

# **Lean Manufacturing**

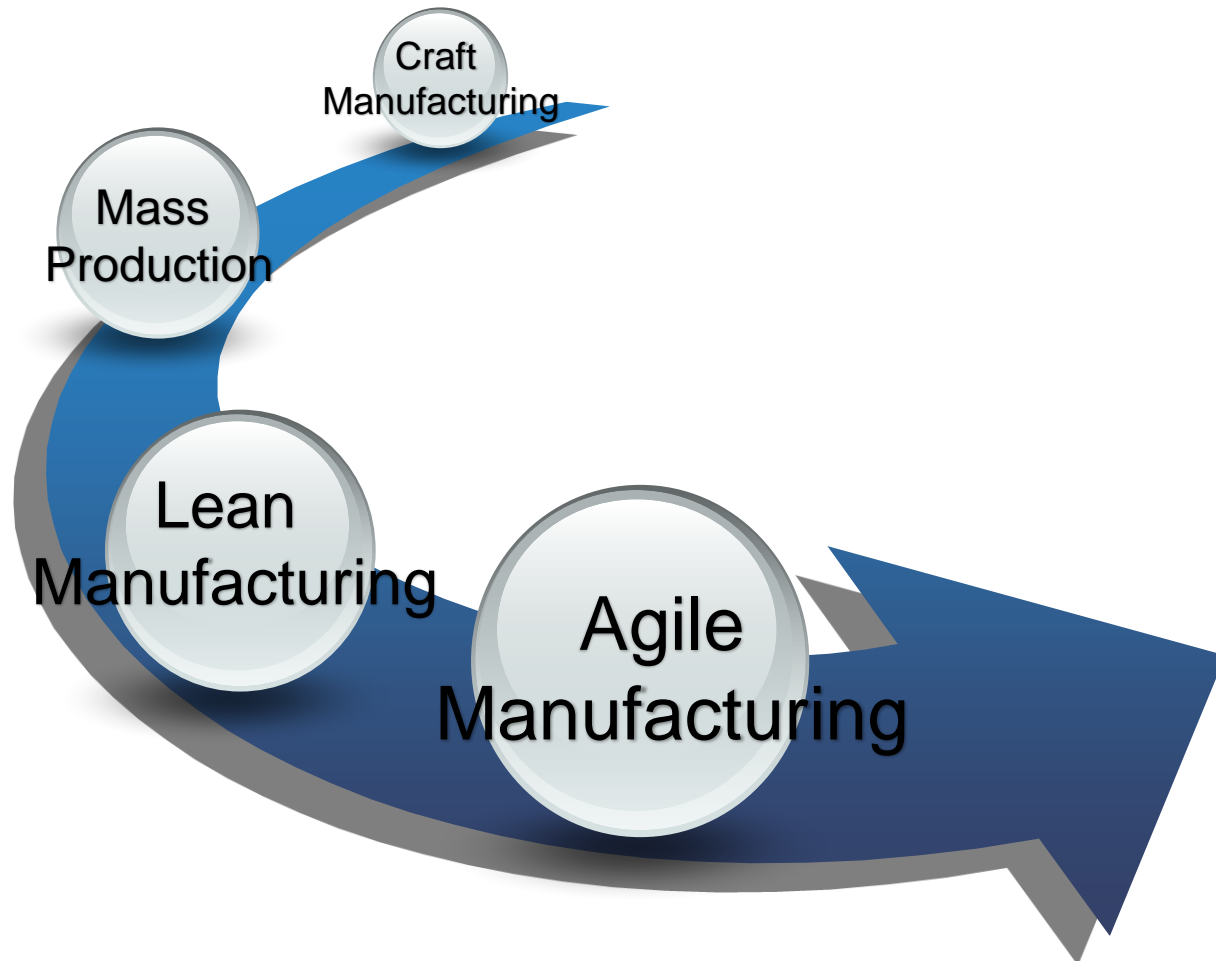
---

**Dr. S. Vinodh,  
Dept. of Production Engineering**

