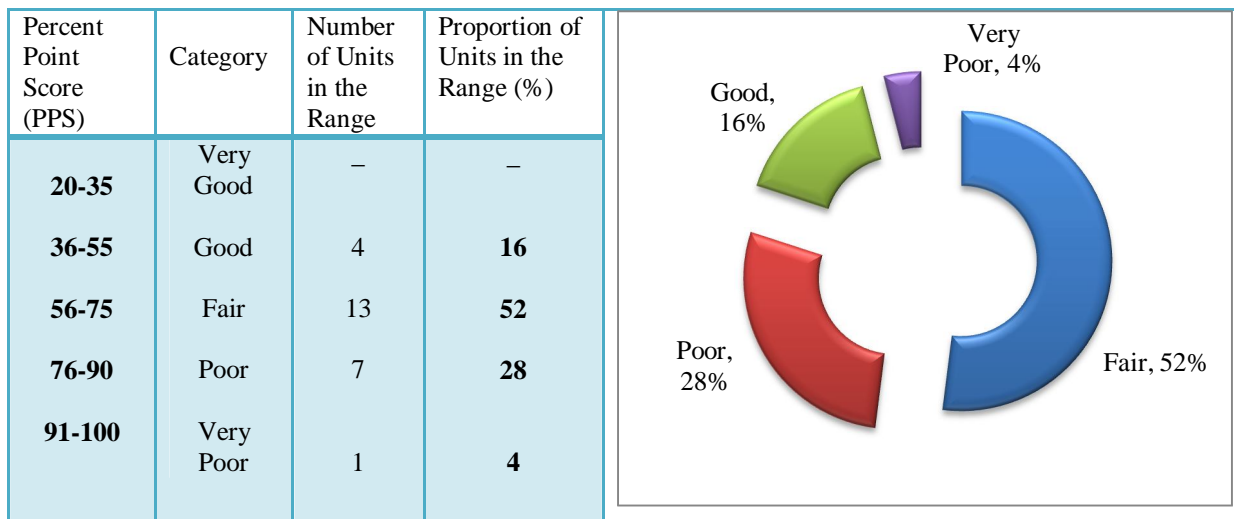
The industry wise performance in 'Lack of Planning and Strategy Making' component is presented in Figure 4.19. The classification of units in this component is presented in Figure 4.20.

The average score of organizations in this component is 69.30%. The results show that (16%) of the units are at a 'Good' level and around (52%) units are at 'Fair' level. More than one fifth (28%) units are at 'Poor' level and about (4%) units are at 'Very Poor' level.

The manufacturing units further can improve performance in this component if they use proper planning tools like demand forecasting, master production scheduling etc.

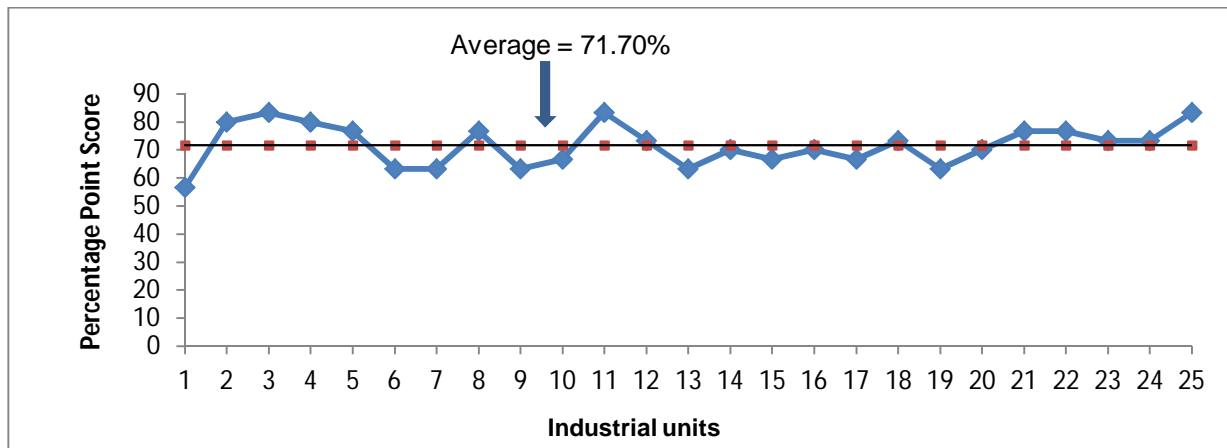


**Figure 4.19 Performance of Units in Lack of Planning and Strategy Making Component**

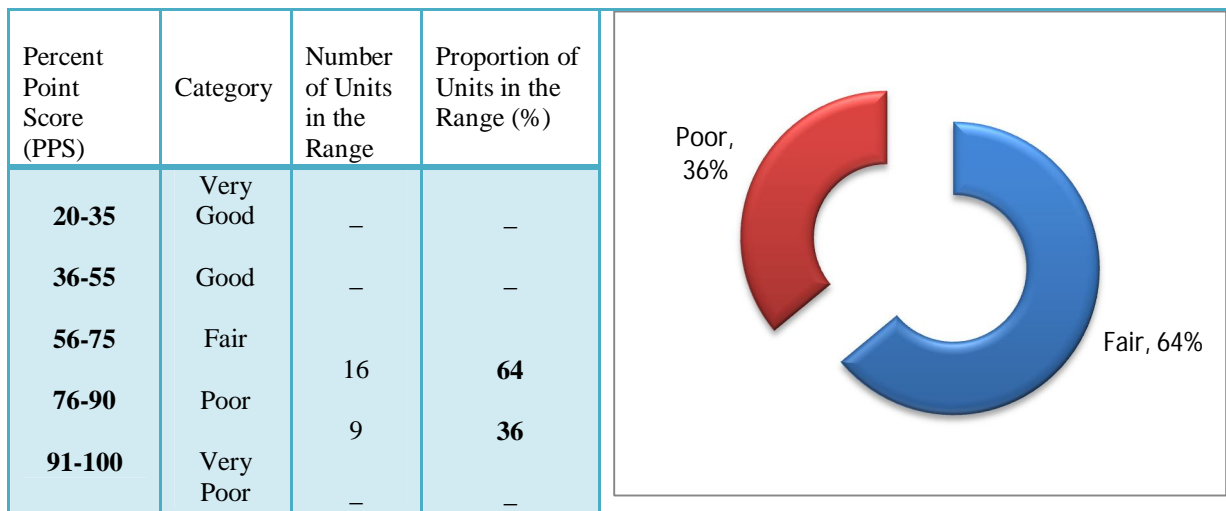


**Figure 4.20 Classification of Units in Lack of Planning and Strategy Making Component**

The industry wise performance in ‘Lack of Infrastructure and Technological Know-how’ component is presented in Figure 4.21. The classification of units in this component is presented in Figure 4.22. The average score of organizations in this component is (71.10%). The results show that (64%) of the units are at a ‘Fair’ level and (36%) units are at ‘Poor’ level in this component. Manufacturing units further can improve performance in this component if they use state-of-the-art machinery and equipment. They should undertake R&D initiatives to enhance the quality of raw material being used in products.



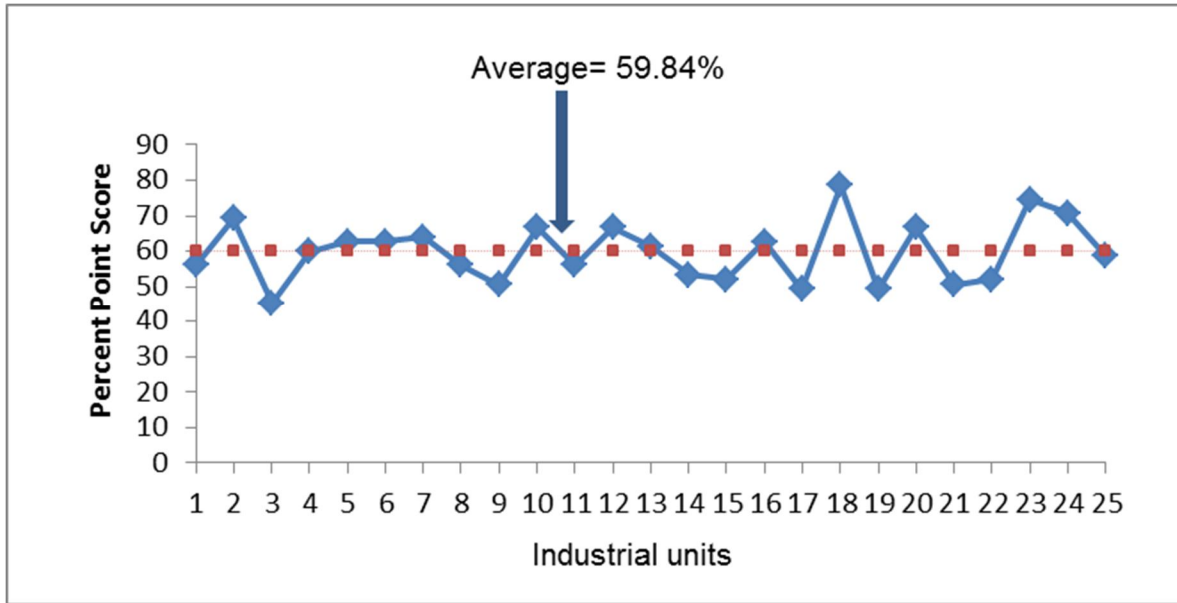
*Figure 4.21 Performance of Units in Lack of Infrastructure and Technological Know-how Component*



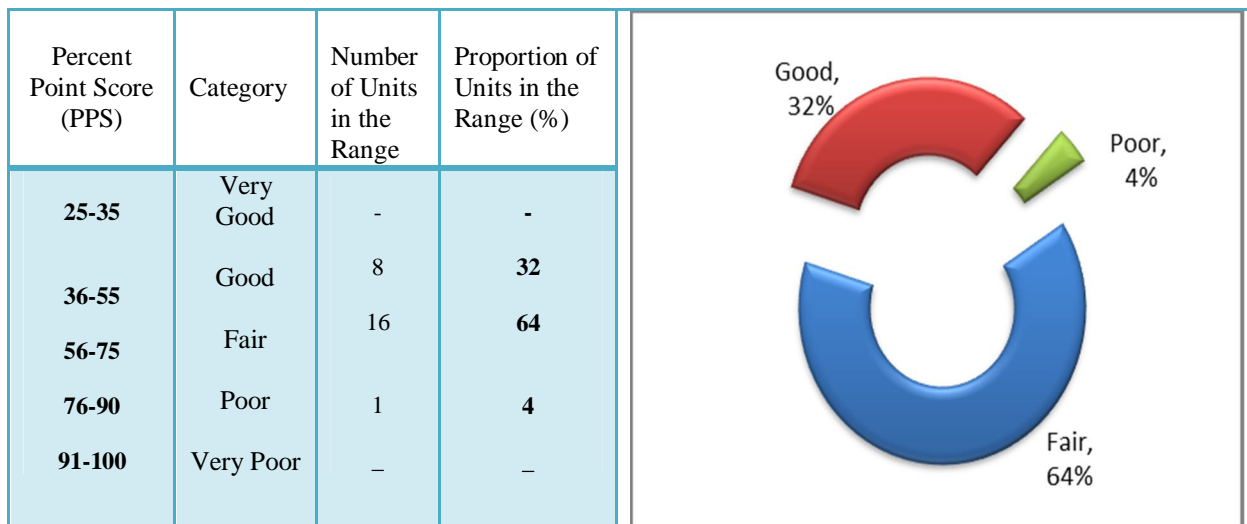
*Figure 4.22 Classification of Units in Lack of Infrastructure and Technological Know-how Component*

The industry wise performance in ‘*Research Output*’ component is presented in Figure 4.23. The classification of units in this component is presented in Figure 4.24.

The average score of organizations in ‘*Research Output*’ is 59.84%. About two third (64%) of the units are at ‘*Fair*’ level. Around one third (32%) of the units are in ‘*Poor*’ category. There are only 4% of the units at ‘*Good*’ level. The manufacturing units need to penetrate into new markets to increase their market share and sales. The quality of the products need to be improved and cost be reduced to retain existing customers and increase profit margins.



**Figure 4.23 Performance of Units in Research Output Component**



**Figure 4.24 Classification of Units in Research Output**

#### 4.6 Contributions of TD initiatives in achieving Performance Improvements

From the literature findings, seven input factors (I1, I2, I3, I4, I5, I6, I7) and three output parameters (Z1, Z2, Z3) have been identified as significant in analysing the factors which are affecting the performance of small firms and are major contributors is deteriorating their performance. These input and output parameters are presented in Table 4.11.

The detailed description of issues related to these parameters is listed in Table 4.12.

**Table 4.11 Input and Output Parameters**

Input Factors	Output Parameters
1. Lack of Entrepreneurship and Managerial Experience I2. Lack of Strategic Financial Management I3. Lack of Government Support I4. Lack of Marketing Research I5. Lack of Planning and Decision Making I6. Lack of Proper Human Resource Management I7. Lack of Infrastructure and Technological Know-how	Z1. Innovation Performance  Z2. Sales Performance  Z3. Product Performance

**Table 4.12 Issues regarding Input and Output Performance Parameters**

KEY INPUTS (I1, I2, I3, I4, I5, I6, I7) and KEY OUTPUTS (Z1, Z2, Z3)	
<p><b>I1 Lack of Entrepreneurship and Managerial Experience</b></p> <ul style="list-style-type: none"> <li>• Lack of proper decision making</li> <li>• Inabilities to attend management training</li> <li>• Poor entrepreneur’s education level</li> <li>• Lack of working experience of entrepreneur</li> <li>• Lack of awareness about new technology</li> <li>• Lack of awareness about government policies</li> </ul> <p><b>I3 Lack of Government Support</b></p> <ul style="list-style-type: none"> <li>• Lack of government policies for support of SSI</li> <li>• Lack funds for R&amp;D initiative</li> <li>• Lack of labs facilities for development projects at low rate</li> <li>• Lack of training facilities at government funded institutes</li> <li>• Lack of free or subsidized information/consultancy for research activities</li> </ul> <p><b>I5 Lack of Planning and Strategy Making</b></p> <ul style="list-style-type: none"> <li>• Strategy adopted to compete in market</li> <li>• Lack decision making capabilities</li> <li>• Lack of analyses of own-potential before starting new projects</li> <li>• Lack of planning as per market situation</li> <li>• Lack of use of planning tools</li> </ul> <p><b>I7 Lack of Infrastructure and Technological know-how</b></p> <ul style="list-style-type: none"> <li>• Problem due to supplier monopoly</li> <li>• Unreliable power supply</li> <li>• Improper rail-road facilities O2. High price of raw materials</li> <li>• High pricing raw material</li> <li>• Lack of R&amp;D for proper material composition</li> <li>• Enable to Investments in new machinery</li> <li>• Current production facilities</li> <li>• Training for new technology</li> </ul> <p><b>Z3. Product Performance</b></p> <ul style="list-style-type: none"> <li>• Improvement in quality level</li> <li>• High cost/benefit ratio</li> <li>• Improvement in product life cycle</li> <li>• Improvement in technical characteristics</li> <li>• Lowering of cost of production</li> </ul>	<p><b>I2 Lack of Strategic Financial Management</b></p> <ul style="list-style-type: none"> <li>• Insufficient credit for meeting requirement of routine operations</li> <li>• Difficulty in getting loan</li> <li>• Financial strategy for effective finance management</li> <li>• Channel to get loans</li> <li>• Inability to face emergency financial requirements</li> </ul> <p><b>I4. Lack of Marketing Research</b></p> <ul style="list-style-type: none"> <li>• Importance of marketing function</li> <li>• Up-To-date marketing knowledge</li> <li>• Gathering data for fault analysis</li> <li>• Inability to implement market-mix strategy</li> <li>• Flexibility in marketing strategy</li> </ul> <p><b>I6 Lack of Human Resource Management</b></p> <ul style="list-style-type: none"> <li>• Job and behaviour analyses</li> <li>• Reward schemes to recognize contributions</li> <li>• Recruiting skilled workforce</li> <li>• Reaction of top management to project failure</li> <li>• Partnering with other for training opportunities</li> <li>• Retaining of skilled Manpower</li> </ul> <p><b>Z1. Innovation Performance</b></p> <ul style="list-style-type: none"> <li>• Increase in product mix and product variants</li> <li>• Improvement in existing product features</li> <li>• Proportion of new products</li> <li>• Changes in response to market demands</li> </ul> <p><b>Z2. Sales Performance</b></p> <ul style="list-style-type: none"> <li>• Proportion of sales improvement due to new products</li> <li>• Increase in market share</li> <li>• Penetration into new markets</li> <li>• Increase in profit margins</li> <li>• Retention of existing customers/market</li> </ul>

The internal reliability of items under each input parameter (inter-item analysis) has been assessed by using Cronbach's alpha co-efficient, as recommended for empirical research in operations management (Best and Kahn, 1986; Flynn et al., 1990). Cronbach's alpha coefficient measures the extent to which a set of variables are consistent in what they are intended to measure (internal cohesiveness of items of a construct). Cronbach's alpha values calculated for various categories are greater than 0.5, which is considered adequate for exploratory work (Nunally, 1978; Hair et al., 1998). This also indicates high reliability of data collected through the 'TD Questionnaire'. Cronbach's alpha values calculated for various input parameters are presented in Table 4.13.

