

# Procurement Strategy for Micro Small and Medium Enterprises: Design Thinking Approach

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## Abstract

Design thinking is a human-centric approach that can be applied to Product Design, Processes, and Service Delivery. In recent times design thinking has gained importance for Strategy formulation and innovation in business. Many larger organizations like Apple, Nike, IBM, and UBER have already adopted this approach for their business transformation and strategy implementation. Micro, Small and Medium enterprises are lagging behind the best practices of Strategy in Procurement. Many Organizations procure items on an ad hoc basis which will increase the cost of manufacturing. Due to Covid-19, the conflict between Russia and Ukraine supply chain disruption is taking place across the globe. Inflation, political uncertainty, commodity price rise, and oil price hikes impact the profitability of Medium, Small, and Microenterprises. Micro Medium and Small enterprises can be gained by adopting the design thinking philosophy in their business to transform into the next level in Procurement Strategy and leverage competitiveness. Empathy Study is the starting point to understanding customer experiences. An attempt is made to understand the pain points and gain points by using a Business Canvas Model to interview the 10 organizations as a pilot study. A field study was conducted on Micro, Small, and Medium Enterprises in India between February 2022 to April 2022. From this field study, insight into the procurement process of Micro Small, and medium enterprises has arrived. This study can be further enhanced for a larger population to get insights into Procurement Strategy in Micro, Small, and Medium Enterprises in India and find out the research findings.

## Keywords

Procurement Strategy, Supply Management, Design Thinking, Innovation, Business Transformation.

## 1. Introduction

Business is not as usual as we think in the past. Lots of uncertainty, risk, and disruption in supply chain management hampers the progress of Organizations. Many Strategies are adopted based on the historical data and predict the future, which is no longer valid. There is an interrelation between people's emotions, processes, events, and ideas. In his book *The Science of the Artificial* (1969), Professor from Carnegie Mellon University, USA, Herbert Simon described the idea of design as a way of thinking. He distinguished between critical thinking as an analytical approach for breaking down the process and the design-centric mode of thinking as a process of building up ideas. The design thinking approach made attention from all World for business transformation. Design thinking is a problem-solving technique to balance needs and feasibility. The design thinking approach is not only limited to designers and can be applied to people's information behavior, helps in finding out the critical gaps, and identifies the risk. Table 1. Shows the paradigm shift in the way of thinking from a management perspective

Table 1. Design thinking in a Management Perspective

| Sl, No. | 20 <sup>th</sup> Century      | 21 <sup>st</sup> Century      |
|---------|-------------------------------|-------------------------------|
| 1.      | Scale and Scope               | Speed and fluidity            |
| 2.      | Predictability                | Agility                       |
| 3.      | Rigid Organization Boundaries | Fluid Organization Boundaries |
| 4.      | Command and Control           | Creative Empowerment          |
| 5.      | Reactive and Risk-averse      | Intrapreneur                  |
| 6.      | Strategic intent              | Profit and Purpose            |

|    |                       |                       |
|----|-----------------------|-----------------------|
| 7. | Competitive advantage | Comparative advantage |
| 8. | Data and Analytics    | Synthesizing Big Data |

According to **Idris Mootee**, design thinking is defined as *A search for a magical balance between business and art, structures and chaos, institution and logic, concept and execution, playfulness and formality and control empowerment.*

More than 80% of the management tools and techniques are not for value creation and capture. Most of the strategies for the past 30 years are not created any economic value. A multidisciplinary approach for problem-solving with design thinking identifies the gaps and deficiencies. The following are the ten design thinking principles that redefine business management.

1. Action-oriented
2. Comfortable with change
3. Human Centric
4. Integrates Foresight
5. A Dynamic, constructive process
6. Promotes Empathy
7. Reduces Risks
8. Creative meaning
9. Bring enterprise creativity to the next level
10. Competitive logic of Business Strategy

According to **Tim Brown**, Executive Chair, IDEO, *Design thinking is a human-centered approach to innovation that draws from the designer's tool kit to integrate the needs of people, the possibility of technology, and the requirements for business success.*

The design thinking approach can address the problem solving of the (Linda Naiman, Founder of Creativity at work) business environment viz.

1. Redefinition of value
2. Business Models reinventing
3. Marketing behaviors and shifting markets
4. Culture change in the organizations
5. Complex societal challenges

Figure 1 shows how the research is so complicated and converted into clarity using a design thinking approach to deliver an innovative solution in a processor design (Figure 1).

