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Managing a Lean Seaport

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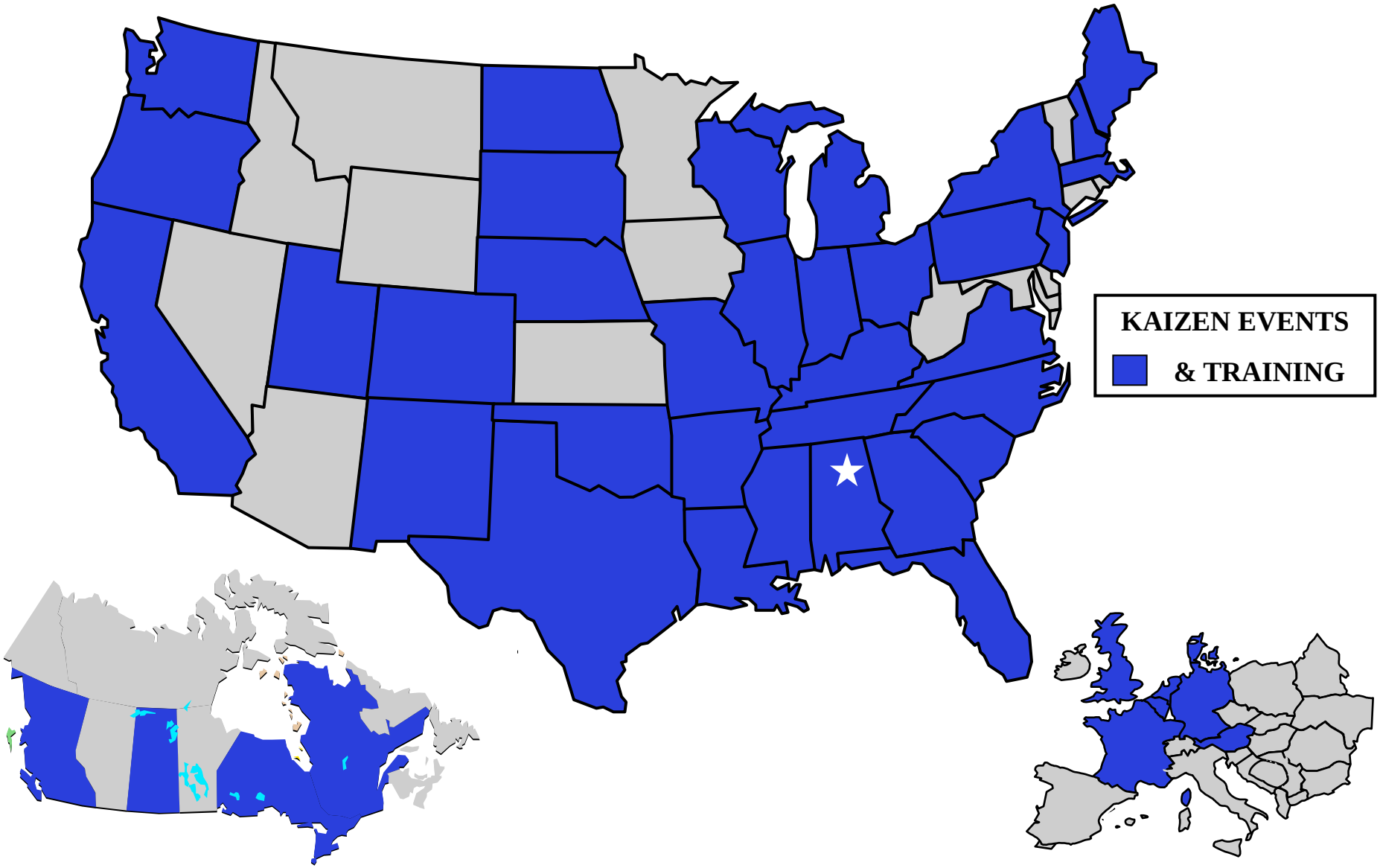
UAHuntsville Lean Research



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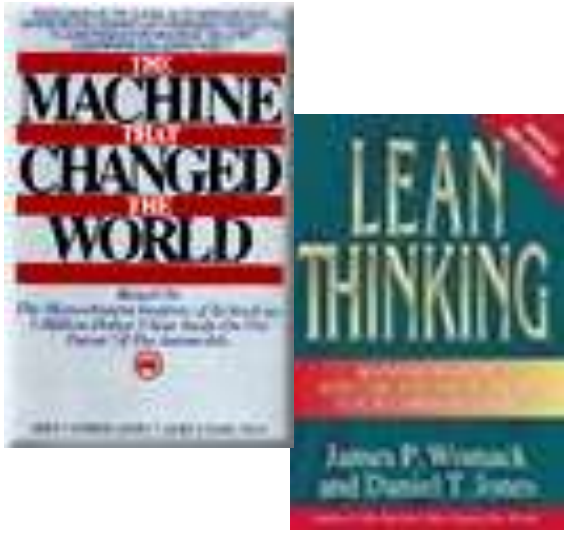
Where Did "Lean" Come From?

The Toyota Production System by Taiichi Ohno



The Machine That Changed the World and Lean Thinking

by Jim Womack and Dan Jones

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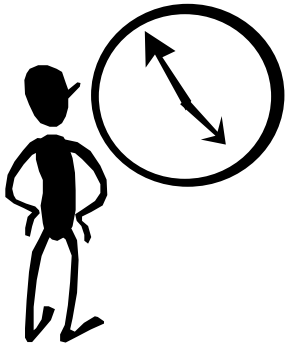
Lean Enterprise Objective

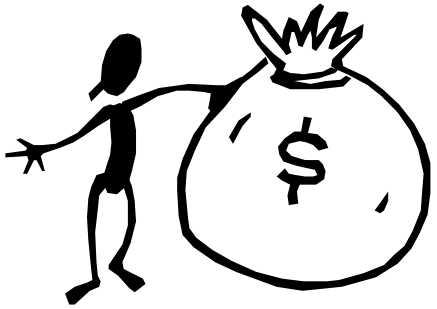
All we try to do is "reduce the timeline from the moment a customer places an order to the point the customer receives what they want (and the company collects cash) by removing non-value-added activities (or waste)"– Taiichi Ohno, *The Toyota Production System*

SATISFY THE CUSTOMER BY…



COMPRESS TIME

IMPROVE QUALITY



REDUCE COST

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Why Lean at Ports?

To increase port capacity without significant investment in new resources, me must:

- **<u>Flow</u> material through at a faster rate**
  - Unload more efficiently when it arrives
  - Manage material more efficiently while we store it
  - Load more efficiently when it departs

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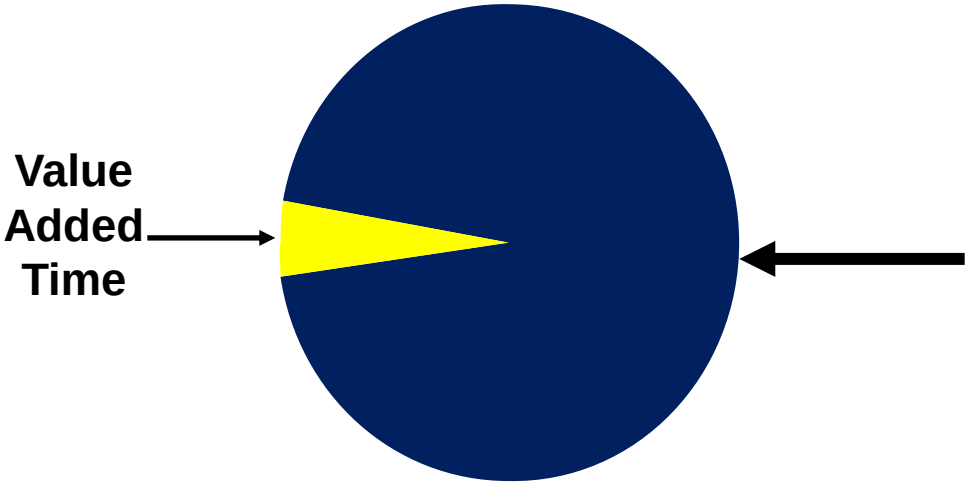
"Learning to See"

Every process has wastes…the key lies in seeing it



VALUE ADDING ACTIVITY

Absolute minimum activities which must be done to produce customer requirements:

Things that customers pay for

NON-VALUE ADDING ACTIVITY

Any resources like labor, space, materials spent in the manufacturing process that customer has no requirements for:

Things that customers do not pay for

Typically 95% of Total Lead Time is Non-Value Added!