*Table 4.13 Cronbach's Alpha for Key Parameters*

Key Parameter		Cronbach's Alpha Value
Lack of Entrepreneurship and Managerial Experience	I1	0.748
Lack of Strategic Financial Management	I2	0.71
Lack of Government Support	I3	0.729
Lack of Marketing Research	I4	0.705
Lack of Planning and Strategy Making	I5	0.747
Lack of Proper Human Resource Management	I6	0.728
Lack of Infrastructure and Technological know-how	I7	0.857
Lack of Marketing Research	I4	0.705

#### 4.7 Principal Component Analysis

Principal Component Analysis (PCA) has been performed with all the input and output research constraints considered in the present research problem. The aim has been to identify the attributes which emerge as most relevant in defining the variable. The components are extracted based on eigen value greater than 1 to reduce the dimensionality of the variables.

For '*Lack of Entrepreneurship and Managerial Experience*' input factor, two components are extracted based on eigen value greater than 1. The first component explains most of the total variance (38.51%), and related items have high loads on the component itself, highlighting their relative importance. The first component consists of all the issues except '*lack of proper decision making*'.

The second component explains 22.87% of total variance. It consists of only one issue which is '*lack of proper decision making*'.

**Table 4.14 Principal Component Analysis of Lack of Entrepreneurship and Managerial Skills**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>2.31</b>	38.51	38.51
<b>2</b>	<b>1.37</b>	22.87	61.39
<b>3</b>	0.86	14.45	75.75
<b>4</b>	0.81	13.53	89.29
<b>5</b>	0.36	6.07	95.36

**Table 4.15 Rotated Component Matrix of Lack of Entrepreneurship and Managerial Skills**

Issues under Entrepreneurship and Managerial Skills	Components	
	1	2
• Lack of Proper Decision Making	0.02	<b>0.91</b>
• Inabilities to attend Managerial Training	<b>0.65</b>	0.09
• Poor Entrepreneur's Education Level	<b>0.58</b>	-0.12
• Lack of Working Experience of Entrepreneur	<b>0.65</b>	-0.58
• Lack of awareness about new Production Technologies	<b>0.83</b>	-0.12
• Lack of awareness about Government Policies	<b>0.67</b>	0.45

For 'Lack of Strategic Financial Management' input factor, two components are extracted based on eigen value greater than 1. The first component explains most of the total variance (41.43%), and related items have high loads on the component itself, highlighting their relative importance. The first component consists of all the issues except the issue 'insufficient credit for meeting requirement of routine operations'.

The second component explains 24.14% of the total variance. It consists of only one issue which is 'Insufficient credit for meeting requirement of routine operations'.

**Table 4.16 Principal Component Analysis of Lack of Financial Strategic Management**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>2.07</b>	41.43	41.43
<b>2</b>	<b>1.20</b>	24.14	65.57
<b>3</b>	0.79	15.77	81.34
<b>4</b>	0.51	10.22	91.56
<b>5</b>	0.42	8.44	100.00

**Table 4.17 Rotated Component Matrix of Lack of Financial Management**

Issues under Lack of Financial Management	Components	
	1	2
• Insufficient credit for meeting requirement of routine operations	0.048	<b>0.89</b>
• Difficulty in getting loans	<b>0.62</b>	0.14
• Financial strategy for effective financial management	<b>0.79</b>	-0.40
• Channel for getting loans	<b>0.61</b>	<b>0.54</b>
• Inability to face emergency financial requirements	<b>0.75</b>	0.20

Issues under ‘*Lack of Government Support*’ input factor have two components extracted based on eigen value greater than 1. The first component explains most of the total variance (34.51%), and related items have high loads on the component itself, highlighting their relative importance. The first component consists of three issues viz. ‘*government policies to support MSMEs*’, ‘*lack funds for R&D activities*’ and ‘*lack of labs facilities for development projects at low rate*’.

The second component explains 26.86% of the total variance. It consists of two main issues viz. ‘*lack of training facilities at government funded institute*’ and ‘*lack of free or subsidized information/consultancy for research activities offered by government*’.

**Table 4.18 Principal Component Analysis of Lack of Government Support**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>1.72</b>	34.51	34.51
<b>2</b>	<b>1.34</b>	26.85	61.37
<b>3</b>	0.97	19.45	80.83
<b>4</b>	0.68	13.35	94.18
<b>5</b>	0.29	5.82	100.00

**Table 4.19 Rotated Component Matrix of Lack of Government Support**

Issues under Lack of Government Support	Components	
	1	2
• Government policies to support MSMEs	<b>0.56</b>	0.33
• Lack of funds for R&D initiatives	<b>0.89</b>	-0.22
• Lack of labs facilities for development projects at low rate	<b>0.61</b>	0.07
• Lack of training facilities at government funded institutes	-0.20	<b>0.86</b>
• Lack of free or subsidized information/consultancy for research activities	0.37	<b>0.68</b>

Issues under ‘*Lack of Marketing Research*’ input factor are also extracted into three components based on the eigen value calculated. First component explains the variance upto (33.97%) and can be interpreted to consist of two main issues viz. ‘*gathering data for fault analyses*’, and ‘*flexibility in marketing strategy*’.

**Table 4.20 Principal Component Analysis of Lack of Marketing Research**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>1.67</b>	33.97	33.97
<b>2</b>	<b>1.41</b>	28.24	62.21
<b>3</b>	<b>1.01</b>	20.28	82.50
<b>4</b>	0.54	10.94	93.44
<b>5</b>	0.33	6.56	100.00

Second component explaining 28.24% of variance is explained through only one issue viz. ‘*importance of marketing function*’. Third component (percentage of variance=20.28) is also the outcome of one main issue i.e. inability to implement market mix strategy.

**Table 4.21 Rotated Component Matrix of Lack of Marketing Research**

Issues under <i>Lack of Marketing Research</i>	Components		
	<b>1</b>	<b>2</b>	<b>3</b>
• Importance of Marketing Function	-0.33	<b>0.78</b>	-0.22
• Up-to-date Knowledge of Market Position	0.27	-0.83	0.14
• Gathering data for fault analysis	<b>0.86</b>	0.20	-0.22
• Flexibility in marketing strategy	<b>0.83</b>	-0.22	0.31
• Inability to implement market-mix strategy	0.05	-0.01	<b>0.96</b>

Issues under ‘*Lack of Planning and Decision Making*’ input factor are also extracted into two components based on the eigen value calculated. First component explains most of the variance (45.85%) and can be interpreted to consist of three main issues viz. ‘*lack of analysis of own potential before starting a new project*’, ‘*lack of planning as per market situation*’, and ‘*lack of use of production planning tools*’, like demand forecasting, master production scheduling etc.

**Table 4.22 Principal Component Analysis of Lack of Planning and Strategy Making**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>2.29</b>	45.85	45.85
<b>2</b>	<b>1.35</b>	27.04	72.89
<b>3</b>	0.62	12.57	85.46
<b>4</b>	0.44	8.82	94.29
<b>5</b>	0.28	5.70	100.00

**Table 4.23 Rotated Component Matrix of Lack of Planning and Strategy Making**

Issues under <i>Lack of Planning and Decision Making</i>	Components	
	1	2
• Strategy adopted to compete in market	-0.09	<b>0.90</b>
• Lack of decision Making Capabilities	0.33	<b>0.79</b>
• Lack of analysis of own potential before starting new project	<b>0.64</b>	0.31
• Lack of planning as per market situation	<b>0.85</b>	0.14
• Lack of use of production planning tools	<b>0.87</b>	-0.11

Second component explaining 27.04% of variance is explained through three main issues viz. ‘strategy adopted to compete in the market’, and ‘lack of decision making capabilities’.

In ‘Lack of Human Resource Management’ input factor, two components are extracted based on eigen value greater than 1. The first component explains most of the total variance (45.57%), and related items have high loads on the component itself, highlighting their relative importance. The first component consists of three main issues viz. ‘job and behaviour analyses’, ‘reaction of top management to project failure, and ‘reward schemes to recognize contributions of employees’.

**Table 4.24 Principal Component Analysis of Lack of Human Resource Management**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>2.73</b>	45.57	45.57
<b>2</b>	<b>1.94</b>	32.45	78.02
<b>3</b>	0.68	11.40	89.43
<b>4</b>	0.31	5.17	94.60
<b>5</b>	0.22	3.73	98.34
<b>6</b>	0.10	1.65	100.00

Second component explaining 32.45% of variance is explained through three main issues viz. ‘recruiting skilled workforce’ and ‘partnering with others for training opportunities’.

**Table 4.25 Rotated Component Matrix of Lack of Human Resource Management**

<i>Issues under Lack of Human Resource Management</i>	Components	
	1	2
• Job and behavior analyses	<b>0.92</b>	-0.21
• Reward schemes to recognize contributions	<b>0.81</b>	0.30
• Recruiting skilled workforce	0.03	<b>0.71</b>
• Reaction of top management to project failure	<b>0.92</b>	0.15
• Partnering with other for training opportunities	0.22	<b>0.87</b>
• Retaining of skilled manpower	0.23	-0.91

Issues under ‘*Infrastructure and Technological Know-how*’ input factor are also extracted into four component based on the eigen value calculated. First component explains most of the variance (33.29%) and can be interpreted to consist of three main issues viz. ‘*problems due to supplier monopoly*’, ‘*unable to investment in new machinery*’, and ‘*current condition of machinery*’.

Second component explaining 20.87% of variance is explained through ‘*Unreliable power supply*’ and ‘*training for new technology*’.

**Table 4.26 Rotated Component Matrix of Lack of Infrastructure and Tech. Know-how**

Components	Eigen Value	% of Variance	Cumulative %
<b>1</b>	<b>2.66</b>	33.29	33.29
<b>2</b>	<b>1.67</b>	20.87	54.16
<b>3</b>	<b>1.12</b>	14.02	68.19
<b>4</b>	<b>1.01</b>	12.67	80.86
<b>5</b>	0.59	7.38	88.25
<b>6</b>	0.43	5.40	93.65
<b>7</b>	0.32	4.07	97.73
<b>8</b>	0.18	2.26	100.00

Third component (percentage of variance=14.03) is the outcome of one main issue i.e. ‘*lack of R&D initiatives for proper material composition*’. Fourth component (percentage of variance=12.67) is also the outcome of one main issue i.e. ‘*Improper rail-road infrastructure*’.

**Table 4.27 Rotated Component Matrix of Lack of Infrastructure and Tech. know-how**

Issues under Lack of Infrastructure and Tech. know-how	Components			
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
• Problem due to supplier monopoly	<b>0.88</b>	0.10	-0.06	0.01
• Unreliable power supply	0.08	<b>0.92</b>	-0.06	0.07
• Improper rail-road facilities	0.03	-0.05	-0.02	<b>0.95</b>
• High pricing raw material	0.12	0.02	-0.89	-0.12
• Lack of R&D for Proper material composition	0.34	0.26	<b>0.65</b>	-0.26
• Enable to Investments in new machinery	<b>0.89</b>	0.01	0.06	-0.18
• Current condition of machinery	<b>0.76</b>	0.13	0.10	0.36
• Training for new technology	0.11	<b>0.71</b>	0.43	-0.24

#### 4.8.1 Association between Input and Output Performance Parameters

The impact of various input parameters in affecting performance improvements in the industry have been evaluated in this section. For this, Pearson's correlation coefficient values (r values) between each input factor and the output parameters have been calculated. The correlation values obtained have been further validated using statistical tools like t-Test and multiple regression analysis.

Pearson's correlations, t-values and significance levels (p-values) for pairs of interrelationships of various input and output factors are depicted in Table 4.28. The t-values can also be worked out through the empirical expression provided in Equation 4.1.

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \geq t_{n-2} \text{ (from 't' Tables)} \quad \text{----- Equation 4.1}$$

where, 'n-2' represents degrees of freedom (df) for a particular test, 'r' represents Pearson's correlation coefficient between a particular input and output parameter,  $t_{n-2}$  is the  $t_{\text{critical}}$  value from statistical 't' tables corresponding to (n - 2) degrees of freedom.

The correlation matrix depicting the association between independent and dependent research constructs has been established and presented in the Table 4.28.

The results of correlation analysis show that '*Lack of entrepreneurship and managerial experience*' (I1) has a significant negative correlation ( $r = -0.432$ ;  $p = 0.05$  and  $r = -0.543$ ;  $p = 0.005$  respectively with '*Sales Performance*' (Z2) and '*Product Performance*' (Z3). As a result, the '*Lack of Entrepreneurship and Managerial skills*' (I1) parameter shows a very significant correlation ( $r = -0.410$ ;  $p = 0.042$ ) with '*Overall Research Output*' (Z).

*Thus the hypotheses H1, H1b and H1c are accepted whereas H1a is rejected.*

The next input variable i.e. '*Lack of strategic financial management*' (I2) has shown a significant association ( $r = -0.429$ ;  $p = 0.032$  and  $r = -0.453$ ;  $p = 0.023$ ) with '*Innovation Performance*' (Z1) and '*Product Performance*' (Z3).

*Thus the hypotheses H2a and H2c are accepted whereas H2 and H2b are rejected.*

The third key input variable '*Lack of government support*' has shown a significant negative correlation ( $r = -0.452$ ;  $p = 0.023$ ) with '*Product Performance*' (Z3).