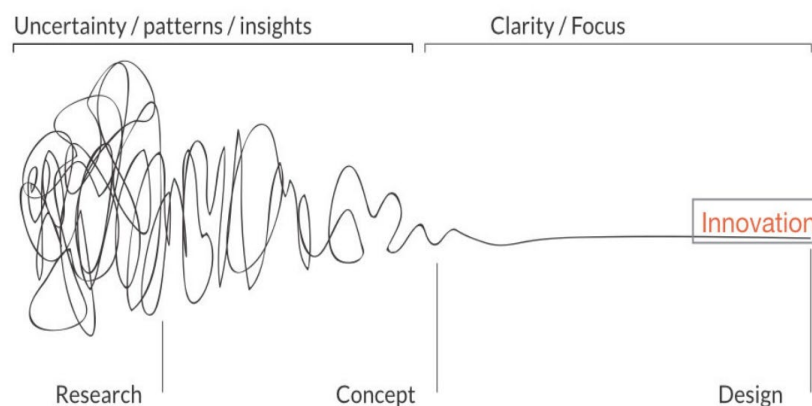


Figure 1. Design thinking as a Strategy for Innovation (Source: Linda Naiman)

When design integrates with strategy and innovation, the success rate dramatically improves. Apple, IBM, SAP, and Pepsi outperformed by adopting this approach. The following steps are involved in Design thinking according to the Stanford Design thinking model (Figure 2).

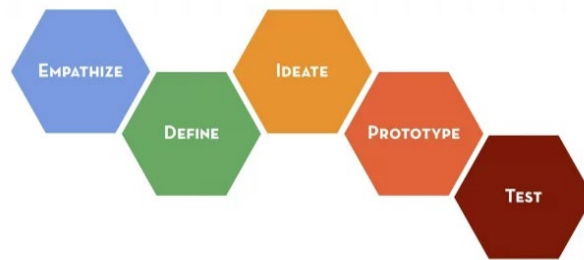


Figure 2. Design Thinking Process

**1. Empathize:** Deep understanding of the user needs and context by conducting the empathy study. At this stage, we can find out what the user wants, and the challenges faced by the user. A survey method and interview technique can be used in this stage.

**2. Define:** Based on the empathy study, the next step is to define the problem. The problem statement should be human-centered and provide guidance and support.

**3. Ideate:** Many ideas are generated at this stage. We can use the brainstorming method or reverse thinking approach at this stage. We can select the best picture out of the many ideas generated.

**4. Prototype:** At this stage, we can design a model. The model can be a paper or interactive or digital or physical model, or a process.

**5. Test:** At this stage, test the prototype, and based on the user feedback revised model can be developed and come up with a new idea.

There is a difference between the Business approach and the design approach. Table 2. shows the difference between the Business thinking approach and the Design thinking approach (adopted from Alexander Osterwalder, March 16, 2016, Strategyzer), which is the basis for the business transformation process in supply chain management and to mitigate the risk by adopting the best procurement strategy. Design thinking is an iterative process where we can continue evolving with customers. The analysis can be done by direct objection and abductive reasoning approach we can get the information. The process continuously evolves the customers.

Table 2. Business approach vs. Design thinking approach

| S.No. |                          | Business Approach  | Design approach   |
|-------|--------------------------|--|---|
| 1.    | Problem Solving approach | Definitive. It relies on equations for Proof.  | Iterative. It relies on a 'build to think process dependent on trial and error. |
| 2.    | Validation through       | Customers say: often a combination of qualitative (focus groups) and quantitative(surveys) research. | What customers do: often direct observation and usability testing.              |
| 3.    | Informed by              | Market analysis and aggregate consumer behavior  | Direct consumer observation and abductive reasoning (What might be')            |
| 4.    | Completed                | Completion of the Strategy phase marks the start of the product development phase.                   | Never: Continually evolving with customers.                                     |
| 5.    | Focused on               | An understanding of the results of customer activities.  | A version of customer activities.   |

|     |  |   |  |
|-----|--|---|--|
| 6.  | Tools used to communicate strategic vision | Spreadsheets and PowerPoint decks                   | Prototypes, films, and scenarios.  |
| 7.  | Described through                          | Words (often open to interpretation)                | Pictorial representations and direct experiences with prototypes.  |
| 8.  | Team members                               | Vertical expertise and individual responsibilities. | T Shaped Expertise: a principal vertical skill and a horizontal set of secondary skills. Collaborative(team) responsibilities. |
| 9.  | Work patterns                              | Permanent jobs, ongoing tasks, and fixed hours      | Temporary projects with associated tasks and flexible hours.   |
| 10. | Reward Structure                           | Corporate recognized based on the bottom line       | Peer recognition is based on the quality of solutions.   |

### 1.1 Objectives

The objective of this research is

- a) Analysing procurement practices in Micro, Small, and Medium Enterprises (MSME) in India.
- b) Understand the present procurement procedures in the MSME sector
- c) Analysis of Procurement strategies adopted by the MSME sector
- d) Analysis of the effect of the procurement process on profitability in the MSME sector
- e) To find the effect of procurement strategies on overall performance in the MSME sector.

