

What's Behind the Curtain?: Customer Satisfaction at the Least Cost

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Presentation Outline

- The Value of QMS – Part 1
- Using LEAN within a QMS – Part 2

Scenario 1

1. Customer places order
2. Customer service acknowledges order, provides confirmation of promise date
3. Job is planned on shop floor
4. Raw materials are pulled, converted, and finished for delivery per order date
5. Product is packaged, labeled, and placed in shipping the night before ship date
6. Shipping department sees order on report, fills order, confirms FedEx confirmation, forwards shipping doc to Accounts Receivable
7. Customer billed
8. Customer receives product as required and requested

Scenario 2

1. Customer places order
2. Customer service acknowledges order, provides confirmation of promise date
3. Job is planned on shop floor
4. Raw materials are pulled, converted, and finished for delivery per order date
5. Product is packaged, labeled, and placed in shipping the night before ship date
6. Shipping department sees order on report, fills order, confirms FedEx confirmation, forwards shipping doc to Accounts Receivable
7. Customer billed
8. Customer receives product as required and requested

Difference between 1 and 2

- In scenario 1, all systems, processes, operators, and equipment supported a productive and least cost product realization event
- Each “customer” in the supply-chain was satisfied
- Expected gross margin realized

Scenario 2

- Customer service keys in wrong part number on sales order
- Planning provides unnecessarily long lead time based on wrong order and low-inventory level of parts required
- Customer service, afraid to tell customer of error, tells planning to “rush” the order to make it happen
- Planning schedules job and orders parts via air-freight to meet deadline
- Order picker goes to pick order and sees there is plenty of inventory on hand.

Scenario 2

- Equipment breakdown pushes back job by a week
- Overtime is scheduled to make up difference
- Old equipment put online at 1/3 productivity rate
- Job is produced but almost 10% of parts get rejected by QC due to old equipment

Scenario 2

- Production scrambles to get job done the night before ship date
- Product is mis-labeled and subsequently mis-placed in quarantine area and not in designated area
- Shipping department sees ship event on report but can't find job
- FedEx comes and goes, missing ship date
- Product eventually found but requires courier service to deliver on time

What is wrong with Scenario

- Questionable competencies in Customer Service staffing
- Lack of inventory control
- Weak Preventive Maintenance program
- Poor document control
- Overworked labor leads to fatigue and errors
- Each “customer” was unable to rely on their supplier to deliver as expected

What happened?

- Each mistake in the process required a herculean effort to correct the mistake
- The “ultimate” customer was satisfied
- The cost to satisfy the customer was certainly not the **LEAST** cost

What is the root
cause to all the
issues in scenario
2?

Root Cause

- Executive Management fails to appreciate and understand the managerial responsibility to properly identify, implement, and maintain an effective, appropriate, and suitable quality management system that drives out waste and increases customer satisfaction through recurring and effective reviews
- Managers are not held accountable to measurable quality objectives showing period-over-period improvements in reducing NCs, costs, reworks, errors, etc.

What can be done?

- Stop blaming people and take a good look at executive management's interest, investment, and appreciation for quality
- Remove the curtains of shame between each department – expose the failures
- Understand implications behind customer satisfaction WITHIN the building
- Increase awareness and responsibility to recurring NCs, reworks, and failures
- Implement QMS reviews at the Manager level to demand evidence of improvement
- Drive internal NCs down to improve productivity
- Manage and maintain an effective QMS

The Benefit of a QMS

- Confidence in the ability of the organization to deliver the desired product and service consistently meeting the customer's needs and expectations every time

The Benefit of a QMS – cont'd

- Meeting the organization's requirements – both internally and externally, and at an optimum cost with efficient use of the available resources – materials, human, technology and information

Common Benefits to an effective QMS

- Customer satisfaction
- Optimal profitability
- Operational excellence
- Managerial competency, responsibility and accountability
- Minimal rework / scrap
- Optimal productivity and throughput
- Smooth production flow
- Limited employee turnover
- High employee morale
- High inventory control accuracy

Classical Definition of a QMS

- “A set of coordinated activities to direct and control an organization in order to continually improve the effectiveness and efficiency of its performance.”

Alternate Definition

- An organization's structure of philosophies, procedures, processes, policies, and resources established for the purpose of optimizing the performance in the pursuit of exceeding customer requirements at the **absolute lowest cost**

Resistance to QMS

- “Many people have an emotional fear of being shown “wrong”, even by objective measurements. To avoid such comparisons, we may instead cite complacency, distractions, loss of focus, lack of commitment, re-assigned priorities, lack of resources, etc.”