*Thus the hypothesis H3c is accepted and H3, H3a, H3b are rejected.*

Table 4.28 Correlation matrix

DEPENDENT VARIABLES INDEPENDENT VARIABLES			→	Innovation Performance	Sales Performance	Product Performance	Overall Research Output
				Z1	Z2	Z3	Z
Lack of Entrepreneurship and Managerial Skills	I1	R		-0.162	-0.432*	-0.543**	-0.410*
		t		-0.787	-2.297	-3.101	-2.155
		P		0.438	0.05	0.005	0.042
Lack of strategic financial management	I2	R		-0.429*	-0.113	-0.453*	-0.377
		t		-2.277	-0.545	-2.437	-1.952
		P		0.032	0.490	0.023	0.063
Lack of government support	I3	R		-0.108	-0.096	-0.452*	-0.243
		t		-0.520	-0.262	-2.436	-1.201
		P		0.007	0.650	0.023	0.242
Lack of marketing research	I4	R		-0.468*	-0.141	-0.589**	-0.452*
		t		-2.539	-0.683	-3.495	-2.430
		P		0.018	0.051	0.002	0.023
Lack of planning and strategy making	I5	R		-0.530**	-0.257	-0.519**	-0.498*
		T		-3.121	-1.275	-2.911	-2.754
		P		0.006	0.215	0.008	0.011
Lack of human resource management	I6	R		-0.604**	-0.308	-0.443*	-0.521**
		T		-3.634	-1.552	-2.369	-2.927
		P		0.001	0.134	0.027	0.008
Lack of infrastructure and technological know-how	I7	R		-0.537**	-0.290	-0.205	-0.249
		T		-3.052	-1.453	-1.004	-1.232
		P		0.006	0.673	0.325	0.229

\* Correlation significant at 0.05 level (2-tailed) \*\* Correlation significant at 0.01 level (2-tailed)

‘Lack of marketing research’ has also shown significant negative correlation ( $r = -0.468$ ;  $p = 0.018$ ) with ‘Innovation Performance’ (Z1) and with ( $r = -0.589$ ;  $p = 0.002$ ) ‘Product Performance’ (Z3). As a result, the ‘Lack of Marketing Research’ (I4) parameter shows a very significant correlation ( $r = -0.452$ ;  $p = 0.023$ ) with ‘Overall Research Output’ (Z).

Thus the hypotheses H<sub>3</sub>, H<sub>4a</sub> and H<sub>4c</sub> are accepted whereas H<sub>4b</sub> is rejected.

The next input variable is ‘Lack of Planning and Decision Making’ also shows a significant negative correlation ( $r = -0.530$ ;  $p = 0.006$ ) with ‘Innovation Performance’ (Z1) and also with ( $r = -0.519$ ;  $p = 0.008$ ) ‘Product Performance’ (Z3). As a result, the ‘Lack of Planning and Strategy Making’ (I5) parameter shows a significant correlation ( $r = -0.498$ ;  $p = 0.011$ ) with ‘Overall Research Output’ (Z).

Thus the hypotheses H5, H5a and H5c are accepted whereas H5b is rejected.

'Lack of Human Resource Management' has shown a significant negative correlation ( $r = -0.604$ ;  $p = 0.001$ ) with 'Innovation Performance' (Z1) and with ( $r = -0.443$ ;  $p = 0.027$ ) 'Product Performance' (Z3). As a result, the 'Lack of Human Resource Management' (I6) parameter shows a very significant correlation ( $r = -0.521$ ;  $p = 0.008$ ) with 'Overall Research Output' (Z).

Thus the hypotheses H6, H6a and H6c are accepted whereas H6b is rejected.

The next input variable 'Lack of infrastructure and technological know-how' has shown a significant negative correlation ( $r = -0.537$ ;  $p = 0.006$ ) with 'Innovation Performance' (Z1).

Thus the hypothesis H7a is accepted and H7, H7b, H7c are rejected.

#### 4.8.2 Multiple Regression Analysis

Table 4.29 shows multiple regression analysis with the dependent variable as 'Innovation Performance' and the five significant factors for it as the independent variables. The results indicate that the five factors, 'Lack Strategic financial management, Lack of marketing research, Lack of planning and decision making, Lack of human resource management and Lack of Infrastructure and technological know-how' together can predict 37.1% of the variance in 'Innovation Performance' variable. The other input variables will add little to the variance.

**Table 4.29 Multiple Regression Analysis between Independent Variables and Innovation Performance**

Dependent Variable		R	R Square	Adjusted R Square	F Probability	
Innovation Performance		0.708	0.502	0.371	0.014	
S.No	Independent Variable(s) (Lack in)	B	B	Standard Error	t-value	Significance
1	Finance	0.210	0.188	0.277	0.757	0.458
2	Marketing	-0.205	-0.227	0.171	-1.199	0.245
3	Planning	-0.076	-0.104	0.186	-0.412	0.685
4	Human Resource	-0.335	-0.417	0.178	-1.880	0.076
5	Infrastructure & Tech.	-0.376	-0.315	0.250	-1.504	0.149

Table 4.30 shows the multiple regression analysis with the dependent variable as 'Product Performance' and all seven input factors as independent variables. The results indicate that, all input factors together can predict 46.2% of the variance in 'Product Performance'.

**Table 4.30 Multiple Regression Analysis between Independent Variable and Product Performance**

Dependent Variable		R	R Square	Adjusted R Square	F Probability	
Product Performance		0.772	0.597	0.462	0.006	
S.No	Independent Variable(s) (Lack in)	B	B	Standard Error	t-value	Significance
1	Entrepreneurship	-0.655	-0.460	0.298	-2.200	0.041
3	Finance	-0.358	-0.354	0.263	-1.360	0.191
4	Government Support	-0.235	-0.170	0.247	-0.952	0.353
5	Marketing Research	-0.041	-0.051	0.182	-0.228	0.822
6	Planning and Decision Making	-0.115	-0.173	0.151	-0.762	0.456
7	Human Resource Management	0.016	0.022	0.157	0.104	0.918

#### 4.8.3 Result Discussion

The results of correlation analysis show that ‘Lack of entrepreneurship and managerial experience’ (I1) has a significant negative correlation ( $r=-0.432$ ;  $p=0.05$  and  $r=-0.543$ ;  $p=0.005$  respectively with ‘Sales Performance’ (Z2) and ‘Product Performance’ (Z3). The reason behind this is well explained in literature that, successful SMEs are generally associated with entrepreneurs with higher level of qualifications and knowledge. Educational background of entrepreneur, managers and business owners is found to be an important factor in small business. The majority of SMEs entrepreneurs have little or no managerial experience prior to setting up their business and have no formal management training or qualifications. (Sawaya, 1995; Jagersma, 2008).

The next input variable i.e. ‘Lack of strategic financial management’ (I2) has shown a significant association ( $r=-0.429$ ;  $p=0.032$  and  $r=-0.453$ ;  $p=0.023$ ) with ‘Innovation Performance’ (Z1) and ‘Product Performance’ (Z3). The result is well supported by literature. Small firms in India are suffering from a great deal of indebtedness and are exploited in the credit market through high interest rate and lack of convenient access to credit. Due to its their low capital base, majority of the small businesses do not have enough credit for other consumption needs like education, training, innovation, new machinery, highly educated employees etc. for their improvements. To meet these credit needs they need access to financial institutions which provide credit at high rates. The administrators of small

and medium enterprises are restricted by their own knowledge, and managerial ability and qualities. Their management ideas are out of date, and the leaders of most enterprises show lack of theory and method of financial management, ignoring the role in enterprise's capital operation. The administrators do not pay attention to the financial affairs and participate in policy making and management activities themselves. Further small scale industries suffer from poor investment ability, they just focusing on short-term goals to recover investment not on long term innovation projects (Sabharwal, 2000).

The third key input variable '*Lack of government support*' has shown a significant negative correlation ( $r=-0.452$ ;  $p=0.023$ ) with '*Product Performance*' (Z3). Government support in terms of financial and technical assistance helps in upgrading technology levels. Financial assistance includes various forms of investment initiatives and soft policy loans whereas technical assistance includes support in human resource training, export promotion initiatives and quality and technology programs. Several training programmes offered by government (Entrepreneurship Development programme, Skilled Development programme, Vocational Training programme etc.) to support small sector are not effectively implemented. Government can assist organizations in several ways such as through collaborative training programs; R&D programs among government-funded research centres and universities for specific sectors. The support offered by government like allotting funds for R&D initiatives, giving tax cuts, providing labs for development projects at subsidized rates, building networks etc, are not effective as they should be (Berko, 2003).

'*Lack of marketing research*' has also shown significant negative correlation ( $r=-0.468$ ;  $p=0.018$ ) with '*Innovation Performance*' (Z1) and with ( $r=-0.589$ ;  $p=0.002$ ) '*Product Performance*' (Z3). Marketing research means to collect information necessary to run a business and further helps entrepreneur to take decisions concerning the type of product, the price policy, channels of distribution and gathering, recording analysis of all facts about problems related to the product performance. Small scale firms are often unable to afford continuous marketing research. The marketing in small units depends totally on personal effort and resources. They don't have own marketing network, media campaigns, and sales force (Tajeddini, 2006).

The next input variable is '*Lack of Planning and Decision Making*' also shows a significant negative correlation ( $r= -0.530$ ;  $p=0.006$ ) with '*Innovation Performance*' (Z1) and also with ( $r= -0.519$ ;  $p=0.008$ ) '*Product Performance*' (Z3). Literature reveals that planning is not a task of one person or a small team but all well as encompassing effort in which all employees participate regardless of the fact on which degree of corporate hierarchy they are. Process of

planning tends to be a way of systematic approach towards activities and projection of business future of each company. SMEs give less importance to planning even some of them do not have planning and strategy making teams. SMEs do not have corporate goals like projection of activities, planning of production or services, appropriate time horizon in scheduled frame etc. and because of this; they are not able to observe the development in a continuous way (Khurana and Nohria, 2008).

'*Lack of Human Resource Management*' has shown a significant negative correlation ( $r = -0.604$ ;  $p=0.001$ ) with '*Innovation Performance*' (Z1) and with ( $r = -0.443$ ;  $p=0.027$ ) '*Product Performance*' (Z3). HRM focuses on conducting job analyses to identify tasks, duties, and responsibilities that need to perform various jobs and then predicting the personal characteristics and behaviours that are needed for each specific position. Specifically SMEs do not generally have an HRM department and so don't use HRM practices. They typically rely on a mix of HRM practices in a variety of areas such as training, compensation, recruiting and selection, performances appraisal, involving employee in organization decision making and total quality management. They do not likely focus on administrative issues such as HRM, until such issues become critical important to the firm. Further they do not have formal graduate requirement schedules and are not tied to any set of recruitment or to a fixed recruitment programme (Hayton, 2003; Cardon and Stevens, 2004).

The next input variable '*Lack of infrastructure and technological know-how*' has shown a significant negative correlation ( $r = -0.537$ ;  $p=0.006$ ) with '*Innovation Performance*' (Z1). Absence of adequate infrastructure facilities in industrial units is one of main problem that hinder efforts to innovation. For innovativeness, adequate infrastructures (mainly telecommunication, information technology, modern production systems) and new strategic thinking practices are needed. Further, investments in research function heighten the level of research activity within firms and builds improved technology as a result (Arinaitwe, 2006). However, for tool industry in the region, investments in R&D have been extremely low.

#### **4.9 Chapter Summary**

The chapter describes the quantitative analysis performed on the data using various statistical tools. Status of key inputs and outputs performance parameters has been determined. Further, manufacturing units have been classified into different categories based on their status in key parameters. Principal component analysis, correlation and regression analysis have been performed to identify input parameters contributing significantly towards output performance parameters.

## **CHAPTER - V**

### **CONCLUSIONS**

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#### **5.1 Introduction**

This chapter covers the summary of the research work, its results, conclusions, and the recommendations. The chapter also lists various areas, which can be taken up for further research. Based on the results and the findings, conclusions have been drawn and recommendations have been made. The limitations along with the scope for future work are covered in the subsequent sections of the chapter.

#### **5.2 Results and Major Findings**

The various results have been derived on the basis of quantitative analyses performed on the data. The main findings are presented as follows:

##### ***Lack of Entrepreneurship and Managerial Skills Issues***

- The result of survey indicate that lack of proper decision making is only moderately affecting the performance of small units (PPS=52.00 only). The study indicates that there are two main reasons for lack of proper decision making first entrepreneurs are too busy with production issues and other routine problems. As a result they do not get time to discuss the decision with employees; the second reason is that entrepreneurs feel that their fellow employees are not capable enough to contribute effectively in decision making.
- Entrepreneurs are not getting benefits from managerial training provided by government centers and other regional institutes (PPS=52.80). The main reason are that either training facilities are not planned effectively or and sometimes is not suitable.
- Education level and working experience of the entrepreneur in the region is good and is not contributing significantly towards lack of entrepreneurship and managerial skills. This is reflected in the low score (PPS=46.40 only). Most of the organizations (52%) are being run by entrepreneurs having either a post graduate or an engineering degree.
- Though the education level of the entrepreneurs in the region is good but they still lack in awareness about the various government policies (PPS=64.00). In more than the half of the units (52%) the owner managers to a large extent are not aware of various scheme offered by the MSMEs ministry.

- The average score of this aspect is 2.58 (out of 5.00). This low score reflect that lack of entrepreneurship and managerial skills is not an area of major concern. However, there are few issues like managerial training, awareness regarding government schemes which need attention.

### ***Lack of Strategic Financial Management***

- Majority of the units have enough credit to meet their day-to-day needs. Small firm in this region do not face financial problem to routine operations as is reflected by the low score (PPS=45.60 only) of this issue. Only 32% industries are facing this problem to significant extent.
- Although small units in the region are able to obtain sufficient credit for meeting requirements of routine operations and important work, however these funds are obtained in the form of loans at high interest rate. Most of the units (72%) have to take loan at high interest rate. Difficulty in getting loan is the most critical problem in financial management of small firms (PPS=72.80).
- Small firm are also suffering due to poor investment abilities. Lack of clearly defined financial strategy or plan for effective financial management is also a major area of concern (PPS=64.00) for the small manufacturing units. Almost one third of units (32%) do not have clear financial strategy to a large extent. This means before investing in any new project, these units do not calculate the exact amount of money and time with respect to different activities, do not know the amount to be invested internally with self-capital and how much to be taken as loan from external sources.
- Availability of channels to get loans is not a major problem (PPS=42.40), there are several financial intermediates and loan guarantee institutes for small firms.
- The average score is 2.73 (out of 5.00). There are two critical issues in this component which need urgent attention, small units must have a clearly defined financial plan further loan should be available to them with less collateral requirements and at low interest rates.

### ***Lack of Government Support***

- Complex procedures greatly hinder the growth of small firms; government should make improvement in its policies to ensure growth in small firms. The survey results show that cutting tool sector in the region is extremely lagging behind (PPS=80.80) with regards to

support received from government policies and measures. Most of the organizations (88%) have termed government measures and assistance as inadequate and ineffective.

- There is a serious shortage of funds provided by government for R&D related activities for small units in the region (PPS=80.80). Majority of the units (88%) have reported lack of grants by government for R&D related activities which is discouraging.
- Government should support small scale industrial sector by establishing effective reward schemes and providing laboratories for R&D work. The manufacturing units of the region have shown an extremely poor state (PPS=87.20) in this regard. Majority of the units (92%) have termed government assistance in providing labs for R&D related work as inadequate.
- The training programmes offered by government are not effectively implemented in this region. The analysis of results reveal the inability of government (PPS=84.00) in providing necessary skill development training to employees and employers of small units. Most of the units (88%) have either not received any training at government institutes or have received it only to a small extent.
- Government has failed to provide free or subsidized information/consultancy to small scale units of the region for carrying out research related activities (PPS=85.60). Majority of the units (92%) have either not received any subsidized information from government or received it only to small extent.
- The average score of this aspect is 4.18 (out of 5.00). Lack of initiatives by government for development work, no or very less allocation of funds by government for R&D, very few employee training centers and lack of subsidized information/consultancy services by the government for research initiatives are critical factors which need immediate attention.

