CHAPTER 5  

CASE STUDIES

5.1 INTRODUCTION

To validate the data collected through empirical study, four case studies have been conducted in the selected industrial units. The main concentration of these case studies has been to search and analyze various aspects on which the working of the organization depends. It involves the problems faced by small firms in the era of globalization and need for development of technology and the role of technology innovation initiatives for improving their manufacturing performance.

The information collected through industrial survey has been validated through the case studies by using various techniques such as SWOT analysis, SAP (Situation–Actor–Process) analysis and LAP (Learning–Action–Performance) analysis.

The industrial units considered for empirical analysis fall under four major areas i.e cutting tool, machine tool, hand tool and auto component units. Therefore, the industrial units for conducting case studies were selected on the following criteria:

- The organization is forthcoming and cooperative for getting conducted the case studies.
- The organization has enough tools, machinery and activities going so as to carry out case study related to manufacturing operations considered in empirical analysis.
- The organization come under one of the four major areas considered during empirical analysis.

The case studies have been performed with respect to the most significant technology innovation initiatives (as per data analysis results) in order to ascertain the exact status of these factors in Indian MSMEs. In the following section the results of case study conducted at Trimax Automobile Engineers (TAE) Pvt. Ltd., Gurgaon is discussed in detail. The other industrial units in which case studies have been carried out following the same procedures and techniques are:

1. Trimax Automobile Engineers (TAE) Pvt. Ltd., Gurgaon
2. Global Engineers and Innovators (GEI), Mohali
4. BHS Tools, Patiala
5.2 INTRODUCTION TO ‘TAE’, GURGAON

Trimax Automobile Engineers (TAE) Pvt. Ltd. is a well identified name in manufacturing and supplying an extensive array of thrust bearings in Gurgaon, Haryana (India). ‘TAE’ has another plant located at Faridabad, Haryana. It is one of the most principal brands in India, ‘TAE’ add in enriching the value of well engineered mechanical equipment, used and produced in different areas, with their ultimate production of bearings. The significant standard of manufacturing makes each thrust bearing prove the outstanding quality as well as the pride of the company.

Quality Policy

‘TAE’ are committed to make magnificent quality Bearings for its customers. Since 2001, Bearing Manufacturing has been our sole business. We have obtained substantial rise in the industry for quality products. High quality raw materials with high tech machinery are used for manufacturing the stock preserving best qualities of our items since our beginning and keen on enhancing it on a regular basis. We test our products on certain parameters that are parallel to national quality standards.

Our Vision

We are working with the vision to establish ourselves as a Global Supply Chain Network and enable customers to have operational efficiency at economical rates.

Our Mission

Our mission is to set benchmarks of attaining optimum clients' satisfaction by meeting their requirements beyond the expectations. For this, we are consistently delivering Quality products that are made after conducting extensive studies & understanding the specific requirements of customers.

5.2.1 PRODUCT RANGE

Spherical Thrust bearing:

- These bearings have spherical raceway in the housing washer and barrel shaped rollers obliquely arranged around it.
- Since raceway in the housing washer is spherical, these bearings are self aligning.
Tapered roller bearing

- These bearings are designed such that their conical rollers and raceways meet at a common apex on the bearing axis.
- Metric system standardized by bearing series is used.

Deep groove ball bearings

- Optimized internal geometry
- Better ball quality
- Large service life

Kingpin Bearings

- They take–up very high shock loads on the shearing king pin
- They consist of two tapered thrust race, rollers, cage and an outer retainer which holds components.

5.2.2 CUSTOMER BASE

The company’s major customers include:

1. Satyam Auto Components Pvt. Ltd. Gurgaon
2. Suresh Chand & Co., Delhi
3. Avtar Steel, Chandigarh
4. Rico Auto Industries Gurgaon
5. A.G Industries Pvt. Ltd., Gurgaon

The case studies have been performed with respect to the most significant technology innovation initiatives (as per data analysis results) in order to ascertain the exact status of these factors in Indian MSMEs. The information collected through industrial survey has been validated through the case studies by using various techniques such as SWOT analysis, SAP (Situation–Actor–Process) analysis and LAP (Learning–Action–Performance) analysis. The following section describes the detailed analysis carried out ‘TAE’.

5.3 SWOT ANALYSIS AT ‘TAE’

Table 5.1 represents the detailed results of SWOT analysis carried at ‘TAE’, Gurgaon.
<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strengths</th>
<th>Weakness</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
</table>
| Entrepreneurial Capability  | • Entrepreneur at ‘TAE’ done certified course in automotive engineering from IMI, Bangalore.  
• Awareness regarding changing market scenario.  
• Have sufficient knowledge and experience | • Lack of management to motivate employees.  
• Inadequate attention to marketing strategies. | • To plan new projects depending upon market requirement.  
• To surpass competitors by penetrating into new markets.  
• To make use of various Govt. schemes for firm | • Growing market requires continuous attention towards modification of routine operations.  
• Continuous training is required to enhance skill level of workers as well as entrepreneur. |
| Technological Infrastructure Capability | • Located near large industries.  
• Have sufficient machines and equipments for routine operations.  
• Large customer base.  
• Wide range of products. | • Unavailability of raw material at reasonable price.  
• Difficulty in getting loans.  
• Lack of finance for staring new projects. | • To become direct supplier for nearby medium and large firms.  
• To retain skilled manpower.  
• To make use of latest technology so as to meet changing market demand. | • Large number of firms making similar kind of products nearby.  
• Increase in investment is required to acquire new technology. |
| Government Initiatives      | • Providing subsidized information regarding policies and procedures to help small firms.  
• Govt. financial institutions provide credit to small firms for effective functioning of routine operations. | • Lack of awareness among entrepreneur of small firms due to ineffective implementation of plans by Govt.  
• Inadequate supply of power. | • To make sure that existing policies/schemes should reach small firms in time.  
• To make direct link between small and medium as well as large firms. | • Small firms sometimes hesitate to make use of available facilities due to lengthy procedures followed by Govt. Institutions.  
• Inability of small firms to handle tax structure formed by Govt. due to lack resources and income. |
5.4 SAP ANALYSIS OF ‘TAE’, GURGAON