Consider goal statement

- Company XYZ employs a comprehensive quality management system (QMS) of policies and programs designed to support a commitment to quality in the pursuit of delivering superior service and customer satisfaction through an environment of continual monitoring and improvement

Principles of Quality Management

- Customer Focus
- Leadership - executive management
- Involvement of People
- Process approach to desired results
- System approach to management
- Continual improvement
- Factual approach to decisions
- Great supplier relationships

Key QMS Components

- Quality objectives at relevant levels
- Management Reviews
- Document control / quality records
- Corrective and Preventive Actions
- Internal audits
- Managerial responsibility
- Culture of continuous improvement
- Preventive Maintenance
- Operator competency

**What is my favorite
QMS tool?**

Purpose of QMS Review

- **“Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.**
- **This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.”**

QMS REVIEW OUTLINE

Revised 08/14/13

- Introductions
 - QMS Review Template
 - QMS Review Schedule
 - Who Should Be Here
 - Purpose / Period
 - Department Reviewed
- Training Topic
- Department Mission Statement
- Previous Action Items
- Background + What's new...
 - Department Update
 - Performance
 - Resources
 - Procedures/ Processes
- Quality Objectives
- **Supplier Quality** NEW
- **Customer Feedback**
- **Audit Feedback**
- **NC reports**
- **Corrective Actions**
- **Preventive Actions**
- **Continuous Improvement**
- **MIS Projects** NEW
- QMS Discussion
- Changes affecting QMS
- New / Open Action Items

2013 PHS CP QMS REVIEW SCHEDULE

MONTH	DATE/TIME	REVIEW PERIOD	DEPARTMENT
JANUARY	JAN 17 - 2:00 PM	JUL-DEC	QUALITY
FEBRUARY	FEB 21 - 2:00 PM	JUL-DEC	PRODUCTION
MARCH	MAR 21 - 2:00 PM	AUG-JAN	MATERIALS
APRIL	APR 18 - 2:00 PM	SEP - FEB	NEWPACK MANAGEMENT
MAY	MAY 23 - 2:00 PM	OCT-MAR	WAREHOUSE/ FACILITIES
JUNE	JUN 20 - 2:00 PM	JAN-JUN	QUALITY
JULY	JUL 26 - 2:00 PM	JAN-JUN	QUALITY
AUGUST	AUG 15 - 2:00 PM	JAN-JUN	PRODUCTION
SEPTEMBER	SEP 19 - 2:00 PM	FEB-JUL	MATERIALS
OCTOBER	OCT 17 - 2:00 PM	MAR - AUG	NEWPACK MANAGEMENT
NOVEMBER	NOV 17 - 2:00 PM	APR-SEP	WAREHOUSE/ FACILITIES
DECEMBER	DEC 19 - 2:00 PM	JUL-DEC	QUALITY

Corrective VS Preventive

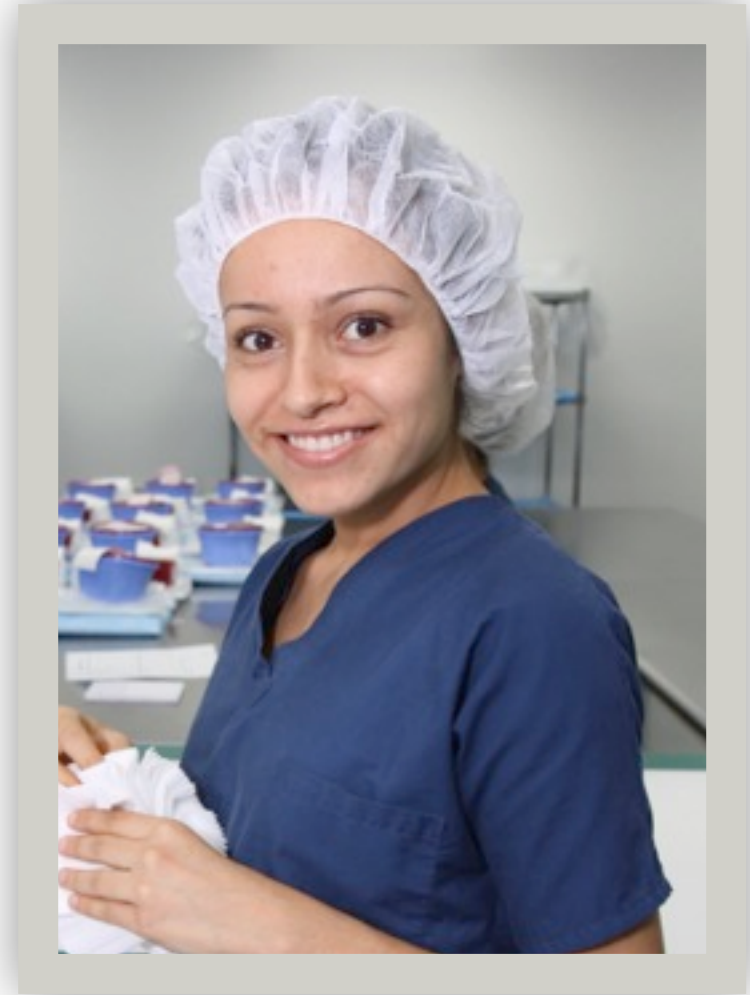
- Must understand root cause
- Actions should result in preventing recurrence