### ***Lack of Marketing Research***

- Majority of the units are unable to afford continuous market research, the manufacturing units in the region have shown a poor rating (a high PPS=72.00) in keeping up to date knowledge regarding position of their product with regard to competitors and also the prevailing trend in the market.
- Small scale units in the region have not been able to fulfil the needs of different market segments and are unable to use the market segmentation strategy i.e. dividing the total market into different segments or homogeneous groups of customers (PPS=75.20). Most of the small scale units (76%) are not able to use this strategy extensively because they

are not able to keep flexibility in product price, payment period, allowances etc according to economic status of different customers and also they are not able to increase their distribution channels and make quick and efficient transportation channels to a large extent.

- Most of the units (68%) in the region have also failed to make changes in their marketing strategy in the last few years (PPS=92.00) as per the requirements. The units have neither been able to make unrelated diversification of their products nor have been able to adopt the relative diversification strategy to increase the features of existing products.
- The average score of this aspect is 3.46 (out of 5.00). Although small scale units in the region have understood the value of marketing function but they need to concentrate on different issues like upto date knowledge of their product and the prevailing trend in the market, make changes in their marketing strategy so as to satisfy the needs of different groups of customers.

#### ***Lack of Planning and Decision Making***

- Before doing any project, majority of units estimate their own potential (availability of funds, raw material, labour etc.). Small units in the region follow a systematic approach to analyse their own potential (PPS=46.40 only) before undertaking a new project. Only 8% units are not following this activity systematically.
- Small scale manufacturing units in the region are not using advance planning activities according to the market situation as indicated by a high rating (PPS=68.80). Majority of the units (56%) are not planning in advance according to size of demand, intensity of competition to a large extent.
- Small firms in the region rarely use production planning and control tools as reflected by a high PPS score (PPS=75.20). Only 16% of the units in the region are using planning tools like demand forecasting, master product scheduling, material requirements planning, inventory control etc. to a large extent.
- The average score of this aspect is 3.35 (out of 5.00). The analysis of this component reveals that small sector in this region is lacking because it gives less importance to planning activities and also lacks in decision making ability and use of various production planning tools.

### ***Lack in Human Resource Management***

- Small scale units in the region seriously lack in use of specific human resource management (HRM) practices for requirement of their employees as reflected by the high score (PPS=77.60) in this issue. Most (72%) of the units do not conduct a thorough job analysis to identify task and responsibilities that are needed to be performed for various jobs. They don't use any formal recruitment schedule and are not tied to any fixed recruitment programme. Further, they don't use any recruitment brochure or application form, here vacancies may occurs any time of the year.
- Lack of proper recognizance to contribution of employees through an appropriate reward scheme is also a significant problem (PPS=62.40). Most of the units do not give share in profit or promotion in designation to facilitate employee contribution. Further, 36% of organisations to a large extent do not conduct any thorough analysis in situation of project failures.
- The strength in number of technical staff is not sufficient. Inability to recruit technical workforce and employee of high quality is a major problem in small units as is reflected by very high rating as reflected by a very high rating (PPS=77.60) in this issue. In most of the units the proportion of technical workforce is only upto 10% of total workforce.
- Small firms in the region are not partnering (PPS=88.00) with training institutes, large scale manufacturing firms, universities and private agencies for delivering training opportunities to their employees. Most of the units (96%) are not collaborating for the said purpose to a large extent.
- Small units in the region have also been finding it difficult (PPS=78.40) to retain their skilled and experienced staff. The main reasons for this problem include an unreasonable low remuneration system, lack of training and carrier development opportunities on long term basis and job security because staff does not see long term business for units.
- The average score of this aspect is 3.73 (out of 5.00). The analysis of this component reveals that small sector in this region is lacking because of the inability to provide formal training of employees, lack of availability of scientific personnel, and difficulty in retaining of skilled manpower.

### ***Lack of Infrastructure and Technological know-how***

- Small firms have to purchase material from local suppliers at high prices. The cutting units in the region are also extremely affected by this problem (PPS=78.40). Majority of the units (72%) are unable to procure materials from major suppliers at low cost due to

their low quantity purchases. As a result they have to purchase the material at high cost from local suppliers. Although the small unit owners have complete knowledge about the best materials and suppliers for their products, these sources are not used because the high prices (PPS=74.40).

- Unreliable and erratic power supply is also a main problem being faced by small units in the region (PPS=60.00). Power outage is a regular phenomenon which is unplanned. Only 4% of the units are satisfied to a large extent with the situation of power supply in the region.
- Government is performing relatively poorly (PPS=76.80) in providing proper rail-road infrastructure for the development of industrial sector. Most of the organizations (80%) do not consider the current condition of rail-road infrastructure in the region as supportive for development of industrial sector.
- Small firms do not carry out required R&D for finding out the best material for their products. Survey results indicate that small scale units in the region lacks (PPS=62.40) in this aspect. Many industrial units (40%) have not been carrying out R&D related activities for finding out the best material for their products. They simply copy and follow their competitors.
- Fortunately, small units in this region have been continuously improving their production facilities (machinery, equipments tooling etc.) by investing in tangible assets in the past few years as supported by (PPS=43.20 only). Majority of small firms (68%) in the region have been able to continuously improve their production facilities.
- The average score for this aspect is 3.22 (out of 5.00). There are three critical issues in this component which need immediate attention. Government should provide proper rail-road facilities to small units to help them flourish. Small units in the region should form clusters so that small units with similar need of raw material can jointly procure raw materials in large quantities from major outstation suppliers at lower prices.

### ***Research Output Issues***

- Only a few units (16%) have been able to increase their product mix appreciably over the last 3-5 years.
- Manufacturing organizations have shown a better rating (PPS=63.20) towards improvement in product features over past 3-5 years. About one-third of the units have shown improvement in existing product features to a large extent. There are only few units (16%) which have shown such improvements only to a small extent.

- Most of the units (72%) either have not introduced any new products or the proportion of new products has been less than 5% (of the total product range).
- The manufacturing units have shown relatively good response (PPS=73.60) to changes demanded in product features due to market or customer needs. Most of the units (60%) incorporated changes in their products due to market demands to a large extent.
- About one-third of the units (32%) have improved their sales upto 1-5% only due to improved/new products. There are only a few units (8%) who have improved their sales by 10-15% over the past three years by introducing new/improved products.
- Penetration into new markets by the manufacturing organizations is quite a on lower side. Only some of the units (12%) have penetrated into new markets to a large extent over the past few years. Many of the units (40%) have penetrated into new markets to a small extent only.
- Only 24% of the units have been able to increase their profit margins to a large extent in past few years.
- Manufacturing units have shown good rating (PPS=73.60) in terms of retention of existing customers. Only 4% units have not been able to retain their existing customers.
- A fairly large number of units (52%) have shown improvement in the sales of their products.
- Quality level of the products has increased considerably. Most of the units (60%) have shown improvement in the quality level of their products to a marginal extent.
- Quite a good number of units (44%) have shown improvement in the product life of their products to a large extent.
- Most of the units (68%) have shown only a marginal improvement in the technical characteristics of their products. Only a few units (12%) showed improvement to a large extent.
- Only a few units (8%) have been able to reduce the cost of production to an appreciable extent.
- The overall score of this aspect is 2.99 (out of 5.00). The analysis reveals that some issues need critical attention such as proportion of new product introduced as a percentage of total products, improvement in technical characteristics of the products, lowering the cost of production and penetration into new markets.

### ***Status of Manufacturing Units in Various Response Components***

- The performance of organisations in the component 'Entrepreneurship and managerial skills' is good with an average score of 48.50 %. Majority of units (76%) units fall in 'Good' category in this component.
- The performance of organisations in the component 'Lack of Strategic Financial Management' is moderate with an average score of 57.20%.
- The performance of organisations in the component 'Lack of Proper Human Resource Management' is very poor with high score of 76.40%. Most of the units (68%) are at 'Poor' level in this component.
- The industry wise performance in factors 'Lack of Government Support' component' is also very poor with an extremely high score of 80.40%. The results show that one fifth (20%) units are at 'Very Poor' level and around three four (76%) are at 'Poor' level.
- The average score of organizations is not good in the component 'Lack of Marketing Research' (63.30%). The results show that only (12%) of the units are at a 'Good' level.
- Small firm in the region are not doing planning as per market situation this is reflected by a high average score (69.30%) of organizations in the component 'Lack of Planning and Strategy Making'. Nearly one third (28%) units are at 'Poor' level and about (4%) units are at 'Very Poor' level in the component.
- The performance of organisations in the component 'Lack of Infrastructure and Technological Know-how' is poor with average score of 71.10%. 36% units are at 'Poor' level in this component.

### ***Results of Principal Component Analysis***

- The six issues under 'Lack of Entrepreneurship and Managerial skills' factor have been extracted into two main components. The first component consists of five issues which include inability to attend managerial training, poor entrepreneur's education level, lack of working experience of entrepreneur, lack of awareness about new production technology and lack of awareness about government policies. Second component consists of only one key issues i.e. lack of proper decision making.
- Principal component analysis extracted two main components from five key issues of 'Lack of Strategic Financial Management' input factor. First component can be interpreted to consist of four issues viz. difficulty in getting loans, financial strategy for effective financial management, channels for getting loans and inability to face

emergency financial requirements. Second component consists of only one key issue i.e. insufficient credit for meeting requirement of routine operations.

- '*Lack of Government Support*' factor can also be extracted into two main components. First component consists of three items i.e. government policies to support MSMEs, lack of funds for R&D initiatives, lack of lab facilities for development project at low rate. Lack of training facilities at government funded institutes and lack of free or subsidized information/consultancy for research activities are the issues related to second component.
- Principal component analysis extracted three main components from five key issues of '*Lack of Marketing Research*' input factor. First component can be interpreted to consist of two issues viz. gathering data for fault analysis, flexibility in marketing strategy. Second and third component consists of one key issue each i.e. importance of marketing functions, and inability to implement market-mix strategy respectively.
- Issues under '*Lack of Planning and Decision Making*' input factor are also extracted into two components. First component consists of three items viz. 'lack of analysis of own potential before starting a new project', 'lack of planning as per market situation', and 'lack of use of production planning tools', like demand forecasting, master production scheduling etc.
- '*Lack of Human Resource Management*' factor can also be extracted into two main components. First component consists of three items i.e. 'job and behaviour analyses', 'reaction of top management to project failure, and 'reward schemes to recognize contributions of employees'. Second component also consists of three items i.e. 'recruiting skilled workforce' and 'partnering with others for training opportunities'.
- Issues under '*Infrastructure and Technological Know-how*' input factor are extracted into four components. First component consists of three items viz. 'problems due to supplier monopoly', 'unable to investment in new machinery', and 'current condition of machinery'. Second component is explained through 'unreliable power supply', and 'training for new technology'. Third and fourth component consists of one key issue each i.e. 'lack of R&D initiatives for proper material composition' and 'improper rail-road infrastructure' respectively.

### ***Results of Correlation Analysis***

- '*Lack of Entrepreneurship and Managerial skills*' (I1) has shown significant correlation ( $r=-0.432$ ;  $p=0.05$ ) with '*Sales Performance*' (Z2) and ( $r=-0.543$ ;  $p=0.005$ ) with '*Product*

*Performance*'. As a result, the '*Lack of Entrepreneurship and Managerial skills*' (I1) parameter shows a very significant correlation ( $r=-0.410$ ;  $p=0.042$ ) with '*Overall Research Output*' (Z).

- '*Lack of Strategic Financial Management*' (I2) has shown significant association ( $r=-0.429$ ;  $p=0.032$ ) with '*Innovation Performance*' (Z1) and ( $r=-0.453$ ;  $p=0.023$ ) with '*Product Performance*' (Z3)
- The input parameter '*Lack of Government Support*' (I3) has shown significant association ( $r=-0.452$ ;  $p=0.023$ ) with '*Product Performance*' (Z3).
- '*Lack of Marketing Research*' (I4) has shown significant correlation ( $r=-0.468$ ;  $p=0.018$ ) with '*Innovation Performance*' (Z1) and ( $r=-0.589$ ;  $p=0.002$ ) with '*Product Performance*' (Z3). As a result, the '*Lack of Marketing Research*' (I4) parameter shows a very significant correlation ( $r=-0.452$ ;  $p=0.023$ ) with '*Overall Research Output*' (Z).
- The input parameter '*Lack of Planning and Strategy Making*' (I5) has shown very significant correlation ( $r=-0.530$ ;  $p=0.006$ ) with '*Innovation Performance*' (Z1) and ( $r=-0.519$ ;  $p=0.008$ ) with '*Product Performance*' (Z3). As a result, the '*Lack of Planning and Strategy Making*' (I5) parameter shows a significant correlation ( $r=-0.498$ ;  $p=0.011$ ) with '*Overall Research Output*' (Z).
- Similarly, the input parameter '*Lack of Human Resource Management*' (I6) has shown very significant correlation ( $r=-0.604$ ;  $p=0.001$ ) with '*Innovation Performance*' (Z1) and ( $r=-0.443$ ;  $p=0.027$ ) with '*Product Performance*' (Z3). As a result, the '*Lack of Human Resource Management*' (I6) parameter shows a very significant correlation ( $r=-0.521$ ;  $p=0.008$ ) with '*Overall Research Output*' (Z).
- The input parameter '*Lack of Infrastructure and Technology Know-how*' (I7) has shown a very significant association ( $r=-0.537$ ;  $p=0.006$ ) with '*Innovation Performance*' (Z1).

### ***Results of Regression Analysis***

- The survey results indicate that, '*Lack Strategic Financial Management, Lack of Marketing Research, Lack of Planning and Strategy Making, Lack of Human Resource Management and Lack of Infrastructure and Tech. Know-how*' together can predict 37.1% of the variance in '*Innovation Performance*' variable the other input variables will add little to the variance.
- '*Lack Strategic Financial Management, Lack of Marketing Research, Lack of Planning and Strategy Making, Lack of Human Resource Management and Lack of Infrastructure*

*and Tech. Know-how*, *'Lack of Entrepreneurship and Managerial Skills'* input factors together can predict 46.2% of the variance in *'Product performance'* variable.

- The results indicate that, *'Lack of Entrepreneurship and Managerial Skills'* can predict 10.4% of the variance in *'Sales Performance'* variable the other input variables will add little to the variance.

### **5.3 Major Discussions**

- Small firms generally don't perform job analyses to identify tasks, duties, and responsibility that are needed to perform various jobs and because of this they lack in predicting the personal characteristics and behaviours, employees with exact knowledge, skill and abilities necessary to perform each specific job. Further, the HR person should be trained in interview skills so that good quality employees are recruited and selected.
- Majority SMEs do not generally have an HRM department and so do not use HRM practices such as training, recruiting and selection, performances appraisal, involving employee in organization decision making and total quality management, team base problems solving activities etc. Further, small firms do not use practices such as formal employee participation programmes, team based problem solving, and detailed employee socialization and are unable to experience higher productivity as well as low scrap rate.
- In small firms, little attention has been given to the effectiveness of training programs. Lack of sufficient or necessary training partly results in the low qualified employees. To improve their performances, small firms should take benefits from government supported training programs to increase employee's skills. Further they should motivate their employees by rewarding them their contribution and involving them in decision making.
- The educational background of managers, business owners and entrepreneurs has been found to be an important factor explaining innovation in small businesses. Entrepreneurs with stronger educational backgrounds can carry out a more professional and efficient management and organization of their businesses and, in this way, can be more successful in implementing innovations.
- Small firm's entrepreneurs in the region have good managerial experience prior to setting up their business and majority of entrepreneurs have good experience or qualifications. Good education level has been found to be very helpful in solving different queries of customers related to product design and features. It has been found that (52%) organizations in the region are being run by entrepreneurs having either a post graduate or

engineering degree, 44% organizations are run by entrepreneurs having either diploma or normal graduation degree.