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8 Deadly Wastes

- **D**efects
- **O**verproduction
- **W**aiting
- **N**ot Utilizing People's KSAs
- **T**ransportation
- **I**nventory
- **M**otion
- **E**xcess Processing

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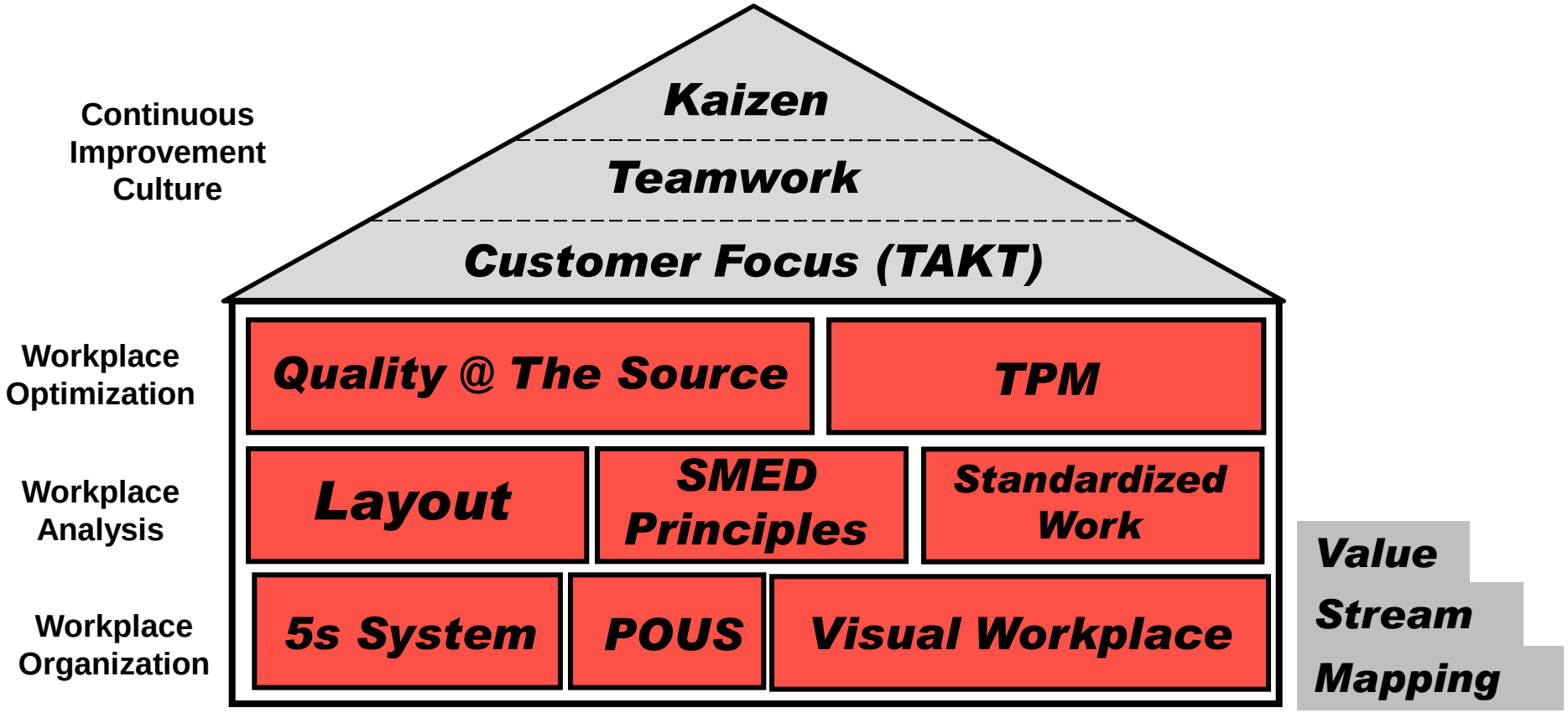
UAH Lean Enterprise for Port Operations



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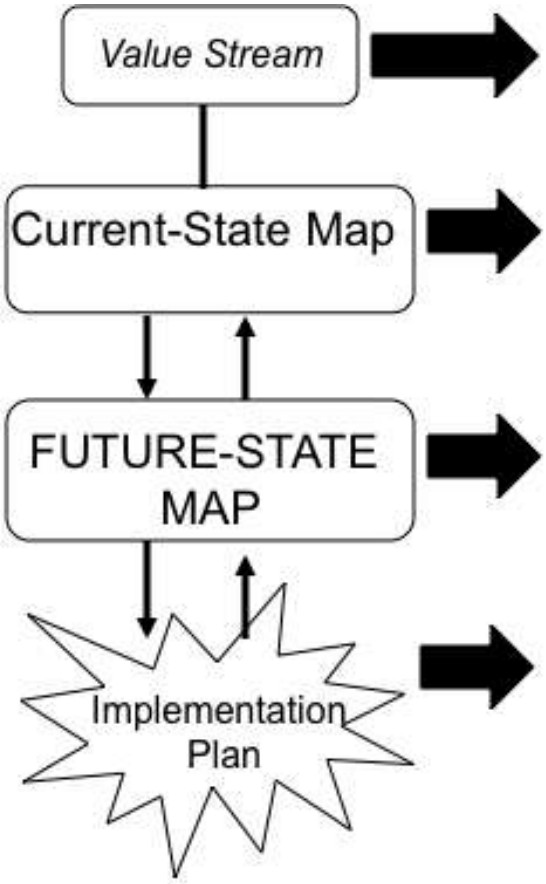
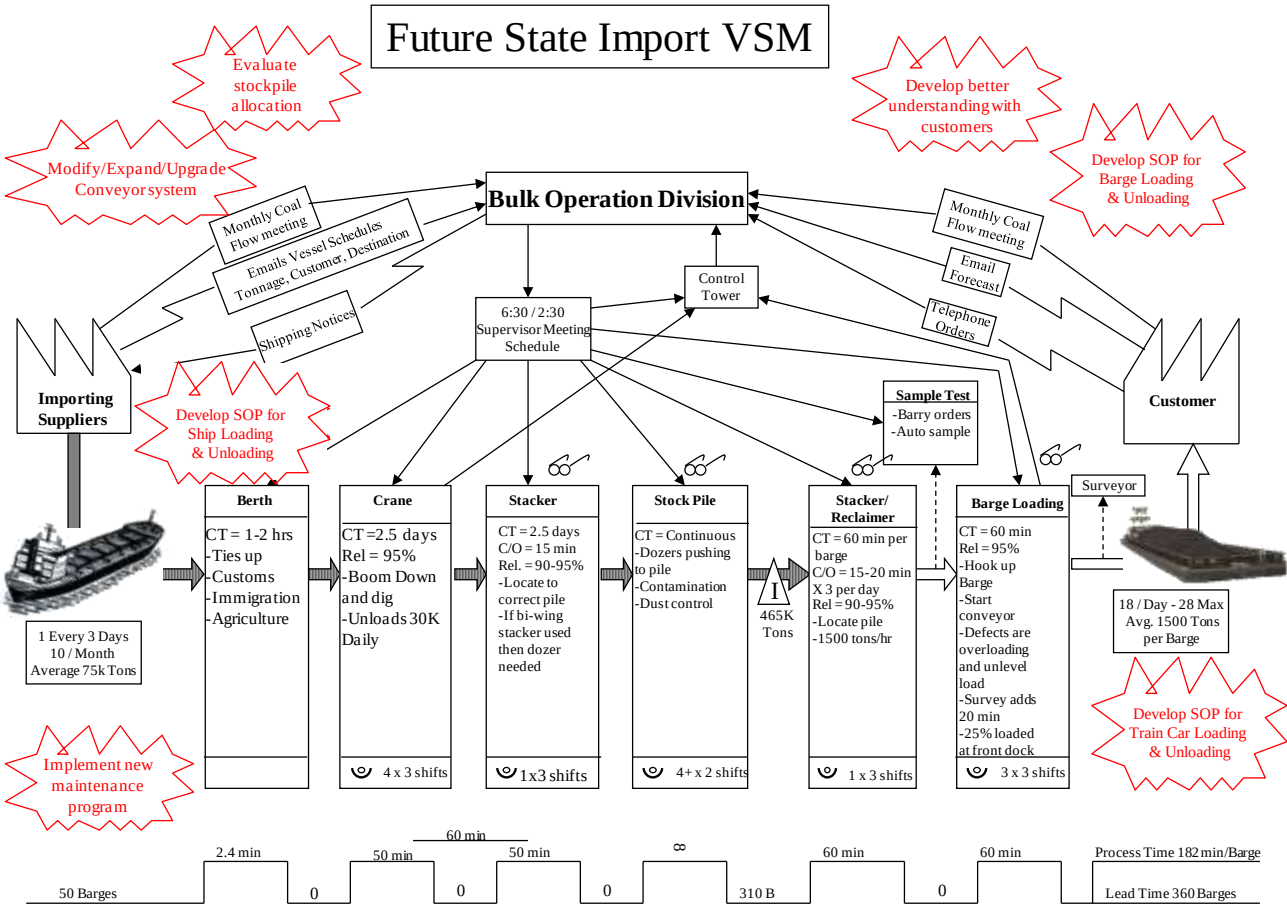
Value Stream Management





