
Workshop

Workshop

- **FOCUS:**
  - SINGLE SUPPLIER, SINGLE PRODUCT AND/OR PROCESS
- **LENGTH:**
  - 1-5 DAYS DEPENDING OF COMPLEXITY
- **PROCESS:**
  - MACRO-FOCUS ON AN ACTIVITY OR MANUFACTURING PROCESS TO ELIMINATE WASTE AND MAKE IMPROVEMENTS AFTER ADVANCE PURCHASING HAS ESTABLISHED SOURCING.
  - IDENTIFICATION AND IMPLEMENTATION OF SYNCHRONOUS / LEAN ORGANIZATION ACTION PLANS DEVELOPED BY JOINT GM/SUPPLIER MULTI-DISCIPLINED TEAM.
- **APPLICABILITY:**
  - POOR UTILIZATION OF SPACE/EQUIPMENT/OPERATORS
  - PART/PROCESS/ACTIVITY NOT YET IN OPERATION
  - HIGH CAPITAL INVESTMENT
  - MANUAL ASSEMBLY OPERATIONS
  - UNEVEN PRODUCTION OR PROCESS FLOW
  - GREEN FIELD SITE
- **EXPECTATIONS:**
  - REDUCE CAPITAL INVESTMENT
  - REDUCE PROCESS FLOW LEAD-TIME
  - INCREASE PRODUCTIVITY
  - REDUCE INVENTORY
  - REDUCE FLOOR SPACE REQUIRED

Supplier Development

Workshop Process

IDENTIFY PILOT AREA

SELECT TEAM MEMBERS

- GM PRODUCT/PROCESS ENGINEER
- SUPPLIER PERSONNEL (ENGR., MFG, ETC)
- PURCHASING
- QUALITY
- CUSTOMER REPRESENTATIVE

INFORMATION PHASE

- OBJECTIVES
- SCOPE
- FACTS
- CAPACITY
- COSTS
- BENCHMARK
- HIGH COST AREAS
- **VOLUME**

DEFINE CURRENT SITUATION

- IDENTIFY WASTE
- UNDERSTAND FUNCTION
- ANALYZE FUNCTION
- COST OF FUNCTION

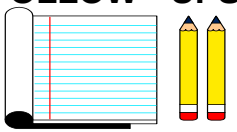
IDENTIFY OPPORTUNITIES TO IMPROVE

ANALYZE & SELECT BEST OPPORTUNITIES

DOCUMENT IMPROVED STATE

IMPLEMENT DESIGN IMPROVEMENTS

ASSIGN FOLLOW - UPS



RECOGNIZE EFFORTS OF PEOPLE

LOOK FOR NEW OPPORTUNITIES

Workshop Opportunity Selection

- **Review Process Flow Diagram**
  - *Improvement Opportunities:*
    - Multiple Processes
    - Multiple Moves and Stores
    - Multiple Inspects
- **Review Process Floor Layout**
  - *Improvement Opportunities:*
    - Batch Production Vs Small Lot, One Piece Flow Production
    - Process Focus Vs Product Focus
    - Centralized Material Storage Vs Point of Use Storage
- **Review Carryover Process Operations**
  - *Improvement Opportunities*
    - Pareto Downtime Causes
    - Pareto Scrap Causes
- **Review Cycle Times to Customer Demand Time**
  - *Improvement Opportunities*
    - Under/Over Utilized Operators
    - Under/Over Utilized Machines/Equipment
    - Potential Bottlenecks

Workshop

Supplier Material & Information Required

- **Process / Machine Floor Layout (3)**
  - Table Size Approximately 3’ X 4’
- **Operator Manning Plan**
  - Direct Labor and Indirect Labor
- **Cycle Times (Planned)**
  - Machine Cycle Time
  - Operator Cycle Time
  - Assembly / Machine Load Time
  - Machine Unload Time
- **Customer Requirements (Schedules)**
- **Inventory Plan**
  - Raw Material
  - Purchased Parts
  - Work-in-Process
  - Finished Goods
- **Capital Requirements**
  - Equipment and Tooling Costs
  - Rearrangement and Installation Costs
- **Pareto Breakdown of Scrap and Downtime**
  - Carryover Processes, Equipment and Machines
- **Sample Parts**

WORKSHOP - PROCESS FLOW CHART AND DATA WORKSHEET

Process / Product Description: ______________________________ **Page** ____ **of** ____

Step #	Process Step Description	Store	Move	Inspect	Process	Time for the Step per unit	Distance Traveled feet miles ______	Material Cost per unit	Freight or Packaging Cost per unit	Other Manufg. Costs per unit	Quantity in Storage or Buffer	Comments
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Date completed: ______________ Prepared by: ______________________ Co. Name: ______________________

Workshop

Team Recommendation (7-10)

Supplier:

- Plant Manager
- Process / Product Engineer
- Industrial Engineer
- Sales Rep (Mandatory)
- Operator

Optional:

- Quality Representative
- Production Control And Logistics
- Planning

Customer:

- Buyer (Mandatory)
- Product Release Engineer
- Customer Representative
- Supplier Quality Engineer

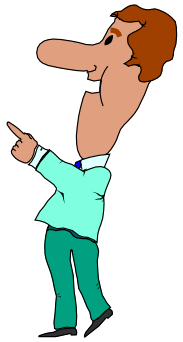
The Competitive Why's?