Particulate Complaints : Threats to Quality

- Supplier quality decreasing
- Cotton scrubs – static and clingy
- Product comes in contact with operator's front
- Hair covers don't cover hairy necks

Particulate Complaints: Threats to Quality

- Old style bouffant
- Cotton scrubs



Particulate Complaints:

- New “AREA 5”
 - Increased awareness
 - Intense scrutiny on gauze, towels, laps
- Improved picker dress code
- Regimented tote cleaning
- Weekly wet disinfecting of SPA floor
- Increased internal auditing

How is LEAN associated with

- LEAN can be used within a QMS system to drive out waste

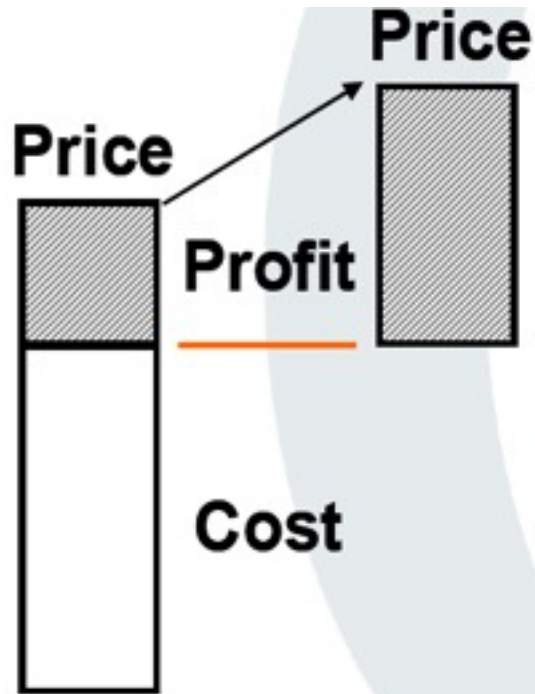
Lean is...

- A systematic approach to identifying and eliminating waste through continuous improvement by flowing the product at the demand of the customer in the pursuit of perfection

Lean takes different shapes...

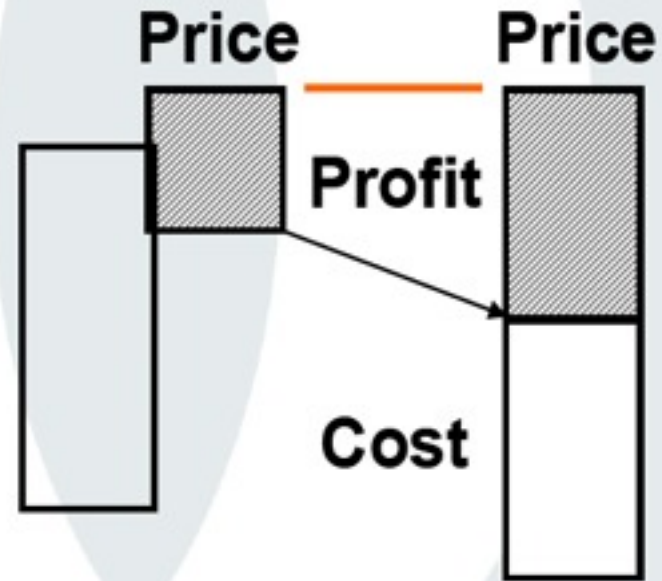
- A broad catchphrase to represent using less of everything to give you more
- A set of multidisciplinary practices that cross functional lines
- Focuses on the processes that create **customer** value
- It can represent a world of philosophies, attitudes, and cultures