## 2. Literature Review

Design thinking is a human-centric approach. This approach has been applied in many organizations. In recent times this approach is adopted for Strategy Innovation for business. Due to the Pandemic, many medium and small enterprises have suffered a loss due to business loss and uncertainty in business due to disruption in the supply chain. Leidka, (2018) emphasized Design thinking is an iterative process, a human-centric approach that prototypes multiple teams to make multiple solutions. Arnold, (1962) used this approach for user feedback in a software seminar. IDEO has used this approach for 25 years in business. Stickdorn et al, (2011) explained the importance of the design thinking approach in service design and innovation management. Rigby et al, (2018) explained about design thinking approach in Strategic management. Golsby-Smith, (2017) explained the new methods of strategic work and proposed design thinking as a new management practice. Martin, 2019 explained the difference between analytical and intuitive thinking and understanding the present and future design. Pillai et al, (2020) explained the application of the design thinking approach to the strategic thinking process for all spheres of economic activities. Lund Storm et al, (2018) described about the human factor as a pivotal aspect of strategy building and implementation. Micheli et al, (2020) illustrated building empathy and co-creation with the user are the main attributes of the design thinking approach. Knight et al, (2020) explained an in-depth understanding of the target segment and creating new opportunities for design value.

## 3. Methods

**3.1 Business Model Canvas:** This model was invented by Alex Osterwalder of Strategyzer. This is made up of nine building blocks that show how the company intends to deliver value and make money. These nine blocks are covered in three central business areas desirability, viability, and feasibility. It acts as a blueprint to prepare a Strategy for implementing a new product design, process, or System. Figure 3. shows the Business Model Canvas Temple, which consists of nine building blocks (Figure 3).

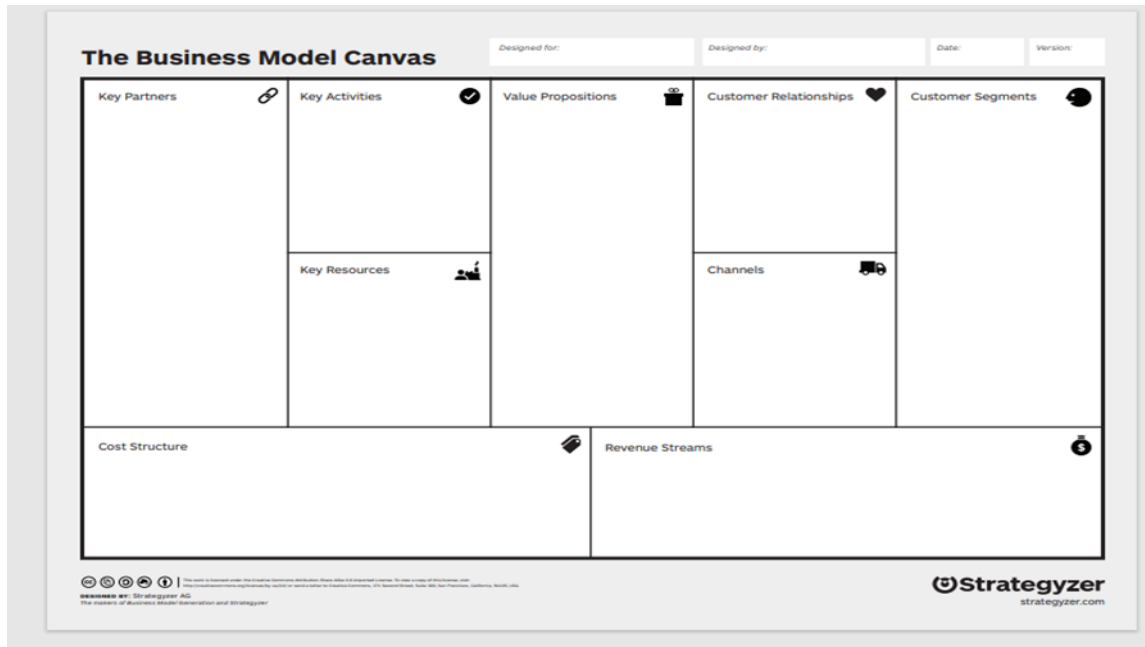


Figure 3. Business Model Canvas (Courtesy: Strategyzer)

Figure 4. shows the relationship between Feasibility (Can We Deliver it?), Desirability (Do customers want it?), Viability (What is it worth?) and the nine building blocks of the Business Canvas Model



Figure 4. Business Components of Business Canvas Model (adopted from Strategyzer)

### 3.2 Desirability

#### A) Value Proposition

This block describes the value delivered to the customers by an organization. The value proposition may be qualitative or quantitative. This may be price, speed of delivery, customization, a new design, or a unique process. Customer satisfaction is the prime objective of this block.

**B) Customer Segments:** This block describes the various customer segments where the product or service is distributed. The customers may be mass, niche market, segmented, or diversified. From this block, we can identify potentially profitable customers.

**C) Channels:** This block describes the various distribution channels where the product or service is distributed. The organization may be selling the products directly to the customers or through authorized selling agents or distributors. It identifies the customer experiences and customer touchpoints.

**D) Customer Relationships:** This block will identify how the company maintains its relationship with customers. The customer relationship may be transactional, long-term, human interaction, dedicated personal representative, or automated service. It identifies the specific customer profiles.

