SNS COLLEGE OF TECHNOLOGY

Coimbatore - 35

23BAT613 – Operations Management

UNIT-II Forecasting

Synchronous Manufacturing

Presented by

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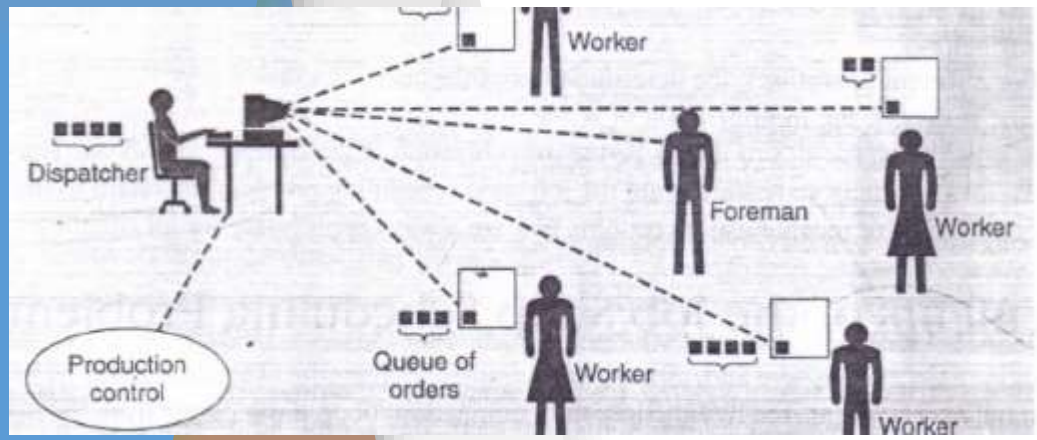
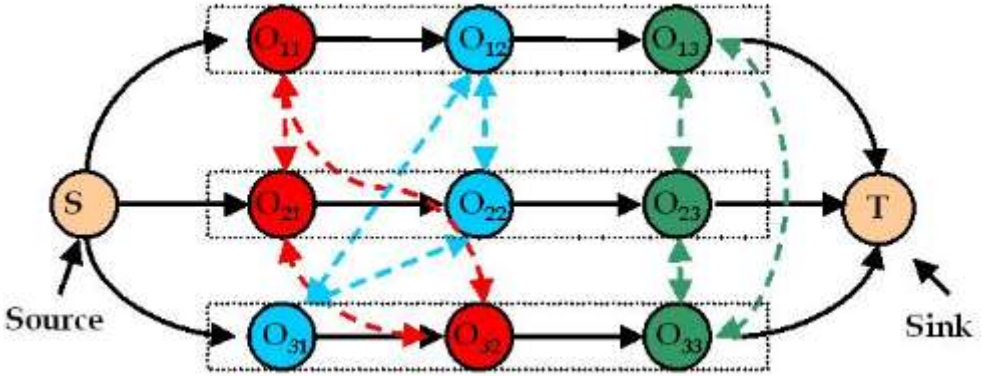
RECAP:

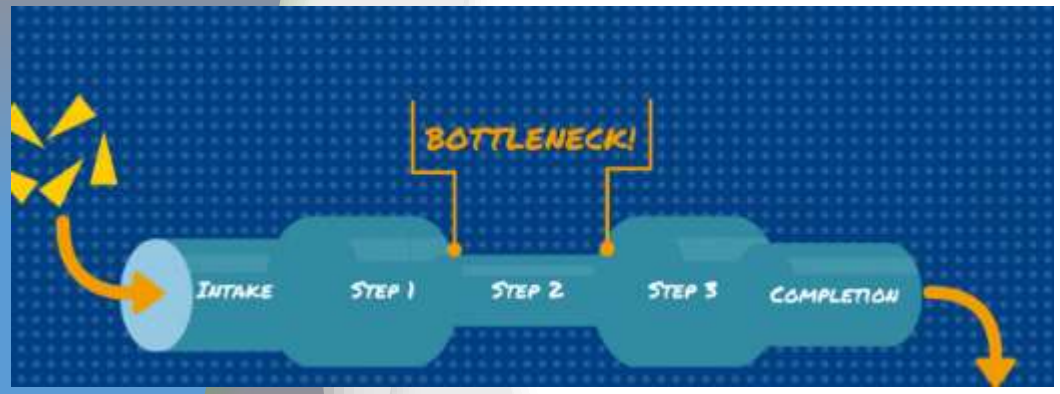
Capacity Constrained Resources

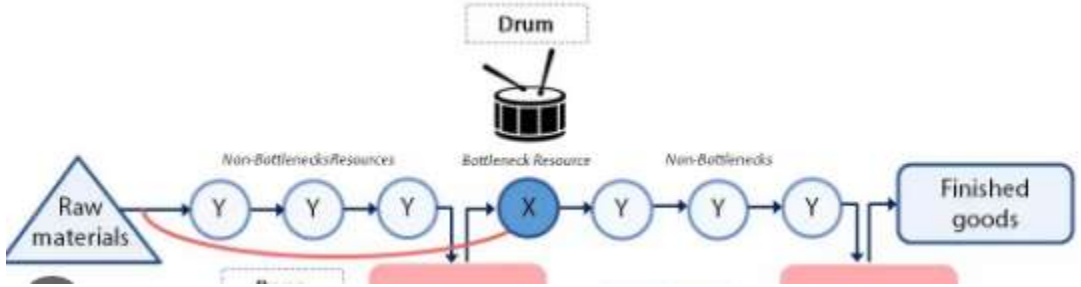




Today's Topic:

