

Lean

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Welcome to the World of Lean



Why is Lean important?

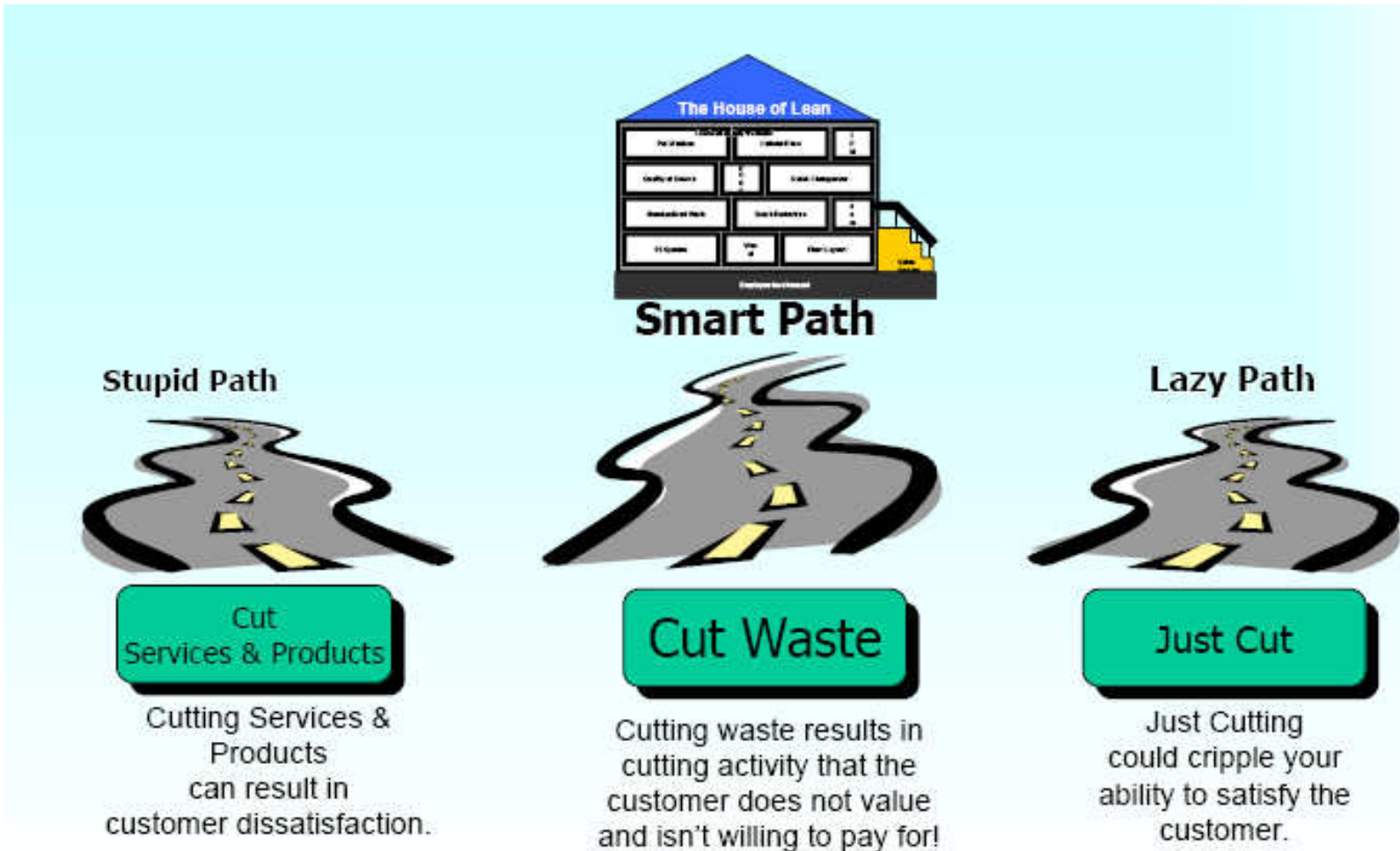
- In the most competitive of times, it is difficult to raise prices
- All costs are rising
- Margins are shrinking
- Reducing cost of goods is a way to increase margins
- Cutting waste from the system helps reduce cost



What some people say

- “It won’t work.”
- “We are different.”
- “It’s only for the Big Guys.”
- “We’re more retail, it won’t work.”

