

## BASIC CONCEPTS OF JIT (JUST-IN-TIME)

**JIT** is a production and inventory management philosophy aimed at **reducing waste** by receiving goods only as they are needed in the production process.

### Key Principles:

1. **Elimination of Waste (Muda)**
  - Waste in inventory, overproduction, waiting time, transportation, etc.
2. **Continuous Improvement (Kaizen)**
  - Ongoing effort to improve processes and efficiency.
3. **Pull System**
  - Products are made **only when there is demand**; production is “pulled” by customer orders, not forecasts.
4. **Small Lot Sizes**
  - Promotes flexibility and reduces inventory levels.
5. **Takt Time**
  - Synchronizing production pace with customer demand.
6. **Total Quality Management (TQM)**
  - Ensures **zero defects** to avoid delays or waste.
7. **Supplier Integration**
  - Strong relationships with suppliers for timely deliveries and high quality.

### Global Implementation of JIT

#### 1. Origin: Japan (Toyota Production System)

- Toyota pioneered JIT to compete with Western manufacturers by reducing costs and improving efficiency.

#### 2. Implementation in the USA and Europe

- Adopted by manufacturers like **Ford, GM, Dell, and BMW**.
- Adapted to suit **larger scale operations** and **longer supply chains**.

#### 3. JIT in Developing Countries

- Gaining popularity in **India, China, Brazil**, etc., especially in automotive, electronics, and textile industries.
- Challenges include **infrastructure issues, supplier reliability, and training gaps**.

#### 4. Global Supply Chain Coordination

- Requires:

- **Reliable logistics partners**
- **Digital tools for inventory and demand forecasting**
- **Lean supplier networks** across countries

## **5. Technology and Automation in JIT**

- Use of:
  - **ERP systems**
  - **Barcode/RFID tracking**
  - **Robotics and AGVs** in factories
  - **Cloud-based collaboration** between global suppliers and manufacturers

## **Challenges in Global JIT**

- **Supply chain disruptions** (e.g., pandemics, natural disasters)
- **Political instability or tariffs**
- **Dependency on limited suppliers**
- **Logistical delays** across long distances

## **Benefits**

- Reduced inventory cost
- Faster response to market changes
- Higher quality products
- More efficient use of resources