5.4.1 SITUATION
• ‘TAE’ is located in IMT Manesar, Gurgaon where huge number of large firms are located which enhances its customer base.
• The unit consists of experienced labour and most of the workers are working with the firm for last 5 years.
• The testing machines include Roundness Tester, Coordinate Measuring Equipment and Rockwell Hardness Tester. Gauges are used to check accuracy of finished products.
• The unit consists of 1 production manger, 4 skilled personnel and 7 workers to carry out the production activities smoothly.
• Entrepreneur devotes full time for smooth running of the firm.
• The industry faces the problem of availability of raw material at reasonable price.
• Working hours in the unit are not fixed as it depends upon the number of orders to be executed. No extra payment is made to the workers for 1–2 hours of overtime.
• The unit is equipped with two diesel operated Electric generators for smooth working of machine and equipment.
• The unit is still required to develop its website for better recognition in the market.
• The unit is offered with tough competition from local counterparts.
• Production capacity of unit has increased during last one year.
• The unit has not purchased any latest machinery/equipment for last 3 years.
• Product layout is employed in the unit as same kinds of products are manufactured in large quantity.
• There is lack of training facilities to enhance skill and knowledge base of the employees.

5.4.2 ACTOR
• Entrepreneur of ‘TAE’, production manager, workers, suppliers and customers of the industry are working as ‘actors’.

5.4.3 PROCESS
• Entrepreneur of the unit is involved in almost all the activities carried out during manufacturing of the products.
• The available manpower and machinery is effectively utilized to convert raw material into finished product with 8 hours of working every day.

• Some of the operations are outsourced such as heat treatment.

• The unit employs traditional methods of manufacturing for making required products.

• There is no provision for in-process inspection as only finished products are inspected for their accurate size.

• Continuous production is required to fulfil customer orders in time due shortage of skilled manpower.

• Regulatory policies like tax structure are affecting performance of the unit in terms of inadequate supply of power and raw material.

• The unit is working towards fulfilling existing customer requirements and no emphasis is given extend customer base.

• The unit faces difficulty in fulfilling large quantity of orders as less manpower is available for overtime.

• Downtime in the unit is higher due unavailability of alternatives during machine breakdown.

• The unit is trying to improve the implementation of new plans and strategies in order to enhance productivity.

5.5 LAP SYNTHESIS OF ‘TAE’, GURGAON

• Entrepreneur of the unit should focus on effective utilization of various policies/schemes offered by government for MSMEs.

• There is a need to enhance skill level of workforce through on the job training activities.

• Motivation in terms of rewards and incentives is required to attract new and retain existing skilled personnel.

• Entrepreneur of the unit need to make collaboration with other firms in order to expand business activities.

• There is a lot of space for the unit to expand its customer base due to availability of potential customers. Therefore, the unit needs to be well equipped with latest technology infrastructure to meet changing customer demand.

• The unit should implement new types of production processes to enhance productivity.
• Effective documentation is required to implement and standardize the production processes.
• Marketing strategies should be employed to promote sales of the firm.
• The unit is dependent upon selected number of suppliers for raw material purchase. It is required to increase list of suppliers so as to get raw material at reasonable price and in specified time.
• Government should provide training facilities for small firm's employees as well as entrepreneur at reasonable price.
• Small firm are largely dependent upon banks and other financial institutions to overcome financial constraints.
• Government should provide adequate finance to small firms at low interest rate to enhance productivity and growth.

5.6 INTRODUCTION TO ‘GEI’, MOHALI

‘GEI’ was established in 2007 as manufacturing, trading and supplying of tractor components, combine components and fabricated components to various customer in northern region and is situated at Mohali, Punjab (India). The manufacturing unit is well armed with all the essential machinery, devices, tools and equipment in order to manufacture all the components as per requirement of customer with assured quality.

‘GEI’ has gained good base of clients across the country due to their punctual delivery, positive records, easy mode of payments, and fair business policies. The product category is highly appreciated among the clients due to precise dimensions, easy installation, corrosion–resistance, sturdy design and durability.

As per the particular needs of the clients, ‘GEI’ provides these components in variety of sizes, shapes, dimensions, materials and other such specifications to choose from. Quality is the main motto of the unit so more emphasized atmosphere is created among team. Mr. Avtar Singh is founder of this unit who has very vast experience in technical as well as managerial field. His son Mr. Harcharan Singh has completed Graduation in technology and has very sincere and dedicated approach towards his assigned goals and targets. Uncompromising quality and exacting specifications are their forte and this is what endows them with the trust of millions. The passion shown by ‘GEI’ employees is unique and their care and attention towards each stage ensures quality and consistency.
5.6.1 MILESTONES

‘GEI’ has created several milestones and a few of these are provided in the Table 5.2.

<table>
<thead>
<tr>
<th>Year</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Developed machining methods for Titanium</td>
</tr>
<tr>
<td>2013</td>
<td>Registered as certified vendor of SML ISUZU</td>
</tr>
<tr>
<td>2014</td>
<td>Official Website launched</td>
</tr>
<tr>
<td>2014</td>
<td>Developed operations for Rolling Mill parts</td>
</tr>
<tr>
<td>2014</td>
<td>Registered as certified vendor of FMGIL</td>
</tr>
<tr>
<td>2015</td>
<td>Technology upgraded to NC operation</td>
</tr>
<tr>
<td>2016</td>
<td>Registered with Mohali Chambers of Industries and Commerce</td>
</tr>
</tbody>
</table>

5.6.2 PRODUCT RANGE

*Machined Components:*

Titanium (Titanium Couplings/Titanium Washers):
- Rust proof
- Dimensional accuracy
- Unmatched quality
- Light Weight
- More Strength