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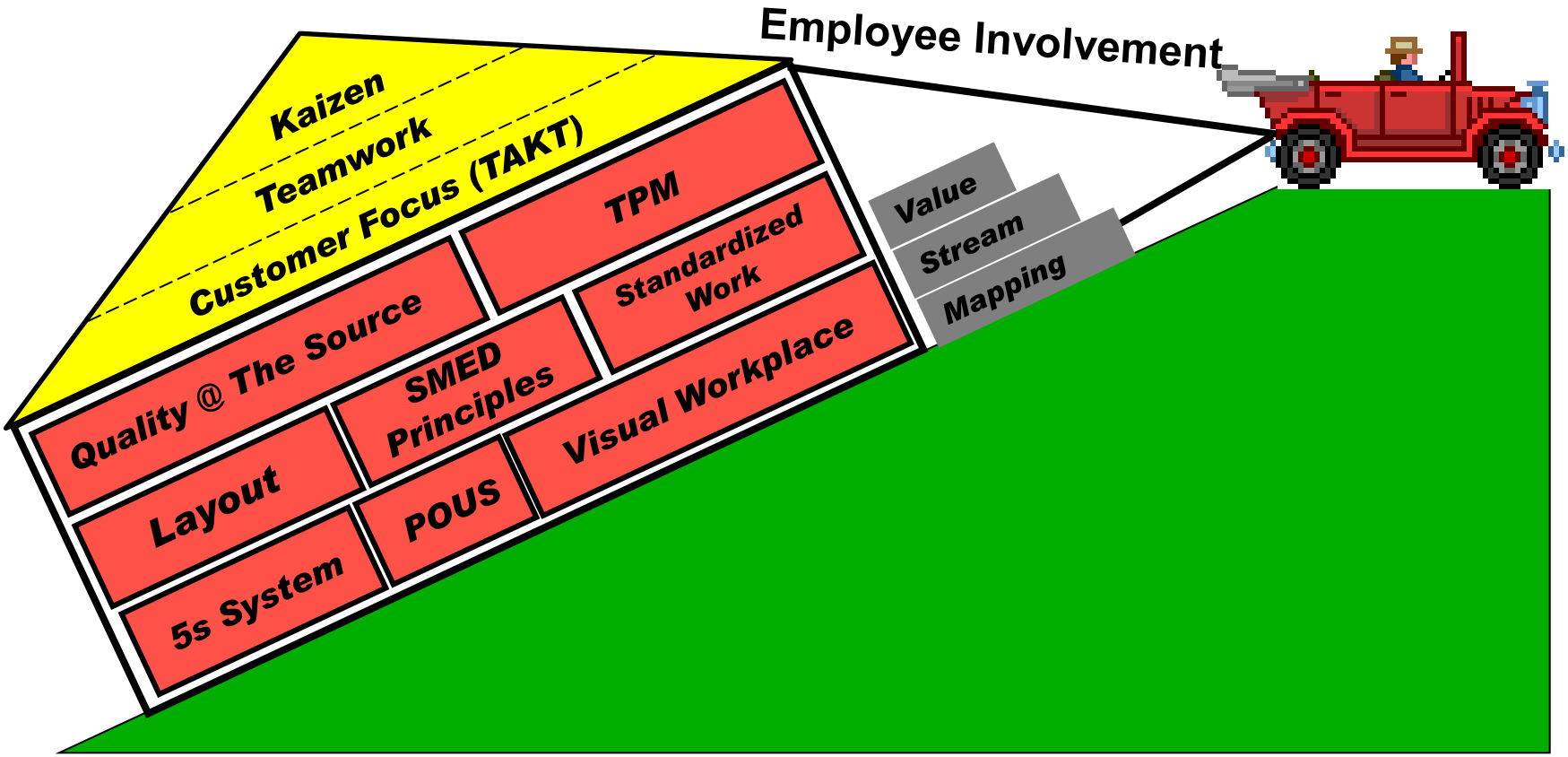
Kaizen and Lean

Kaizen is the vehicle of implementation for Lean tools

- Cross-functional team
- Focused scope, aggressive goal
- Eliminates wastes in a short amount of time at a minimal cost



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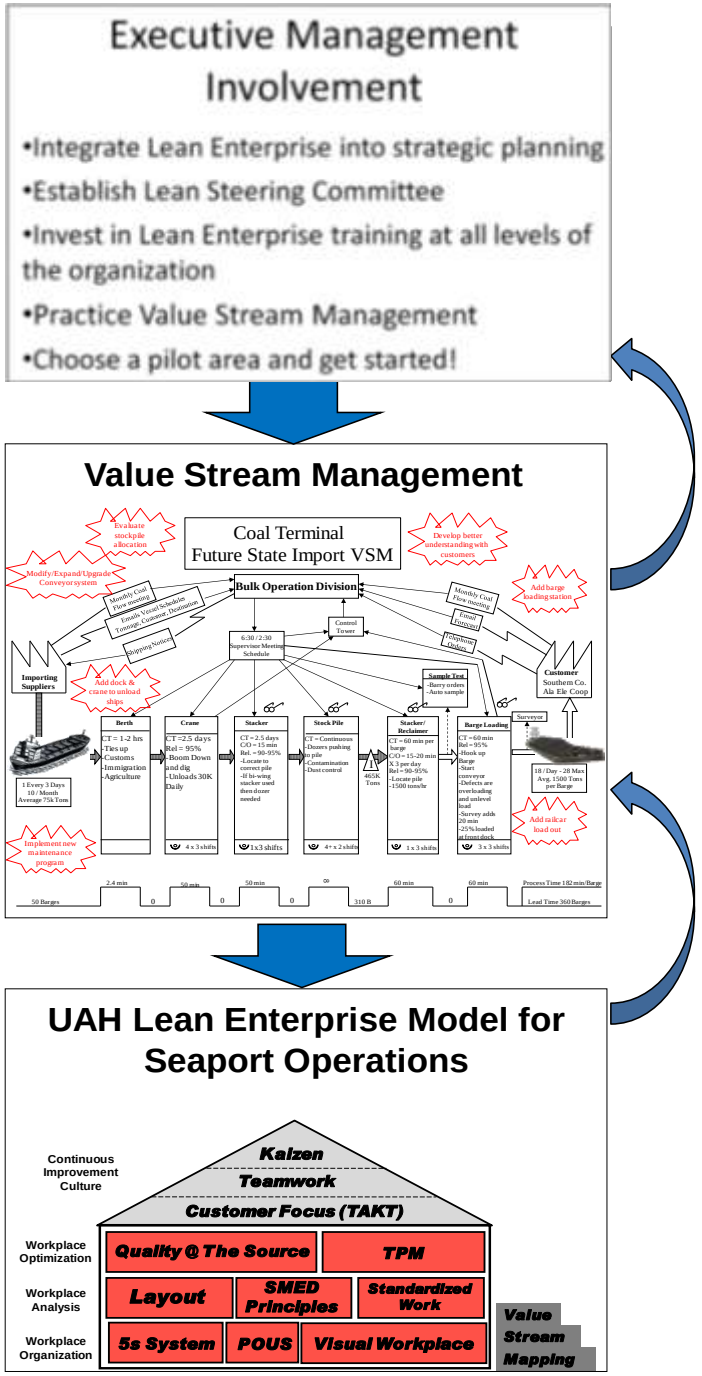
Path to Becoming a Lean Port