Why Lean? Just cut cost





What is Lean “Not”

- Lean is not efficiency
- The late Peter Drucker wrote:
 - “There is nothing so useless as doing efficiently that which should not be done at all.”



Looking at your business objectively

- Before discussing Lean, you must look into the business mirror and recognize there is a better way of doing things.
- Will there be a future for the business if we didn't change?



What are your current business results?

- Are your sales increasing?
- Are you paying yourself more?
- Can you update facilities?
- Do you need new equipment?

Is there a clear strategic course for the company?

- Do you have a clear understanding of where you are today?
- Do you have a vision of where you want the company to go?



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Are you meeting your financial and sales growth goals?

- Are you able to manage costs?
- How is your margin management?
 - Can you lower costs?
 - Can you raise prices?
- Can you maintain or increase profitability?

How effectively do you meet your customers' requirements?

- Have you asked your customer what **THEY** want or need
- Can you recognize the “Voice of the Customer”?



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How well does your organization respond to...

- Change?
- New circumstances?
- New ideas?
- The loss of “the way we always did it?”
- Managing system changes?



Lean starts at the top

- Top and middle management **MUST** have complete buy in
- The leaders need to be the ones to break down old barriers and lead the way into Lean
- There must be realistic expectations
- Pursue perfection but don't make the mistake of expecting it



Lean starts at the top

- Company leaders must lead the process and see it as part of their jobs
 - When Lean is built into management's yearly evaluations, changes tend to really increase
- Leaders must lead the way to continuous improvement
- Leadership must learn true Lean principles and not just Lean tools



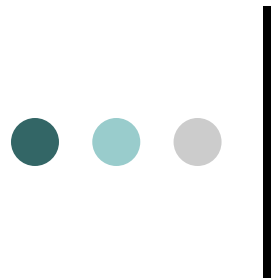
So what is Lean?

- Lean is identifying waste and value in your company and eliminating waste in the supply chain and production process
- Lean is establishing a “Mind Set” to always be looking for and eliminating waste



Identifying waste

- Waste may be motion, movement, time, labor or any number of components in the shipping, production and distribution channels
- Waste prevents flow and slows down processes. It is often engraved in our thinking, i.e., “we always did it this way.”



What we need is a definition of value and waste

Two forms of waste:

- *Necessary waste*
 - Activity that adds no value to the product but cannot be eliminated because of culture, technology or politics
- *Unnecessary waste*
 - *What can be eliminated*



What we need is a definition of value and waste

- Value

- An activity, service or transaction that changes the form, fit or function of a product
- Something the customer wants and will pay for



Now the question becomes

- How do we find value?
- How do we identify waste?
- What tools can we use?



8 characteristics of waste – #1 Excess inventory

- Definition
 - Any unnecessary supplies or materials that do not support just in time inventory
- Symptoms
 - Long process lead time
 - Interest charges and opportunity costs
 - Build up of material between processes (queues)
 - Extensive rework when problems arise
 - Additional materials handling



8 characteristics of waste – #2 Unnecessary transportation

- Definition
 - Any material movement that does not support a Lean value stream
- Symptoms
 - Multiple moves of material
 - Multiple storage locations
 - Damages materials
 - Poor facility layout
 - Lack of 5S and visual controls



8 characteristics of waste – #2 Unnecessary transportation

- Example

- High-tech moving equipment doesn't make transportation a value-added activity. The goal is to eliminate transportation, so that the purchase of high dollar equipment is not necessary
- Fast doesn't mean Lean. Automation that doesn't support a Lean value stream is a form of automated waste



8 characteristics of waste – #3 Over-processing

- Definition
 - Too many steps to complete a job that can be combined with other processes and is invisible to the customer
- Symptoms
 - Process bottlenecks
 - Lack of clear customer expectations
 - Redundant approvals



8 characteristics of waste – #3 Over-processing

- Symptoms cont'd
 - Extra copies and excessive information
 - Inefficient policies and procedures
 - Re-entering data
 - Unnecessary or excessive reports



8 characteristics of waste – #4 Waiting time

- Definition
 - Idle time in which no activity takes place. People and machines sit idle.
- Symptoms
 - People waiting for materials
 - People waiting for a machine
 - People watching machines run



8 characteristics of waste – #4 Waiting time

- Symptoms cont'd
 - Long setup times
 - Inconsistent work methods
 - Lack of proper equipment or materials