Gun Metal (Gun Metal Bushes)
- Light weight
- Easy to install
- Anti corrosive

Stainless Steel (Stainless Steel Precision Machined Components)
- Hardness
- Abrasion resistance
- Durability

Phosphor Bronze (Phosphor Bronze Bushes)
- Anti magnetic
- Durability
• Finely finished

Polypick (Nylon/Plastic Machined Components)
• Easy to install
• Rust proof
• Durable

Cast Iron (Cast Iron Machined Component)
• Rust proof
• Abrasion resistance
• Easy to install

Fabricated Components
Movable Stand/Trolleys/ Fixture/Components
• Smooth finishing
• Rust proof
• Good appearance
• Smooth performance
• Easy to fit
• Low maintenance
• Cost effective
• Fine finish
• Quality approved

Grinded Components
Surface Grinded Components
• Rugged construction
• Abrasion resistance
• Durability
• High strength
• Smooth finish
• Higher Accuracy
Fasteners

- Cost effective
- Fine finish
- Quality approved
- Rugged construction
- Precise designs
- Optimum quality

Rolling Mill Spares

Twist Pipe/Shearing Blades/Die Coupler

- Easy to install
- High load bearing ability
- Long service life
- Rust proof
- Cost effective
- Fine finish
- Quality approved

5.6.3 CUSTOMER BASE

The company’s major customers include:

1. SML Isuzu Limited, Ropar
2. Federal Mogul Goetze India Ltd, Patiala
3. Su-Kam Power Systems Ltd., Baddi
4. Punjab Engineering Works, Mohali
5. PSTC Ltd, Patiala
6. Satkartar Industries, Mohali
7. Gurkirpa Industries, Mohali
8. Windals Precision Ltd., Rudrapur

5.7 SWOT ANALYSIS AT ‘GEI’

Table 5.3 represents the detailed results of SWOT analysis carried at ‘GEI’, Mohali.
## Table 5.3: SWOT analysis at ‘GEI’

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strength</th>
<th>Weakness</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrepreneurial</strong></td>
<td>Strong work ethic.</td>
<td>Weak market image.</td>
<td>Participation by entrepreneur leads to diversification of market.</td>
<td>Entry of strong competitors.</td>
</tr>
<tr>
<td><strong>Capability</strong></td>
<td>Strong management team</td>
<td>No clear strategic direction.</td>
<td>Identification of more growth opportunities as well as technology gaps.</td>
<td>Limited amount of skilled labor to implement new technologies.</td>
</tr>
<tr>
<td></td>
<td>Tactic knowledge from prior working experience.</td>
<td>Lack of collaboration with government agencies.</td>
<td>Form strategic alliances.</td>
<td>Improvement on current infrastructure.</td>
</tr>
<tr>
<td><strong>Technological</strong></td>
<td>Adequate finance for routine activities</td>
<td>Information system for marketing and promoting products is not properly</td>
<td>Target new market.</td>
<td>Changing market demand.</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>Machinery and equipment are in place and working.</td>
<td>utilized.</td>
<td>To introduce new technology and products.</td>
<td>Inability to start new projects.</td>
</tr>
<tr>
<td></td>
<td>Effective utilization of available resources.</td>
<td>Softwares for drafting, designing, modelling and analysis in very limited use.</td>
<td>To do business operations with information systems (e-purchasing, use of RFID, bar codes etc.).</td>
<td>Obsolete process technology in use.</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td>Providing lab facilities for R&amp;D initiatives at subsidized rates.</td>
<td>Lack of capital subsidy schemes by government for technology development</td>
<td>To offer new and improved services.</td>
<td>High interest rates loans provided by financial institutions.</td>
</tr>
<tr>
<td><strong>Initiatives</strong></td>
<td>Providing subsidized information for MSMEs.</td>
<td>Delivery delays caused by slow government procedures.</td>
<td>To implement new policies and measures to support innovation initiatives.</td>
<td>High alloy surcharge on raw material severely increases the input costs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of cheap and reliable power supply.</td>
<td>To make aware MSMEs regarding various schemes provided by government</td>
<td>Increased regulation environment.</td>
</tr>
</tbody>
</table>
5.8 SAP ANALYSIS OF ‘GEI’, MOHALI

5.8.1 SITUATION

- ‘GEI’ has variety of product range as more than 23 products are manufactured and machined at the location.
- A small dedicated team consisting of entrepreneur itself, one manager–cum–supervisor and 9 workers including 1 foreman is focused on manufacturing the products according to customer's requirements.
- Industry is having traditional layout and outlook as setup in the preliminary stage.
- Production capacity has been increased by the firm over last few years. In the beginning, only 3 products were made which are now increased up to 23 products.
- Almost half of the labor is employed as casual workforce and there is often high absenteeism which affects the productivity of the unit.
- Suppliers are connected to industry by means of telephone, fax and e–mail. Main raw material used in industry is Gunmetal, Titanium, Cast iron and Mild steel.
- Cleanliness and other environment related activities are considered sincerely in the unit.
- Very little support is provided by government agencies regarding awareness of technology up–gradation, procurement of raw material at reasonable price and hire or purchase of imported good and machines.
- Fuel and power tariff are high as compared to neighbouring states. Cost of electricity is increased from 337p/kwh to 574p/kwh in time span of 2005 to 2014 whereas fuel charges are raised form INR 37.45 (in 2010) to INR51.91 (in 2015).
- Lack of finance to start new projects is the major problem for the unit and presently a loan of Rs. 12 lacks is still under processing for sanction.
- There is very tough competition for ‘GEI’ in domestic as well as national market in terms of new design, quality, variety and delivery/service related aspects which create value of the industry in view of customer. More than hundred competitors are available in Mohali only.
- Same labor laws are applicable on all manufacturing sectors i.e micro, small and medium enterprises irrespective of their size, manpower strength etc. Following these laws is rather difficult for small scale industry.
- Unit is located in industrial area where it can avail its basic requirement easily and in time. Sewerage, sanitation and electric supplies are connected in a planned way.