- Integrate Lean Enterprise into strategic planning
  - Clear organizational vision, mission, and values
  - Link continuous improvement to overall business objectives
- Establish a corporate Lean Steering Committee to champion efforts
- Invest in Lean training at all levels
- Practice Value Stream Management and Map Value Streams
- Schedule improvements (kaizen!) based on implementation plan



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Key Elements of Strategic Planning

- Values
  - What are the key factors that drive our organization's culture, priorities, and decisions?
  - Ex: profitability, employee development, environmental responsibility, respect, etc.
- Vision
  - How we desire our organization and/or the world in which we operate to exist
  - Ex: A global world with full access to all resources for a quality life
- Mission Statement
  - States the purpose of the organization, defines the customers, and defines specific value or uniqueness of the organization
  - Ex: To be the premier import coal terminal on the Gulf Coast, supplying coal to power plants across the Southeast through world-class operations and exceptional customer service
- Identify value streams that will accomplish the mission
  - What group(s) of processes create value for our customers?
  - Ex: Imports, Exports, Maintenance

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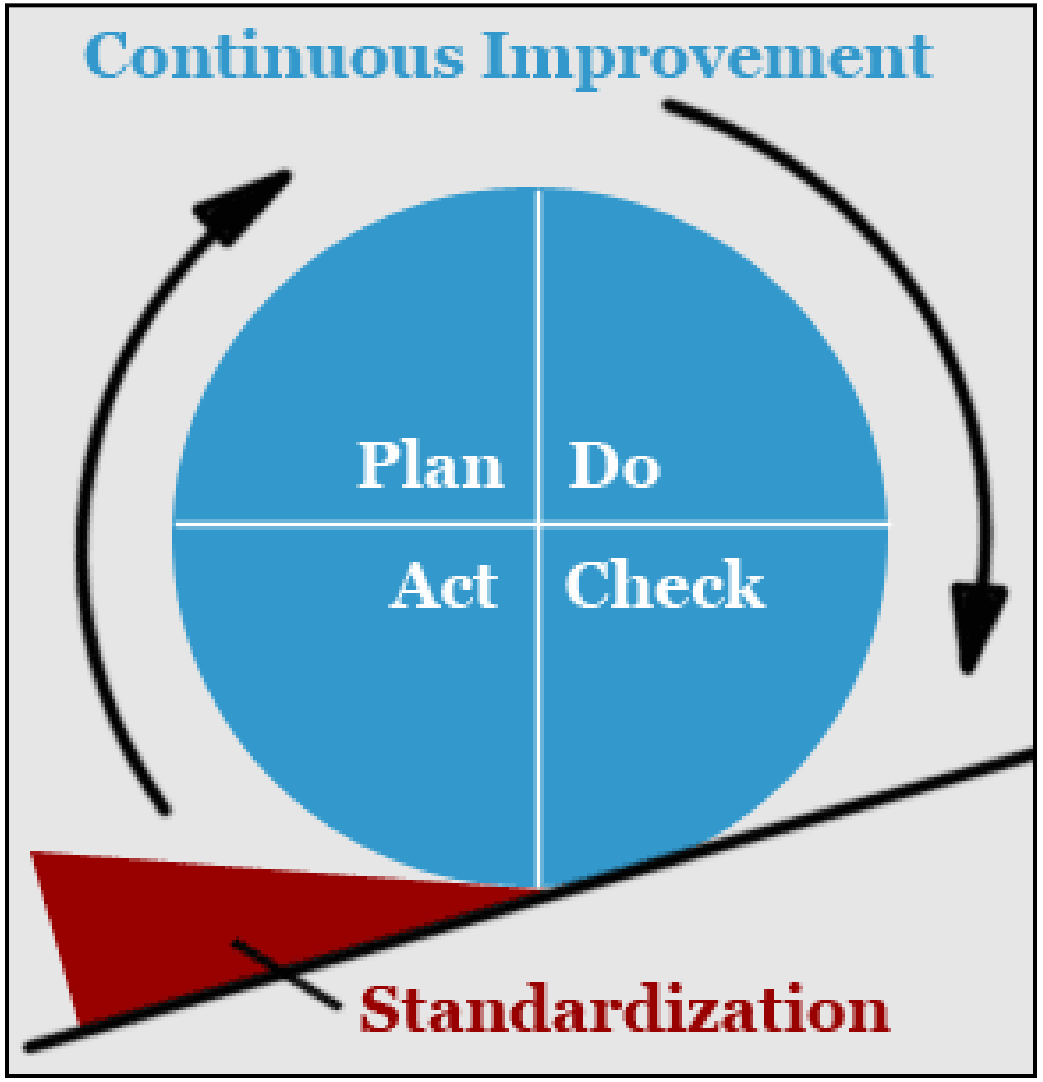
Toyota's Management System– The PDCA Cycle

- Standard management process that drives down to ALL levels of the organization
- Time allocation:
  - Plan – 70%
  - Do- 10%
  - Check- 10%
  - Act/Adjust – 10%
  - How do you typically spend your time?
- The "DO" at one level triggers the "PLAN" for the next lowest level



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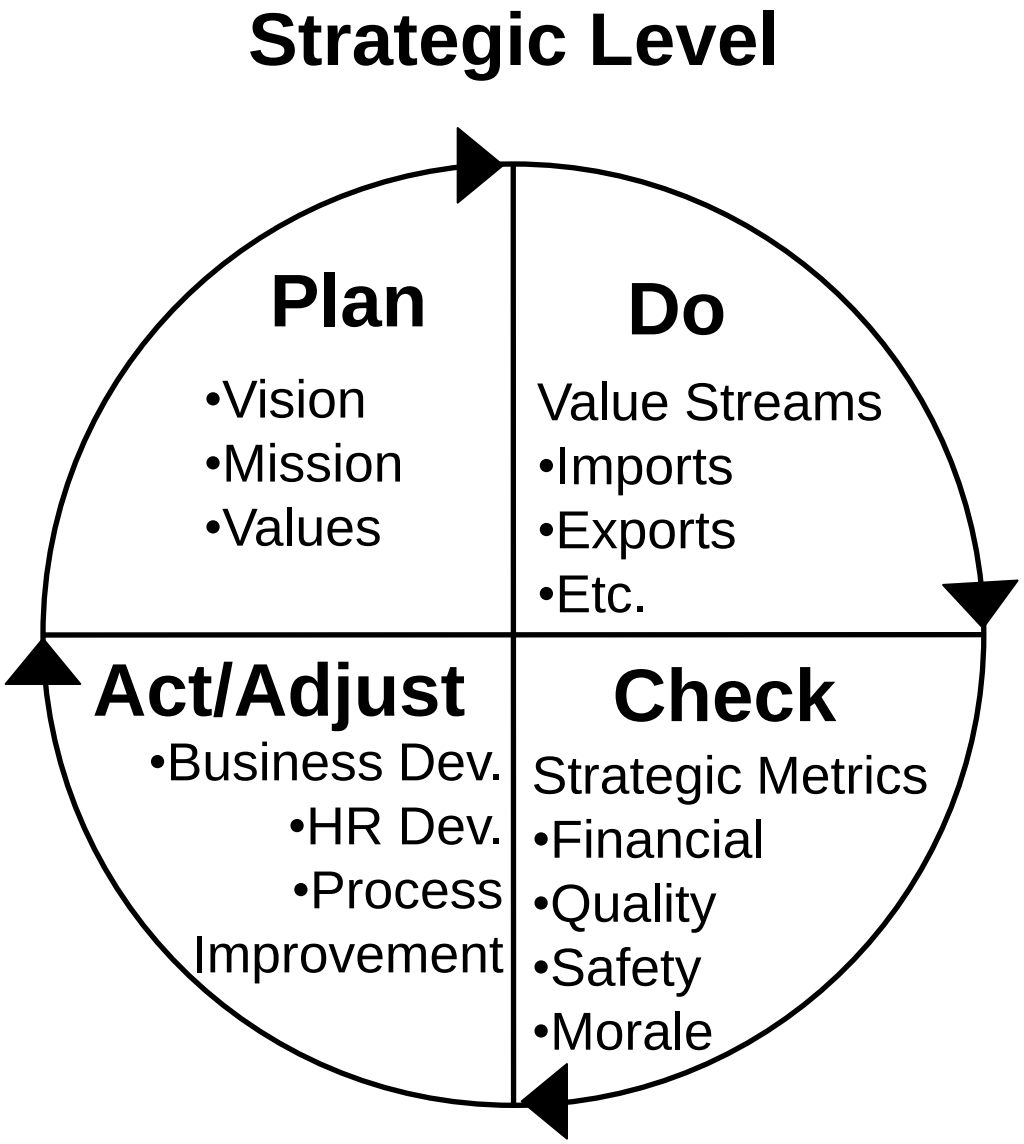
PDCA- Strategic Level