8 characteristics of waste – #5 Unnecessary motion

- Definition
 - Any movement of people which does not add value to the product
- Symptoms
 - Looking for tools and parts
 - Excessive reaching and bending
 - Material too far apart



8 characteristics of waste – #5 Unnecessary motion

- Symptoms cont'd
 - Picking things up only to set them back down
 - Poor facility layout
 - Handling product multiple times



8 characteristics of waste – #6 Producing defects

- Definition
 - Repair of a product or service to fulfill customer requirements
- Symptoms
 - Questionable quality
 - Incapable processes with excessive variation
 - Extra manpower to inspect, rework and repair
 - Additional inventory
 - Missed shipments, deliveries and deadlines



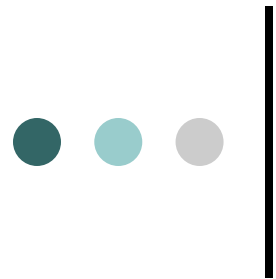
8 characteristics of waste – #7 Overproduction

- Definition
 - Producing too much too soon.
Working ahead or at a faster pace than needed. The MOST COMMON WASTE.
- Symptoms
 - Inventory stockpiles
 - Extra equipment



8 characteristics of waste – #7 Overproduction

- Symptoms cont'd
 - Unbalanced material flow and confusion about priority
 - Build ahead of demand
 - Extra storage locations and manpower



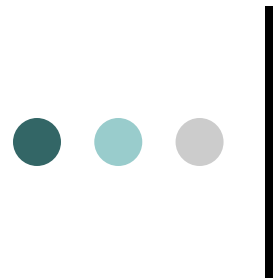
8 characteristics of waste – #8 Employees not engaged in problem solving

○ Definition

- Work force is unengaged in problem solving and safety/environment issues

○ Symptoms

- Injuries, near misses, lost work days
- Ingenuity gap
- No knowledge passed on by retiring employees



8 characteristics of waste – #8 Employees not engaged in problem solving

- Symptoms cont'd
 - Poor hand-off between management and employees
 - Information pollution
 - Communications barriers
- Every production problem can be solved by the collective wisdom of employees in the process. That knowledge needs to be harvested and managed!



The Cure

- The foundation of continuous improvement is employee involvement. The person closest to the job knows the most about it.
- It is a peer pressure approach as opposed to a compliance-based approach to improvement.



Lean tools

- Kaizen
- Standard work
- 5S
- POUS – point of use storage
- VSM – value stream mapping



Lean tools – Kaizen

- Kaizen – Japanese word for change
 - Slow daily incremental change and improvement
- Used often in the Lean process



Lean tools – Kaizen

There are at least 2 types of Kaizen

- Kaizen – Japanese word for “Change.” Slow, daily, incremental change and improvement usually done by workers in the process
- Kaizen Event – A one week change event, coordinated to produce large scale, break-through change



Lean tools – Standard work



Standard Work

Has 3 primary characteristics

- Defines the activities in the correct sequence
- The amount of time for each task
- Inventory build
(how many pieces can accumulate)

Item Number	Task	Time	Inventory
1			
2			
3			
4			
5			
6			
7			
8			



Lean tools – 5S

- The 5S's
 1. Sort – separate needed from unneeded items
 2. Set in order – arrange what is left
 3. Shine – clean, wipe, paint
 4. Standardize – plan guidelines to maintain
 5. Sustain – build institutional habits



Lean tools – 5S

5S Creates

- a clean and orderly work environment.
- a foundation for visual controls and lean production
- a process enabling waste elimination from activities
- a basis for teamwork
- daily self discipline and expectations

The 5S's

1. **Sort** - separate needed from unneeded items
2. **Set in Order** - arrange what is left
3. **Shine** - clean, wipe, paint
4. **Standardize** - plan guidelines to maintain
5. **Sustain** – build institutional habits

BEFORE

AFTER

5S in Cutting Sort Area



5S in Valve Room helps ensure correct application and delivery of feed



Lean tools – POUS Point of use storage



In this lean process, media is kept right at the "flat to pot" transfer process.

Using "Point of Use," bags of media are kept right at the media machine to reduce walking.