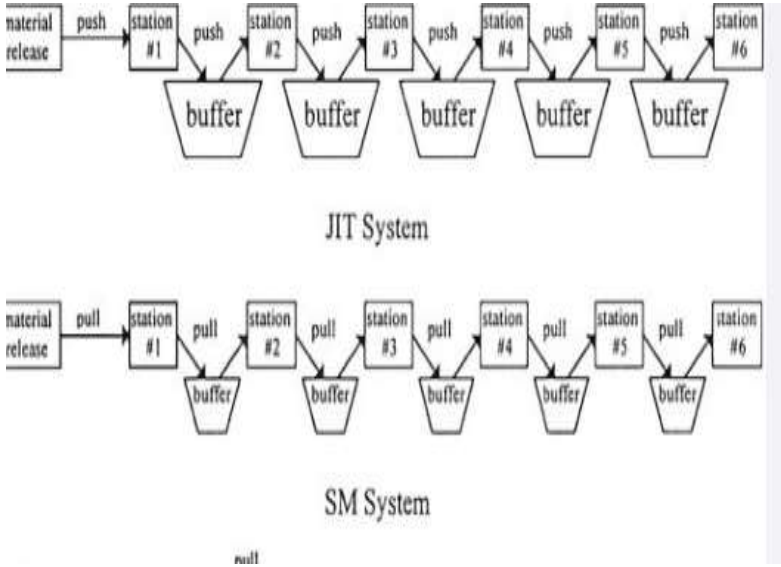
Synchronous Manufacturing





Synchronous Manufacturing - Meaning

Synchronous Manufacturing is a production strategy that aligns all aspects of the manufacturing process to work in harmony, ensuring smooth and efficient operation. The concept revolves around coordinating every step of the production process, from raw materials to finished products, to minimize waste, reduce production time, and improve overall efficiency.



Key Principles of Synchronous Manufacturing

Alignment of Processes: All stages of production are synchronized to ensure that each process is dependent on the previous one and sets the pace for the next. This creates a seamless flow of materials and information.

Key Principles of Synchronous Manufacturing

Constraint Management: Identifying and managing constraints (bottlenecks) is critical. By focusing on the capacity constrained resources (CCRs), synchronous manufacturing aims to ensure that bottlenecks do not impede overall production flow.

Key Principles of Synchronous Manufacturing

Just-In-Time (JIT) Production: Synchronous manufacturing often incorporates JIT principles, where materials and components are delivered just in time for production, reducing inventory costs and waste.

Key Principles of Synchronous Manufacturing

Continuous Improvement: Emphasis on continuous monitoring and improvement of processes to eliminate inefficiencies and optimize production. This involves regular feedback loops and data analysis.

Key Principles of Synchronous Manufacturing

Flow Control: Maintaining a consistent production rate by balancing the load across all processes. This ensures that no single process becomes a bottleneck, disrupting the overall flow.

Benefits of Synchronous Manufacturing

Increased Efficiency: By synchronizing all aspects of the production process, organizations can reduce downtime and eliminate inefficiencies, leading to higher productivity.

Reduced Lead Times: Synchronous manufacturing streamlines the production process, which significantly cuts down the time taken from order to delivery.

Benefits of Synchronous Manufacturing

Cost Savings: Lower inventory levels, reduced waste, and optimized resource utilization translate to substantial cost savings.

Improved Quality: Consistent processes and regular monitoring improve product quality by identifying and addressing defects quickly.

Enhanced Flexibility: The ability to quickly adjust production schedules and processes in response to changes in demand or unforeseen disruptions.

Implementing Synchronous Manufacturing

Map the Production Process: Detailed mapping of the entire production process to identify each step, resource, and potential bottlenecks.

Identify Constraints: Use techniques such as the Theory of Constraints (TOC) to identify and focus on managing capacity constrained resources.

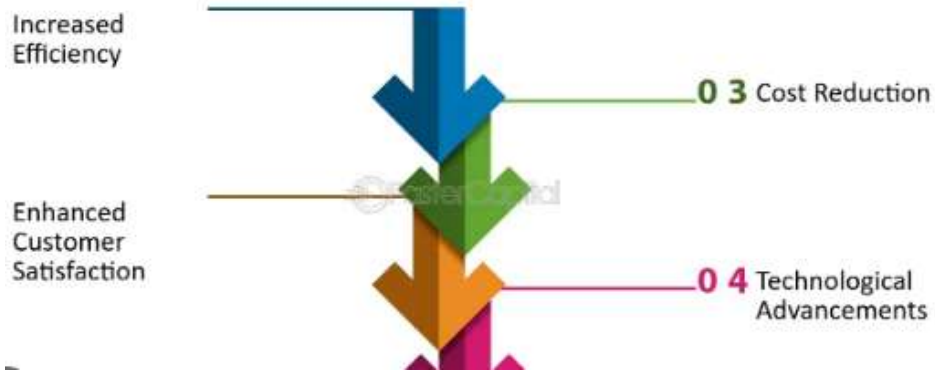
Synchronize Operations: Ensure that all processes are aligned and work in a coordinated manner, with clear communication channels and data sharing.

Implementing Synchronous Manufacturing

Implement JIT Practices: Adopt Just-In-Time principles to minimize inventory and ensure timely delivery of materials.

Monitor and Improve: Continuously monitor production processes, collect data, and use it to drive ongoing improvements and adjustments.

Train Employees: Provide training and development to ensure that all employees understand synchronous manufacturing principles and can effectively contribute to the process.



ASSESSMENT:

What does the "drum" represent in the Drum-Buffer-Rope methodology?

A) The part of the system with the least capacity

B) The constraint or bottleneck in the system

C) The fastest process in the system

D) The buffer placed in front of the constraint

Summary

TOC emphasizes the need for continuous improvement. Once a bottleneck is addressed, attention shifts to identifying and addressing the next constraint in the system. This iterative process of improvement helps organizations continually enhance their performance.

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