### **3.3 Viability**

**A) Revenue Stream:** This block describes how the company generates profits. This block indicates how much cash will be developed through a product or service. Revenue will be developed through asset creation, by collecting user or subscription fees like amazon prime, licensing or advertising a particular product or brand

**B) Cost Structure:** This block is essential how the costs incurred for creating a Product or a Service: the fixed, variable prices, transportation and distribution, and premium value creation through specific customers.

### **3.4 Feasibility**

**A) Key Resources:** This block describes the most important assets required to create a valuable product or service. Essential resources are human resources, Intellectual Property Rights, Physical assets like buildings, machinery, and manufacturing process, and financial resources like bank credit.

**B) Key Activities:** These activities may include developing software, new product design, supply chain management, developing superior quality products, coming up with a unique solution, or networking in a business.

**C) Key Partnerships:** This block describes the business partners like suppliers, distributors, the strategic alliance between competitors, joint ventures, Supplier Management, sub-vendors, or outsourcing agencies.

## **4. Data Collection**

By using a 9-block Business Canvas Model template, a structured questionnaire was designed to understand the empathy of the Micro, Small, and medium enterprises. This study was conducted between February 2022 to April 2022 in India. A survey method is adopted for conducting this qualitative research work. The following questions are designed to get insights into the business process conducted by MSME enterprises. The sample questionnaire is designed block-wise to understand the Who is Key Partners, the Key activities, what are the key resources, the Value Proposition of the company, Company cost structure, Customer relationship, Channels of distribution, who are customer segments and their Revenue Stream in the Business Model Canvas illustrated in Figure 5. This set of questions is asked while interacting with the Medium, small, and micro-enterprises while conducting the interview (Figure 5).

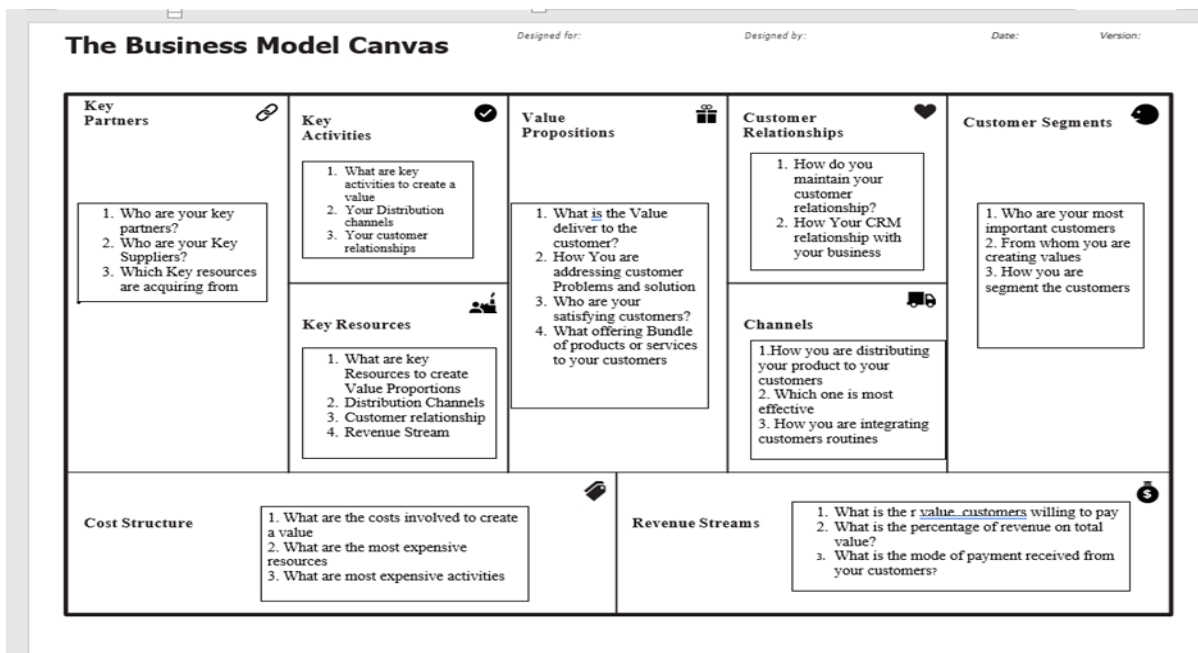


Figure 5. Business Model Canvas with Set of Questionnaire

## 5. Results and Discussion

### 5.1 Case Study 1: Business Canvas Model - Optomech Engineering, Hyderabad, India

Optomech engineering is a light engineering company manufacturing optical measuring instruments and measurements. The company was established in 1981, and the turnover is about 10 crores as of 2021-22. The company employs 40 people. The interview was conducted on February 25, 2022. The following are the outcome of the empathy study (Figure 6).

