

**ENTREPRENEURS' PERCEPTION OF TECHNOLOGY'S INFLUENCE ON
PRODUCTIVITY IN SMALL SCALE INDUSTRIES IN PEENYA
INDUSTRIAL AREA AT BENGALURU.**

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ABSTRACT

The Micro and small-scale sectors remain high on the government's agenda. At the same time studies on technology frequently focus on technology frequently focuses on high-tech sectors like engineering, software, and computer industries. The study aims to understand the perception of the entrepreneurs of Peenya industrial area at Bengaluru towards the influence of technology in small-scale industries on productivity in small-scale industries. Investigators randomly selected 12 small-scale and micro industries. The cross-sectional survey design was used in this study. The interview schedule was developed to collect the data. Findings revealed that the Technology influencing the the small-scale industries to grow in the level of Productivity and profitability in Peenya industrial area, At the gender level, men have a greater number of workers in this area compared to women. However, women do not have high power to handle the industries.

1. INTRODUCTION

Indian economy plays a significant and vital role in the small-scale sector. They generate goods and services, which makes them essential for a developing economy. They also to the national GDP and the establishment of employment possibilities, particularly for low and semi-skilled members of society. This study includes some data for comparison and the identification of best practices, such as marketing, production, and technology promotion programmers for SME-specific innovations and production environments. Recognizing and leveraging small niches within the economy creates opportunities for independent work, thereby aiding in the reduction of regional disparities. Consequently, the small-scale sector remains a priority on the government's agenda, as well as in policy-making and academic discussions. Existing research suggests that small businesses make a major contribution to technology. However, studies on technology frequently focus on high-tech sectors like the engineering, software, and computer industries. There are fewer specific technology studies in the small-scale industry despite the increased quantity of technology research in other sectors (Hausman, 2005).

Today, one of the most lucrative businesses in the world is the production industry (Gopalakrishnan & Damanpour, 2014). The need to create better, faster, safer, and more dependable products for the market has caused a dramatic shift in the production industry. Worldwide, the

production sector has seen technical growth, with different countries making significant contributions to their respective GDPs. The production sector is thriving, inventive, and quick-paced. Because cosmetics products have long life cycles, different climatic circumstances, and quickly shifting market product features force manufacturers to keep up with shifting market demand (Kumar & Michelle, 2006). As a result, manufacturers must use innovation both in the creation of their products and in how they are advertised. However, there aren't many studies that look into the effects of innovation in manufacturing with a focus on the Peenya context.

1.1 History of Peenya Town

The phrase "Industrialize or perish," attributed to Sir M. Visweswaraya, catalyzed India's swift industrial development. Bengaluru, a key city in India, required designated areas for industrial establishment. In the 1970s, the Karnataka Industrial Areas Development Board (KIADB) identified the Peenya Industrial Area, as a substantial tract of land located in the northwest of Bengaluru. Additionally, the Karnataka Small Scale Industries Development Board (KSSIDC) was responsible for creating the Peenya Industrial Estate to accommodate micro, small, and medium-sized enterprises. The entire region subsequently became known as the Peenya Industrial Complex or Peenya Industries.

Today, Peenya stands as one of the largest industrial hubs in Southeast Asia, employing over 110,000 individuals across approximately 20,000 diverse industries within a 40 square kilometer expanse. The majority of these industries are micro, small, and medium-sized enterprises (MSMEs), particularly in sectors such as mechanical, electrical, electronic, automotive, civil engineering, packaging, apparel, lubricants, consumer goods, pharmaceuticals, and machine tools. Numerous industries also engage in exporting their products internationally. Collectively, these enterprises contribute around INR 2,600 crores to the governments of India and Karnataka through various taxes and levies.

In recent years, there has been an increased focus on environmentally sustainable industrial practices. Consequently, initiatives aimed at fostering a clean and green Peenya have been launched under the guidance of the Peenya Industries Association (PIA), which advocates for and supports the industries in the region. These initiatives include the establishment of a Common Effluent Treatment Plant (CETP), the implementation of solar energy systems, and the planting of saplings throughout the area.

1.2 Labour and Capital Intensive in Small Scale Industries

Small-scale industries are labor-intensive yet require little capital. Small-scale businesses may operate as manufacturers or service providers. Small businesses that produce things or offer services using less sophisticated equipment and fewer personnel make up small-scale industries. The business must adhere to the rules established by the Indian government. The backbone of the Indian economy, small-scale companies provide numerous employment prospects for trained laborers. Small-scale industries are, after all, crucial to the economy both financially and socially. If it comes to capital intensive, they give less importance because their major is to maximize the profit. Small-scale industries do not give much importance to the advanced technology. Though they were still using old types of machines and other tools. If they used modern technology there's production and profit would both increase constantly.