- Survey has found that the most critical decisions are made only by high-ranked manager. In other words, the top-level decision making is affected by owner-manager's personal prejudice (characteristics, education level, behaviours, attitude etc.), insufficient information and incomplete data. Small forms should involve employees in decision making. Further, there should be freedom to experiment, to do things and fail, to challenge the status quo and to discuss dumb ideas, and no punishment for mistakes. Top management should create a tolerant atmosphere in which mistakes are accepted as part of taking the initiative and results should be stored for possible adoption at a later time.
- It is found that planning and strategy making is a part of managerial function only. SMEs give less importance to planning. Before taking a new project there is need to analyze primarily own potential and also the conditions created by all participating objects affecting business.
- Special efforts are needed to increase the level of awareness about government schemes/ programs for benefit of SMEs.
- Industrial training institutes should be encouraged to organize short-term programs for vocational training of school dropouts in a variety of multi-skilled job positions that would be available in SMEs. In evolving these training programs. Industry involvement should be mandatory and employer-based training programs should be encouraged.
- Innovation and Entrepreneurship hold the key to enhancing the performance and competitiveness of SMEs. As their importance is not well realized, countrywide programmes on entrepreneurship and innovation must be launched in the shape of a national movement. Entrepreneurship should be promoted as preferred career and not as an alternate career. Towards this, among other things the training of teachers/trainers is necessary and special steps should be taken in this direction. Recognition/Incentives for innovation and entrepreneurship in the clusters and education institutes must be introduced.
- Financial institutions should have a simpler way of assisting MSMEs owners considering the difficulties they encounter as a result of lack of collateral security. consumption
- Majority of small business do not have enough credit for other needs like education, training, etc. for their employees. And this is backed by the fact that the country has no social security net that will take care of basic amenities. To meet this financial

requirement government should form policies to provide funds and loan at low interest rate.

- Small firm needs to make proper investment strategy which involves confirmation of investment direction of fixed assets, investment choices related to external expansion or internal expansion, the reform of old products or the development of new ones, investment with self-capital or with loans
- Marketing function has not been performing effectively in the absence of defined procedures. Small firm in the region need to make flexible marketing strategy which will help to grab maximum number of customers.
- Supplier monopoly has been found to be a major problem in the resigon (as their capacity to purchase is low, they are not eligible to source their material from major suppliers. Because of this SMEs rely on few local suppliers, the suppliers are empowered). SMEs have little bargaining power with their supplies. Due to this have to purchase material from local suppliers at high price. Small units in the region should form clusters so that small units with similar need of raw material can jointly procure raw materials in large quantities from major outstation suppliers at lower price.
- Training programmes in business management and entrepreneurship should endeavour to accommodate the issues like planning, decision making, financial management, marketing strategy etc. The contents of training should be focused on specific problems experienced by SMEs and should allow for practical application of concepts and procedures. This is a challenge for management and entrepreneurship training.

#### **5.4 Limitations of the Study**

Since every research has its own limitations, this research was not an exception

The main limitations of the study are as follows:

- The sample is not a representation of the entire small business sector in India. Therefore, the results cannot be generalized to small businesses that are not part of this study.
- The item measures for various research constructs have been considered of equal weightage. The study can be extended by attaching appropriate weights to these item measures through qualitative techniques.
- The study has been limited to small scale manufacturing units. It can be conducted for medium and large scale manufacturing organizations also.
- There is only 45.45% response rate achieved from the sample survey. With even high response rate, the results might slightly change.

### **5.5 Scope of Future Work**

While carrying out the present study, a number of areas have come to focus, where detailed research can be taken up. These areas demand more exploration and analysis through further research. The scope for future work has been presented as follows:

- The present work has concentrated on manufacturing industry only. The work can be extended to other categories like process industry, service industry etc.
- Future work can be done to investigate the implementing procedure for programs and actions for productivity/performance improvement.
- There are some other problems which are not consider in study like environment problems, lack of knowledge capital, difficulty in clustering, effect of international market on SMEs etc. These can further be taken up for consideration.
- This study has some limitations. It gathered quantitative data from one respondent each within individual SMEs, and therefore presents an opportunity for future research in the manufacturing sector involving multiple respondents from each units.

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## APPENDIX – I

### Questions under Lack of Entrepreneurship and managerial skills Issues

Issues under Lack of Entrepreneurship and managerial skills Issues	Questions under each issue
<ul style="list-style-type: none"> <li>• Lack of proper decision making</li> </ul>	M1, M2
<ul style="list-style-type: none"> <li>• Inability to attend managerial training</li> </ul>	M3
<ul style="list-style-type: none"> <li>• Poor entrepreneur's education level</li> </ul>	C1, C2
<ul style="list-style-type: none"> <li>• Lack of working experience of entrepreneur</li> </ul>	C15
<ul style="list-style-type: none"> <li>• Lack of awareness about new technology</li> </ul>	C18
<ul style="list-style-type: none"> <li>• Lack of awareness about government policies</li> </ul>	C8

### Questions under Lack of Strategic Financial Management

Issues under Lack of Strategic Financial Management	Questions under each issue
<ul style="list-style-type: none"> <li>• Insufficient credit for meeting requirement of routine operations</li> </ul>	K1
<ul style="list-style-type: none"> <li>• Difficulty in getting loan</li> </ul>	K2
<ul style="list-style-type: none"> <li>• Financial strategy for effective finance management</li> </ul>	K3, K4, K5
<ul style="list-style-type: none"> <li>• Channel to get loans</li> </ul>	K7
<ul style="list-style-type: none"> <li>• Inability to face emergency financial requirements</li> </ul>	K8

### Questions under Lack of Government Support Issues

Issues under Lack of Government Support Issues	Questions under each issue
<ul style="list-style-type: none"> <li>• Lack of government policies to support MSMEs</li> </ul>	B, B2
<ul style="list-style-type: none"> <li>• Lack of funds for R&amp;D initiatives</li> </ul>	B9, B10a
<ul style="list-style-type: none"> <li>• Lack of labs facilities for development projects at low rate</li> </ul>	B10f,
<ul style="list-style-type: none"> <li>• Lack of training facilities at government funded institutes</li> </ul>	B10h, B18
<ul style="list-style-type: none"> <li>• Lack of free or subsidized information/consultancy for research activities</li> </ul>	B22

**Questions under Lack Marketing Research Issues**

<b>Issues under Lack of Marketing Research Issues</b>	<b>Questions under each issue</b>
• Importance of marketing function	N1
• Up-to-date knowledge of market position	N2
• Gathering data for fault analysis	N3
• Inability to implement market-mix strategy	N10abc, N11
• Flexibility in marketing strategy	N4

**Questions under Lack of Planning and Decision Making Issues**

<b>Issues under Lack of Planning and Decision Making Issues</b>	<b>Questions under each issue</b>
• Strategy adopted to compete in market	L1
• Lack of decision Making Capabilities	L2, L3
• Lack of analysis of own potential before starting new project	L4
• Lack of planning as per market situation	L5
• Lack of use of production planning tools	L6

**Questions under Lack of Human Resource Management Issues**

<b>Issues under Lack of Human Resource Management Issues</b>	<b>Questions under each issue</b>
• Job and behavior analyses	J1, J2, J9
• Reward schemes to recognize contributions	J3, J4
• Recruiting skilled workforce	J5, J6, J7, J8
• Reaction of top management to project failure	J10, J11
• Partnering with other for training opportunities	I12
• Retaining of skilled manpower	J13

**Questions under Infrastructure and Technological know-how**

<b>Issues under Lack of Infrastructure and Technological know-how</b>	<b>Questions under each issue</b>
<ul style="list-style-type: none"> <li>• Problem due to supplier monopoly</li> </ul>	O1
<ul style="list-style-type: none"> <li>• Unreliable power supply</li> </ul>	B7
<ul style="list-style-type: none"> <li>• Improper rail-road facilities</li> </ul>	B6
<ul style="list-style-type: none"> <li>• High pricing raw material</li> </ul>	O2f
<ul style="list-style-type: none"> <li>• Lack of R&amp;D for Proper material composition</li> </ul>	O2g
<ul style="list-style-type: none"> <li>• Enable to Investments in new machinery</li> </ul>	E1
<ul style="list-style-type: none"> <li>• Current production facilities</li> </ul>	E3
<ul style="list-style-type: none"> <li>• Training for new technology</li> </ul>	E9

<b>Principal Component under lack of Entrepreneurship and Managerial Skills</b>	
Learning Behaviors	Decision Making
<ul style="list-style-type: none"> <li>• Inabilities to attend Training</li> <li>• Entrepreneurs Education Level</li> <li>• Working Experience</li> <li>• Awareness about new production technologies</li> <li>• Awareness about Government Policy</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of Decision Making</li> </ul>

<b>Principal Component under Lack of Finance Strategic Management</b>	
Proper Finance Management	Routine Investment
<ul style="list-style-type: none"> <li>• Knowledge Regarding Finance Agencies</li> <li>• Investment Inability</li> <li>• Meet Sessional Demands</li> <li>• Emergency Finance Droop</li> </ul>	<ul style="list-style-type: none"> <li>• Finance for Daily Routine</li> </ul>

<b>Principal Component under Lack of Government Supports</b>	
Technological Support	Training facilities
<ul style="list-style-type: none"> <li>• Policies to Benefited SSI</li> <li>• Fund for R&amp;D Activities</li> <li>• Lab for Project Development</li> </ul>	<ul style="list-style-type: none"> <li>• Training Facilities</li> <li>• Capital Subsidy Schemes</li> </ul>

<b>Principal Component under Lack of Marketing Research</b>		
Improper market Survey	Market Strategy	Understanding Market Value
<ul style="list-style-type: none"> <li>• Up-to-date Marketing Knowledge</li> <li>• Failure Record Analyses</li> <li>• Promotion Activities</li> </ul>	<ul style="list-style-type: none"> <li>• Measurement of Product Performance</li> <li>• Market Mix Strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Importance of Marketing Function</li> </ul>

<b>Principal Component under Lack of Planning and Decision Making</b>	
Improper market Survey	Market Strategy
<ul style="list-style-type: none"> <li>• Analyses of Potential</li> <li>• Plan as Per Market Situations</li> <li>• Use of Planning tools</li> </ul>	<ul style="list-style-type: none"> <li>• Competitive Philosophy</li> <li>• Decision making Capabilities</li> </ul>

<b>Principal Component under Lack of Human Resource Management</b>	
Recruit ability	Market Strategy
<ul style="list-style-type: none"> <li>• Job and Behavior analyses</li> <li>• Recruiting Skilled Workforce</li> <li>• Reward Schemes to Recognize Contribution</li> </ul>	<ul style="list-style-type: none"> <li>• Reaction of Top Management</li> <li>• Collaborations With Institutes</li> </ul>

<b>Principal Component under Lack of <i>Infrastructure and Tech. know-how</i></b>			
Equipment Inability	Market Strategy	Improper Raw Material	Improper Transportation
<ul style="list-style-type: none"> <li>• Problem due to supplier monopoly</li> <li>• Investment in New Machinery</li> <li>• Current condition of Machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of Electricity</li> <li>• Training of New Machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of R&amp;D for proper Material Compositions</li> </ul>	<ul style="list-style-type: none"> <li>• Improper Rail-Road Infrastructure</li> </ul>

## APPENDIX – II

*t critical value Distribution table*

<b>t Distribution</b>						
$\alpha$						
Degrees of freedom	.005	.01	.025	.05	.10	.25
	(one tail) .01 (two tails)	(one tail) .02 (two tails)	(one tail) .05 (two tails)	(one tail) .10 (two tails)	(one tail) .20 (two tails)	(one tail) .50 (two tails)
1	63.657	31.821	12.706	6.314	3.078	1.000
2	9.925	6.965	4.303	2.920	1.886	.816
3	5.841	4.541	3.182	2.353	1.638	.765
4	4.604	3.747	2.776	2.132	1.533	.741
5	4.032	3.365	2.571	2.015	1.476	.727
6	3.707	3.143	2.447	1.943	1.440	.718
7	3.500	2.998	2.365	1.895	1.415	.711
8	3.355	2.896	2.306	1.860	1.397	.706
9	3.250	2.821	2.262	1.833	1.383	.703
10	3.169	2.764	2.228	1.812	1.372	.700
11	3.106	2.718	2.201	1.796	1.363	.697
12	3.054	2.681	2.179	1.782	1.356	.696
13	3.012	2.650	2.160	1.771	1.350	.694
14	2.977	2.625	2.145	1.761	1.345	.692
15	2.947	2.602	2.132	1.753	1.341	.691
16	2.921	2.584	2.120	1.746	1.337	.690
17	2.898	2.567	2.110	1.740	1.333	.689
18	2.878	2.552	2.101	1.734	1.330	.688
19	2.861	2.540	2.093	1.729	1.328	.688
20	2.845	2.528	2.086	1.725	1.325	.687
21	2.831	2.518	2.080	1.721	1.323	.686
22	2.819	2.508	2.074	1.717	1.321	.686
23	2.807	2.500	2.069	1.714	1.320	.685
24	2.797	2.492	2.064	1.711	1.318	.685
25	2.787	2.485	2.060	1.708	1.316	.684
26	2.779	2.479	2.056	1.706	1.315	.684
27	2.771	2.473	2.052	1.703	1.314	.684
28	2.763	2.467	2.048	1.701	1.313	.683
29	2.756	2.462	2.045	1.699	1.311	.683
Large ( $\infty$ )	2.575	2.327	1.960	1.645	1.282	.675

## APPENDIX-III

### Details of Respondents to the Questionnaires

S. No.	Name of Organization	Address	Designation of Respondent	Year of Inception	Main Products
1.	Aro Tech Industries	D-9, Focal Point, Patiala	Proprietor PN Aggarwal 3291462 (O)	2003	Master Gears, Gear Shaper Cutters, Straight and Spiral Bevel Cutter Blades
2.	Bhaskar Cutting Tools	D-76, Focal Point, Patiala	Proprietor Bhushan Aggarwal	2009	Milling Cutters, Piper Cutters
3.	Canon Tools Company	D-149, Focal Point, Patiala	Proprietor V.S. Arora	1996	Gear Hobs, Gear Shaper Cutters, Milling Cutters, Dies and Moulds
4.	Eskay Tool Industries	D-228, Focal Point, Patiala	Proprietor Avtar Singh	2001	Hobs and Gear Cutters
5.	Ferro Tech. Tools	C-134, Focal Point, Patiala	Proprietor R.K. Singla 3293454 (O)	2005	Reamers, End Mill Cutters, Dovetail Cutters, Slitting Saw, Side and Face Cutters
6.	Ganesh Corporation	D-91, Focal Point, Patiala	Proprietor Ashwani Kumar	1997	Cutting Tools
7.	Global Enterprise	C-6, Focal Point, Patiala	Proprietor Sunil K. Sood 2232856 (O)	1995	Gear Hobs, Gear Shaper Cutters, Milling Cutters, Dies and Moulds
8.	Jeewandeep Tools	D-110, Focal Point, Patiala	Proprietor Navdeep Gupta 2233915 (O)	1997	Shank Type Tools, Reamers, End Mill Cutters
9.	Jyoti Tools	A-18, Industrial Area, Sirhind Road, Patiala	Proprietor Harsh Kumar Mittal	1985	Form Tools, Gear Hob, Reamer, Centre Drill, Slotting Cutter, T-slot
10.	Kapson India	D-99, Focal Point, Patiala	Partner Sanjay Kapoor 2216950(O)	1999	Master Gears Worm, Gear Hobs, Involute Gear Hobs, Gear Shaper Cutters, Gear Shaving Cutters, Involute Gear Cutters
11.	K.Vee Tools	Sirhind Road, Patiala	Proprietor K.L. Verma		H.S.S Milling Cutters
12.	Lalson Tool Corporation	D-277, Focal Point, Patiala	Owner Amit Singla	2002	H.S.S Cutting Tools
13.	Module Tools	D-268, Focal Point, Patiala	Proprietor Mitlesh Aggarwal 9988319017(M)	2006	Hobs, Gear Shaving Cutters, Master Gears, Gear Shaper Cutters
14.	Perfect Engg. Tools	D-16, Focal Point, Patiala	Proprietor Dilbagh Singh, 5001314 (O)	1994	Reamers, End Mill Cutters, Dovetail Cutters
15.	Precision Machines	D-136, Focal Point, Patiala	Proprietor Tejinder Jeet 5003287 (O),	2007	Shank Type Tools, , Involute Gear Cutters, End Mill Cutters
16.	P.S. Tools	D-207, Focal Point, Patiala	Proprietor, Neeraj Singla, 9216292234	2012	Cutting Tools
17.	R.J. Tools	D -8, Focal Point, Patiala	Partner Mukesh Gupta 2232423 (O)	2003	Reamers, End Mill Cutters, Dovetail Cutters