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PDCA- Operational Level

Strategic Level

Operational/Value Stream Level

Plan

Value Stream Map
- Current State
- Future State
- Implementation Plan

Do

Improvements
- Go-do
- Kaizen Event
- Projects

Act/Adjust

Manage VSM Plan
- Hold reviews
- Update Future State Map

Check

Operational Metrics
- Dwell Time
- Truck turn time
- Lifts/hour
- Defect %

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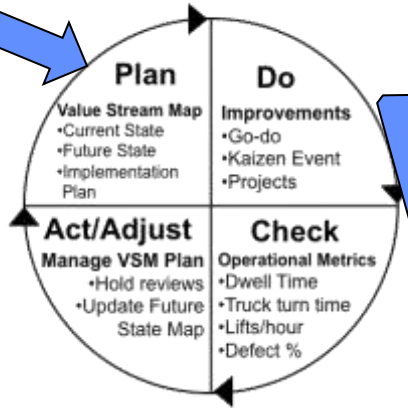
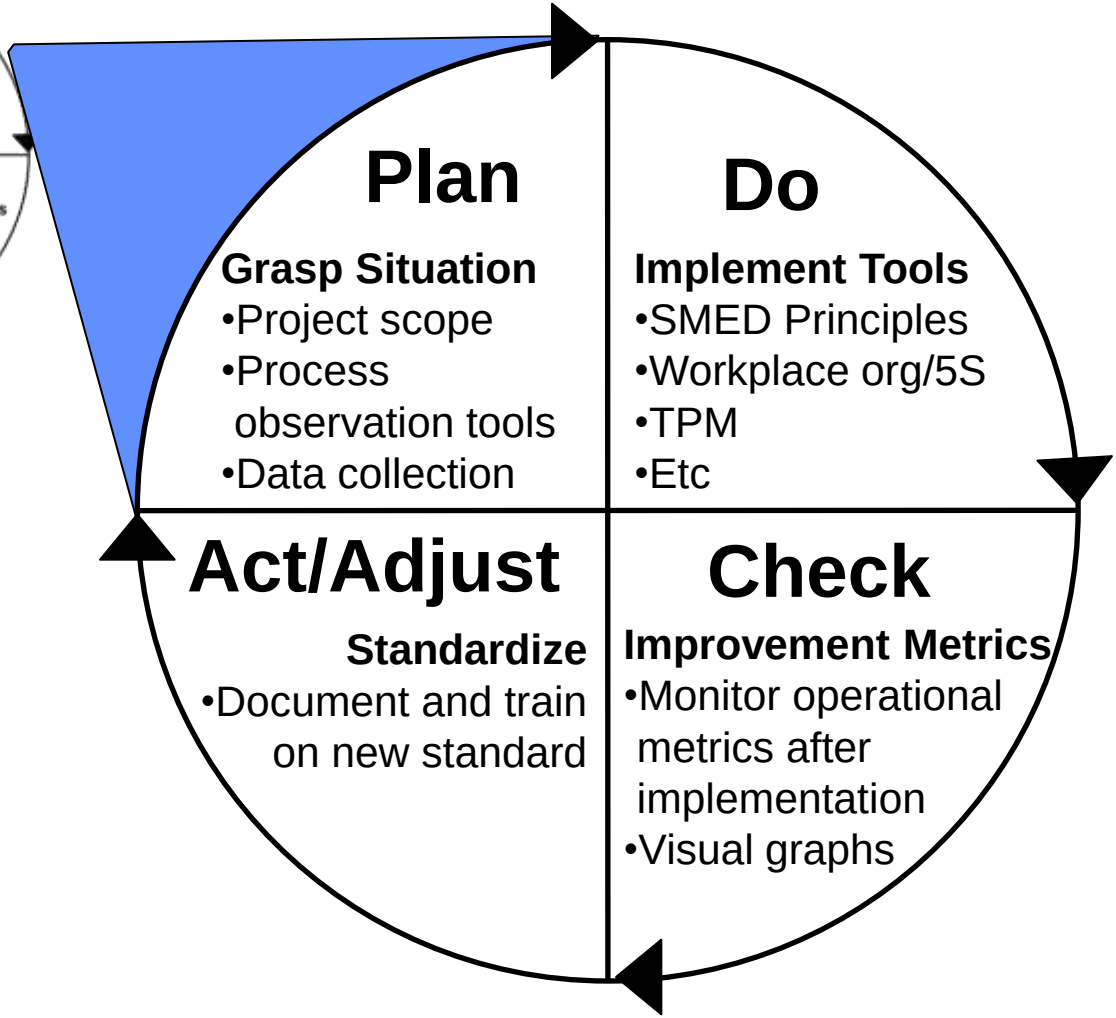
PDCA- Process Level