5.8.2 ACTOR
- Management of ‘Global Engineers and Innovators’, manager, foreman, workforce, and customer’s feedback for the unit are the ‘Actors’.

5.8.3 PROCESS
- ‘GEI’ has capable team and mechanism to convert raw material into useful products. Every product is accompanied with product drawing for effective utilization of production operations.
- ‘GEI’ manage all the records through computerized management system. There are different types of parts which need to be identified for better tracking and procurement during manufacturing. The record of supplied parts, inventory and customer orders is maintained easily using computerized management system.
- Production is limited to conventional manufacturing techniques. Non conventional machining processes are not yet installed in the unit.
- ‘GEI’ adopted cost estimating software in 2011. It comes with manufacturing data and cost models that help the company to be more consistent in their estimates regarding cost of raw material and finished product.
- Bill of material is also prepared using software which reduces consumption time and increases productivity.
- Overtime is also paid to workers as there is high production demand. However this activity is not performed on regular basis but it costs almost Rs. 2000/– to 3500/– per head/month.
- Finished products are transported through trucks/tempos to the nearest road or rail transport carrier for timely delivery to the customers.
- Top management at ‘GEI’ is committed towards betterment of its employees as well as suppliers and customers. They seek credibility in leadership, quality and flexibility in functions at various stages in the unit.
- Two generator sets have been installed at the unit to encounter power supply related problems.
• ‘GEI’ is not able to get benefits provided by government because of lack of awareness regarding the same.
• ‘GEI’ is trying to enhance its customer by offering timely and quality products in the market on continuous basis.

5.9 LAP SYNTHESIS AT ‘GEI’, MOHALI
• Entrepreneur at ‘GEI’ needs to be aware regarding various government schemes so as to get maximum benefits out of them.
• Efforts should be made to replace traditional methods of manufacturing with non-conventional machining processes.
• Although industry started to use time saving software but the unit should employ software related to designing for generating process plans, engineering drawings and layouts.
• Marketing strategies are required to be effectively implemented in the unit to be able to compete with competitors in the sector, regardless of their size.
• ‘GEI’ needs to promote training activities for their employees to enhance their knowledge and skill levels for various machine operations.
• Employees at ‘GEI’ are required to be motivated to achieve organizational goals in effective manner. Reward schemes need to be introduced for motivation and effective utilization of human resources.
• Special consideration should be provided to produce quality products to enhance customer base. Separate inspection department must be incorporated to ensure in-process quality.
• Strategic financial plans should be employed for effective utilization of funds acquired from financing agencies.
• There is lack of support and co-operation with research organizations to promote technology related projects. ‘GEI’ should try to collaborate with research organizations to attain technological advancement.
• Government should provide small scale industry with uninterrupted power supply to help increase their production.
5.10 INTRODUCTION TO ‘JMT’, LUDHIANA

‘JMT’ is located in northern India at Ludhiana (Punjab), well known as the manufacturer of all kind of Machine Tools in India. The factory came into existence in 1957 and in a short span of time, was able to offer a complete range of Machine Tools Accessories, True Chucks, Independent Chuck, Special Purpose Chucks, Soft Jaws, Back Plate, Face Plate etc. They are one of the largest Manufacturer and Exporter of the Lathe Chucks and Spares to more than 10 Countries of the World. The company started National marketing and covered the whole Country and U.K, U.S.A, Australia, Italy.

Objective
The objective is to be a lean organization that drives revenue through greater exports and higher value added products and profits through sustained cost reduction. They try to increase revenues and decrease costs through even greater emphasis on Technologies and by leveraging their strengths in design and technology to considerably compress development time.

5.10.1 MILESTONES

‘JMT’ has created several milestones and a few of these are provided in the Table 5.4.

Table 5.4: Milestones established by ‘JMT’

<table>
<thead>
<tr>
<th>Year</th>
<th>Milestones</th>
</tr>
</thead>
</table>
| 1995 | Incorporated as manufacturing unit in small machine tools.  
       | First product manufactured in 1995. |
| 1997 | Sales and production departments were established.  
       | Raw material brought from different states. |
| 1999 | Expanded their range of products by addition of manual lathe chucks.  
       | Digital inspection equipments were installed. |
| 2004 | Started their business in international market.  
       | Tie up with central tool room (CTR), Ludhiana for inspecting raw materials. |
| 2006 | Got ISO certification. |
| 2010 | Adopted and formulated R&D policy for better utilization of research function.  
       | Continuously installing CNC machines of different types for improving production and machinability. |
| 2013 | Started exporting products to Italy and Malaysia. |
5.10.2 PRODUCT RANGE

The various products manufactured at and their features are summarized in Table 5.5.

<table>
<thead>
<tr>
<th>Product</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Centering Chucks</td>
<td>High tensile strength</td>
</tr>
<tr>
<td></td>
<td>Wear resistant cast iron alloyed with nickel, chrome and manganese</td>
</tr>
<tr>
<td>Independent Chucks</td>
<td>Manufactured specially for heavy duty and rigid gripping</td>
</tr>
<tr>
<td></td>
<td>Non–self–centering action of jaws allows highly controlled centering</td>
</tr>
<tr>
<td>Special Purposes Chucks</td>
<td>Manual self–centering power</td>
</tr>
<tr>
<td></td>
<td>Automatic indexing chuck with hydraulic clamping and indexing</td>
</tr>
<tr>
<td>Rotary Table</td>
<td>Dynamic Performance</td>
</tr>
<tr>
<td></td>
<td>Higher Acceleration/Deceleration</td>
</tr>
<tr>
<td></td>
<td>Higher RPM</td>
</tr>
<tr>
<td></td>
<td>Zero Backlash</td>
</tr>
<tr>
<td></td>
<td>Pre loaded axial radial roller bearing</td>
</tr>
<tr>
<td></td>
<td>Direct measurement for precision positioning</td>
</tr>
<tr>
<td>Ring Turning Chucks</td>
<td>Ground working surfaces ensure sustained accuracy</td>
</tr>
<tr>
<td></td>
<td>Reasonable space for tool clearance is provided to do face turning</td>
</tr>
<tr>
<td>Wood Working chucks</td>
<td>Safety jaw accessory mounting jaws</td>
</tr>
<tr>
<td></td>
<td>Comprehensive range of jaw set available</td>
</tr>
<tr>
<td></td>
<td>Available in a range of thread options</td>
</tr>
<tr>
<td>Back Plates &amp; Face plates</td>
<td>Comfortable without being bulky</td>
</tr>
<tr>
<td></td>
<td>Easily attaches to shoulder pads</td>
</tr>
<tr>
<td></td>
<td>Add protection for back from impacts from behind</td>
</tr>
<tr>
<td></td>
<td>Vented energy blocks disperse the impact of the force over a wide area</td>
</tr>
</tbody>
</table>