<b>S. No.</b>	<b>Name of Organization</b>	<b>Address</b>	<b>Designation of Respondent</b>	<b>Year of Inception</b>	<b>Main Products</b>
18.	Shakti Tool Industries	D-291, Focal Point, Patiala	Partner Surinder Kumar	2005	<i>Reamers, End Mill Cutters, Dovetail Cutters</i>
19.	Shaktiman Tech Tools	D-205, Focal Point, Patiala	Proprietor Gurvinder Singh		<i>Broaches</i>
20.	Star Auto Industries	D-57, Focal Point, Patiala	Partner Pritpal Dhiman 5000883 (O)	2004	<i>End Mill Cutters, Slot Drills, Counter Bore, Convex cutter, Face cutter, Angle cutter</i>
21.	Super Hobs and Broaches Pvt. Ltd.	B - 22, Focal Point, Patiala	Director Narain Nath, 2232772 (O)	1999	<i>End Mill Cutters, Side and Face Cutters, Slotting Saw</i>
22.	Surya Tools Industries	D-97, Focal Point, Patiala	Proprietor Naresh Goyal 3294307 (O)	1998	<i>Side and Face Cutters, Slotting Saw, End Mill Cutters</i>
23.	United Broach Company	D-220, Focal Point, Patiala	Proprietor Joginder Singh	2006	<i>Involute Gear Cutters ,Shank Type Tools, End Mill Cutters,</i>
24.	Versa Agro Industries	D-33, Focal Point, Patiala	Partner Rahul Tayal	1999	<i>Cutting Tools</i>
25.	V.V. Industries	D-86, Focal Point, Patiala	Proprietor Neeraj	2012	<i>Cutting Tool</i>

To,

Subject: **Request for filling up the Questionnaire**

Dear Sir,

We are submitting the enclosed questionnaire for seeking your expert views on our research topic. This study is a part of our M.E thesis research work at Thapar University, Patiala, Punjab.

The questionnaire has been specially designed to collect information regarding various aspects related to the tactical development of Small Scale Industry (SSI), by assessing the problems related to this industry (particularly cutting tool, hand tool, machine tool and auto component) and evaluating its technology capabilities.

This questionnaire is divided into three sections. The first section seeks general information regarding the organization, its products etc. The second section attempts to collect information regarding the various factors influencing the technology capability and technological development of small units. The third section is designed to collect information regarding the problems related to SSIs. Most of the questions are of multiple choice types. Kindly tick[ ✓ ] against the most appropriate choice for your company.

We assure the confidentiality of the response provided by you. We hope that the details provided by you will be instrumental in developing strategies for enhancing the technology capability for small scale sector and for solving technology related problems. We shall remain grateful to you for your help and cooperation in this regard.

Thanking you in anticipation and hoping for a prompt response.

With Regards

Himanshu Gupta, Manjeet Kharb, Navdeep Singh  
M.E- Production & Industrial Engineering  
Thapar University, Patiala

**SECTION-I**

<b>Name of the Organization</b>					
<b>Address</b>					
<b>Name of the Respondent</b>					
<b>Designation of the Respondent</b>					
<b>E-mail Address</b>					
<b>Phone Number(s)</b>					
<b>Fax No.</b>					
<b>Type of Organization</b>	<b>Cutting Tool Manufacturer</b>				
	<b>Machine Tool</b>				
	<b>Hand Tool</b>				
	<b>Any Other (please specify)</b>				
<b>Main Products</b>					
<b>Year of Inception</b>					
<b>Annual Turnover</b>					
<b>Number of Employees</b>	<b>&lt;10</b>	<b>10-99</b>	<b>100-199</b>	<b>200-499</b>	<b>&gt;500</b>
<b>Market Share (in your product range sector)</b>	<b>&lt;1%</b>	<b>1-3%</b>	<b>3-5%</b>	<b>5-10%</b>	<b>&gt;10%</b>

	Name:
	Designation:
(Signature of the Respondent)	

## SECTION-II

### A. LINKAGE CAPABILITIES

A.1. What is the motivation of carrying out R&D activities at your organization?

Motivation	Degree of Importance				
	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
To reduce product price ( <i>by improving efficiency of production resources to reduce costs</i> )					
To improve existing products or introduce new products ( <i>to increase market share by being first-to-the-market</i> )					
To tap government benefits ( <i>we just show that R&amp;D initiatives are being undertaken to avail government subsidies and other benefits</i> )					
To solve our maintenance related problems ( <i>Fire Fighting</i> )					

A.2. During the last 3-5 years, how important have been the following information sources for innovation activities at your organization?

Information Source	Degree of Importance				
	Very High	High	Medium	Low	Not Relevant
<b>Market Sources</b> <ul style="list-style-type: none"> <li>Suppliers of equipment, material etc</li> <li>Clients or customers</li> <li>Competitors</li> <li>Consultants, Labs, Private R&amp;D Institutes</li> </ul>					
<b>Institutional Sources</b> <ul style="list-style-type: none"> <li>Universities</li> <li>Government Departments (<i>Service Institutes</i>)</li> <li>Public research institutes</li> </ul>					
<b>Other Sources</b> <ul style="list-style-type: none"> <li>Conferences</li> <li>Journals/ Publications</li> <li>Product Reviews (<i>of new and improved products in various media</i>)</li> </ul>					
<b>Internal</b> <ul style="list-style-type: none"> <li>Learning by doing. Depend on our own in-house knowledge and experience.</li> </ul>					

A.3. Has your organization worked in association or collaboration with some other industry in the past 3-5 years?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.4. Marketing and promotion of products is very essential for small organizations to manifest their products in the market. Has the association of your organization with other industrial units been helpful in promotion through a common platform (*viz. sales promotion and public relation activities*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.5. Has your association/collaboration with other industrial units been helpful to reduce risks, costs and knowledge requirements associated with innovation, thereby enabling your organization to improve innovative performance in terms of product or process development and improvement?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.6. Have other industrial units (*in lieu of your association with them*) been able to support your organization in terms of knowledge sharing and training of employees?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.7. Has your association/collaboration with other industrial units been able to garner support for your organization in terms of infrastructure development and proprietary technology?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.8.If you have been working in collaboration with other industrial units, what types of benefits have been achieved with regards to the following?

Benefits obtained through Collaboration with other industrial units	Benefits obtained by your unit				
	Very High	High	Medium	Low	Not Relevant
Access to new production technologies ( <i>knowledge about new production processes or improvements in the existing processes</i> ) or collaborating firm provides proprietary technology/ machinery and equipments					
Access to new product designs and detailed specifications and/or knowledge about better materials					
Improvement in marketing function ( <i>common sales promotion programmes, combined participation in international trade fairs and exhibitions etc.</i> )					
Collaboration just means coming together on a common platform ( <i>in the form of association</i> ) to express grudges against government policies or to put demands before the government					
Collaborating firm provides feedback on the quality and performance of our products					
Collaborating firm is helpful in getting preferential pricing of our products and has helped in avoiding delayed receipts of payments from customers					
Sharing of resources and specialized technology infrastructure available with the collaborating industry					

A.9. If you have been acting as a subcontractor to a large scale enterprise (*Trans National Corporation*) what type of benefits have been achieved with regards to the following?

Benefits obtained through subcontracting	Benefits				
	Very High	High	Medium	Low	Not Relevant
Product related assistance ( <i>LEs provide detailed specifications and designs of the product, feedback on product performance and quality</i> )					
Production process related assistance ( <i>assistance on new manufacturing practices of international standards, specific machinery, equipments, raw materials, advice on raw material procurement, selection of machinery and special processes</i> )					
Organizational know-how ( <i>assistance on modern management techniques, advice on inventory management, quality control techniques and human resource management</i> ), help in increasing market knowledge ( <i>includes information about competitors activities</i> )					
Marketing assistance ( <i>LEs promote and recommend our products to other LEs; they also help us in getting international exposure</i> )					
Human resource assistance ( <i>LEs provide training to the employees of subcontractors, follow practice of swapping of personnel with the subcontractors</i> )					
Financial assistance ( <i>LEs provide financial support for working capital requirements or in implementation of new projects etc</i> )					
Material testing related assistance ( <i>LEs provide access to modern testing equipments like XRD, Spectroscopy, micro-hardness testing, UTM etc which small units are unable to afford</i> )					

A.10.In University-Industry Collaborations (UIC), there are two broad categories of linkage viz. Cooperative Research or Contract based Research. Which of the two types has been more prevalent for your organization while collaborating with academic (*technical*) institutes?

Types of University-Industry Collaboration	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Cooperative Research ( <i>joint R&amp;D projects are undertaken involving direct interactions between academic-industrial personnel for mutual learning and knowledge sharing on a specific topic</i> )					
Contract based Research ( <i>research projects are outsourced by industry to technical institutes with least direct interaction between academic-industrial personnel</i> )					

A.11.Has your organization been involved in any University-Industry collaboration in the past 3-5 years (*do you obtain any type of support from regional academic institutes*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.12.Has the collaboration with universities and research institutes been helpful in technology transfer (*R&D results transfer*) from academia to industry leading to innovative ideas and new product development?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

A.13.Small units collaborate with academia for various means. For what purpose(s) does your organization associate/collaborate with regional academic institutes?

Purpose of interacting with Academic Institutes	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Inspection, Testing and/or Material Characterization ( <i>Profile Measurements, Metallurgical Examinations, Surface Assessment, Tests for Strength, Toughness, other Metrological applications</i> )					
Expert Lectures/Short Term Programmes pertaining to various Quality Tools, Scientific Management Principles and Maintenance Practices ( <i>5s, FMEA, 7QC Tools, TPM, 6 sigma etc.</i> )					
Industrial Consultancy ( <i>pertaining to problems being faced in final products either because of wrong raw material or improper process etc.</i> )					
Combined Supervision of dissertations on topics of industrial relevance ( <i>B.E Projects, M.E Thesis, Student Internship viz. Project Semester Training etc.</i> )					
Start-up ( <i>forming start-up based on university's patent and research results</i> )					

## B.REGULATORY CORROBORATION

B.1.Has the government policy of providing tax benefits to SSIs to undertake R&D work been beneficial to your organization?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.2.Has the government policy of providing price preference to the items manufactured by SSIs been helpful in the development of your organization?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.3.Has the government been encouraging and helpful in innovative efforts of SMEs by providing good and up to date data on scientific and technological trends, both nationally and internationally?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.4.Recently MSME (*Ministry of Micro, Small and Medium Enterprises*) in association with SEBI (*Security and Exchange Board of India*) has granted permission to BSE and NSE stock exchanges to launch a SME Exchange to offer a platform to small and medium companies to raise capital. Would this initiative by MSME be beneficial for small enterprises in raising capital and improving their financial situation?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.5.Are you satisfied with the condition of rail-road infrastructure present in the region for the development of industrial sector?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.6.Do you consider bad condition of rail and road infrastructure in the region as the main factor deteriorating the performance of small scale sector?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.7.Do you consider unreliable supply of power (*too many cuts and that too unplanned*) as a major factor causing poor performance in your industrial sector?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.8.How do you rate the power tariff charged from industrial sector in your region as compared to other states?

- a) Extremely High   b) Reasonably High   c) Comparable   d) Relatively Low   e) Extremely Low

B.9.On an overall basis has the government been successful in providing support to your industrial sector in terms of financial support and other policy measures?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.10. Literature reveals that in developed and emerging economies the governments introduce several initiatives and policy measures for supporting small units. Which of the following government initiatives have been more effective for your industry?

Government Initiatives	Please tick in this column if an option is not applicable to your industry	Effectiveness of a given factor				
		To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Allocating funds to small units for R&D initiatives for development of product/process technologies						
Giving tax cuts and benefits to firms which undertake R&D work						
Reserving certain products of small scale sector for exclusive purchase by government departments and/or other public sector undertakings						
Giving price preference to small units by government departments i.e. purchasing some products from small units even when they are being offered at 15% higher rate than alternate sources						
Reserving items for exclusive manufacturing by small scale sector						
Providing government labs for developmental projects at subsidized rates						
Providing help to industry in acquiring imported technologies, machinery and equipments etc. ( <i>providing assistance in purchase/custom free import</i> )						
Training to employees of SMEs at MSME Tool Rooms and Training Centres						
Legal framework i.e. protection of intellectual property, enforcement of laws on anti-competitive and unfair trade practices that hurt SMEs						
Building Networks i.e. Cluster Development Programmes, Collaborative research and technology transfers between public and private institutions						
Provision of business support services i.e. counseling, consulting and competence development through functional workshops and related activities						
Creating an openness to transnationalization i.e. promoting successful firms as role models for other units to create awareness of international business opportunities						
Assistance pertaining to participation in trade fairs, exhibitions etc by providing small scale organizations with necessary space and money for stalls, for setting up permanent exhibition-cum-convention centers and organizing international trade fairs						
Forcing implementation of international quality standards (viz. ISI quality standard etc.)						

B.11. There must be some organizations which are more competitive than you and have grown at a faster rate than your organization due to support received by the government in the past 3-5 years. What kind of support by the government has been behind their success?

- Information dissemination i.e. providing information on tax rules, regulations and new/latest technology available.
- Provision of business support services i.e. counseling, consulting and competence development through functional workshops and related activities.
- Building Networks i.e. cluster development programmes, collaborative research and technology transfers between public and private institutions.
- Financial assistance and incentives i.e. export marketing funds, giving price preference to SME products and easy access to loans.
- Legal framework i.e. protection of intellectual property, enforcement of laws on anti-competitive and unfair trade practices that hurt SMEs.

B.12. Have the government departments been supportive in terms of easy clearance of power/water connections and clearance from pollution control boards?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.13. Has the state government's initiative to provide financial assistance (*upto 50% of total cost*) to Entrepreneurship Development Institutes (EDIs) like Regional Centre for Entrepreneurship Development (RCED), Chandigarh been helpful (*directly or indirectly*) for the development of your organization in terms of training and know-how to carry out research in your field?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

B.14. Under MSME Act 2006 and 11<sup>th</sup> Five Year Plan government has started various schemes under its NMCP (*National Manufacturing Competitiveness Programme*) for the upliftment of small scale manufacturing sector. Which among the following schemes started by the government under the above mentioned plan are you fully aware of?