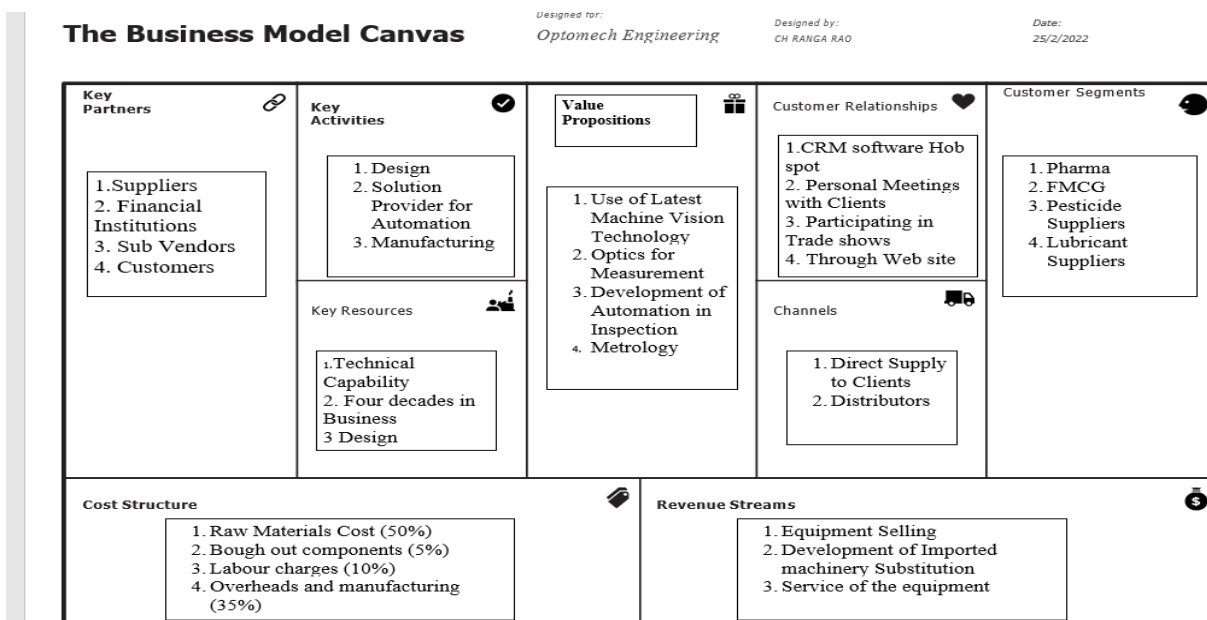


Figure 6. Business Canvas Model- Optomech Engineering

Table 3 shows the Pain points, Gain Points, and Purchase Strategy adopted by Optomech Engineering; Hyderabad is illustrated.

Table 3. Pain Points, Gain Points, Purchase Strategy-Optomech Engineering.Hyderabad

| Pain Points  | Gain Points   | Purchase Strategy   |
|--|---|---|
| <ol style="list-style-type: none"> <li>1. Availability of a trained workforce is a challenging</li> <li>2. Retain the trained workforce is a challenging</li> <li>3. Fright Cost is increased by 100%</li> <li>4. The cost of raw materials is increased by 50%</li> <li>5. Commodities are increased double the rate</li> </ol> | <ol style="list-style-type: none"> <li>1. Material-wise, no shortage due to better planning</li> <li>2. Good Vendor Development</li> <li>3. Prompt sales and services</li> <li>4. Unique solutions to customers by developing special purpose machines in substitutes for imported machinery</li> <li>5. Use of Latest Machine Vision Technology</li> </ol> | <ol style="list-style-type: none"> <li>1. Separate Purchase and Stores Department</li> <li>2. Materials advanced Planning</li> <li>3.No Materials Shortage</li> <li>4. Adequate Inventory Control</li> <li>5. Good Number of Sub Vendors</li> <li>6. When the inhouse capacity does not meet the requirement</li> </ol> |

### 5.2 Case Study 2: Business Canvas Model - High-End Fan Manufacture (Company does not want to disclose its name)

The company was established in Bangalore in the year 2012. The company manufactures high-end customized decorative fans. The company employs 40 people. The turnover is about 40 crores in the year 2021-22. The interview was conducted by telephone on March 9, 2012. The empathy study outcome of the study is illustrated in Table 4. Figure 7 Shows the Business Canvas Model-High end fan manufacturer (Figure 7).

