



**AN EMPIRICAL ANALYSIS OF PROBLEMS AND PROSPECTS OF ENGINEERING  
MSMEs IN BELGAUM DISTRICT**

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**ABSTRACT**

Micro, Small, and Medium Enterprises (MSMEs) are essential to India's industrial growth, job creation, and regional economic expansion. Through manufacturing, fabrication, and related operations, engineering MSMEs make a substantial contribution. The main issues and potential solutions facing engineering MSMEs in Belgaum District are investigated experimentally in this research. Both primary and secondary data served as the foundation for the study. A systematic questionnaire was used to gather primary data from 150 engineering MSME owners and managers, while official statistics, published research, and government publications were the sources of secondary data. Key issues identified in the report include market competitiveness, skilled workforce shortages, technical obsolescence, and budgetary limitations. At the same time, it draws attention to growth opportunities fuelled by governmental assistance, infrastructure development, and industrial links.

Simple statistical approaches were used to examine financial and technological adoption hypotheses. The results provide information that entrepreneurs, financial institutions, and legislators may use to improve the competitiveness and sustainability of engineering MSMEs.

**KEYWORDS:** Engineering MSMEs, Problems, Prospects, Primary Data, Regional Development

➤ **INTRODUCTION**

India's industrial sector is anchored by Micro, Small, and Medium Enterprises (MSMEs), which promote inclusive growth, create jobs, and encourage entrepreneurship. By providing parts, equipment, tools, and services to major industries and infrastructure projects, the engineering MSME sector in particular plays a crucial role. These businesses are essential to balanced regional development and distributed industrialisation.

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Because of its advantageous location, skilled worker pool, and industrial parks, Belgaum district has become a significant industrial hub in northern Karnataka. Metal fabrication, machine parts manufacture, electrical component manufacturing, and repair services are among the engineering MSMEs operating in the district. These businesses suffer a number of structural and operational obstacles that restrict their ability to develop, notwithstanding their economic significance.

Effective industrial and financial policies must take into account the challenges encountered by engineering MSMEs as well as their opportunities. Realistic insights into fundamental problems and potential future developments are offered by an empirical, data-based study. By methodically examining the issues and future possibilities of engineering MSMEs in the Belgaum region using both primary and secondary data, this research aims to close this gap.

➤ **REVIEW OF LITERATURE -**

Earlier studies such restricted access to financing, antiquated technology, poor infrastructure, and marketing hurdles are highlighted in earlier research on MSMEs. Additionally, studies have shown that, in comparison to other industries, engineering MSMEs are more vulnerable to technology risks and greater capital needs. Numerous academics have noted that MSME performance is strongly influenced by institutional support, entrepreneurial skills, and geographical characteristics. However, there are very few empirical studies at the district level that concentrate only on engineering MSMEs, particularly when employing primary data. By providing empirical information particular to a given location, this study adds to the body of literature.

➤ **OBJECTIVES OF THE STUDY**

The study is undertaken with the following objectives:

1. To investigate the major problems faced by engineering MSMEs in Belgaum district.
2. To evaluate the prospects and growth potentials available to engineering MSMEs.
3. To evaluate how financial limitations affect engineering MSMEs' performance.
4. To examine the role of technology adoption in improving MSME competitiveness.

➤ **RESEARCH METHODOLOGY**

● **Nature of the Study**

The study is empirical and descriptive in nature, based on both quantitative and qualitative analysis.

**Sources of Data**

- **Primary Data:** Collected through a structured questionnaire administered to owners/managers of engineering MSMEs.
  - **Secondary Data:** Gathered from books, journals, government policy materials, MSME annual reports, and publications from the District Industrial Center.
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➤ **Sample Size and Sampling Technique**

A sample of **150 engineering MSMEs** was selected using **simple random sampling** from industrial areas in Belgaum district.

➤ **Tools for Data Analysis**

- Percentage analysis
- Mean and simple averages
- Manual hypothesis testing using comparative statistical interpretation

➤ **Hypotheses of the Study**

- **H<sub>01</sub>**: Financial constraints do not significantly affect the performance of engineering MSMEs.
- **H<sub>02</sub>**: Technology adoption has no significant impact on the competitiveness of engineering MSMEs.

➤ **Hypothesis Testing and Interpretation**

**Hypothesis 1 Testing**

H<sub>01</sub>: Financial constraints do not significantly affect the performance of engineering MSMEs.

**Table 1: Mean Score Analysis – Financial Constraints**

Statement	Mean Score	Standard Deviation	Interpretation
Difficulty in accessing bank loans	4.12	0.81	High agreement
High collateral requirements	3.98	0.76	Agreement
Delay in credit sanction	4.05	0.79	High agreement
Insufficient working capital	4.18	0.83	Very high agreement
<b>Overall Mean</b>	<b>4.08</b>	—	<b>Strong impact</b>

The aggregate mean score of 4.08 (>3.00) makes it abundantly evident that MSME performance is greatly impacted by financial restrictions. Respondents strongly acknowledged working capital shortages and credit access issues as major barriers.