Schemes	Please tick Yes if you are aware of scheme	
	Yes	No
Market Development Assistance (MDA) scheme [ <i>assistance on marketing and exposure to international markets by providing opportunity to small units to participate in international trade fairs under MSME India stall for exhibiting their products</i> ]		
Micro and Small Enterprise Cluster Development Programme (MSE-CDP) [ <i>setting up common facilities for capacity building, skill development, export promotion, exposure visits etc. for small units</i> ]		
Credit Linked Capital Subsidy Scheme (CLCSS) [ <i>government provides for 15% capital subsidy on institutional finance availed by small units for induction of well-established and improved technology in approved sub-sectors/products</i> ]		
Technology Upgradation and Quality Certification Support to SMEs (TEQUP) [ <i>for obtaining quality certification and reimbursement of 75% of cost for acquiring quality certification</i> ]		
Design Clinic Scheme (DESIGN) [ <i>to bring design expertise on a common platform and to provide expert advice, training and solutions on real time design problems, resulting in continuous improvement of products</i> ]		
Scheme for setting Mini Tool Rooms and Indo-German Tool Rooms [ <i>for setting tool rooms for providing training to employees of small units and others</i> ]		
Entrepreneurship Development Training Programme (EDP)/Skill Development Training Programme (SDP) and Vocational Training Programmes through Udyami Mitras		
Lean Manufacturing Programme [ <i>for SMEs to assist SMEs in reducing their costs through proper management, better space utilization, scientific inventory management or through Lean Manufacturing Consultants where SMEs will be paid Rs 2 lakh per year for consultancy related fees apart from Rs 8 lakhs for implementation charges</i> ]		

B.15. The government has TEQUP programme (*Technology Upgradation and Quality Certification Support*) for small units. Through this, the government provides financial support (*upto 75% of fee*) in obtaining quality certification by small units. Have you utilized this government scheme?

- Yes, we have obtained quality certification in our unit through this scheme
- We are aware of this scheme but have obtained Quality Certification through our own funds
- We were not aware of this scheme but we have obtained Quality Certification through our own funds
- We were neither aware of this scheme nor we have obtained Quality Certification on our own

B.16. Government has formulated the Design Clinic Scheme (DESIGN) to bring design expertise of manufacturing sector to a common platform. In this regard institutes like Central Institute of Tool Design have been opened to render help to small units. Have these institutes been effective in improving your performance?

- To an extremely large extent
- To a large extent
- To a moderate extent
- To a small extent
- Not at all

B.17. Indo-German Tool Rooms have been set up to assist small units in adopting new technologies like NC etc. Have these institutes been effective in fulfilling their tasks?

- To an extremely large extent
- To a large extent
- To a moderate extent
- To a small extent
- Not at all

B.18. Several training programmes have been set up by the government to support the small scale sector. Examples include EDP (*Entrepreneurship Development Training Programme*), SDP (*Skill Development Training Programme*), ESDP (*Entrepreneurship and Skill Development Training Programme*), VT (*Vocational Training Programmes*) etc. Have these programmes been effective in training and development of workforce of small units?

- To an extremely large extent
- To a large extent
- To a moderate extent
- To a small extent
- Not at all

B.19. The government has been providing assistance to small units to market and promote their products at international and national level by providing space at subsidized rates under MSME India stall to exhibit their products under Market Development Assistance Scheme (MDA). Has this scheme been helpful in increasing the competitiveness of your organization?

- To an extremely large extent
- To a large extent
- To a moderate extent
- To a small extent
- Not at all





C.18.To what an extent has your prior work experience helped you in the following activities at your own unit?

Characteristics	Degree of Help				
	Very High	High	Medium	Low	Not at all
Alertness and identification of new business opportunities and new markets					
Formal business planning of the different management areas ( <i>finance, marketing, logistic, H.R etc</i> )					
Better access to finance and loans ( <i>knowledge about various financial schemes and procedure to be followed to obtain them</i> )					
Ease of collaborating with other firms and institutes for training of our employees or getting orders from LEs					
Ability to seize opportunities from market and transmute them into profitable outcomes					
Ability to use appropriate strategies and tactics in commercializing our products					
Awareness about new production technologies ( <i>machines, equipments etc</i> )					

## D.TECHNOLOGY INFRASTRUCTURE

D.1.Have you been using the Bar Coding and RFID system for automatic collection of information for easier planning and efficient management by allowing management to fix bottlenecks at your organization?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

D.2.Organizations can use Information and Communication Technology (ICT) in several forms. These forms are listed below. To what an extent is each form being utilized at your firm?

ICT Sources	Degree of Use				
	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Use of computers for routine work ( <i>MS office etc</i> )					
Use of internet and intranet for effective communication ( <i>email etc</i> )					
Use of internet for marketing our products ( <i>through website</i> ) and also for e-selling					
Use of internet to learn latest know-how and modern methods followed by competitors in other developed countries					
Use of designing and production related softwares like Auto CAD, PRO-E etc					
Automated system to collect information on shop floor using Bar Codes and RFID					
Enterprise Resource Planning (ERP) software for automating the facility of finance/accounting, manufacturing, sales and service, customer relationship management etc.					

D.3.Has your spending on technology infrastructure (*related to Information and Communication technology*) increased over the past 3-5 years?

- a) Increased to a large extent   b) Increased considerably   c) Decreased to some extent   d) Decreased to a large extent  
e) No investment is made in this regard

D.4.Has the use of ICT by your organization led to effective flow of data within your organization (*effective data management and knowledge management*) thereby assisting your organization to obtain information at any given time which in turn help in reaching the desired targets?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

D.5.SMEs which are having stronger links with their clients and subcontractors are generally found to be more enriched in terms of knowledge, resources and other facilities thus enhancing their chances to be more competitive and innovative. Has the use of ICT at your organization enabled you to become digitally networked and thus creating stronger links between your organization and your clients?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

D.6. In which of the following functions has the use of ICT at your organization been effective. (Please tick against 'Not Relevant' if a particular function is not applicable at your unit)?

Functions performed by ICT	Not Relevant	Degree of Effectiveness				
		To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Use of computers ( <i>MS office etc</i> ) for general routine work						
Use of intranet and internet for communication ( <i>email etc</i> )						
Use of computers for drafting and designing of parts, components and products using Auto CAD, PRO-E etc.						
For e-marketing and e-selling of products						
For quality control work ( <i>control charts etc</i> ) or inventory management or Enterprise Resource Planning						
For automated systems using Bar Codes/RFID etc						

D.7. E-marketing and e-selling is the most modern and cheapest means used nowadays by small units to promote and sell their products easily and also to make their presence felt at the domestic as well as international market. Has the use of ICT for engaging in e-commerce been helpful for your organization in terms of promotion and sales?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

D.8. MSMEs generally lack in availability of appropriate resources required for technology up gradation. Please indicate the status regarding availability of following resources at your unit.

Project Resources	Extent of Availability				
	Very High	High	Medium	Low	Not at all
Employees with necessary expertise to carry out R&D work ( <i>adequate technical and scientific manpower</i> )					
Availability of finance for routine activities					
Availability of finance for research and technology development activities					
Availability of appropriate raw material at reasonable rates					
State of the art production equipment, workstations, machining centers, CNC m/c's, tooling, Robots etc.					
Availability of relevant information and latest know how related to your products form market					

D.9. Literature reveals that performance of small manufacturing units in the area of technological innovations is poor because of a lack of resources. Employees in small units are occupied in finding additional resources and not with actually developing improved or new products. Is this situation faced by your employees?

- a) Always   b) Usually   c) Sometimes   d) Rarely   e) Never

D.10. What fraction of your annual turnover is spent on research initiatives for technology upgradation at your unit?

- a) Less than 0.5%   b) 0.5-1%   c) 1-3%   d) 3-5%   e) More than 5%

D.11. Which among the following organizations have been helpful in enhancing the resources and competencies that fuel innovative capabilities and dynamics for your organization?

Organizations	Degree of Effectiveness				
	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Skills Agencies ( <i>MSME Training institutes, Central Institute of Hand Tools, Jalandhar etc</i> )					
Technology Centers ( <i>Technology Incubation Centres</i> )					
Public Research Institutes ( <i>CSIR, Central Institute of Tool Design, DRDO etc</i> )					
Higher Education Sector ( <i>Universities and Technical institutes</i> )					
Financial Institutions, Banks etc.					



E.9. Does the organization provide any formal training to employees to enhance their creativity skills, innovation skills and education levels?

- a) Proper formal training (at OEMs or other large scale manufacturing organizations) just after induction into our unit
- b) Training during orientation period by senior executives of the organization
- c) On the job training where employees are believed to learn through experience
- d) Some training is provided but without any explicit form or schedule
- e) No training at all

E.10. Are the employees and workforce level people encouraged to undertake R&D work/innovative work?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

E.11. Do you take sufficient measures to extract and put to use the tactical knowledge contained in the minds of the workforce level employees (*Tactical knowledge means skills and understanding about the process and product which the worker has gained through his experience with the production process, products etc., however this knowledge is not codified and is not available explicitly in a written form.*)?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

E.12. Whenever your organization comes up with a new concept or a new design for a product or an improved production process, does the organization apply for a patent to safeguard this intellectual property?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

E.13. Do you undertake inhouse research and innovation initiatives for process improvements on a continuous basis?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

E.14. Has the management clearly earmarked funds for R&D activities aimed at innovations for new product and process developments?

- a) Clearly earmarked specifically for process-product improvements in the form of clearly defined projects
- b) Clearly earmarked specifically for process-product improvements but not in the form of defined projects
- c) Clubbed with other developmental activities
- d) Some earmarking is done subject to availability
- e) No earmarking for R&D activities

E.15. The investments in R&D, as a percentage of total sales revenue is

- a) Less than 0.5 %
- b) Between 1-3%
- c) Between 3-5%
- d) Between 5-8%
- e) More than 8%

E.16. It has been seen that firms with separate research facilities are more innovative than others. What type of an organization exists for R&D work at your end?

- a) R&D exists as a separate department
- b) Teams are formed by top management for specific R&D projects
- c) Design/ Engineering department/ some specific individuals are responsible for R&D initiatives
- d) All R&D work and related activities are subcontracted to firms/consultants
- e) No clear structure of R&D department or for its activities

E.17. Have the in house research and innovation initiatives taken by you for process improvements been effective in improving your performance?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

E.18. Do you have adequate strength of technical staff and managers etc. to undertake research and innovation initiatives (*in addition to their routine production and other responsibilities*)?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

E.19. For what purpose Research and Development activities are used in the organization

Activities	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
To develop new processes and/or improve the existing processes					
To develop new products and/or improve the attributes/features of existing products					
To solve maintenance related problems					
To improve product quality by suggesting new materials etc					

## F.PRODUCTION CAPABILITY

### Quality Management

Effective quality management depends upon some key components which include good leadership, customer focus, effective planning, process management, and effective human resource management.

The following questions inquire about the status of these components in your organization:

#### F.1.Leadership

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Senior Managers actively encourage change and implement a culture of trust, involvement and commitment in moving towards 'Best Practice'					
There is a high degree of unity of purpose throughout our site, and we have eliminated barriers between individuals and/or departments					
We proactively pursue continuous improvement 'Fire Prevention' rather than reacting to crisis 'Fire-Fighting'					
Ideas from production operators are actively used in assisting management ( <i>using tactical knowledge for innovation and improvements</i> )					

#### F.2.Human Resource Management

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
The concept of 'internal customer' ( <i>i.e., the next person or the process down the line and including all employees</i> ) is well understood at our site					
We have an organization-wide training and development process, including career path planning, for all our employees					
Our site has effective 'top-down' and 'bottom-up' communication processes ( <i>two way communication</i> )					
Employee flexibility, multi-skilling and training are actively used to support improved performance					
All employees believe that quality is their responsibility ( <i>Everyone is responsible for Quality</i> )					

#### F.3. Process Management

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
A large percent of the equipment or processes on the shop floor are currently under statistical quality control ( <i>we extensively use control charts, acceptance sampling etc. to control our processes</i> )					
Training in basic statistical techniques ( <i>use of control charts etc.</i> ) in the organization as a whole is undertaken on a regular basis					
Training in advanced statistical techniques ( <i>such as design of experiments and regression analysis</i> ) in the organization as whole is undertaken on a regular basis					
We work closely with our suppliers to improve each other's processes					
Our suppliers have an effective system for measuring the quality of materials they send to us					
We have well established methods to measure the quality of our products and services					
We have side-wise standardized and documented operating procedures					

#### F.4. Customer Focus

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
We know the current and future requirements ( <i>both in terms of volume and product characteristics</i> ) of our external customers ( <i>either through effective demand forecasting or because we receive customer orders fairly in advance</i> )					
These customer requirements are effectively disseminated and understood throughout the workforce					
We have an effective process for resolving external customers' complaints					
We have a good system to collect customer feedback and we try to learn from it ( <i>Customer complaints are used as a method to initiate improvements in our current processes</i> )					
We systematically and regularly measure external customer satisfaction					

#### F.5. Planning

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
We have a vision & mission statement which has been communicated throughout the company and is supported by our employees					
We have a comprehensive and structured planning process which regularly sets and reviews short and long-term goals					
Our plans regarding quality assurance focus on achievement of 'Best Practice'. We have a broad array of activities which collectively create the overall quality plan and numerous specialized plans. We have clearly defined procedures needed to communicate these plans to all concerned					
We do careful identification, measurement and analysis of cost as a function of time in tracking the impact of an effective quality control system					
We have a written statement of strategy covering all manufacturing operations which is clearly articulated and agreed to by our senior managers					
A large proportion of our quality costs comprise of Prevention costs. Prevention costs include cost in quality planning, quality training, supplier reviews/survey etc.					

F.6. Has your organization established specific policies and procedures to ensure that those who have been assigned responsibility for quality control system have sufficient and appropriate experience and ability?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

F.7. What type of an organization structure exists at your organization for quality improvement?

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Quality Circles					
Quality Project Teams or Kaizen Teams or Product Development Teams					
No formal structure exists. Owner and employees meet informally whenever a quality related issue arises					

F.8. Have you been able to sustain companywide quality control (*manufacturing quality control*) which involves operational techniques and activities aimed both at monitoring a process and at eliminating causes of unsatisfactory performance at relevant stages of the quality loop in order to result in economic effectiveness?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

F.9. How do you work with process and quality improvement programs?

- a) No specific quality improvement activity has been conducted during the last few years
- b) Quality improvement activities have received increased importance, but are still scarce
- c) A few employees specifically work on identification and improvement of key quality issues
- d) Continuous quality improvement activities are an important part of the corporate strategy-several employees participate
- e) Quality has a central role in the improvement programs. Such programs are an inherent feature of our organization for several years. All employees participate in these programs.

F.10. Which quality tool have you been using on shop floor for continuous quality improvement?

	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Histograms, Bar Charts, Pie Charts etc.					
Pareto Diagrams/ Pareto Charts ( <i>based on 80/20 rule</i> )					
Flow Charts					
Cause and Effect Diagrams/ Fishbone Diagrams/ Ishikawa Diagrams					
Scatter Diagrams					
Control Charts, Run Charts					
New Quality Tools viz. Force Field Analysis, Matrix Diagrams, Fault Tree Analysis etc. ( <i>New 7 QC Tools</i> )					

### G.INNOVATION PERFORMANCE

G.1. Have you been able to enlarge your ‘product mix’ and ‘product variants’ from each product line in the past 3-5 years?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

G.2. Has your company been able to improve its existing products over the last three years because of the technology capability building initiatives?

- a) To an extremely large extent
- b) To a large extent
- c) To a moderate extent
- d) To a small extent
- e) Not at all

G.3. Number of commercialized new products as percentage of all products in company per year during the past 3-5 years.