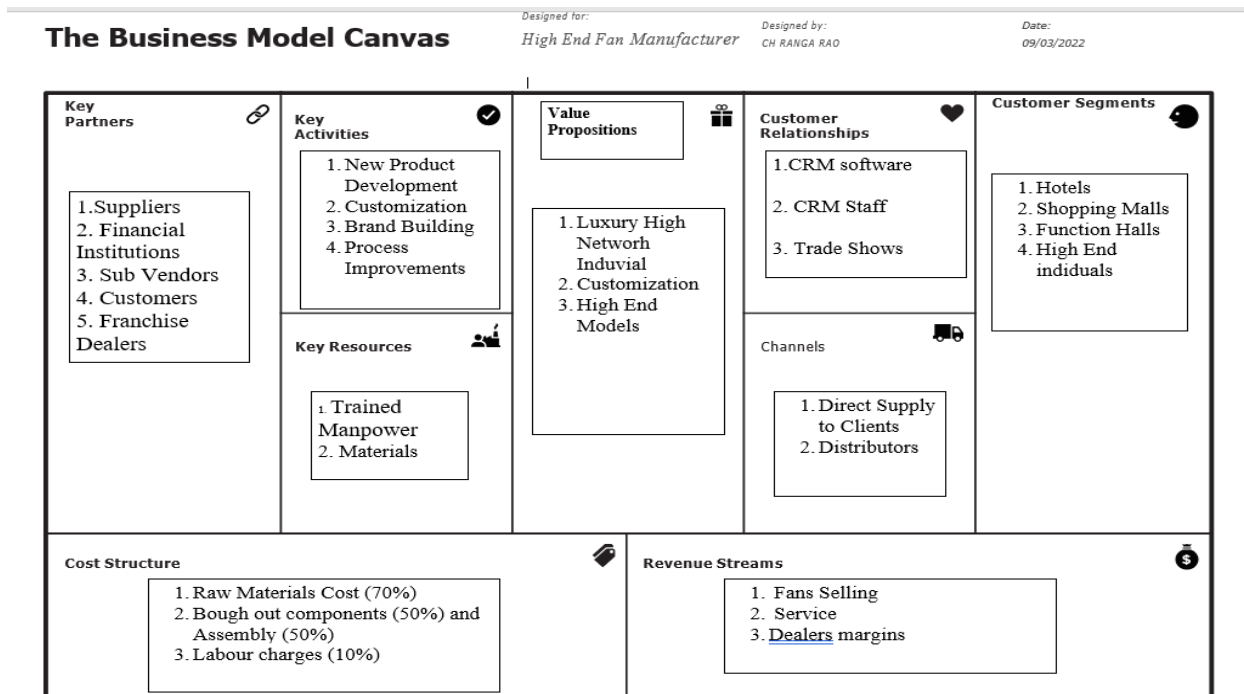


Figure 7. Business Canvas Model- High-End Fan Manufacture



Table 4. Pain Points, Gain Point, Purchase Strategy-High End Fan manufacturer

| Pain Points   | Gain Points  | Purchase Strategy   |
|---|--|---|
| <ol style="list-style-type: none"> <li>1. Impacted due to Covid-19</li> <li>2. No Government Support</li> <li>3. Logistics Cost is a problem</li> <li>4. Introduction of GST by the Government</li> <li>5. Components shortage from Imported suppliers</li> </ol> | <ol style="list-style-type: none"> <li>1. Good Customer Relationship</li> <li>2. Brand Loyalty</li> <li>3. Repeated Customers</li> </ol> | <ol style="list-style-type: none"> <li>1. 1.6 months in advance Materials Planning</li> <li>2. Dedicated Procurement Staff</li> <li>3. 50% of the items are imported remaining in Factory production</li> </ol> |

### 5.3 Case Study 3 Business Canvas Model: Tool-Tech- Hyderabad, India

Tool-Tech is a diversified engineering company established in 1990. The company initially started manufacturing the tools and dies. Later they are diversified into dairy equipment, water treatment plants, and food processing machinery. The company employs 30, and the turnover is five crores as of 2021-22 (Figure 8). The interview was conducted on April 22, 2022. The following are the gist of points are derived from the empathy study. Figure 8 shows the Business Canvas Model for Tool-Tech, Hyderabad. The pain points, Gain Points and Purchase Strategy are illustrated in Table.5.