1.3 Benefits of Technology in Small Scale Industries

- One important result of technological advancement in small-scale industries is improved energy efficiency. The cost of energy, which is a significant factor in the cost structure of production for MSMEs can be decreased through technological advancement.
- Through the adoption and upgrading of new technology, which results in energy savings and effective management, production costs can be reduced significantly.
- The speed and efficiency of small enterprises using new technology is around three times greater than those using the traditional marketing strategy. A small-scale industry that lacks technological marketing will suffer financial losses and be unable to reach a wide range of consumers.

1.4 Production of Technology In Productivity

The best definition of generation innovation would be any gear that permits a trade to deliver an unmistakable physical great. This includes a workshop at the exceptionally slightest for a little commerce, with more complex operations utilizing apparatus and gathering lines. In spite of the fact that CNC machines and other progressed innovations are costly consumptions, they can impressively increment the in general benefit of fabricating commerce when utilized to handle the more time-consuming processes of creating a thing within the commonplace artisan workshop. In common, all but the foremost affluent little businesses cannot manage CNC machines due to their tall starting fetch compared to physically worked shop apparatuses. A little business's choice to contribute to generation designing gear, such as a CNC machine, is crucial, and it ought to be made after carefully weighing the machine's potential to extend profit over staying with the manual handle.

1.5 Influence of Technology

Computerized innovations, which are changing how frameworks and forms work, are driving the display corporate scene around the world. Technology's entrance has driven to an insurgency in trade conceptions and models. No company may totally secure itself against the widespread, but the littler businesses were affected the most exceedingly bad. Little and medium-sized firms begun to utilize innovation as a commerce enabler to remain above water. In hindsight, the shutdown quickened the rate of computerized selection in India, especially for SMEs. Little undertakings were able to quicken, streamline, and robotize an assortment of schedule operations by using innovation, viably empowering the digitization of "Bharat." The Boston Counseling Gather (BCG) found that SMEs who receive unused innovation see a 10-point increment in work development and an 11-point increment in income development compared to low-tech SMEs. Little businesses, particularly those with physical areas, endured critical misfortunes amid the lockdown owing to unsold stock, moo deals, and a need of foot activity as a result of social confinement. Little and medium-sized businesses (SMEs) were able to supply their clients, the neighborhood community, and accomplices with the leading chance to outlive and succeed amid troublesome times by grasping advanced advances and consolidating them into their ordinary operations.

1.6 Productivity in Small Scale Industries

Any nation's industrial development depends critically on the small-scale industrial sector. The significance of the small-scale industrial sector is widely acknowledged due to its major contribution to achieving several socioeconomic goals, including increased growth in employment, output, export promotion, and entrepreneurship. 31.25 million people are employed by India's small-scale industrial sector, which creates more than 8,000 industrial products, ranging from extremely basic items made with traditional techniques to high-tech items like electrical goods, television sets, engineering products, etc. Currently, the Small Scale Industrial (SSI) sector accounts for 90% or more of the nation's industrial units, 8% of the GDP, and over 40% of India's exports, according to the Directorate of Industries (Venugopal, 2015).

1.7 Profitability in Small Scale Industries

Profitability is the ratio to measure the performance of the company. It is a crucial component of financial reporting for a business. A company's profitability demonstrates its capacity to produce profits for a specific time period at a rate of sales, assets, and specific capital stock. The key to helping managers create a successful profitability strategy for their business is understanding the components that determine profitability. Firm profitability is a crucial need for long-term corporate existence and development. The profitability determinant of the firm has a substantial impact on the achievement of other financial goals of the company. These elements are crucial because they have an impact on economic development, employment, innovation, and technological advancement. Maximizing profitability is the company's main objective. Without profitability, a company would be unable to attract outside funding and ultimately fail. Knowing and comprehending firm profitability will enable one to provide comments for the business. The company can identify a course of action that should be implemented to address the issue and lessen its detrimental effects on business continuity (Nina Supartika, 2016).