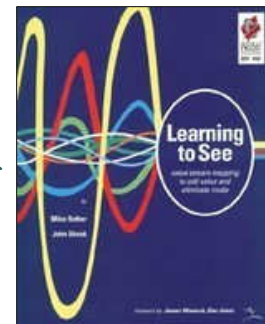
VSM: The Real Power

The Real power of the VSM
doesn't come from the ink and paper, but comes from...

I've done VSMing, by myself, without a team, and when it's all said and done, team members look at it as just paper & ink. When developed with a team, they see it as an invaluable tool.

- Andy

Everyone
"Learning to See"
the same process
the same way
from the perspective of
the final customer



Great book on VSMing!

[Leaning to See.](http://www.Lean.org)
www.Lean.org



Value stream

- The value stream is a series of steps to bring a product or service to the customer
- You start by defining value from the customer's point of view



Flow

- Flow means make one, move one, as opposed to making big batches that sit in long queues
- The smaller the batch, the shorter the lead time



VSM overview

- What is a value stream?
 - It is the flow of tasks/activities, material, and information used to grow and deliver a product to the customer
- What is value stream mapping (VSM)?
 - It is defining your processes and identifying the waste, or inefficiencies (current state map), and redesigning the process for improved functionality and effectiveness (future state map)



Value stream mapping

- The Value Stream Map is an orderly listing of all specific action steps being used to bring a specific product to finish
- It is all the critical management steps or tasks necessary to transform products into finished goods a customer will pay for



First create a map of the current state

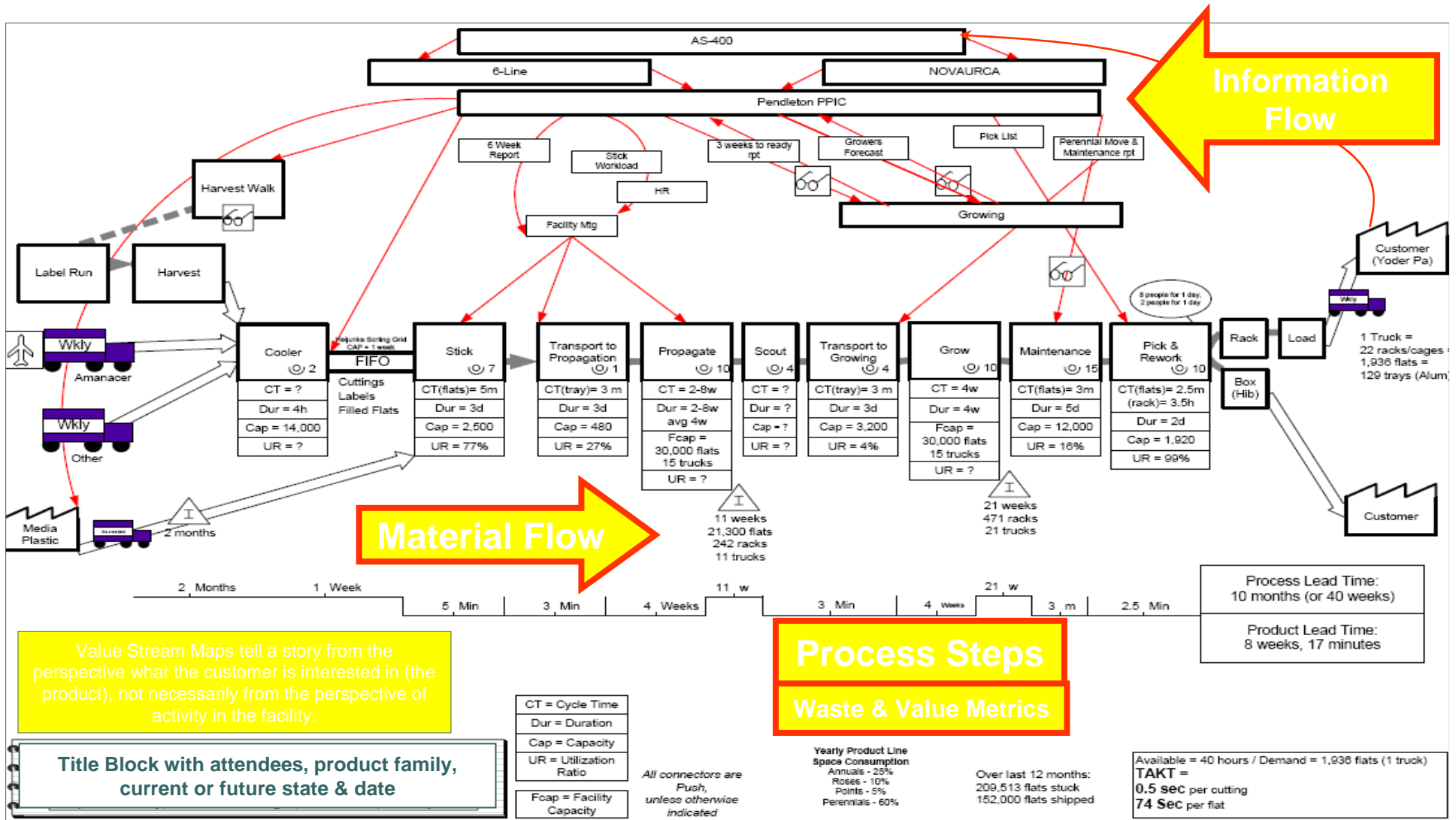
- Identify every step, action, movement or inspection in the process
- Identify action for
 - The container, the soil, the seed or plug or cutting