Lean can help profits



Traditional Thinking

$$\text{Cost} + \text{Profit} = \text{Price}$$



Lean Thinking

$$\text{Price} - \text{Cost} = \text{Profit}$$

Financial Impact of Lean

	BEFORE		AFTER	
SALES	\$	100.00	\$	100.00
LESS VARIABLE COST	\$	(60.00)	\$	(55.00)
CONTRIBUTION MARGIN	\$	40.00	\$	45.00
LESS FIXED COST	\$	(30.00)	\$	(30.00)
PROFIT (\$)	\$	10.00	\$	15.00
MARGIN (%)		10.00%		15.00%
<hr/>				
COST REDUCTION (\$)			\$	(5.00)
COST REDUCTION (5%)				8.33%
PROFIT GROWTH (\$)			\$	(5.00)
PROFIT GROWTH (%)				50%

What is Lean Production?

- **Lean Production** can be defined as an integrated set of activities designed to achieve high-volume production using minimal inventories (raw materials, work in process, and finished goods)
- **Lean Production** also involves the elimination of waste in production effort
- **Lean Production** also involves the timing of production resources (i.e.,

Examples of Waste



Unused Creativity



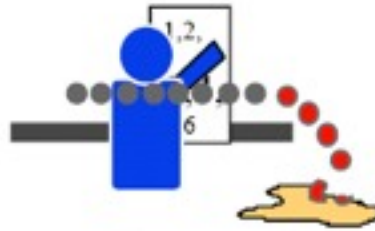
Quality Defects



Waiting



Transportation



Overproduction



Motion



Inventory



Over-Processing

More Examples of Waste

- Making mistakes
- Overproducing (premature manufacturing)
- Using more space than necessary
- Spending more money than necessary
- Wasting peoples time - wasted motion, walking

Benefits of Lean

- Reduced lead times
- Reduced inventory investment
- Reduced re-works
- Less bureaucracy
- Happier employees
- Happier customers

What Does Lean Take?

- Long Term commitment to cultural change, not just short-term profit gains
- Humble leaders willing to accept non-insular mentality to improvement
- Successful Lean manufacturing requires every single person to want to perform every day-to-day activity in

How can our customer benefit if they adopted LEAN?

- Improved use of equipment through better control = lowers capital acquisition
- Reduced inventory = less expired product
- Reduced wait times = customer satisfaction
- Reduced travel = labor savings

5 Principles of Lean

1. Identify **value** from the standpoint of the customer
2. Identify the **value stream** through the steps required to create each product/service – from concept to launch and order to delivery – and remove the wasted steps
3. Make the process of value creation **flow** smoothly and quickly to the customer
4. **Demand (pull)** comes from the customer
5. Pursue **perfection** by constantly improving

P1 – Voice of the Customer

- How do we capture what the customer wants?
- What does the customer want?
- Value added is something the customer is willing to pay that changes
 - Form
 - Fit
 - Function

P1 – Voice of the Customer

- Non-Value Added = WASTE
- Non-Value Added Essential are things that don't add value but may need to be done due to regulation or standards

P2 – Identify Your Value

- To truly improve, an organization must clearly understand all the forces and actions that might impact quality and service. This understanding can be accomplished by creating a process value stream map

P3 – Create Flow

- Producing or processing and moving one item at a time (or a small and consistent batch of items) through a series of processing steps as continuously as possible, with each step making just what is requested by the next step

P4 – Pull When Customer

- Way of managing activity that minimizes work in-process and dramatically improves throughput time by eliminating wait time between steps/operations
 - Signal (bells, lights)
 - Upper Volume Limit
 - Kanban (floor stock, supermarkets)

P5 – Strive for Perfection!