2. NEED FOR THE STUDY

By creating auxiliary goods for large industries or tiny components that can be used in the assembly of finished goods by large-scale industries, small-scale businesses contribute to the expansion of large-scale industries. A large portion of India's export revenue comes from small-scale industries, which account for about 40% of the country's total exports. Small-scale industries operate to boost the nation's foreign exchange reserves, which lightens the burden on the country's balance of payments. Sometimes the production becomes slow because of lack of technology. If small-scale industries have advanced technology, productivity and profitability will increase gradually. Eventually, the large-scale industries production also increases. So, our country exports goods go to 40% and above, if we have advanced technology like new machines, automotive machines, CNC machines, and others. By analyzing this, the investigator served the Peenya industrial area in Bangalore. That is the influence of technology on productivity and profitability in small-scale industries. It is a case study on the Peenya industrial area in Bangalore.

3. REVIEW RELATED LITERATURE IN INDIA AND ABROAD

The Investigators has identified a few kinds of literature related to the present study. In one of the articles in India Kumar and Michelle, (2006) mentioned as, due to their significance in economic growth, small and medium-sized businesses have become a focal point in many recent policy decisions. Policies intended to support and ease the functioning of the innovation process within SMEs have drawn particular interest, and this kind of activity has significantly increased. Despite this interest, there is still a lack of information on how Businesses carry out creative activities. This essay attempts to characterize the level of knowledge regarding SMEs and innovation by reporting on a literature review of Peenya Town's small business technology over the previous ten years. In another article, Prabhakara S.S., (2013) stated that A certain collection of resources or technological capabilities found within the organizational framework of technology-using enterprises are thought to form the foundation of a firm's technological dynamism. As a result, it is believed that the technical learning processes that help in developing and enhancing these talents play significant roles in the long-term dynamism and growth of organizations. It is thought that a corporation goes through a process of technological learning under the influence of forces of change brought on by external stimuli and cluster dynamics

Krishnaswamy (2014) cited that Small and medium-sized businesses (SMEs) have demonstrated they are able to actualize specialized breakthroughs in an assortment of financial settings. Their particular qualities, which are considered to be their inalienable points of interest for executing innovative developments (over economies of shifting sizes and which are at changed improvement stages), incorporate a clear organizational structure, superior inside communication, superior center, fast decision-making, more noteworthy adaptability, etc.

Balaji Singh, (2019) stressed that Indian SMEs, the engine of the Indian economy, have a solid technological foundation, a global view, and a competitive spirit. Using potent IT tools can be challenging, but their desire to adapt can get them over it. The researcher collected data in the interview method. The case study suggests that one important component for organizational sustainability that was not taken into account in the literature research is SME owners' motivation to start technological preparation. The measures are put to the test empirically. Sudhir and Surya Rao, (2019) mentioned the Indian small-scale sector adopting new technology to attain effective production. The paper aims to analyze the various factors of technological changes and their impact on small-scale industries. The objective of the paper is to investigate how technology affects several aspects of the small-scale industry, including organizational performance, growth and development, productivity, and new product creation, as well as the sustainability of the small-scale industry in India.

The Investigators have identified a few kinds of literature from abroad related to the present study. One among them is Hausman, (2005) The most thorough research revealed a U-shaped association between firm size and the level of creativity per employee. That is, both small and large businesses had a significant impact on inventive intensity. But middle-sized businesses saw a lower impact. Because the results vary when non-innovative enterprises are included in the sample, this result is not reliable. It has been discovered that big growth changes within a corporation occur less frequently over extended periods than they do over shorter ones. Moreover, employment fluctuations inside a

company are more likely to happen in contracting companies than in growing ones. In the statement of Parry, (2013) stated that tiny businesses are crucial to technological advancement. Because they are eager to undertake novel and risky ideas, smaller businesses offer several advantages as sources of innovation. They support organizations that emphasize creativity and uniqueness, and they are better able to make significant profits from market share in specialized niche sectors. According to statistics, small businesses generate 13–14 times more patents per employee than large businesses. Similarly, Romnji, H. (2013) stressed that Technology proficiency has a particularly significant role in determining a small manufacturer's capacity to operate in an environment of liberalization and growing manufacturing integration into international networks. Even the conventional markets they serve are undergoing significant change. Failure in this case would result from the inability to manufacture effectively, meet deadlines, or improve product quality and design.