**Chi-Square Test – Financial Constraints**

Particulars	Value
Calculated $\chi^2$ value	32.46
Table $\chi^2$ value (df = 4, $\alpha$ = 0.05)	9.49
Level of significance	5%

Since **calculated  $\chi^2$  (32.46) > table  $\chi^2$  (9.49)**

### Null Hypothesis (H<sub>01</sub>) is Rejected

Financial constraints have a **statistically significant impact** on the performance of engineering MSMEs.

### Hypothesis 2 Testing

**H<sub>02</sub>**: Technology adoption has no significant impact on the competitiveness of engineering MSMEs.

**Table 2: Mean Score Analysis – Technology Adoption**

Statement	Mean Score	Standard Deviation	Interpretation
Use of modern machinery	4.21	0.77	Strong agreement
Adoption of digital tools	3.94	0.72	Agreement
Technology improves product quality	4.28	0.81	Very high agreement
Technology reduces cost	4.09	0.75	High agreement
<b>Overall Mean</b>	<b>4.13</b>	—	<b>Strong positive impact</b>

The overall mean of **4.13**, which is significantly above the neutral value, confirms that technology adoption positively influences competitiveness.

### Chi-Square Test – Technology Adoption

Particulars	Value
Calculated $\chi^2$ value	36.82
Table $\chi^2$ value (df = 4, $\alpha$ = 0.05)	9.49
Level of significance	5%

Since **calculated  $\chi^2$  (36.82) > table  $\chi^2$  (9.49)**

### Null Hypothesis (H<sub>02</sub>) is Rejected

Technology adoption has a **statistically significant positive impact** on MSME competitiveness.

### Summary of Statistical Hypothesis Testing

Hypothesis	Statistical Tool Used	Result
H <sub>01</sub>	Mean + Chi-Square Test	Rejected
H <sub>02</sub>	Mean + Chi-Square Test	Rejected

### ➤ Findings of the Study

1. The majority of engineering MSMEs have severe financial limitations, especially when they are growing and modernising.
2. For smaller businesses with less funding, technological obsolescence continues to be a significant problem.

3. Lack of skilled workers has an impact on quality standards and production.
4. Profit margins are strained by competition from big businesses and foreign goods.
5. Despite obstacles, there are excellent growth possibilities because of infrastructural development and industry demand.
6. Many engineering MSMEs have payment delays from major purchasers, which negatively impacts working capital cycles and cash flow management.
7. The potential advantages accessible to engineering MSMEs are diminished by a lack of knowledge and use of government assistance programs and incentives.
8. Standardisation of products and quality enhancement are hampered by inadequate common infrastructure facilities, such as tool rooms and testing labs.
9. Business development and income diversification are hindered by marketing restrictions, such as limited access to other markets and reliance on local purchasers.
10. Long-term sustainability is impacted by a lack of formal management processes, especially in strategy planning and cost control.

➤ **SUGGESTIONS OF THE STUDY**

1. Banks should provide loan products that are beneficial to MSME and streamline credit procedures.
2. Governmental organisations ought to improve their subsidy programs and technological upgrades.
3. Programs for skill development geared toward engineering MSMEs have to be reinforced.
4. Industrial groups ought to encourage cooperation and the use of common spaces.
5. MSMEs have to prioritise quality certification and incremental digitisation.
6. Financial institutions have to offer working capital solutions and flexible payback plans that are in line with engineering MSMEs' production cycles.
7. Common facility centers (CFCs) should be established by the government and technical universities to offer reasonably priced access to cutting-edge equipment, testing, and design services.
8. To connect engineering MSMEs with major enterprises and public sector entities, targeted market linkage programs and vendor development activities have to be encouraged.
9. To increase understanding and use of current MSME policies, incentives, and support programs, awareness campaigns must to be carried out.
10. To increase operational efficiency, engineering MSMEs should be encouraged to implement fundamental professional management techniques, such as inventory control, cost accounting, and strategic planning.

➤ **CONCLUSION OF THE STUDY**

In the Belgaum district, engineering MSMEs play a vital role in the local industrial environment. Despite making a substantial contribution to industrial output and employment, they face operational, technological, and financial obstacles that limit their expansion. The study's empirical data supports the notion that MSME performance and competitiveness are

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significantly influenced by technology adoption and financial accessibility. The full potential of engineering MSMEs may be realised and sustained regional development can be encouraged by addressing these difficulties with focused policy interventions, enhanced finance channels, and technological assistance.

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