- Endless opportunities for improving the utilization of all types of assets
- Systematic elimination of wastes will reduce operating costs AND meet customer needs at a lower price

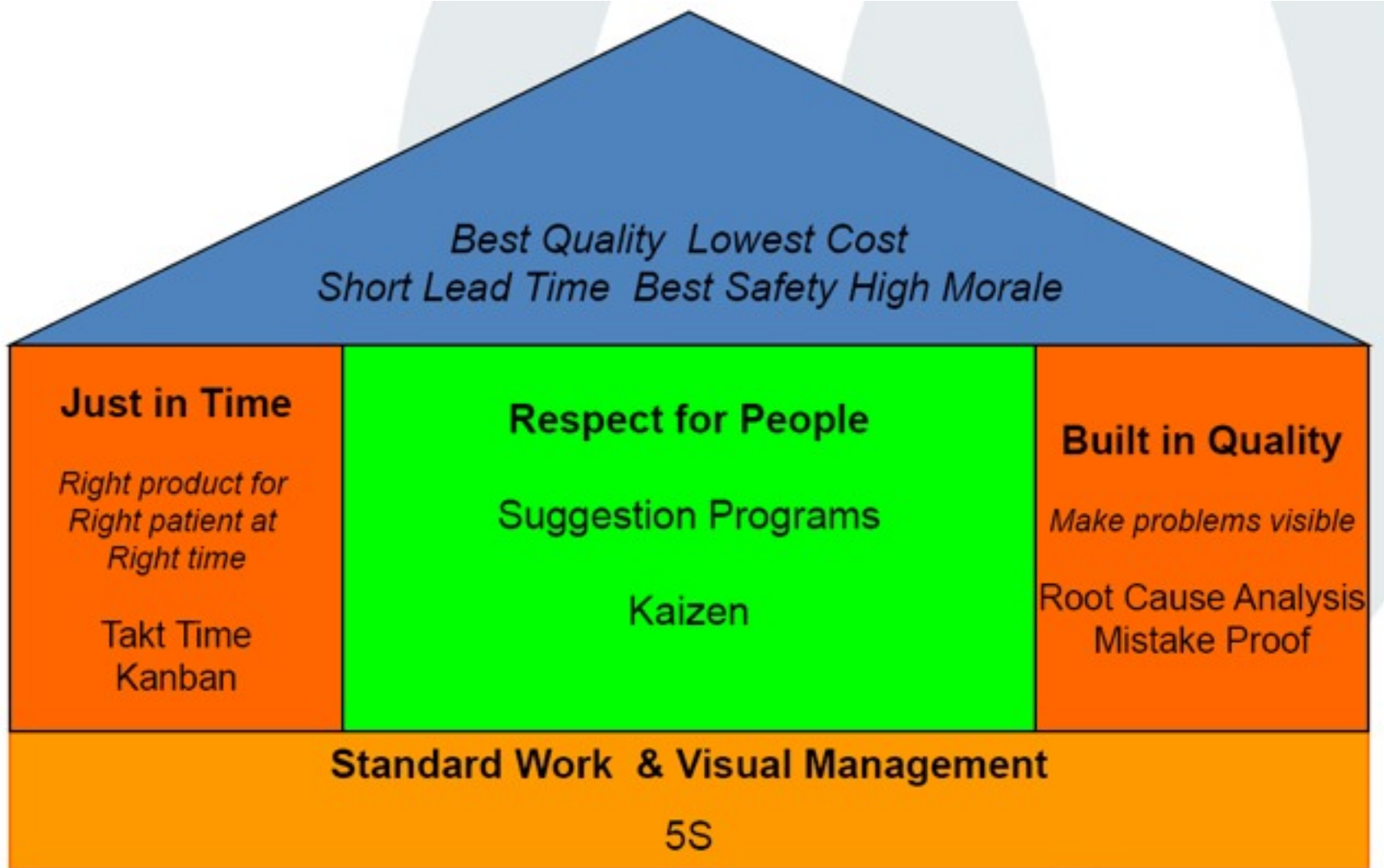
Lean Manufacturing Goals

- One Piece Flow
- Just In Time Inventory
- A Visual Factory – Visual Management
- Agile Manufacturing
- Higher Value-Add%
- Overall Equipment Effectiveness
- Work Flow Standardization

Tools of Lean

- Value Stream Map
- Spaghetti Map
- Takt Time
- Visual Management
- 5S Workplace Organization
- Kanban and Pull systems
- Poka-Yoke
- Kaizen Blitz