In another situation, Martin Baumers, (2016) underlined that Technology uncertainty, which is particularly relevant to industries built on the foundation of technical advancements, is one of the main factors in the formation of new industries,. Making business decisions and gaining a competitive advantage in these young industries, however, necessitates a thorough comprehension of ongoing technological advancement and its potential effects. One of the most challenging types of forecast to produce accurately is a technology prediction. It is impossible to avoid errors since there are so many unknowns and potential outcomes. The Investigators has identified a few kinds of literature related to the present study. Rosa Prafitri and Azizah Omar, (2021) acknowledged that Small and medium-sized businesses (SMEs) have a significant economic impact. As a result, SMEs must incorporate technology if they are to develop. This study's goal is to provide an overview of the literature on SMEs' adoption of new technology. The variables used in this paper is the influence of technology adoption. The method of the study is a systematic review by surveying empirical research from a diversity of academic journals.

4. OBJECTIVES OF THE STUDY

The objective of the study is to determine how technology affected Peenya town's small industry's ability to produce goods and services and, in turn, how that affected society. The additional goals are;

- i. To know the opinion of the Small-Scale Entrepreneurs (SSE) on the influence of technology towards productivity
- ii. To measure the influence level of technology concerning the demographical variables like Gender, Type of Company, Qualification of the Entrepreneur, and Year of Establishment.

5. VARIABLES OF THE STUDY

Technology is the independent variable, and the Productivity of the SSI is the dependent variable in the study. Gender (Male and Female) Designation (Owner as Managing Director, Managing Director in Partnership) and Type of the company (Private company, Partnership and Public limited company.) are the Demographic variables in the study.

6. RESEARCH DESIGN

Cross-sectional survey design was used in this study since it allows for the flexible gathering of both quantitative and qualitative data. With this design, the study was conducted at a specific period,

and the idea of combining quantitative and qualitative data in taking a few Small-Scale Industries in a detailed manner, the research holds out the possibility of getting closer to the entirety.

7. POPULATION AND SAMPLE

The investigators have focused on the Peenya Industrial Area as a location for the study. In this area there are around 500 Small-Scale industries of different natures. The investigators have randomly selected 12 small-scale and micro industries to collect the data to find out the solution to the problem.

8. TOOL USED

The first part of the tool consists of the personal details seeking information about the Gender, Qualification and type of company and so on. Year of establishment, Designation and Type of Company are the dependent variables in the study. First, the investigator conducted a pilot study in a google form. Based on the response, the schedule was modified. The Interview schedule starts with personal details and 15 interview questions. The Investigators approached the owners of small-scale industries and 6 micro level industries total of 12 members were investigated.

9. DATA ANALYSIS

The collected data was plotted in an excel sheet and then analyzed by applying statistical techniques like, mean, median, standard deviation, T-test and F-test etc., then the results were drawn. There results drawn were given in two ways that are first descriptive and Inferential.

A. Descriptive analysis

Under this analysis, the opinion of the total sample and their Mean and SD of the opinion of the entrepreneur towards the productivity of the small-scale industries are presented.

Table-4.1

Mean and SD of the entrepreneurs toward the Influence of Technology on Productivity on Small Scale Industries in Peenya Industries with respect to their Gender.

Sl. No.	Category	N	Mean	SD
1.	Entrepreneur	12	70.92	7.24

Table 4.1 reveals that the Mean and SD values are found to be 70.92 and 7.24. it shows that the Entrepreneurs feel that the technology has enhanced their productivity. It also reveals that their opinion towards the technology on the small-scale Industries is positive.