5.10.3 CUSTOMER BASE

The company’s major customers include:
1. Gamut Machine Tools, Thane
2. Soham Industrial Machinery Ltd, Surat
3. Sant Engineering Industries, New Delhi
4. Chawla Exporters, Amritsar

5.11 SWOT ANALYSIS AT ‘JMT’

Table 5.6 represents the detailed results of SWOT analysis carried at ‘JMT’, Ludhiana.
Table 5.6: SWOT analysis at ‘JMT’

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strength</th>
<th>Weakness</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
</table>
| Entrepreneurial Capability    | • Functional and flexible management.                                     | • Little career planning.                                                                                                                | • Effective handling of customer complaints                                                             | • More prone to global fluctuations  
   |                               | • Strong leadership                                                      | • Lack of formalized contractual relations with customers                             | • To gather adequate information of market trends                                                    | Lack of Quality consciousness in workers  
   |                               | • Desire to succeed                                                     | • Lack of supervision                                                                | • To share of common issues among other industry                                                       | High dependency on individual                                                                 |
| Technological Infrastructure  | • Sufficient machinery and equipment for routine operations              | • Laboratories for experimentation and subsequent analysis not available.                                                                | • To produce quality products for penetrating into new markets.                                        |                                                                                                     |
| Capability                    | • Cost effective and competitive price of product                        | • High Absenteeism of skilled labor                                                                                                      | • To recruiting skilled labor                                                                               |                                                                                                     |
|                               | • Effective communication system to interact with suppliers and customers | • Equipment not flexible to adapt market changes                                                                                         | • To modify traditional outlook of industry                                                               |                                                                                                     |
|                               |                                                                          | • Dependency on local suppliers for raw material                                                                                         | • To provide better Customer Satisfaction                                                              |                                                                                                     |
| Government                    | • Providing financial assistance in terms of investment incentives and   | • Hurdles of Law and policies influence the growth of industry  
Initiatives            | soft policy loans                                                        | • Lack of government subsidies for technology up-gradation                            |                                                                                                           | • New cost, taxes and compliances introduced by government                                                                 |
|                               | • Providing employment opportunities                                      | • High cost and unreliable power supply affecting industrial performance                                                               | • Govt. should increase number of financial institutes to resolve finance issues                        |                                                                                                     |
|                               |                                                                          |                                                                                                                                          | • To remove of regional disparity                                                                        |                                                                                                     |
|                               |                                                                          |                                                                                                                                          |                                                                                                           |                                                                                                     |
5.12 SAP ANALYSIS OF ‘JMT’

5.12.1 SITUATION

- ‘JMT’ has variety of product range. Currently nine products are manufactured and at the location.
- A group of highly dedicated and experienced employees is functioning together for manufacturing the products to fulfil customer orders.
- The unit has purchased CNC machines to compete with its competitors in the market.
- Production capacity has been increased over the last few years due to new production equipment and machinery.
- Entrepreneur at ‘JMT’ lacks in technical competencies required to handle business related tasks which require specific expertise.
- ‘JMT’ consists of skilled and experienced staff to achieve its objectives and most of them are permanently employed in the unit.
- It is difficult for management to provide job security and career development opportunity to employees as compared to competitors in the market.
- The entire decision making in the company is done by owner manager.
- Unreliable supply of power (too many cuts and that too unplanned) slows down production and most times, set targets are not met.
- ‘JMT’ is mainly dependent upon local supplies and very rarely from suppliers in other states.
- There is absence of external networks with large enterprises for accessing critical resources.
- Policy restrictions and complex procedures greatly hinder the growth of the unit.

5.12.2 ACTOR

- Management of ‘JMT’, supervisor, workforce, suppliers and customers of the industry are the ‘Actors’.

5.12.3 PROCESS

- Main raw material used in industry is GI sheets, electric control switches and gears, ducting grills and fan belts.
Testing of raw material purchased from supplier is carried out at Local testing laboratories, Ludhiana.

The manufactured units are transported thru tempos to nearest road or rail transport carrier for delivery to the customers.

Suppliers are connected to the industry by means of telephone, fax and e–mail for effective and timely communication regarding raw material requirements.

Little attention has been provided to the effectiveness of training programs at ‘JMT’ for enhancing skill and knowledge of existing employees.

Plant has its special inbuilt mechanism to convert the raw material into useful product. Each product is accompanied with process sheet–cum–drawings for effective utilization of production activities.

Production facilities at ‘JMT’ mainly include lathe machines, grinding, power saw cutting, drilling and milling machines.

Production capacity has been extended by the use CNC machines upto certain extent in recent years.

Entrepreneur at ‘JMT’ is concerned about budgeting as well as the implementation of financial strategies.

5.13 LAP SYNTHESIS AT ‘JMT’

Entrepreneur at ‘JMT’ requires the devotion of time and effort for development of the organization.

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.

To meet routine credit needs they need access to financial institution which may provide credit at a high rate.

The general management of the firm has responsibility towards the marketing and that should be guided by ‘marketing concept’. It 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.