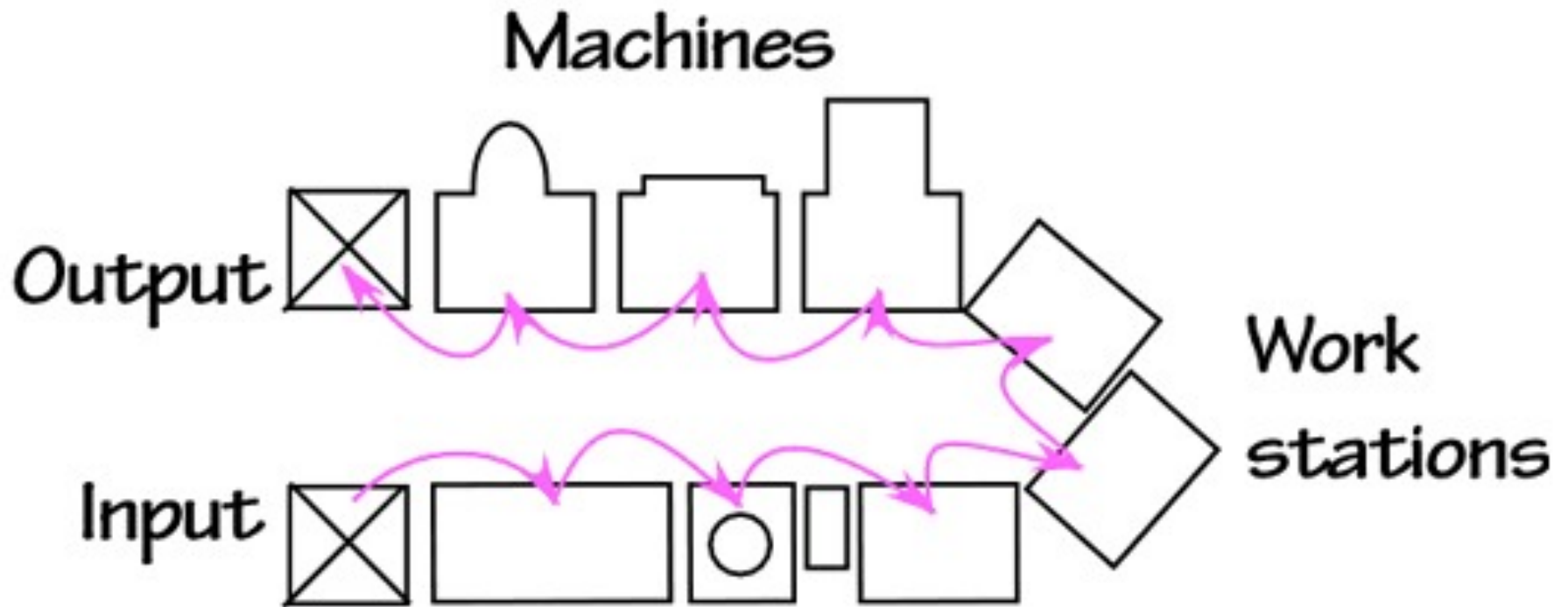
House of LEAN



One Piece Flow

- One Piece Flow refers to the concept of moving one workpiece at a time between operations within a workcell

One Piece Flow



Visual Management

- Provide visual aids to help employees complete tasks more quickly and in a more standardized approach
- Provide status at a glance, enabling quick and simple detection of abnormal operating conditions

5S Workplace Organization

- High productivity is difficult to obtain in a workplace that is cluttered, disorganized, or dirty
- Poor workplace conditions often lead to waste
 - extra motion to avoid obstacles
 - time spent searching for things
 - delays due to defects, machine failures, or accidents

5S Workplace Organization

- ★ **Simplify**
(*Seiri*) Clearly distinguishing between what is necessary and what is unnecessary and disposing of the unnecessary.
- 🕒 **Straighten**
(*Seiton*) Organizing the necessary items so that they can be used and returned easily.
- 🕒 **Scrub**
(*Seiso*) Cleaning floors, equipment, and furniture in all areas of the workplace.
- 🕒 **Stabilize**
(*Seiketsu*) Maintaining and improving the standards of the first three S's.
- 🕒 **Sustain**
(*Shitsuke*) Achieving the discipline or habit of properly maintaining the correct **5S** procedures.