Strategic Level

Operational/Value Stream Level



Process Level



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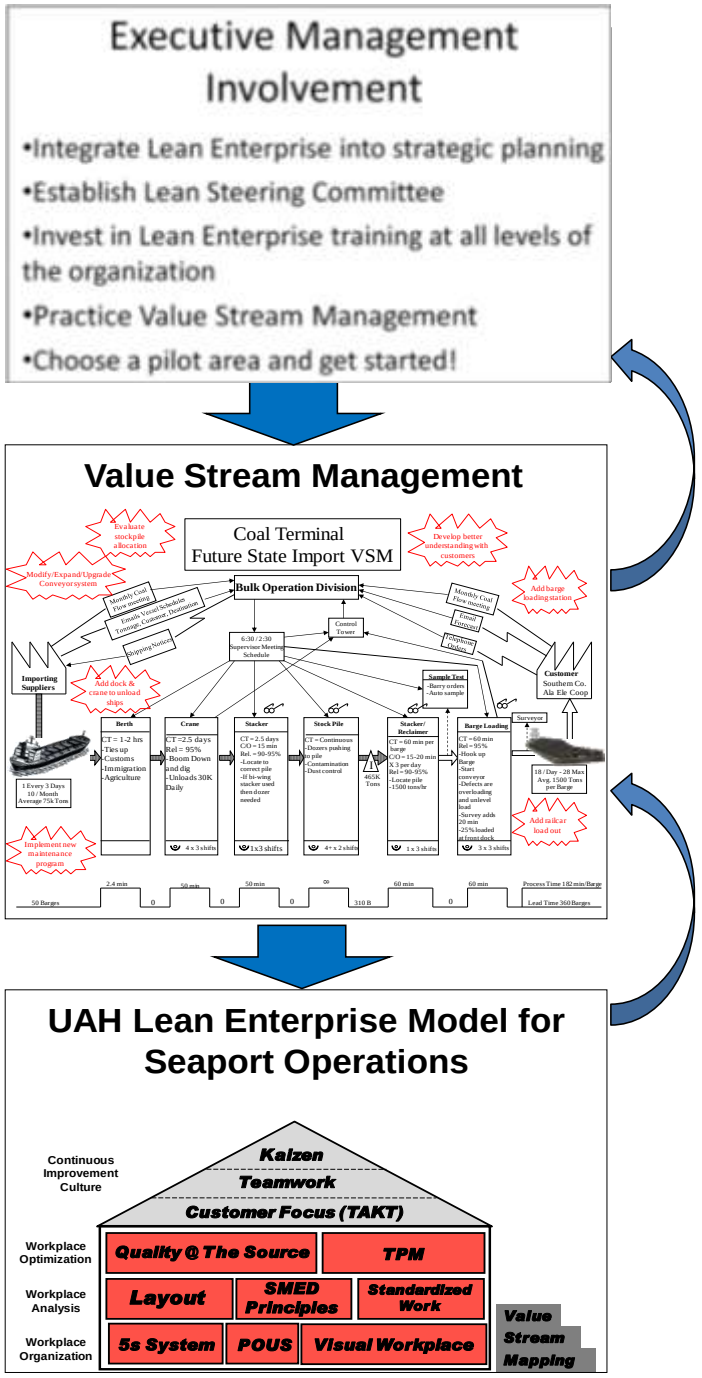
Path to Becoming a Lean Port

- Integrate Lean Enterprise into strategic planning
- Establish a corporate Lean Steering Committee to champion efforts
  - Identify value streams
  - Establish appropriate performance metrics
  - Identify training needs
- Invest in Lean training at all levels
- Practice Value Stream Management and Map Value Streams
- Schedule improvements (kaizen!) based on implementation plan



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Responsibilities of Steering Committee

- Develop and communicate a vision and strategy
- Identify who our customers are (importers, exporters, ship owners, ship operators, etc.)
- Identify and support Value Streams and Value Streams Managers
- Communicate a sense of urgency
- Establish standards and sustain improvements
- Recognize and reward
- Celebrate the successes
- Continue until it is culture

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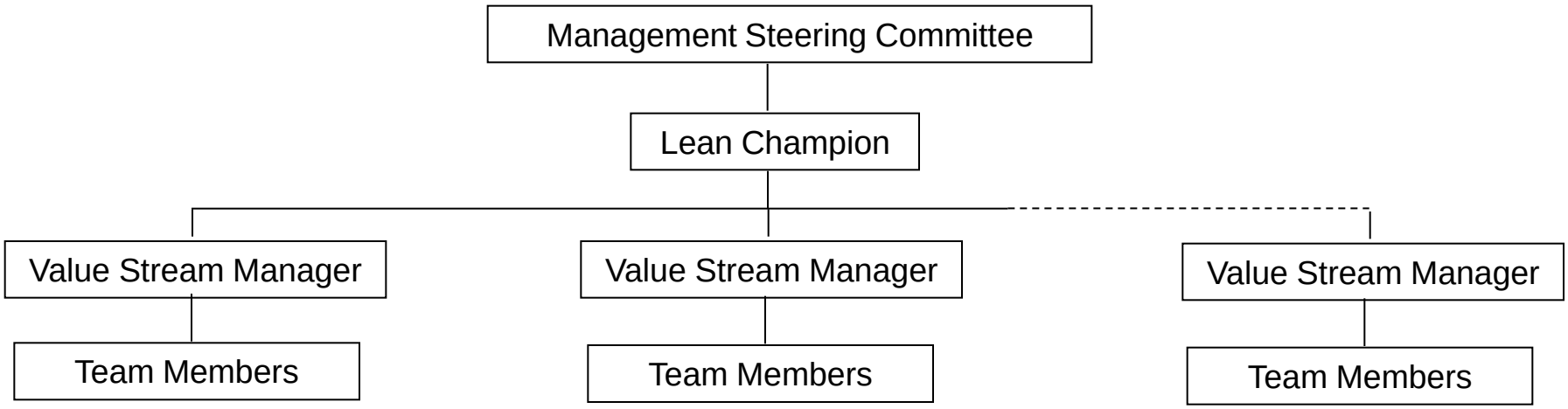
Lean Organizational Chart



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Roles of Steering Committee

PLAN

- Develop and communicate a vision, mission, and strategy
- Indentify our customers
- Identify and support Value Streams and Value Stream managers
- Training: Management, Facilitators/Lean Leaders, Employees

DO

- Identify opportunities and estimate savings at a strategic level

CHECK

- Develop metrics & tracking system
- Identify person(s) responsible for tracking, managing & reporting

ACT

- Be engaged and foster a continuous improvement culture
- Hold structured periodic reviews to guide future improvements and strategies based on previous results and projected developments
- Recognize and reward

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Roles of Lean Champion

PLAN

- Participate in Steering Committee meetings
- Scope and schedule improvement activities (value stream mapping, kaizen events, etc.)

DO

- House and coordinate resources for Lean training
- Facilitate and support improvement activities
- Measure results

CHECK

- Work with value stream managers to manage improvement activity follow-up actions
- Ensure appropriate metrics are collected and reported
- Monitor improvement activity results

ACT

- Hold meetings with value stream managers to ensure sustainment of improvement standards
- Report back to Steering Committee

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Roles of Value Stream Managers

PLAN

- Participate in Steering Committee meetings
- Work with Lean Champion to scope and schedule improvement activities (value stream mapping, kaizen events, etc.)

DO

- Map current and future state value stream map annually
- Manage value stream implementation plan
- Identify training needs within value stream
- Be engaged and support all improvement activities for the value stream

CHECK

- Work with Lean Champion to manage improvement activity follow-up actions
- Collect appropriate metrics
- Hold follow-up reviews for each action on the value stream implementation plan
- Ensure improvements, new standards and procedures are being followed

ACT

- Update value stream map based on results of improvement activities
- Hold meetings with Lean Champion to ensure sustainment of improvement standards
- Report back to Steering Committee

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Measuring Port Performance

- Measuring port performance is necessary for the **CHECK** phase of the PDCA cycle
- Without proper performance measures and data, we cannot understand our standard and how we are performing against that standard
  - Determine the metrics needed to measure improvement
  - Determine how you document and report the results
  - Make sure that the operators/supervisors understand and know how to use the new metrics

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Organizational/Transformation Metrics

Customer Focused:

- Customer satisfaction
- Turnaround times
- Quality

Employee Focused:

- Morale
- Safety
- Flexibility

Operational:

- Ship/Truck turnaround time
- Container dwell time
- Crane productivity (lifts per available hour)
- Yard productivity (moves per hour)
- Cost/ton of cargo
- Defect rates
- Overall equipment effectiveness (OEE)
- Cross-trained employees
- Accidents
- Implemented suggestions