Table-4.2

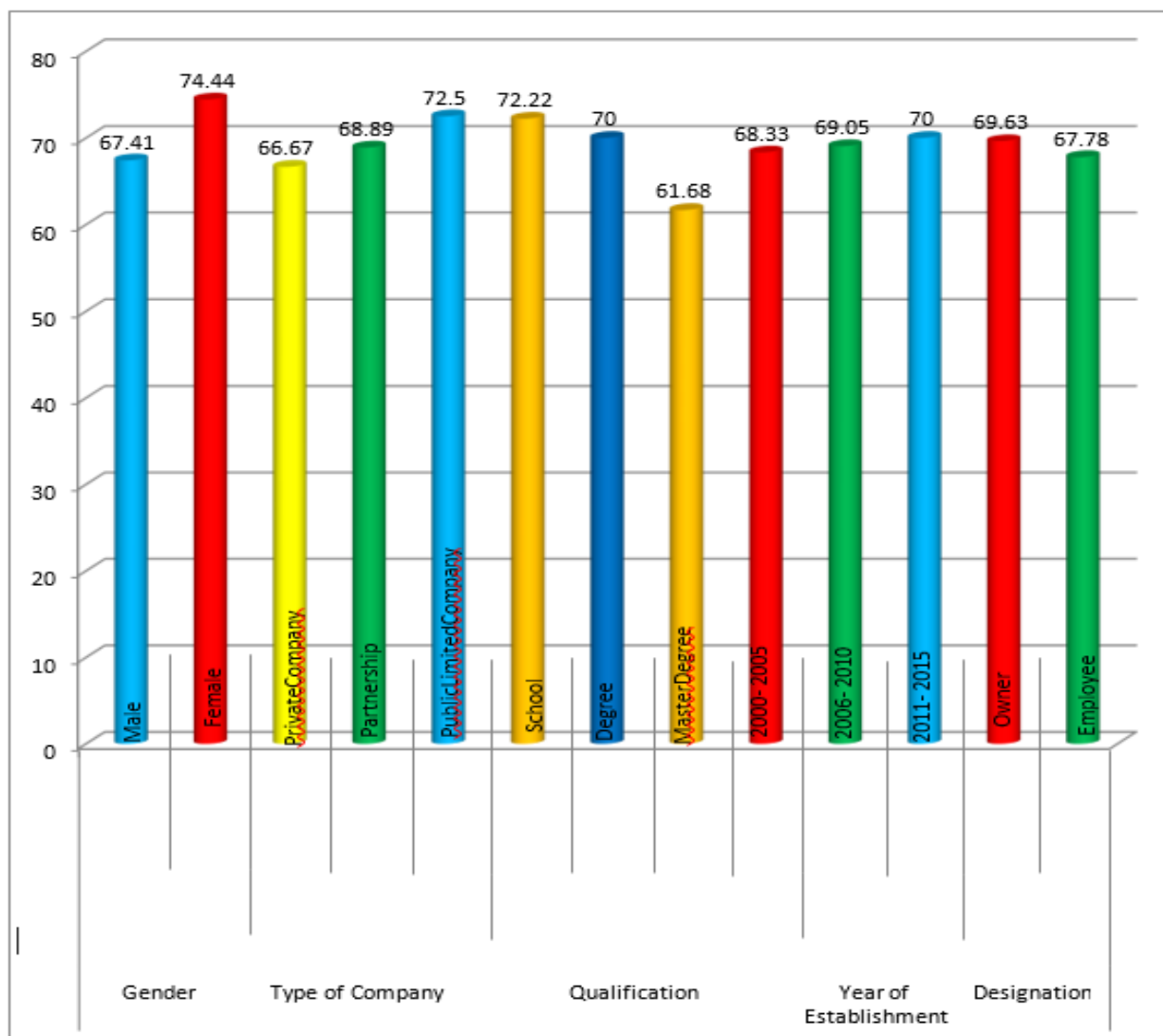
Influence of Technology on Productivity on Small Scale Unit

Sl.No.	Variables		N	Mean	SD
1	Gender	Male Entrepreneur	9	67.41	7.22
		Female Entrepreneur	3	74.44	5.09

2	Type of Company	Private Company	0	66.67	10.27
		Partnership	3	68.89	1.92
3	Qualification of the Entrepreneur	Up to School studies	3	72.22	6.94
		Degree	7	70.00	6.94
		MasterDegree	2	61.68	7.07

From the above table-1, it is noted that the obtained Maximum and Minimum Mean and SD values of Influence of Technology on Productivity are 74.44 and 5.09 & 61.68 and 7.07. The result reveals that the Mean and SD value of the Influence of Technology on Productivity on Small Scale Unit Total scores of the total sample are 69.17 and 7.26.

Figure-4.1 Influence of Technology on Productivity on Small Scale Unit



B) Inferential Analysis

By analyzing the samples that were drawn from the population data, inferential statistics aids in the development of a solid understanding of the data. The inferential analysis utilized in the study to determine results using the t-test is shown in the tables below.

Table–4.3

‘t’ value between the Influence of Technology on Productivity on Small Scale Unit A Case Study on Peenya Industries with respect to their Gender

Sl. No	Gender	N	Mean	SD	‘t’ value
1.	Male Entrepreneur	9	67.41	7.22	1.54**
	Female Entrepreneur	3	74.44	5.09	

**Not Significant at 0.05 Level

It is seen from the above table–2, that the ‘t’ value, 1.54 is not significant at 0.05 level. The result reveals that there is no significant difference between the means scores on the Influence of Technology on Productivity on a Small Scale Unit: A Case Study on Peenya Industries concerning their Gender. Hence, the framed null hypothesis is found to be accepted.