Current state map

- Steps might be:
 - Bringing containers to work area
 - Setting up pots or packs
 - Moving pots or packs, filling pots or packs
 - Sowing seed, planting plug
 - Sticking cutting, watering container
 - Moving to growing area

VSM: Map the *current* state value stream

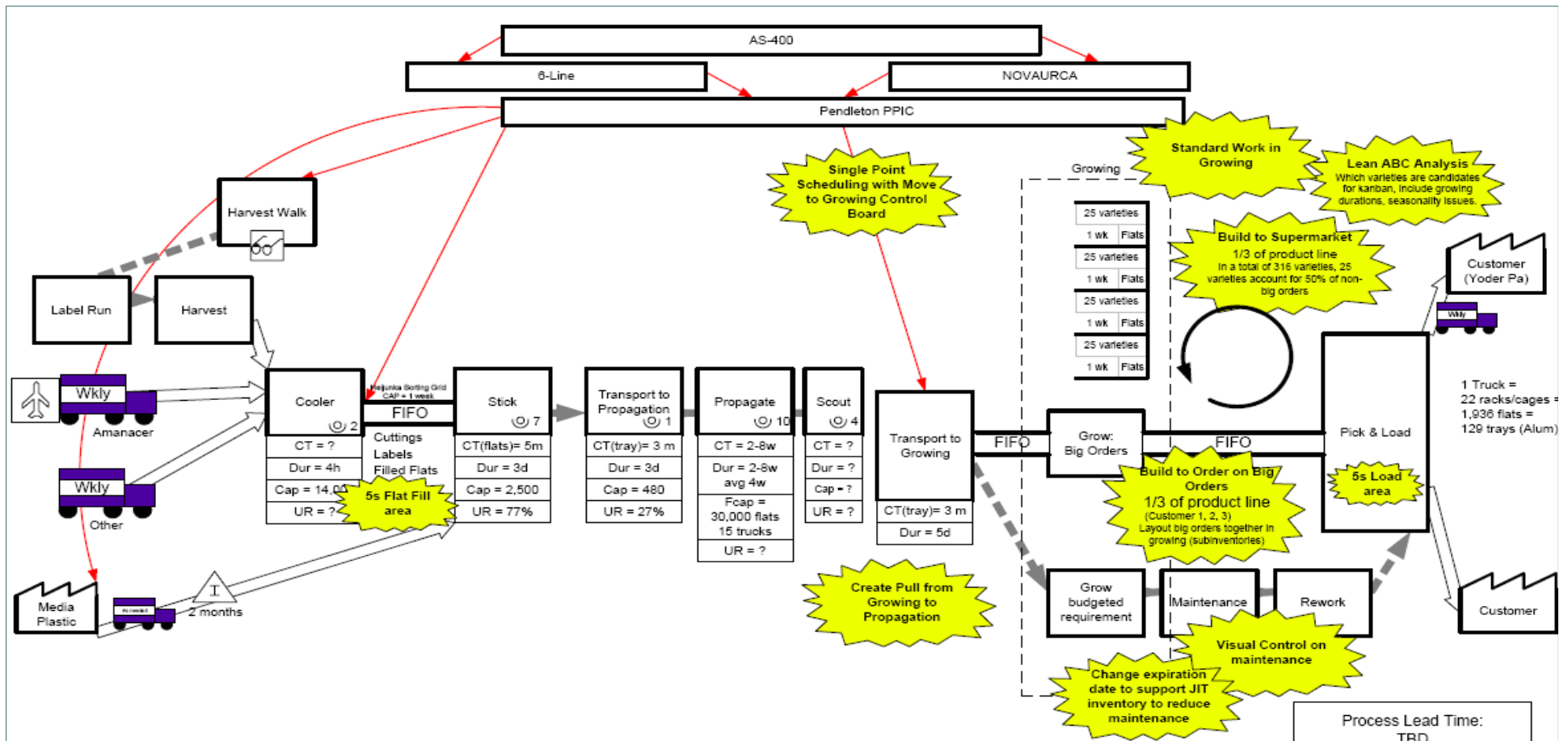




The future state value map

- The Future State Map is created by identifying and categorizing all the waste in the Current Map and eliminating it
- All the steps, all the action that remains becomes the Future State Map
- How did you know it was waste?

VSM: Map the *future* state value stream





Getting started

- Find a change agent
 - The leader of a Lean conversion who has the willpower and drive to initiate fundamental change and make it stick
 - Can be from inside or outside the organization, but should report directly to the owner or CEO
 - Must be able to approach all departments
 - Needs to leverage production improvements with the help of sales, marketing and logistics



Getting started – change agent cont'd

- Must engage every level and function of the organization
- Fixing one problem will not fix them ALL
- Everyone must become Lean thinkers



“Thou shalt...”

- “Thou shalt” means the leader is the boss. It’s a debilitating mental model.
- When you tell people what to do, their minds close. You lose their experience, knowledge and creativity.
- The more you tell them what to do, the more their minds close.



“What do you think?”

- “What do you think?” means the leader is the teacher. Like an open door, asking questions invites people in. It’s called the Socratic method of teaching.
- The underlying message is “I value your opinion.”
- A benevolent cycle results: people feel good so they get involved, which makes them feel even better. The result is that companies like Toyota get millions of improvement suggestions from team members.



Getting started – change agent cont'd

- So you ask, “How much of my resources should we dedicate to Lean implementation?”
 - Rule of thumb:
 - 1% of manpower dedicated to full-time Lean improvement
 - One full-time person = 2,000 hours per year



Getting started

- Obtain core Lean knowledge
- VSM



5 steps of Lean implementation

- Step 1 – Specify value