Visual Management



Visual Management



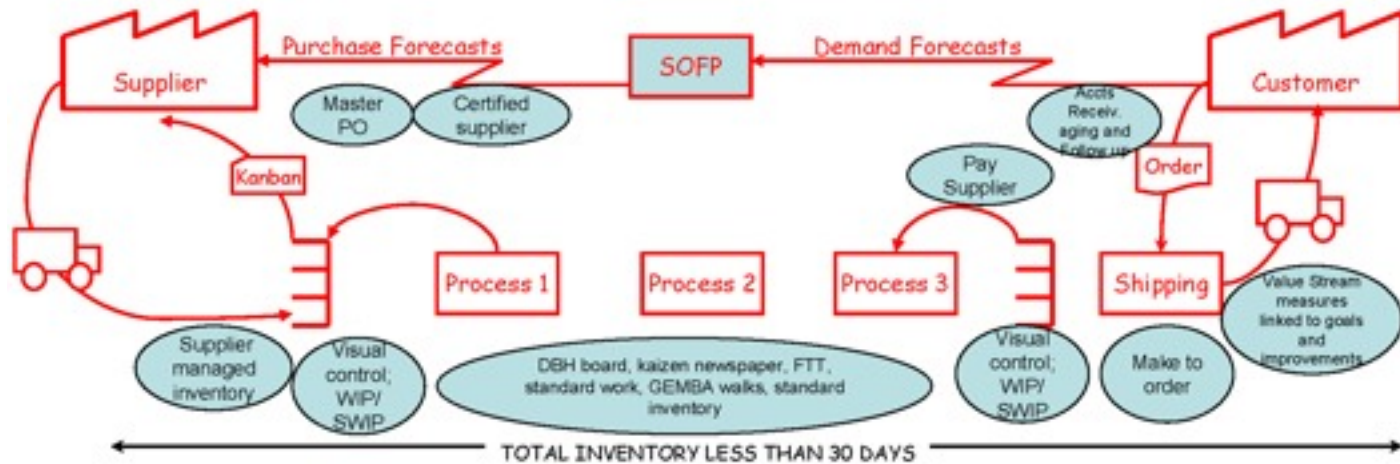
Visual Management



Value Stream Map

- Graphical tool to help you see and understand the flow of the material and information as a product makes its way through the value stream

Value Stream Map



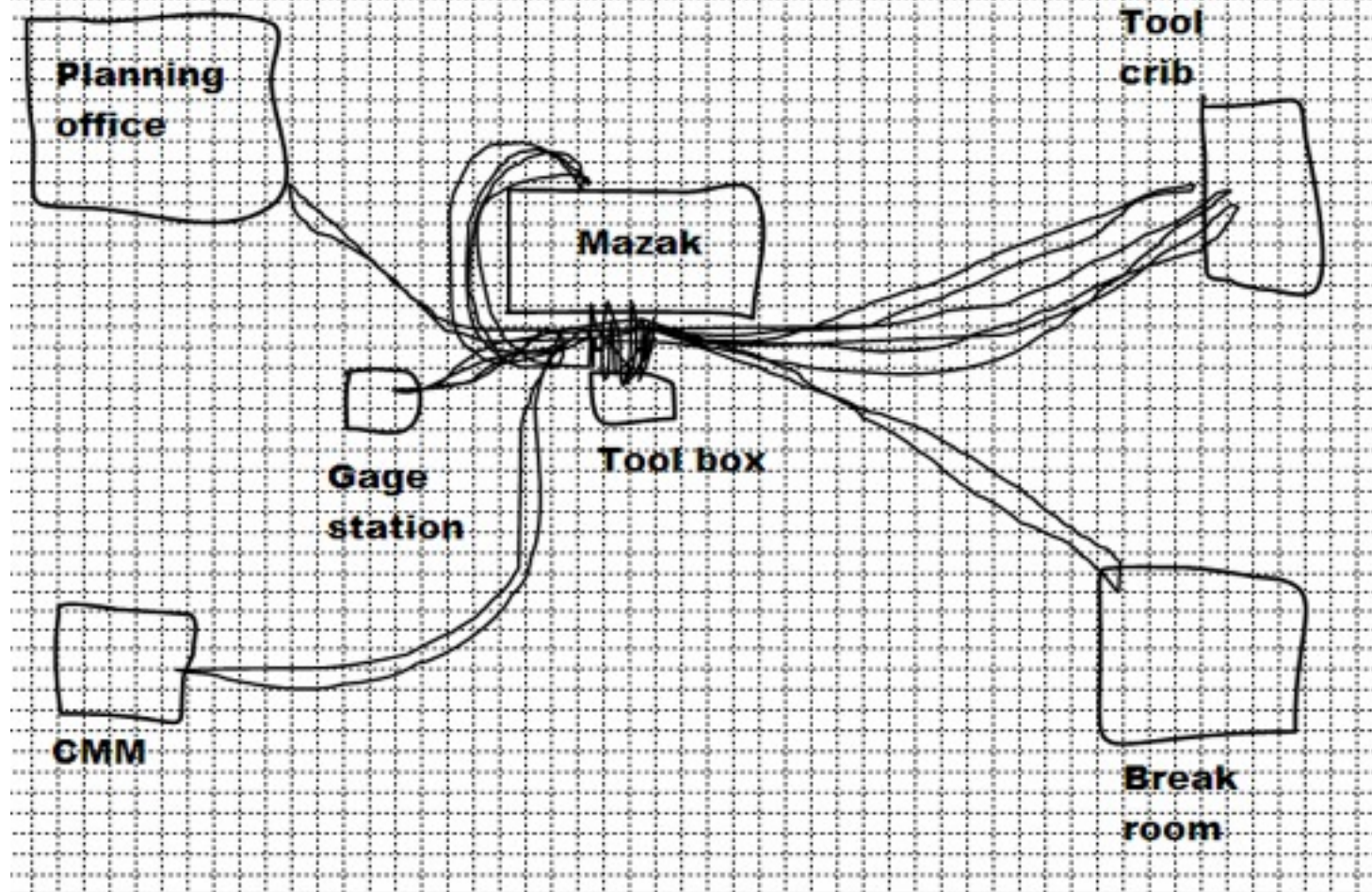
	Suppliers	Raw Materials & Components	Scheduling	Process 1,2,3	Work in Process, Finished Goods	Ship to Customer
PROCESS	Pull System	Visual pull System	Visual pull system based on customer orders	Visual pull system based on customer orders	Visual Pull System	Daily orders. Ship direct to customer
CONTROL RISK	<ul style="list-style-type: none"> PO to invalid supplier/ amount Invoice wrong amount, parts 	<ul style="list-style-type: none"> Quantities wrong Material cost wrong 	<ul style="list-style-type: none"> Customer changes order Wrong parts ordered Obsolete inventory 	<ul style="list-style-type: none"> Undetected waste Underutilized resources Resource amounts/costs wrong 	<ul style="list-style-type: none"> Quantities wrong Material, labor cost wrong 	<ul style="list-style-type: none"> Wrong product Wrong customer
CONTROL METHOD	Certified supplier, Master PO, Pay on completion, Supplier managed inventory	Visual inventory control, standard inventory, WIP/SWIP	Visual inventory control, WIP/SWIP, SOFP	Day by hour board, kaizen newspaper, FTT quality, standard work, GEMBA walks	Visual inventory control, standard inventory, WIP/SWIP	Make to order, Accounts receivable aging and follow up