Table–4.4

‘t’ value between the Influence of Technology on Productivity on Small Scale Unit A Case Study on Peenya Industries with respect to their Designation

Sl. No	Designation	N	Mean	SD	‘t’ value
1.	Owner as MD	9	69.63	8.41	0.37**
	Employee as MD in Partnership	3	67.78	1.92	

**Not Significant at 0.05 Level

It is seen from the above table–3, that the ‘t’ value, 0.37 is not significant at 0.05 level. The result reveals that there is no significant difference between the means scores on the Influence of Technology on Productivity on Small Scale Unit: A Case Study on Peenya Industries concerning their Designation. Hence, the framed null hypothesis is found to be accepted.

Table – 4.5

Significant difference between the Mean Scores on the Influence of Technology on Productivity with respect to their Type of Company.

**Not Significant at 0.05 level

Variables	Education	Sum of Squares	Df	Mean Square	F
Influence of Technology on Productivity on Small Scale Unit	Between Groups	75.926	2	37.963	0.677**
	Within Groups	504.630	9	56.070	
	Total	580.556	11		

It is seen from the above table–4, that the ‘F’ value, 0.677 is not significant at 0.05 level. The

result reveals that there is no significant difference between the means scores on the Influence of Technology on Productivity on Small Scale Unit: A Case Study on Peenya Industries concerning their Type of Company. Hence, the framed null hypothesis is found to be accepted.

10. FINDINGS FROM THE STUDY

The findings of the study are given below.

1. The Mean and SD values are found to 70.92 and 7.24. it shows that the Entrepreneurs feel that the technology has enhanced their productivity. It also reveals that their opinion towards the technology on the productivity in Small Scale Industries is positive.
2. The obtained Maximum and Minimum Mean and SD values of Influence of Technology on Productivity on Small Scale Unit are 74.44 5.09 & 61.68 and 7.07. The result reveals that the Mean and SD values of the Influence of Technology on Productivity on Small Scale Unit Total scores of the total sample are 69.17 and 7.26.
3. There is no considerable difference between the means scores on the Influence of Technology on Productivity on Small Scale Units with respect to their Gender.
4. There is no major difference between the means scores on the Influence of Technology on Productivity on Small Scale Units with respect to their Designation.
5. There is no vital difference between the means scores on the Influence of Technology on Productivity on Small Scale Unit with respect to their Type of Company.

11. DISCUSSION OF THE STUDY

From the above findings of six tables as found that no significant difference and it is null hypothesis. As per the topic of the study, technology is influencing small-scale industries to grow in the level of productivity and profitability. In Peenya industrial area most of the industries use manual machines and automotive machines. In the gender level the men are a greater number of workers in this area compared to women. But women not have much power to handle the industries.

The large and medium-scale industries were dependent on the small-scale industries. Because the small products were done by the small industries like plastics seeds, tool and nuts, packing items etc. If the production increases from this area automatically the profit also increases. By all these the new advance technology machines are needed in the small-scale industries. The investigators come to know that from the findings.

12. CONCLUSION

This study showed that the expansion of small-scale manufacturing in the Peenya industrial area is greatly influenced by production innovation. Also, it was found that even though business owners realized how technology may help their companies grow, not all companies implemented innovative methods, perhaps due to a lack of support systems on the costs and advantages of doing so. Small-scale industry technology practices typically rely more on the ideas and preferences of the owners and management and are much less formalized.

In arrange for the small-scale businesses within the Peenya mechanical zone to receive

mechanical approaches in their homes from generation to dissemination and make a great benefit, which can be fundamental for way better territorial development, a steady component that will give data on different sorts of innovation is prescribed. To form their competitive advantage in their markets and accomplish way better development, these small-scale businesses must survey their qualities and shortcomings.

Thinks about have illustrated that value-adding exercises can boost little businesses' victory since they can raise their deals turnover. The think about recommends that little businesses ought to advance specialized headways to realize development and benefit. This will effectively contribute to economic advancement; the benefits will be riches creation for the proprietor, business conceivable outcomes, and destitution mitigation. To attain destinations, business people need have get to to adequate data approximately specialized hones so that they may create a clear plan for executing their favored innovative hones.

Generation technology should be prioritized over other mechanical approaches, since it has been decided that generation features a more prominent effect on the extension of small-scale industry within the region. Subsequently, the generation forms ought to be updated to reflect the moving needs and inclinations of the conclusion clients.

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