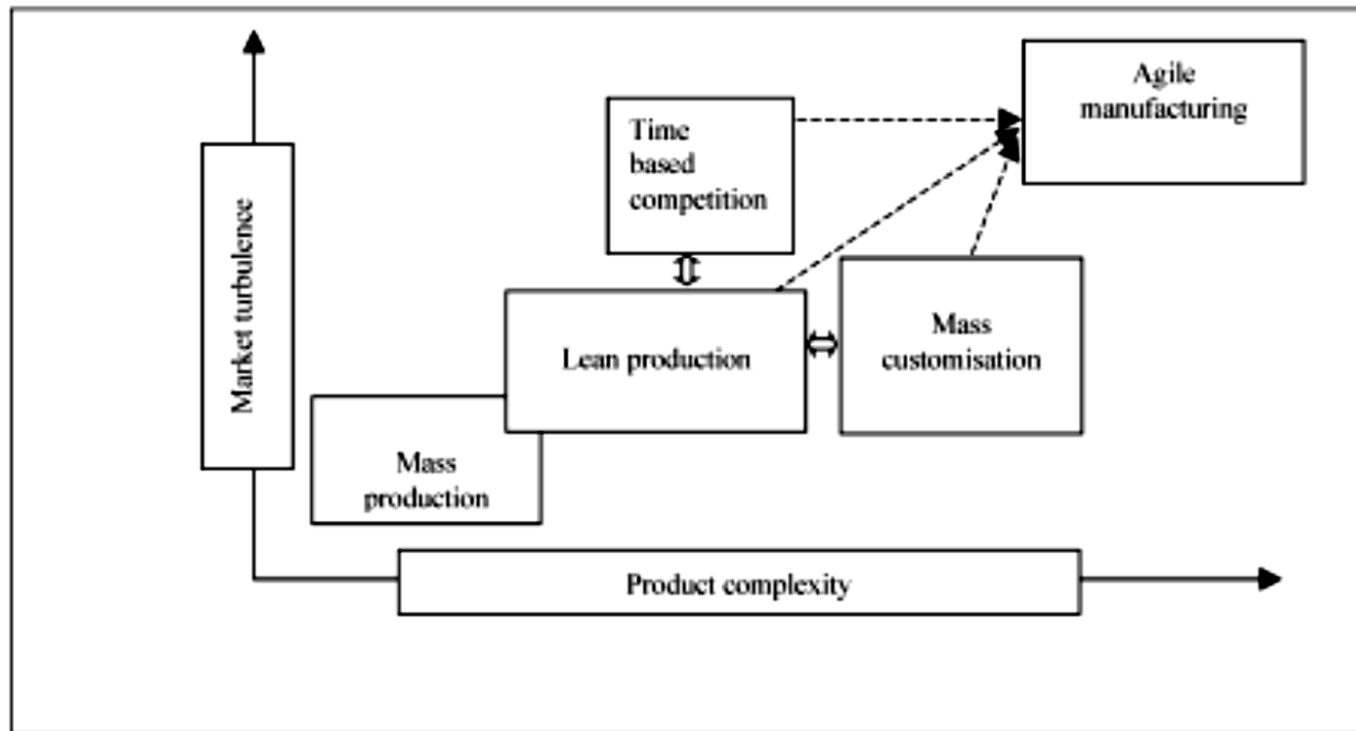
A solid blue horizontal bar spanning the width of the slide at the bottom.