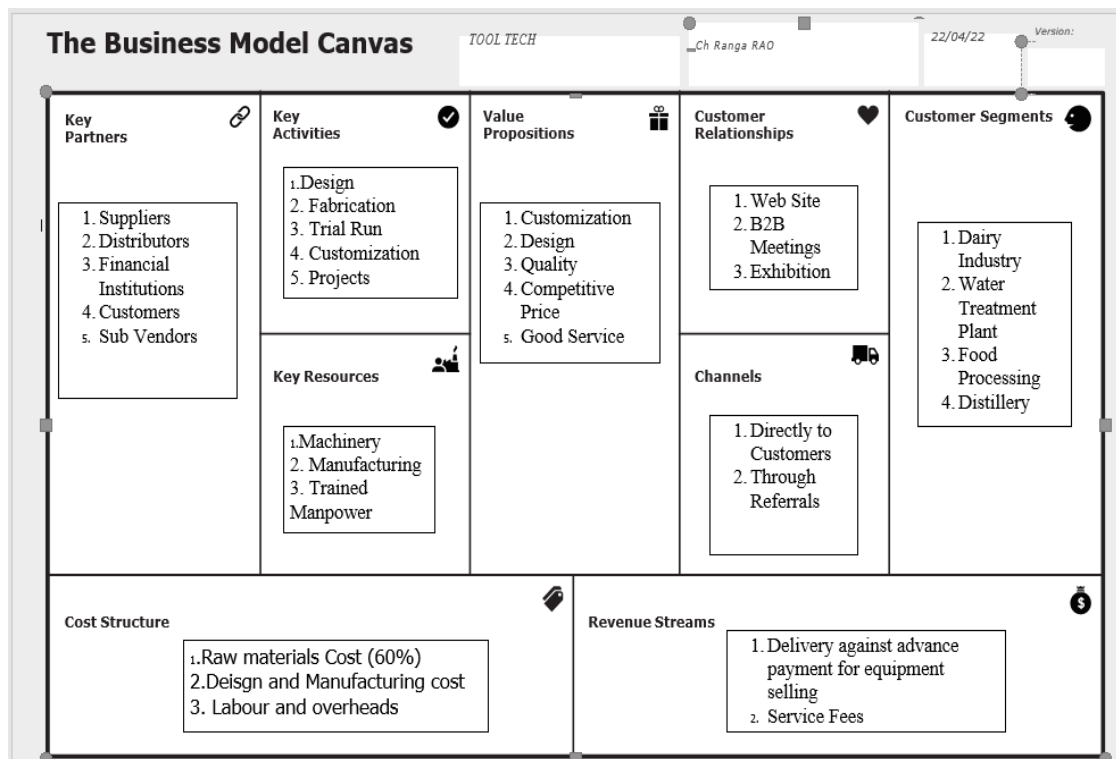


Figure 8. Business Canvas Model-Tool Tech, Hyderabad.

Table 5. Pain Points, Gain Points, Purchase Strategy (Tool Tech, Hyderabad)

| Pain Points | Gain Points | Purchase Strategy |
|-------------|-------------|-------------------|
|-------------|-------------|-------------------|

|   |  |   |
|---|--|---|
| <ol style="list-style-type: none"> <li>1. Unhealthy competition</li> <li>2. Unorganized Sector</li> <li>3. Raw materials costs fluctuate 100 to 200%</li> <li>4. Labour shortage</li> </ol> | <ol style="list-style-type: none"> <li>1. Quality Product</li> <li>2. Brand Image</li> <li>3. Repeated Customers</li> <li>4. Good after-sales and service</li> </ol> | <ol style="list-style-type: none"> <li>1. Materials are procured in the spot market as per orders</li> <li>2. There is no materials planning</li> <li>3. Vendor Development is not maintaining</li> <li>4. Cost is overrun due to fluctuations in the stainless-steel plates, which are the critical resource for fabrication</li> <li>5. There is no consolidation of materials required for six months to one year</li> </ol> |
|---|--|---|

**5.4 Case Study: Business Canvas Model: AOF Filtration Systems, Hyderabad.**

AOF filtration systems manufacture various types of filters used in Water treatment, oils, lubricants, and Process industries. The company was established in the year 2002 and the company turnover is around 5 crores as of the 2021-22 financial year. The company employs 20 people. The following are the final gist of the meeting points after the empathy study which was conducted on March 9, 2022. The Business Canvas model for AOF Filtration Systems is described in Figure 9.