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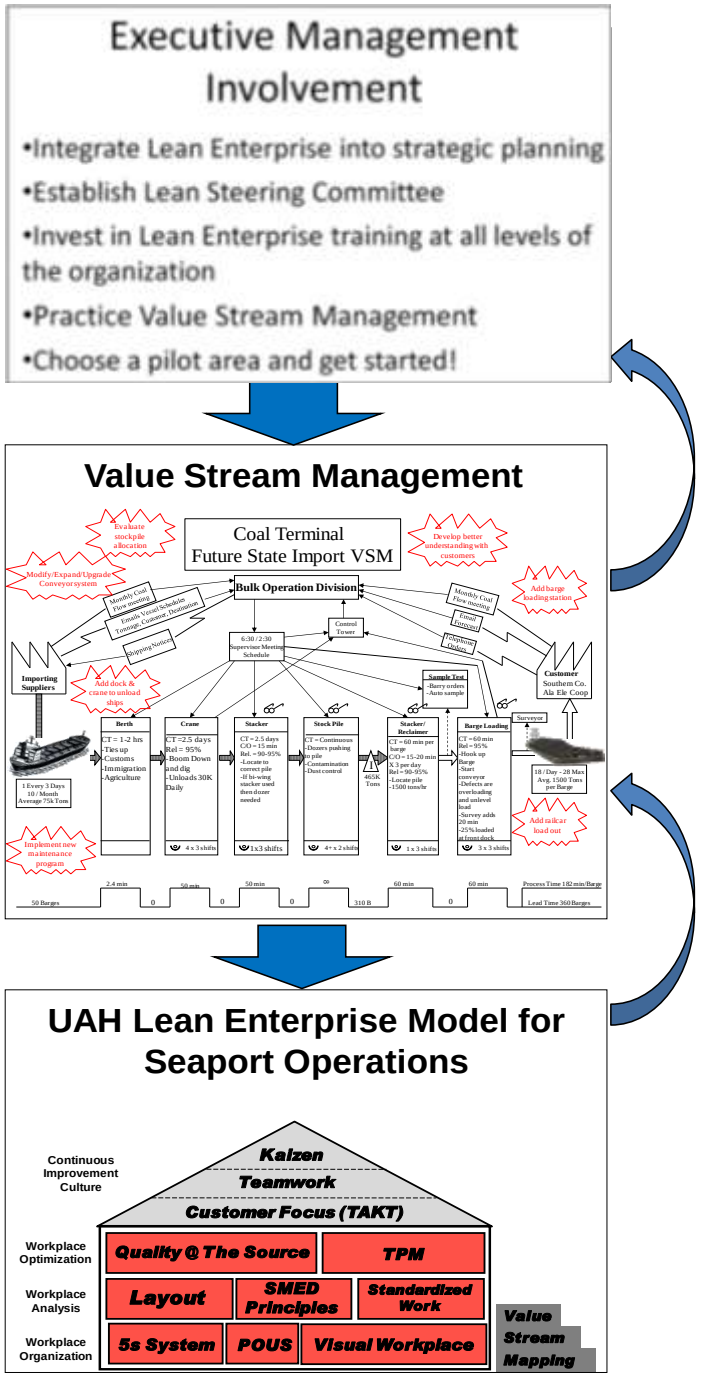
Path to Becoming a Lean Port

- Integrate Lean Enterprise into strategic planning
- Establish a corporate Lean Steering Committee to champion efforts
- Invest in Lean training at all levels
  - Learn to “see” waste
  - Establishes an organization of problem-solvers
- Practice Value Stream Management and Map Value Streams
- Schedule improvements (kaizen!) based on implementation plan



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Training: To Drive the PDCA Cycle at all Levels of the Organization

- Upper Management and Support Functions
  - Lean awareness training
  - Roles and characteristics of a Lean organizational culture
- Lean Champion and Value Stream Managers
  - Practitioner-level training on application of tools
  - Problem-solving and leadership
  - Project management
- Team Leaders/Supervisors
  - Lean Concepts overview
  - Job methods improvement training
  - 4-step Job Instruction (how to train others to do jobs)
- Operators
  - Waste identification
  - Lean Concepts overview

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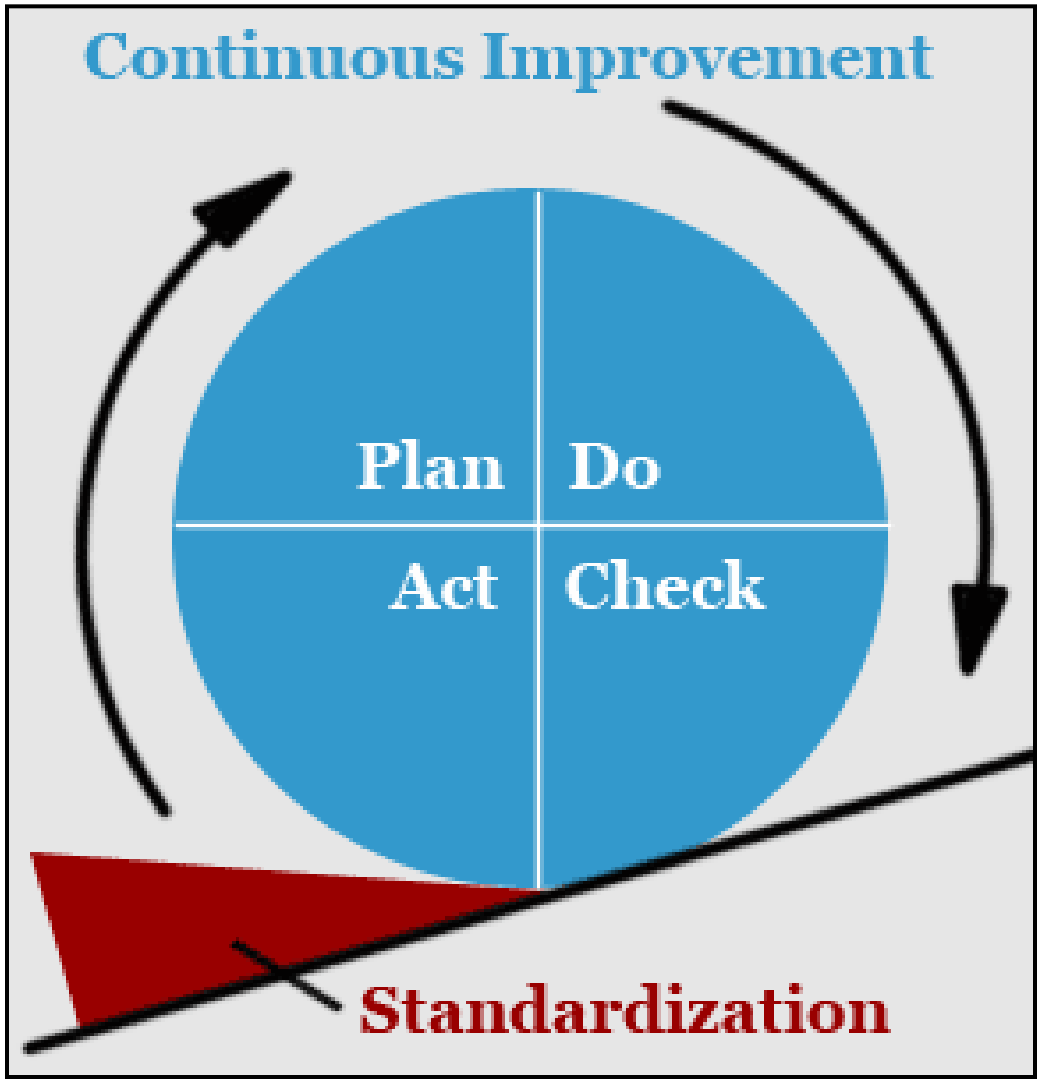
Training: To drive the PDCA Cycle at all Levels of the Organization

Training allows us to:

- Align focus and common language
- Establish standards of what normal operating conditions look like
- Learn to see waste
- Create an organizational community of problem-solvers
- Use continuous improvement tools to eliminate waste
- Develop and train on new standards



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Path to Becoming a Lean Port