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.
• Documentation of whole processes should be made to produce quality products and separate inspection department should also be incorporated for raw material and finished good inspection.
• Government should increase investment in universities and technical education, and put effort on industrially-relevant research and training.
• Government should raise important policy issues. There is a need for well-structured mechanisms or interfaces and intermediary agents for effective and efficient interaction between small units and research institutes.

5.14 INTRODUCTION TO ‘BHS TOOLS’, PATIALA

‘BHS Tools’ is a new company that manufactures all types of Broach and Spline Gauges. The unit is run by two partners and both of them are young and dedicated. Company manufactures a wide range of products. These products are especially of great importance to the Automobile industry.

‘BHS Tools’ believe in excellent quality control standards so that the products manufactured by the company are consistently good and meet global standards. The products are manufactured in accordance to the internationally set standards and a strict quality control check and system is implemented under the supervision of partnership of the industry during its manufacturing process. ‘BHS Tools’ is in the race of getting an ISO 9001:2008 Certificate. This certification is given by ISO which is an International Standards Organization. This organization certifies companies based on the standards of their quality management systems. ‘BHS Tools’ have manufactured and supplied products to local as well as national clients and the products have a good reputation in the market. Presently ‘BHS Tools’ are supplying Broaches to leading manufacturer of Auto parts, Motor parts, Tractor parts, OEM’s suppliers and Exporters in India

Mission Statement

‘BHS Tools’ will provide the highest-quality end products to our customers, while striving to make them the leaders in their respective industries. To guarantee our continued success we will achieve a reasonable profit, continue to be the leader in our industry through individual and combined dedication, innovation, and integrity. We will give our employees the opportunity for both personal and professional growth.
Values Statement

- Act with honesty and integrity
- Treat people with respect
- Conduct all business lawfully
- Accept individual and corporate responsibility
- Strive for customer satisfaction
- Improve and innovate continuously
- Never be wasteful
- Always work effectively and efficiently
- Friendly working environment

5.14.1 PRODUCT RANGE

Round Broach
Round Broach is a tool required for producing a circular hole of required dimension with accuracy from a pre–bore hole of the component Manufactured from the high quality raw materials.

Involute Spline Broach
The Involute Spline Broach is ideally designed to be used to produce internal Involute profile. Additionally, customers are eased with the availability of the Involute Spline Broaches in varied specifications meeting the international quality norms.

Straight Spline Broach
Straight Spline broaches are different to Involute spline broach other than the profile of spline. In Involute spline the gear nomenclature is used where as in straight spline, the teeth are longitudinally cut along with the axis of broach.

Straight Serration Broach
Straight Serration Broach is a tool that is used to produce straight–sided V–Groove profile, equally spaced in an inner circular periphery from a pre–bore hole of the component. Push & Pull Type Serration Broach are produced and are non–corrosive in nature that assures long lasting life.
**Keyway Broach**

Keyway Broaches (With or Without Chamfer) are manufacturers and Suppliers in India. Keyway Broach is a Push or Pull type broach used to produce a rectangular slot with or without chamfer of specific dimension in a pre–bore component. Standard Keyway Broach is available in a variety of dimensions to match the different needs of the clients.

**Rectangular Broach**

The Rectangular Spline Broach is also known as Poly Flat Broach and is used to cut the specific form. Additionally, Multi–Side Cutting Rectangular Broach is available.

**Surface Broach**

Surface Broach is an external broach, which cuts a flat or contoured surface and is used for processing the surface of specially shaped parts. Vertical Surface Broach assures high performance and low maintenance.

**Gauges**

‘BHS Tools’ has optimum quality manufactured Industrial Spline Gauges to check and to ensure the correct location of internal profile. Spline Gauges are manufactured from the finest quality raw materials to add strength.

**5.14.2 CUSTOMER BASE**

The company’s major customers include:

1. DMW, Patiala
2. Nicks Auto Industries, Ludhiana
3. Bajaj Sons, Ludhiana
4. Aggarwal Iron Industries, Jallandhar
5. Bhaseen Industries Pvt. Ltd., Jallandhar
6. Venus Industrial Corporation, Ludhiana
7. Sidh Tools Ltd., Ludhiana

**5.15 SWOT ANALYSIS AT ‘BHS TOOLS’**

Table 5.7 represents the detailed results of SWOT analysis carried at ‘BHS Tools’, Patiala.
Table 5.7: SWOT analysis at ‘BHS Tools’

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strengths</th>
<th>Weakness</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrepreneurial Capability</strong></td>
<td>• Family like environment in the organization&lt;br&gt;• Proprietors having sufficient experience regarding routine operations</td>
<td>• Imperfect knowledge of market conditions&lt;br&gt;• Inadequate attention to marketing strategies.&lt;br&gt;• Lack of planning for starting new projects</td>
<td>• To make use of different planning tools&lt;br&gt;• To make interaction with external research institutes for development projects.</td>
<td>• Stiff competition with imported low priced alternatives.&lt;br&gt;• Customers differ in terms of their needs, preferences and buying capacity, therefore it becomes necessary to divide the total market into different segments.</td>
</tr>
<tr>
<td><strong>Technological Infrastructure Capability</strong></td>
<td>• Good range of products manufactured at the unit&lt;br&gt;• All the equipment and machinery are new and in good condition</td>
<td>• Lack of financial strengths&lt;br&gt;• Poor technology base&lt;br&gt;• Under utilization of available capacity&lt;br&gt;• Lack of use of information technology</td>
<td>• To implement finance management strategies&lt;br&gt;• To increase variety and range of products&lt;br&gt;• To introduce new type of production processes</td>
<td>• To retain competent manpower&lt;br&gt;• Escalating prices of raw materials.&lt;br&gt;• Wide gaps exist between technologies used by the unit and large firms.</td>
</tr>
<tr>
<td><strong>Government Initiatives</strong></td>
<td>• Government–funded research centers and universities for small scale sector.&lt;br&gt;• Providing free or subsidized information advice or consultancy and/or special treatment in relation to government regulations</td>
<td>• Lack of capital subsidy schemes by government for technology upgradation in small scale sector.&lt;br&gt;• Delivery delays caused by slow government procedure.&lt;br&gt;• Policy restriction and complex procedures greatly hinder the growth of small firms</td>
<td>• To provide data on scientific and totalities of the new technological trends, and networking, both nationally and internationally.&lt;br&gt;• Labor laws should be revised and combined into a single legislation&lt;br&gt;• Reforming the policies and simplifying regulations for boosting the growth of small–scale sector.</td>
<td>• Government is not paying much attention towards factors related to transport, market information, credit, power, water, telecom, technology upgradation and quality certification.&lt;br&gt;• Interest rates on plant and machinery loans extremely high.</td>
</tr>
</tbody>
</table>
5.16 SAP ANALYSIS OF ‘BHS TOOLS’