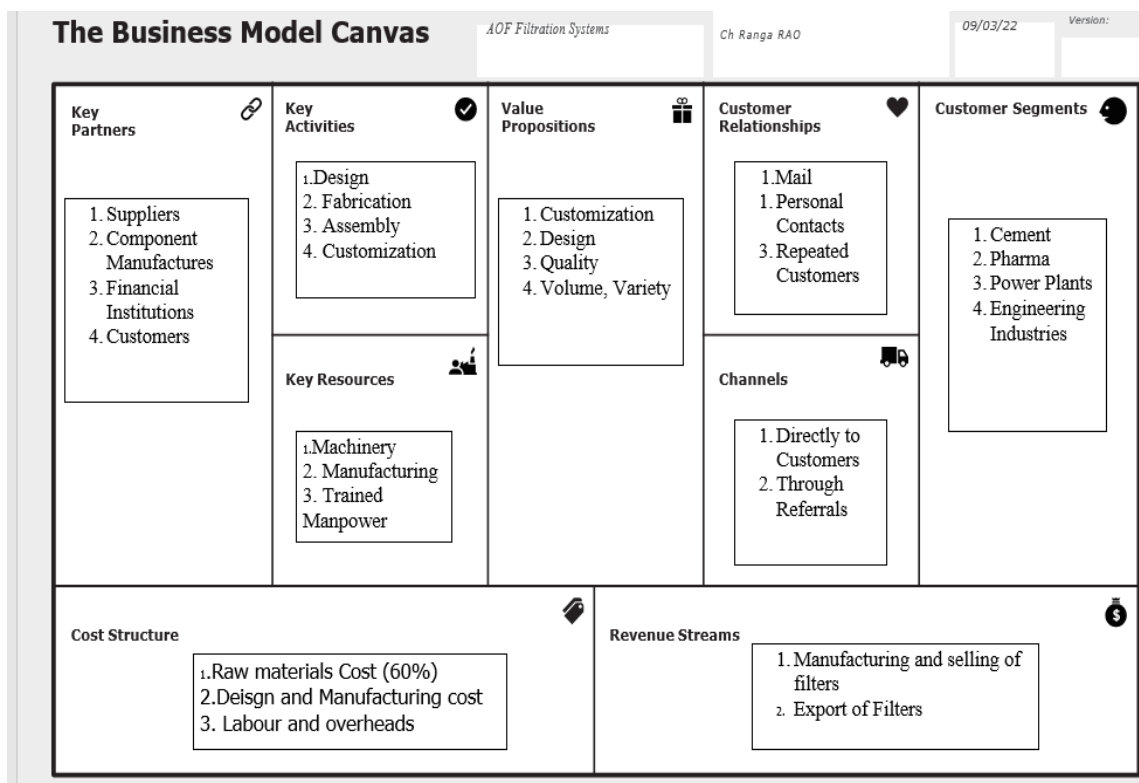


Figure 9. Business Canvas Model- AOF Filtration Systems, Hyderabad

Table 6. Shows the pain points, gain points, and Purchase Strategy was drawn from the study.

Table 6. Shows the Pain Points and Gain Points of AOF Filtration Systems, Hyderabad

| <b>Pain Points</b>       | <b>Gain Points</b> | <b>Purchase Strategy</b>         |
|--------------------------|--------------------|----------------------------------|
| 1. Shortage of materials | 1. Brand Image     | 1. On Spot Purchase of materials |

|   |   |   |
|---|---|---|
| 2. Market fluctuations in commodity prices<br>3. Increase in cost of subcomponent costs | 2. Repeated Customers<br>3. Design and manufacturing capability | 2. Procurement is done by the owner himself<br>3. Maritain some inventory of standard items<br>4. No Materials planning and procurement |
|---|---|---|

Similar studies are conducted on the following industries

1. Cosmos, Pune
2. Superior Weld Mesh P Ltd, Nagpur
3. Mill metal machinery, Bangalore
4. Mill Smart Engineers, Hyderabad
5. Bunt Surgical Industries, Hyderabad
6. Sri Jyothirmayi Industries, Hyderabad

From the above field study, the following insights have been captured

1. Many MSME industries in India are lagging behind the best practice of the Procurement Process
2. Through Procurement Strategy MSME can be better positioned
3. 60 to 70% of the costs are involved in materials costs. By optimizing the cost of the procurement of the materials MSME sector can be saved on the overall manufacturing cost.
4. Reduction of the cost is possible through better Vendor Management
5. Value Proposition can be achieved through better procurement Strategy

## 6. Conclusion

Design thinking is a human-centric approach. This approach has been adopted in many businesses application to solve their business problems. The business canvas model is a widely accepted tool to understand user experiences and empathy study. In this study, we are adopting a design thinking approach for Procurement strategy in Micro, Medium, and Small Enterprises. We have conducted interviews for 10 Micro, Small, and Medium Enterprises as a pilot study. From this field study, we conclude that Many MSME sector in India is lagging behind the best practice of the procurement process. 60 to 70% of the costs are involved in materials costs, by using a better procurement strategy MSME can reduce the cost of materials, and with better vendor management and procurement strategy value proposition can be achieved. We arrive at how the procurement strategy is important for the creation of a value proposition. A more detailed quantitative analysis will be conducted on more sample data to get insights into the relationship between procurement strategy and competitiveness of Micro, Small, and Medium Enterprises and the overall performance of the MSME sector.

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## **Biographies**

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**Dr. A Prabhu Kumar** is presently Professor and Principal of JNTUH College of Engineering, JNTU, Hyderabad. He is earned a BS (Hons) Tech., M Tech, MBA, and Ph.D. He is a Fellow of the Institute of Engineers. He has 25 years of teaching, training, and research experience in various fields. He taught various courses to B Tech, BFA, M Tech, MCA, and MBA students. He was Chairman Board of Studies, and Board of studies member for more than 20 years. He has contributed to the development of various course syllabi. He was also a board of studies member of BIE Vocational education. Prior to joining JNTUH, he worked for prestigious organizations like the Government of India Security Printing Press, Daily Telegraph, ITC Limited, etc. He has served the university in various capacities as, Deputy warden, Head of the Department, Workshop Superintendent, Officer in charge of Examinations at CEH,

Officer in charge of Examinations at the University, University Placement officer, Deputy Director, and presently Director of School of Management Studies. He was regional coordinator for EAMCET and for the last three years I-CET, CET Committee member. He was involved in various selection committees. He has more than 50 publications in various journals and conferences. He has presented papers at national and international conferences and evaluated his Ph.D. thesis. He was a Principal Investigator for a research project sanctioned by AICTE. He has guided many student projects at graduate, postgraduate, and Ph.D. levels. His areas of interest include Value Engineering, Industrial Engineering, Human Resource Management, and Marketing Management. As a General Secretary of the JNTU CEH teachers' association and Treasurer of the thrift association, he has contributed to the welfare of the teaching faculty. He is a member of the Bureau of Indian Standards.