- Why Are Our Facilities Bigger?
- Why Do We Need More Inventory?
- Why Are Our Costs Higher?
- Why Are Lead Times Longer?
- Why Are Our Manufacturing Processes So Complicated?
- Why Is Our Quality Lower?

The Lean Organization Concept

- The Approach for the Future:
  - Produce Only What Customer Wants,
  - When They Want It,
  - In the Quantity They Want.

Identification and Waste Elimination



- Identification and Elimination of Waste Is The Central Focus of a Synchronous / Lean System.

- A Synchronous / Lean Organization Is a Dynamic And Constantly Improving Entity Dependent On The Understanding and Involvement of All Employees.

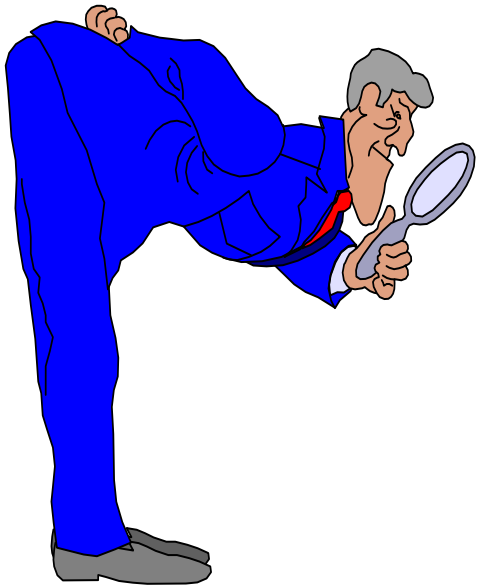
- Successful Implementation Requires All Employees Be Trained to Identify and Eliminate Waste From Their Work Areas.

Identification and Waste Elimination

Waste Exists in <u>All</u> Work . . . . And

At <u>All</u> Levels in the Organization

Identification of Waste



7 Types of Waste

- **Inventory**
- **Overproduction**
- **Correction**
- **Material & Information Movement**
- **Processing**
- **Waiting**
- **Motion**

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Customer Cycle Time

Customer cycle time is the time which should be taken to produce a part or assembly based on customer demand.

This time is sometimes also referred to as “takt time”.

Customer cycle time is calculated as follows:

$$\text{Customer Cycle Time} = \frac{\text{Total net operating time per shift or day}}{\text{Total customer(s) requirements needed per shift or day}} \times 60$$

Example:

480 min./shift
- 20 min AM break
- 20 min PM break
440 min. net operating time per shift

$$\text{Customer Cycle Time} = \frac{440}{1000} = .44 \times 60 = 26.4 \text{ sec/part}$$

Operator Cycle Time

Actual Time Observed to Produce One Part or Assembly

Customer cycle time > Operator Cycle Time = Overproduction / Waiting

Customer cycle time < Operator Cycle Time = Underproduction / Delay

Customer cycle time = Operator Cycle Time = **IDEAL**

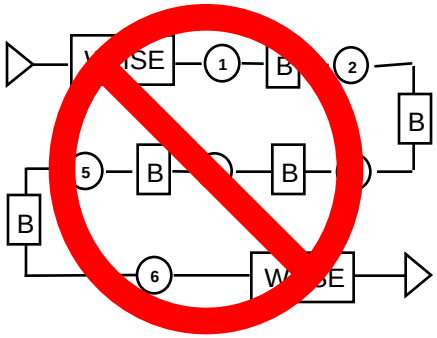
Flow Production

A Smooth Uninterrupted Flow of Material From Each

Value-Added Operation to the Next Value Added

Operation at a Rate Equal to Customer Requirements

(Customer Cycle Time)



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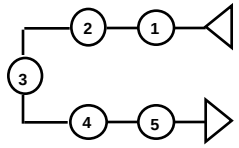