5.16.1 SITUATION

- ‘BHS’ Team strength is of 11 people converting raw material into useful output as ‘Broach’. Eight workers and two partners and one helper are working on full pace for manufacturing unit.
- Most of the workers are either on contractual basis or working as casual labour.
- Conventional machining equipments and tools are used to manufacture the broaches. Four lathe machines, one surface grinder and two cylindrical grinders are used for operations from rough sizing to finish sizing of broaches.
- There is only one spline machine for producing spline on broaches. One profile projector is used for verification of profiles of teeth of broaches.
- All the machinery is old and bought as second hand from local market.
- Unit is situated beyond the industrial area in focal point. This manufacturing unit got established in a residential type plot due to constraint of budget.
- The unit is equipped with diesel operated electric generator set for smooth supply of power.
- Production capacity of unit is following positive trend and increased from 23 numbers of broaches per month to 68 numbers of broaches per month in the past three years.
- Working hours of the unit depends entirely upon the production orders. Shortage of orders squeezes the timing of working hours. However over time payment is also given if working hours extended beyond the normal timing. About Rs. 1800/– to Rs. 2800/– overtime is paid on monthly basis.
- There is a lack of mutual co–operation among all the small scale industrial competitors for sharing issues and inventions which led to their loss of information and ideas regarding weaknesses.
- The structure of the unit is not appealing and is un–organized.
- The unit faces the lack of guarantors to obtain loans for its development in various aspects like infrastructure, layout, technical up–gradation etc. Banks and financing agencies tend to be over demanding in terms of security.
- Market offers tough competition for ‘BHS Tools’ as there are several old and established broach manufacturing units such as ‘Steelmans India’, ‘Techcellence india’ and ‘Broach India’ etc are also located nearby.
• Government policies are not much effective to generate resources for small units. These policies do not promote growth of the employment and other technological gains.

5.16.2 ACTOR
• Management of Partners, one foreman, supplier of the industries and work force are working as ‘actors’.

5.16.3 PROCESS
• The unit has installed full set of machinery for proper functioning of production activities. The task of rough work and finish sizing is carried out under the one roof.
• Heat treatment of material is carried out at local facilities and is outsourced.
• The designing of product is also outsourced. The designing software is yet to be purchased and installed.
• Major parts of operation are dependent on lathe machine and cylindrical grinder. These machines are very old and maintenance cost is increasing every year.
• The entire products are checked at final stage. There is dependency of quality over the operator for what he has produced during in–process.
• Regulatory environment is absolutely responsible for shortage and high price of raw material for small scale industry.
• The unit is not equipped with any information system, costing system and other high technology innovations to enhance productivity.
• The attendance and punctuality of workers is recorded by using traditional methods. Various types of relaxations are sought by operators which reduce productivity and affect the team working spirit.
• Mostly, the delivery of finished goods is done during late evenings which usually stretch the work hours.
• Uninterrupted power supplies are not possible due to regulatory conditions and therefore diesel generator set has been installed to get alternate supply of power.

5.17 LAP SYNTHESIS IN ‘BHS TOOLS’
• There are lots of challenges for BHS Tools to such as marketing and promoting the unit among the competitors, customers and markets. The order book can only be loaded with the help of good marketing skills.
• There is a lot of opportunity for the unit to get established in domestic and international market. The unit has to put extra efforts in R&D, manufacturing processes and technology infrastructure.
• Qualified professionals in designing, financial management etc. are required to make the unit competitive in national/international markets.
• Government policies and supports can be utilized to get fruitful results. Government has various schemes which can match the requirement of the particular unit to get established in the market. The unit has extra flexibility, concentrations and internal communication.
• The unit lacks in reliable and efficient infrastructural facilities such as power, transportation, information and communication and technical inputs. A lot of actions are required to be taken regarding these aspects.
• Various types of incentives and reward schemes should be introduced among employees so as to create positive working spirit in the unit.
• Documentation of records should be introduced for effective control and execution of quality phenomenon.
• There is lack of planning, resource allocation and developing innovations in the unit. The unit needs to develop and implement a technology strategy in addition to financial, marketing and operational strategies.
• Government should make provision of a central distribution system for small scale units to purchase raw material at reasonable prices with concessions and duty benefits made available to such centres.
• Collaboration with large organizations can provide resources, in the form of finance or expertise, as well as future sales and international opportunities.

5.18 SUGGESTIONS AND RECOMMENDATIONS

The following section presents some suggestion and recommendations for entrepreneurs, financial institutions and government to resolve various issues related to problems faced by MSMEs.

5.18.1 SUGGESTIONS TO THE ENTREPRENEURS
• The entrepreneurs should take proper training through the government and non–governmental agencies before starting a unit; this enables the entrepreneurs to protect their units from sickness.
• The entrepreneurs should employ latest techniques of production and skilled labour so as to improve the quality of the products and marketing.

• As the competition is found to be a major problem in many units, the entrepreneurs should try to divert to less competitive areas and before they venture, they should analyze the demand.

• Low level of education should not deter one to start an industrial venture, though; it is a fact that people with higher educational levels are finding their entry into industry easier. Moreover, higher the level of education, the greater is the chance to start a venture as a first generation entrepreneur.