Spaghetti Map

Area: MACHINE SHOP

Process: CNC LATHE CHANGEOVER

Distance: 2,312 feet



Spaghetti Map

- A flow charting method that uses a continuous line to trace the path of a part through all phases of manufacturing or distribution
- Spaghetti diagrams expose inefficient layouts and large distances traveled between steps
- With 40,000 work orders, each extra

Distance Traveled Savings

	A	B	Δ
WO ANNUALLY	40,000	40,000	
FEET PER WO	2,500	2,250	
TOTAL FEET TRAVELED	100,000,000	90,000,000	(10,000,000.00)
TOTAL MILES TRAVELED	18,939.39	17,045.45	(1,893.94)
MPG	2.25	2.25	-
HOURS TRAVELED	8,418	7,576	(841.75)
LABOR RATE	\$ 16.00	\$ 16.00	-
ANNUAL LABOR COST	\$ 134,680.13	\$ 121,212.12	\$ (13,468.01)

Kanban and Pull Systems

- Derived from the combination of two Japanese words, kan ("visual") and ban ("card" or "board"), kanban roughly translates to sign board or signal board
- Cart stocking where space allowed = par level

Poka Yoke

- The phrase Poka–Yoke originates from the Japanese words:
 - yokeru = to avoid
 - poka = inadvertent errors
- It is a methodology that is used to strive toward zero defects by either preventing or automatically detecting defects

Poka Yoke

- Respect the intelligence of workers by taking the judgment out of repetitive tasks or actions where errors are likely to occur
- People make mistakes (errors)
- Errors are not defects! Errors are part of human nature. Defects are not
- Defects arise from undetected errors

Kaizen

- **Kai** is an idea of change or the action to correct, **Zen** means "good"
- Kaizen is a Japanese business philosophy focused on making constant improvements. Its underlying concept stresses there will always be room for improvement. Fundamentally, kaizen aims to improve all activities and processes and eliminate waste and excess