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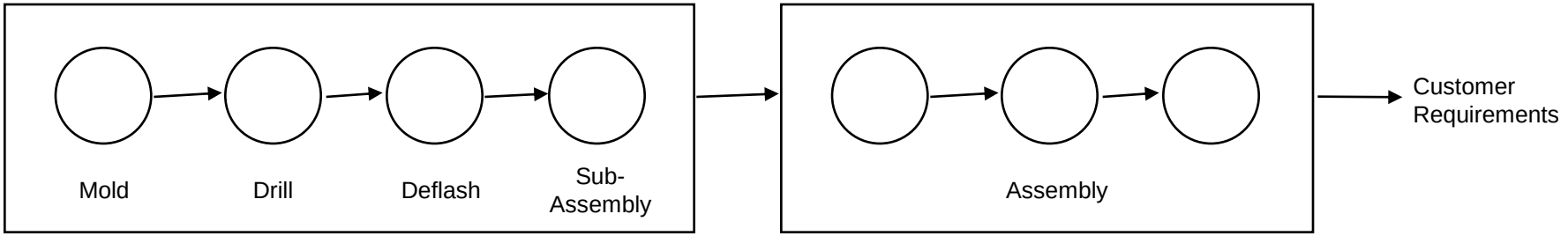
Single Piece Production & Flow



X Units/hours

X Units/hours

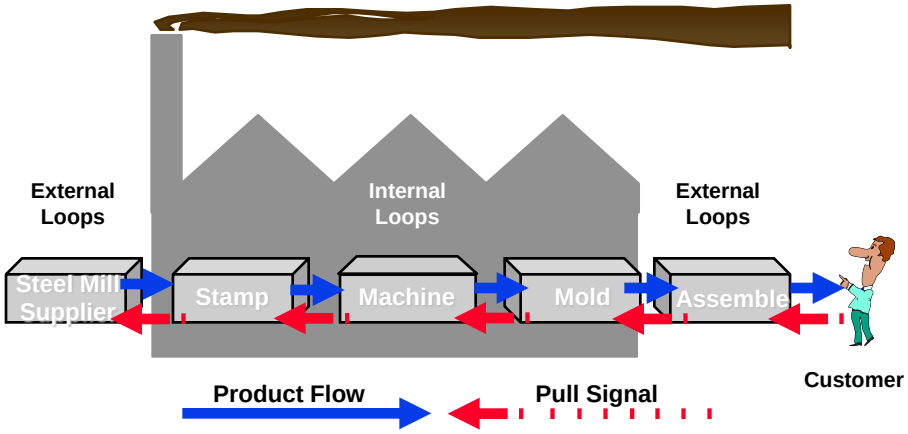
X Units/hours

Goal:

One Piece Transfer From Each Value Added Operation To the Next at a Rate Equal to Customer Requirements (Customer Cycle Time).

JIT Manufacturing

- Customer Focused Manufacturing System Supporting Internal As Well As External Customers



- Manufacture and Deliver <u>What</u> the Customer Wants:
  - Quality Products
  - Proper Product Mix
- <u>When</u> the Customer Wants:
  - Just-In-Time
- In the <u>Quantity</u> the Customer Needs:
  - One Piece / Small Lot Transfer

Lean Organization Implementation Process

- Establish One-Piece Flow
- Lay Out (Line up) Equipment According to Sequence Of Processing (Product Focus)
- Create U-Shaped Manufacturing Cells
- Multi-Process Operators
- Operators Standing While Working
- Synchronize

Lean Implementation Workshop
Summary of Results

DATE OF WORKSHOP:_____
SHORT TERM F/U DATE:_____
LONG TERM F/U DATE:_____

SUPPLIER:_____ SPONSORING DIVISION:_____

PROCESS:_____

PPAP REQUIREMENTS ADDRESSED (Y/N):_____ CREATIVITY TEAM NAME & NUMBER:_____

PARAMETERS	BEFORE WORKSHOP	AFTER WORKSHOP					
		IMPROVED STATE (CURRENT WEEK)			SHORT TERM (0-6 MOS)	LONG TERM (6-12 MOS)	
		MEASURE	% IMPROVEMENT		MEASURE	% IMPROVEMENT	MEASURE	% IMPROVEMENT
PRODUCTIVITY (PARTS/PERSON/DAY)				FORECAST				
				ACTUAL				
INVENTORY ($)				FORECAST				
				ACTUAL				
LAYOUT (FT)				FORECAST				
				ACTUAL				
LEAD TIME (TIME_____)				FORECAST				
				ACTUAL				

ADDITIONAL SAVINGS IDENTIFIED

SUBJECT	# OF ITEMS	DATE $ UPDATED	$ POTENTIAL	$ APPROVED	$ REJECTED
Resource Conservation & Pollution Prevention					
Other: Investment, Specifications, Transportation, etc.					
TOTAL:					

TEAM LEADERS / PHONE: _____ _____