• The spread of schooling has cut across the business of religion. None of the entrepreneurial religions are placed in a disadvantageous position, by comparison.

• Low level of parental education does not prove hindrance to entrepreneurship.

• Urban background is not a pre–condition of industrial entrepreneurship.

• What is an ambition for one entrepreneur may be a compulsion for another. It is the entrepreneurs' attitudes that ultimately make the difference.

• Previous experience in manufacturing and encouragement of family members / relatives / friends facilitates entrepreneurship.

• Ambitions motivate men. It activates men, broaden their vision and make the life more meaningful.

• Many of the entrepreneurs expect a lot from the state government and other non–government agencies. But never expect its exact fulfilment.

• Previous experience or employment in the industry should form a basis for selecting the right type of industries.

• For starting a venture, the availability of enough finance is the most important factor. Without it, the idea to start business or venture will always remain a simple wish.

• One should have some basic and essential managerial skills in the functional areas like finance, production and marketing for entering into industrial entrepreneurship.

• Labour should be given full opportunity of being trained. The problem of absenteeism of labour needs to be looked into with a humane approach. There should be employer–employee friendly relationship inside the industrial unit.

• Entrepreneurs need to re–think about their banking habits. Banks are here to help the entrepreneurs but it does not mean that these helps from the banks are taken for granted. Timely repayment of bank loans is the need of the hour.
• The small scale industrial units should maintain proper books of accounts. Statutory obligation should be imposed on the units to maintain and prepare their books of accounts by professional accountant.

• Everyone cannot be a successful entrepreneur. An individual must have certain values and traits to be a successful entrepreneur. The traits and values are need for achievement, need for power, positive work value; moderate job anxiety, risk taking propensity, internal control orientation, high level of aspiration and preference for participative and nurturing–task styles of leadership.

5.18.2 SUGGESTIONS TO THE GOVERNMENT

• The government must provide efficient and effective consultancy services to the entrepreneurs.

• Unhealthy competition among the small units as well as large units should be discouraged as far as marketing problems are concerned. The state government needs to be active in this regard. As a sign of encouragement to local entrepreneurs, government departments should procure products produced by these entrepreneurs.

• Raw–material banks needs to be opened up in states. Scarcity of raw–materials and their high prices as a result of it are the main problem of raw–materials.

• Both the central and state governments should give wide publicity so as to reach the information to all the entrepreneurs about policies, incentives, schemes, programmes, etc., relating to small scale industry.

• Arrangements may be made by the government to ensure the supply of trained and professional managers for the small scale sector.

• To facilitate the MSME sector to garner resources, it is imperative that a separate trading exchange be set up exclusively for the MSMEs.

• Provide special incentives for encouraging larger flow of Venture Capital & Private Equity funds into the sector.

• There is an urgent need to devise measures to tackle the problem of loss of fiscal benefits when the micro and small–scale units graduate into larger units, etc.

• Unutilized capacity of an industry is an index of its problems and all the problems faced by industry leads to underutilization of installed capacity. Power scarcity is the main reason for underutilization of capacity. Every possible step should be taken to improve the power condition of the state on priority basis.
As far as possible, in order to reduce the competition from the large sector, the small scale industrial units should operate in the areas reserved for them. Similarly, more number of items should be reserved for the exclusive production of the small scale sector.

5.18.3 SUGGESTIONS TO BANKS AND OTHER FINANCIAL INSTITUTES

- Banks and other financial institutions must undertake a careful project appraisal before assisting an industrial unit. At the same time, financial transactions of their clients must be closely monitored by sending questions and information instead of just receiving periodical but out dated returns from them.
- Banks must supervise the assisted units relating to debit and credit balances, forwarding and made to sister concerns, relatives etc.
- Application procedures and approval criteria should be made simple and quick loan approvals should be done at the branch level.
- One or two staff members of the banks and other financial institutions must be always in charge of periodical inspection of the assisted units so as to ensure its efficiency and proper review of production schedules, stock of raw materials and finished goods.
- The financial agencies must treat loan seekers as customers and not beggars.
- The level of confidence of both entrepreneurs and bankers can be improved by constant follow-up and monitoring. It will help in developing a feeling of partnership among bankers and entrepreneurs in the growth of small enterprises.
- Any sort of discrepancies in collecting information or from the unit should not be tolerated. The service of efficient financial analysts must be available to each bank branch at short notice.
- Timely and adequate finance extending up to the operational cycle of the activity must be available to the entrepreneurs.
- As a general rule, banks and other financial institution must nominate directors in the industrial units, more particularly those which are likely to detect sickness.
- Utmost care must be taken in financing stocks of raw materials and finished goods which are often affected by sharp price fluctuations.
- The commercial banks and financial agencies may establish more small scale industrial specialized branches at least one in every district head quarters to cater to the financial needs of small entrepreneurs.
• In case of overdrawing, the assisted firms needs to be suggested about its underlying problems and should also be ensured that remedial measures are initiated.

• Banks needs to be extra careful when they have to provide large funds to neglect and priority sectors. Such lending should not be at the cost of financial prudence.

• Banks need to re–think about their loan giving policies to the entrepreneurs. Shortage of working capital is the main factor responsible for slow commencement of an industrial unit. So, proper handling of this problem is very important.

5.19 CONCLUDING REMARKS

Case studies have been conducted in four small scale manufacturing organizations which are engaged in the process of adopting technology innovation. The role of technology innovation initiatives in enhancing manufacturing performance has been analyzed in selected class of industry. The technology innovation initiatives such as entrepreneurial capability, technology infrastructure capability and government initiatives have been examined to understand and assess their role in achieving manufacturing performance.

The practical difficulties and constraints faced by the small firms due to globalization and dynamic market environments with necessity of technological innovation have also been examined. It has been observed that effective implementation of TIIs effectively contribute towards enhanced manufacturing performance despite numerous problems faced by small firms. Learning issues for each case study has been synthesized and recommendations/suggestions are also made.