 - Define value from the perspective of the final customer. Express value in terms of a specific product which meets the customer's needs at a specific price and at a specific time. Encompasses quality, delivery, design & service



5 steps of Lean implementation

- Step 2 – Map
 - Identify the value stream, the set of all specific actions required to bring a specific product through the three critical management tasks of any business: the problem-solving task, the information management task, and the physical transformation task.
 - Create a map of the Current State and the Future State of the value stream. Identify and categorize waste in the Current State and eliminate it!



5 steps of Lean implementation

- Step 3 – Flow

- Make the remaining steps in the value stream flow. Eliminate functional barriers and develop a product-focused organization that dramatically improves lead-time

- Step 4 – Pull

- Let the customer pull products as needed, eliminating the need for a sales forecast



5 steps of Lean implementation

- Step 5 – Pursue perfection
 - There is no end to the process of reducing effort, time, space, costs and mistakes. Return to the first step and begin the next Lean transformation, offering a product which is ever more nearly what the customer wants.



Things to remember

- Manage expectations
- Do not place starting expectations too high
- Mistakes will happen and they will happen often
- Pursue perfection but do not make the mistake of expecting it



Things to remember

- Begin as soon as possible but NOT in peak period or production
- Start with important and visual activity



Things to remember

- Demand immediate results
- Gain immediate feedback
- When you have momentum, expand your scope



Some bad news

- Studies have shown that there will always be some managers and staff who will not accept new ideas
- These studies have shown that change agents and senior management all wish they had acted faster to remove those who won't cooperate



Things to remember

- Two steps forward and one step back is OK
- No steps forward is not OK
- Lead by example that when you have fixed something, you fix it again



Things to remember

- Constant improvement is the goal
- Those who are not dissatisfied will never make ANY progress