# Transition of Manufacturing paradigm

---



# Types of manufacturing systems



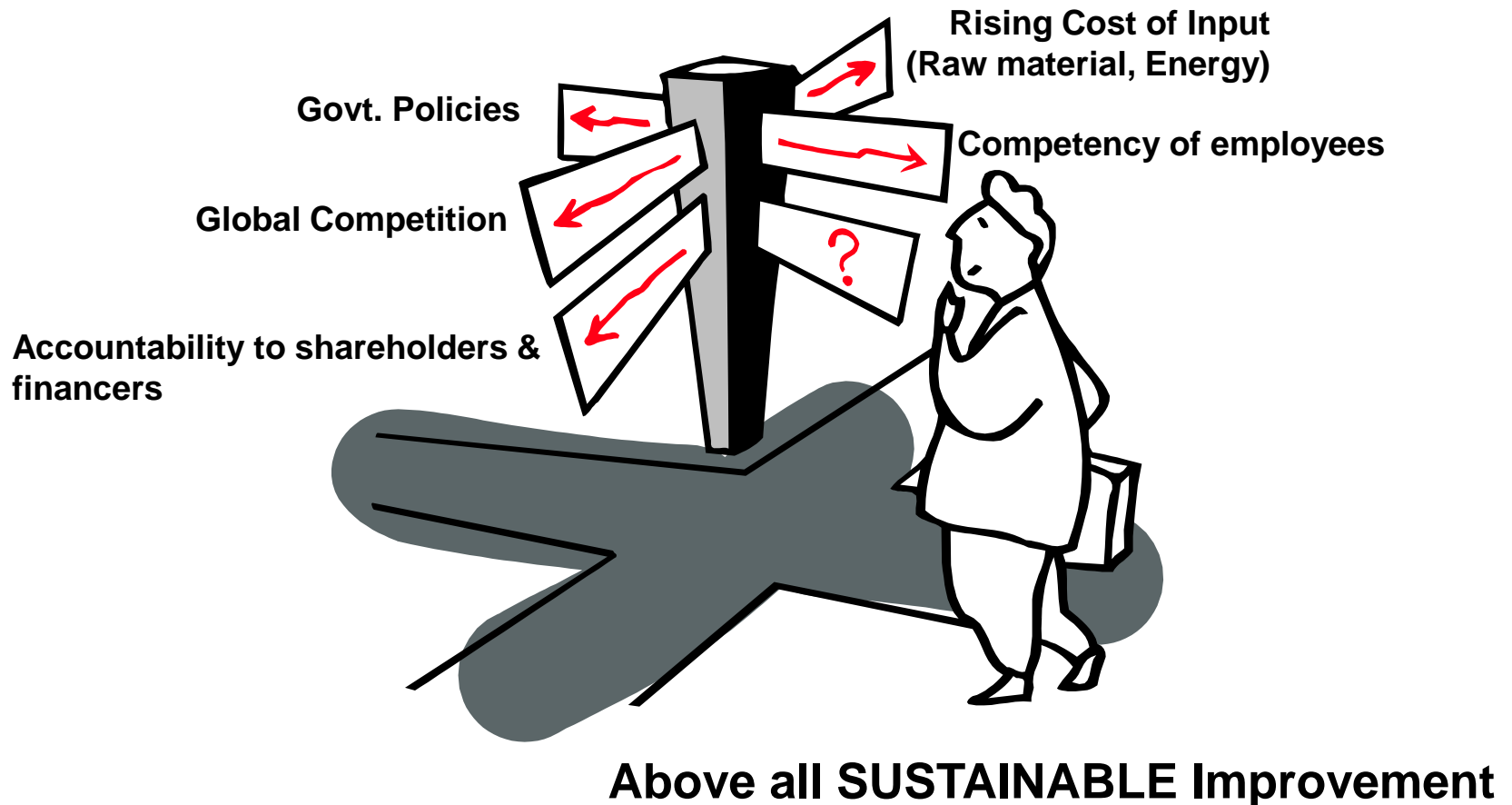
# Lean Thinking

---

|                          | <i>Craft</i>                         | <i>Mass Production</i>                       | <i>Lean Thinking</i>                       |
|--------------------------|--------------------------------------|--|--|
| <b>Focus</b>             | <b>Task</b>                          | <b>Product</b>                               | <b>Customer</b>                            |
| <b>Operation</b>         | Single items                         | Batch and queue                              | Synchronized flow and pull                 |
| <b>Overall Aim</b>       | Mastery of craft                     | Reduce cost and increase efficiency          | Eliminate waste and add value              |
| <b>Quality</b>           | Integration (part of the craft)      | Inspection (a second stage after production) | Inclusion (built in by design and methods) |
| <b>Business Strategy</b> | Customization                        | Economies of scale and automation            | Flexibility and adaptability               |
| <b>Improvement</b>       | Master-driven continuous improvement | Expert-driven periodic improvement           | Worker-driven continuous improvement       |