- a) <5%
- b) 5-10%
- c) 10-15%
- d) 15-20%
- e) >20%

G.4. In the recent past, have you introduced rapid changes in features of the product in response to the market demand.

- a) Significantly more than the competitors
- b) Slightly more than the competitors
- c) Almost at par with the competitors
- d) Less than the competitors
- e) Not many changes worth mentioning

G.5. How many patents have been obtained (applied for) by your organization in the last

Period	Number	
	Obtained	Applied for
15 Years		
10 Years		
5 Years		

### H.SALES PERFORMANCE

H.1. Sales due to improved products and/or technologically new products as a percentage of total sales during the past three years has been

- a) <1%
- b) 1-5%
- c) 5-10%
- d) 10-15%
- e) >15%

- H.2. Has your company been able to increase its market share over the last 3-5 years because of the introduction of new products?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- H.3. Has your company been able to penetrate into new markets because of the new or improved products in recent past?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- H.4. Have your profits (*or profit margins*) in the last few years gone up  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- H.5. Have you succeeded in retaining the existing customers/markets (market share) with you in the last few years?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- H.6. Has the sale of your firm's products increased in the last 3-5 years?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all

## **I.PRODUCT PERFORMANCE**

- I.1. Have you been able to continuously improve the quality level of your products in the recent past to meet competition?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- I.2. Compared with your competitors, are your products appropriately priced? In other words, do your products offer a high cost/benefit ratio?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- I.3. Have you been successful in increasing the product life of your products in the market in the recent past (*last 3-5 years*)? (*Have you been able to make your products more reliable and durable because of innovation initiatives?*)  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- I.4. Have the technology capability building initiatives taken by your organization (*in the last 3-5 years*) resulted in improvement of product quality to meet the changing taste of the customers?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- I.5. Have you been able to continuously improve the technical characteristics (*performance*) associated with your products as compared to your competitors because of your technology capability building initiatives (*over the last 3-5 years*)?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- I.6. Have the technology capability initiatives taken at your organization contributing in lowering the cost of production operations and product price?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- I.7. Do the products (*of same class and same price range*) made by your company have features and quality  
 a) Extremely better than your competitors b) Marginally better c) Almost at par d) Slightly below e) Appreciably below

## **PROBLEMS RELATED TO SMEs**

### **J. LACK OF PROPER HUMAN RESOURCE MANAGEMENT**

- J.1. Does your organization use specific human resource management (HRM) practices for recruitment of employees? (*Do you conduct a thorough job analysis to identify the tasks and responsibilities that need to be performed for various jobs at your unit and then predict the personal characteristics and behaviours that are needed for specific recruitment position*)?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- J.2. Does your organization use strategic human resource management (HRM) practices such as formal employee participation programs, team based problem solving and/or other socialization programs for development of your employees?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- J.3. Does your organization provide motivation to the employees in terms of reward/recognition and other incentives to cultivate the habit among employees to reduce scrap rate and increase productivity?  
 a) To an extremely large extent b) To a large extent c) To a moderate extent d) To a small extent e) Not at all
- J.4. In case, the company makes profits as a result of innovative efforts of employees, how are their contributions recognized?  
 a) Recognition Through appreciation letter b) Promotion in designation c) Increment in salary d) Fixed monetary reward  
 e) Share in profits made on account of innovation f) No recognition or reward

J.5. Is your organization able to recruit technical workforce and employees of high quality (*skilled, technically qualified, experienced*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

J.6. What proportion of your total workforce is technically qualified (*means at given designations, they have appropriate technical qualification*)?

- a) Less than 5%   b) 5-10%   c) 10-30%   d) 30-50%   e) more than 50%

J.7. What are the main reasons because of which small firms (*especially yours company*) are not able to recruit employees of requisite quality (*education and experience*)?

Reason/Factor	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Small firm are not able to pay salaries/perks etc. comparable to what are available in large counterparts					
Skilled and educated candidates are more willing to join large scale organization because of better career growth and opportunities					
Small firm by themselves do not recruit graduate because they feel that they cannot utilize graduate skills					

J.8. Do you have adequate strength of technical staff and managers etc. to undertake research and innovation initiatives (*in addition to their routine production assignments and other responsibilities*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

J.9. Do you follow a systematic formal recruitment procedure (*i.e. means vacancies are advertised properly at a specific time and in formal channels; application are sought in proper format, trained staff or external agency conducts interviews etc.*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

J.10. If your organization suffers a loss (*unnecessary waste scraps etc.is produce*) because of negligence on the part of an employee/worker, what action(s) is generally taken?

Aspect	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Someone from the management side will give counseling, No strict action					
A written warning is issued if someone repeat mistakes too often					
Non-paid leaves ( <i>Employee/worker not allow to come in organization for a period of time say one or two days</i> )					
Some deduction from the salary					

J.11. What type of an action does the management take in case an project failure occurs?

Actions	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Strict action against members of the project team					
Enquires the reasons for project failure					
Advises to learn lessons from current failures					
Does a thorough analysis, pin points the root causes and plans a future course of action by consensus					

J.12. Do you partner with any training institution, large scale manufacturing firm, university and/or private agency for delivery of training opportunities to your employees?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

J.13. Research reveals that it is difficult to retain skilled and experienced staff in small firms. In the light of this, please specify up to what an extent the following reasons affect your organization in retaining skilled staff?

Actions	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Unreasonable low remuneration system ( <i>Unsatisfactory pay and/or hikes</i> )					
Lack of training and career development opportunities on a long term basis					
Staff cannot see long term business for the unit i.e. job security					

**K. LACK OF FINANCIAL PLANNING**

- K.1. Does your organization have sufficient credit for meeting requirements of routine operations?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.2. To meet your financial requirements for routine and important work, do you have to take loans at high interest rates?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.3. Do you follow some defined financial strategy or plan for effective financial management?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.4. Before investing in any new project, does your organization calculate the exact amount of money and time with respect to different activities in the project?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.5. Before investing in any project (*new order or new product*) does your organization have clear vision about the exact amount of money you are going to invest internally with self-capital and how much you have to take loan from external sources (*banks, private agencies etc.*)?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.6. Does your organization have a clear profit-distribution strategy i.e. if you get high profit from market, does your organization pre-plan as to how and where to invest these profits ( *viz. increase core competitiveness by introducing new products or purchase new machinery/technology, increase employee welfare etc.*)?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.7. Does your organization have sufficient channels (*finance agencies and loan guarantee institutions*) to get short/long term finance loans?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- K.8. How does your unit manage when your incomes drop suddenly and your organization runs out of money?

Options	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Cut down in salary and incentives of employees					
Spend out savings from previous projects/profits					
Borrow money from relative or any private finance institution					
Take a bank loan from any nationalized bank					
We have never face this problem					

**L. LACK OF PLANNING AND DECISION MAKING**

- L.1. Which of the following strategy/philosophy does your organization follow in order to compete in market place?

Strategy	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
‘Competition through Efficiency’ ( <i>We try to obtain the market allowed margins of profit by making more efficient use of our available production resources. For this, cost cutting techniques and operations management techniques are utilized</i> )					
‘Competition through Innovation’ ( <i>We disrupt the market place through the introduction of improved products or new technology products. For this innovation management techniques are used for becoming ‘first-to-the-market’</i> )					

- L.2. Literature reveals that owners running a small scale organization take most of the decision by themselves and are preoccupied with the routine production and maintenance related issues. In the light of this statement, please specify, do you get sufficient time to brainstorm with your employees regarding research initiatives and for product and process improvements?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- L.3. Does your organization have a separate planning & strategy making team (*or all the decisions related to product features and specifications are taken by one or two persons especially the owner manager of your organization*)?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all
- L.4. Before doing any project/business (*or making changes in the existing products etc.*), does your organization follow a systematic approach towards activities like analysis of own potential (*availability of funds, available human resource, labour utilization etc.*) by considering all participant objects affecting the business, and then make a real and relevant objective?  
 a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

L.5. Does your organization plan in advance according to the market situation (*like size of demand, intensity of competition and company ability*) so that you can get best result with your limited resources?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

L.6. Does your organization make use of production planning activities and tools (*like demand forecasting, master production scheduling, material requirement planning, inventory control etc.*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

### M. LACK OF ENTREPRENEURSHIP AND MANAGERIAL SKILL

M.1. Literature reveals that entrepreneurs of small unit take most of the decisions independently without thorough discussion with their employees/workforce people. What is the reason for this in your organization?

Aspect	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Entrepreneurs are too busy with production issues and other routine problems. As a result they do not get time to discuss the decision with employees					
The entrepreneur feels that their fellow college/employees are not capable enough to contribute effectively in decision making					

M.2. Decision making in small and medium enterprises is generally very risky. In the light of this, please respond to the following options as per your organization perspective.

Aspect	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
The decision making is risky because it has been imposed on one or two persons ( <i>owner/CEO</i> ) which leads them into long working hours in an atmosphere of constant pressure. As a result they may take wrong decisions which further main cause failure of business					
The decision making is risky because of lack of mutual discussion between different department ( <i>HR, Finance, and Marketing etc.</i> ) before taking the decision. Decisions are not based on a systematic or holistic approach					

M.3. As per your organization perspective, what are the main reasons because of which small firm manager do not attend management training at regional institutes, other large enterprise or government centers (*MSME Tool Rooms, CSIR, Central Institute of Tool Design, DRDO etc.*).

Aspect	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
The training/educational institute are not effective in imparting training					
Training and educational courses are not accurately planned and marketed					
Time and location does not suit/match us					
Price is unaffordable ( <i>cost of training is too high</i> )					
Manager think that no outsider can be expected to really understand the training need of a specific small firm					

### N. LACK OF MARKETING RESEARCH

N.1. Does your organization give equal importance to the marketing function (*product planning and development, standardization, grading, packaging, branding, sale promotion, storage and warehousing etc.*) as you give to other functions such as accounting, production, training programs etc.?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

N.2. Do you have up-to-date knowledge regarding your product (*position of your product with respect to your competitors*) and prevailing trend in the market?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

N.3. Do you gather data and record then analyses the facts about problems which are affecting the sales of your product?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

N.4. To meet increase competition of globalization, you must have made changes in your marketing strategy in the last few years. Which of the following options accurately represent the change adapted at your firm?

Strategy	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Unrelated Diversification ( <i>you started extending your business activities to other manufacturing areas and products</i> )					
Focalization & Concentration ( <i>you started concentrating on your main activities or products by eliminating one or more business activities which are not directly linked with your core business</i> )					
Relative Diversification ( <i>by increasing the existing features or introducing new ones</i> )					
Internationalization ( <i>By expending your business from one country to another or into new domestic markets by exploring marketing activities</i> )					

N.5. Up to what extent, does your organization consider the following primary sources of information to gather and record data from market to know the performance of your product?

Primary Sources	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Customers ( <i>feedback regarding price, performance, quality of product</i> )					
Dealers ( <i>regarding marketing policies of competitor, customer feedback from dealers</i> )					
Salesman ( <i>buying habits and preference of customers, customers complaints and compliments</i> )					
Trade fares, exhibitions etc. ( <i>where competitor's products are exhibited</i> )					

N.6. Does your organization use market segmentation strategy (*dividing the total market into different segments or homogeneous groups of people/customers on basis of economic status, education qualifications, preference etc.*)?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

N.7. Does your organization have formal marketing network (*media campaign, dedicated sales force etc.*) or you have to totally depend on personal effort and resources (*pay extra commission to dealers for selling efforts*) to increase your sales?

- a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

N.8. Up to what extent does your organization use the following secondary sources of information to get market related information (*regarding new product, new technology etc.*)?

Secondary Sources	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Press ( <i>Newspapers, Magazines, Bulletins</i> )					
Publication ( <i>Journals, Periodicals</i> )					
Government Sources and International Agencies ( <i>various government bodies like SISI, DIC etc. provide information; or Report or surveys conducted by government</i> )					
Private Concerns ( <i>Research institutes like Indian Institute of Foreign Trade, National Council of Applied Economic Research etc.</i> )					

N.9. There are various pricing policies which can be extremely useful in small units for effective control of sales and profit. Please specify up to what an extent these pricing policies are used at your unit?

Pricing Policies	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Competitive Pricing ( <i>you have a direct competitor in market and you charge price with respect to your competitor</i> )					
Skimming the Cream Price ( <i>Here you charge high price in the initial stages of your product</i> )					
Penetration Pricing ( <i>you charge price below than competitor but want to have more share in market by selling more units</i> )					

N.10. To fulfill the need of different market segments (*different group of people*), does your organization use the market mix strategy? Up to what an extent are you able to control effectively the four ‘P’s (*Product, Price, Place and Promotion*)?

Strategy related to Four ‘P’s	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
<b>Product:</b> Making suitable changes in features, design, variety and/or quality to meet expectations of different customers					
<b>Price:</b> Keeping flexibility in product price, payment period, allowances etc. according to economics status of different customers					
<b>Place:</b> Increasing distribution channels. Quick and efficient transportation channels etc.					
<b>Promotion:</b> Increasing the advertising, publicity and increasing personal sales effort etc.					

N.11. Is your organization able to grab market opportunities by providing adequate distribution channels or make the product available to target customers at the right time and at the right place? Please indicate your performance in these physical distribution activities:

Aspect	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
You are able to provide the product at right time to the customer					
You are able to provide the product at right place where the customer desires					
You are able to provide the product at the right price as the customer desires					

### O. INFRASTRUCTURE INABILITY

O.1. As the purchasing capacity of SMEs is low in quantity so they cannot purchase raw material from major source/suppliers. They have to purchase material from local suppliers at high prices (*local supplier have become empowered*). To what an extent have you faced this problem?

a) To an extremely large extent   b) To a large extent   c) To a moderate extent   d) To a small extent   e) Not at all

O.2. Small firms generally face quality related problems in their product because of improper raw materials. In this content, please respond to the following.

Aspect	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
We have thorough knowledge ( <i>composition, properties etc.</i> ) required for our parts, components and products					
Our policy is to use cheap materials which are easily available					
Though we have complete knowledge about the best materials for our product but these are not used because of their very high prices					
We generally suffer because of our ill planning. We are unable to procure the material at right time and right place					
Though we have complete knowledge about the right type of material and they are also available at appropriate prices but procuring material from suppliers is the problem ( <i>may be because of our small quantities of order</i> )					
The requisite material is not available locally. We have to procure either from other state or have to import. As a result material cost become very high because of the high excise/custom duty					
We don’t carry out the required R&D for finding out the best material for product. We simply copy and follow our competitors					

**P. LACK OF PROPER INVENTORY MANAGEMENT**

P.1. Does your organization keep records of income and expenditure? Please tick at the relevant option which accurately describes your firm.

Option	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
Yes, we keep record of everything, including all revenue and expenditure					
Yes, we keep record of everything, but not all revenue and expenditure entered					
No we don't keep records of everything, but we know in general how much money is received and spent during a given period, say a month					
We neither keep records of everything nor we know					

P.2. As the research revealed that there are three common inventory management systems which are being used in small firm as given below. Please specify which of the following systems are used in your organization?

Inventory systems	To an extremely large extent	To a large extent	To a moderate extent	To a small extent	Not at all
<b>The Eyeball System</b> ( <i>a key manager stands in the middle of the store or manufacturing area and look around to record the item which are out of stock</i> )					
<b>Reserve Stock System</b> ( <i>in this a bag of reserved stocks is kept aside. This bag is placed at rear of the stock area. The reserved items from bag are used when stocks from open area have been consumed and then reorder is immediately placed</i> )					
<b>Perpetual System</b> ( <i>this include manual card-oriented or any computer operated system. In this system an automatically order is placed when supplies fall below a prescribed level</i> )					