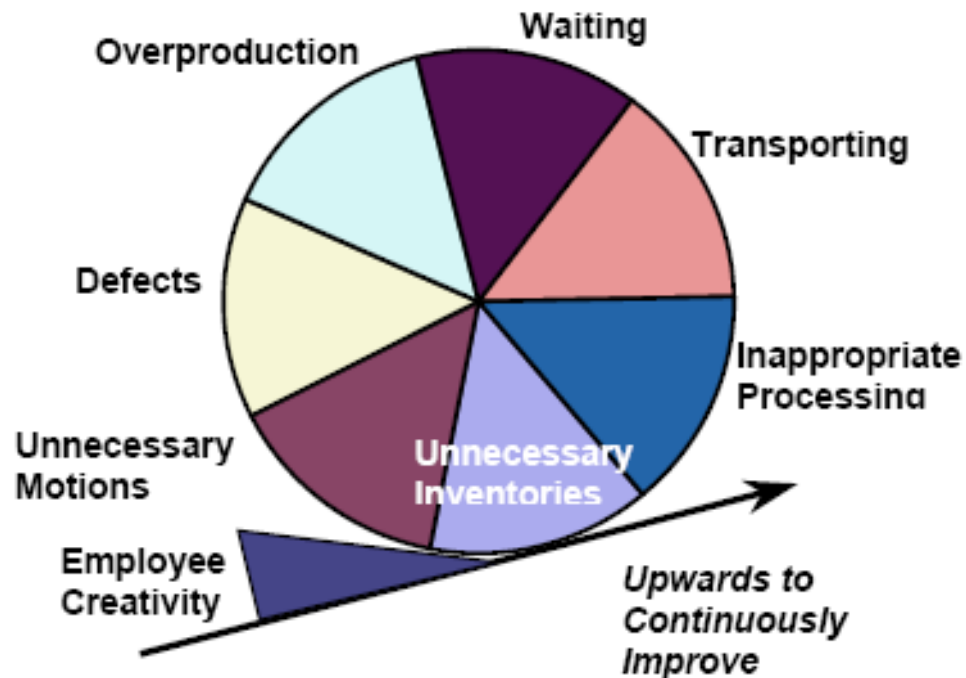
# Industry's concerns

---



# Wastes in manufacturing processes

---



# What is Lean?

---

- Lean is eliminating wasteful process steps and increasing the speed with minimum capital.
- If we can reduce the process time, we will be able to bring out the product as and when the customer needs it.

# What is Lean and Lean manufacturing?

---

- The term lean in the manufacturing context implies identification of waste in all the processes involved.
- Lean manufacture is a business philosophy that continuously improves all the processes involved in a manufacturing environment, irrespective of what types of products are being manufactured.
- Lean manufacturing means increasing speed by reducing the process time.
- It results in reduction of cost and faster action.



# What is Lean and Lean manufacturing?

---

- It can be related to automobile, aerospace, chemical engineering, or any other type of manufacturing.
- Lean manufacture has a comprehensive set of elements, rules and tools that focus on the elimination of waste and the creation of value.
- Lean manufacture also means speedy smooth and economical manufacture.

# Global Competition

---

- Become more demanding
- Best quality products
- Immediate supply
- Continuous reduction in price

# What does the customer want?

---

- On time delivery
- Good quality
- Low price

# What is Change?

---

- Sales forecast
- Product design/development
- Procurement of materials
- Inventory management
- Production
- Quality management