- Integrate Lean Enterprise into strategic planning
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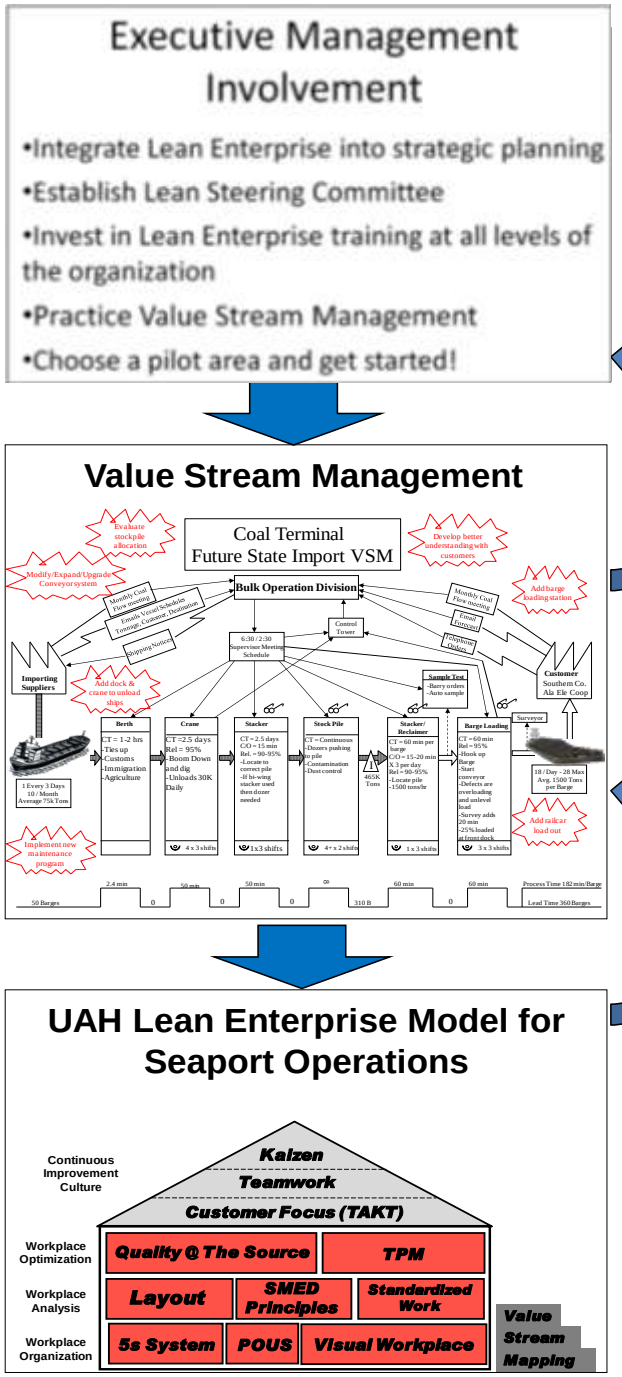
- Practice Value Stream Management and Map Value Streams
  - Current state
  - Future state
  - Implementation plan
- Schedule improvements (kaizen!) based on implementation plan



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What is a Value Stream?

A value stream is…

- ALL the activities that create value
- Starts with cargo arrival, raw materials or initial information
- Ends with the end customer/user

Customer Information flow




Customers

Cargo flow

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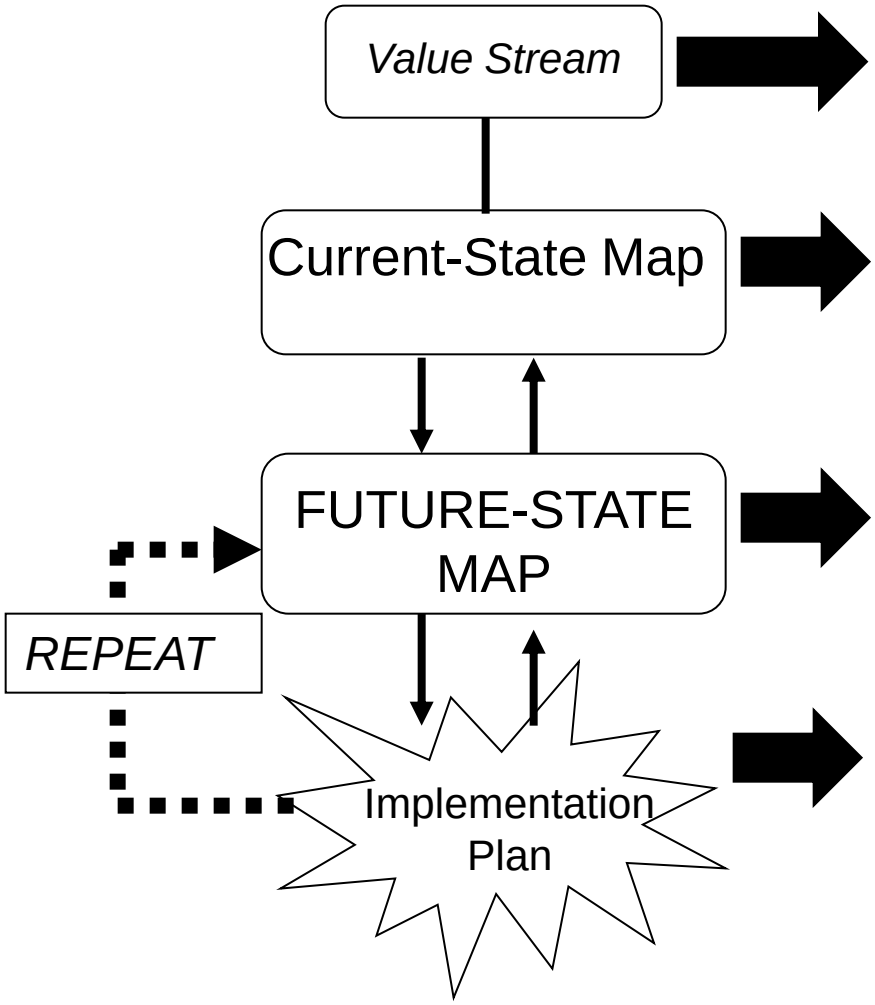
Value Stream Mapping Components



- Determine the organization's value streams, then for each:
- Understand how the operation currently works (identify waste)
- Design for a lean value flow
- Develop a detailed roadmap of how to get there!

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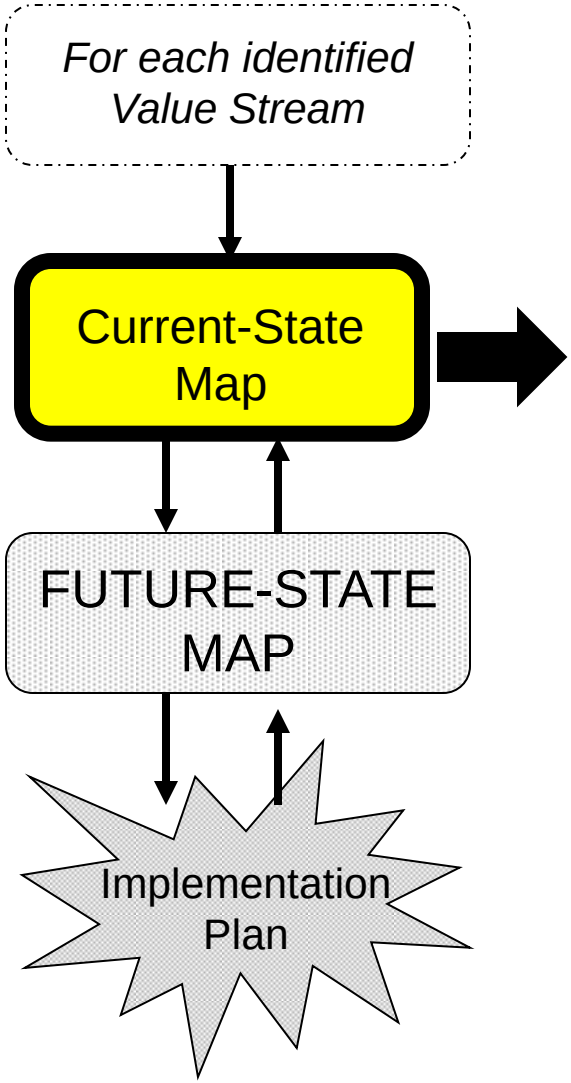
The Current-State Map



Understanding how the operations currently operate:

- Determine the material and information flows
- Using icons, capture the current conditions as a "snap shot" in time
- Remember that we are only looking at a 30,000 ft view! Don't get bogged down in the weeds!
- Go see the process with your own eyes!
- The goal is to accurately represent what happens and to LEARN TO SEE WASTE
- This becomes the foundation of the future state

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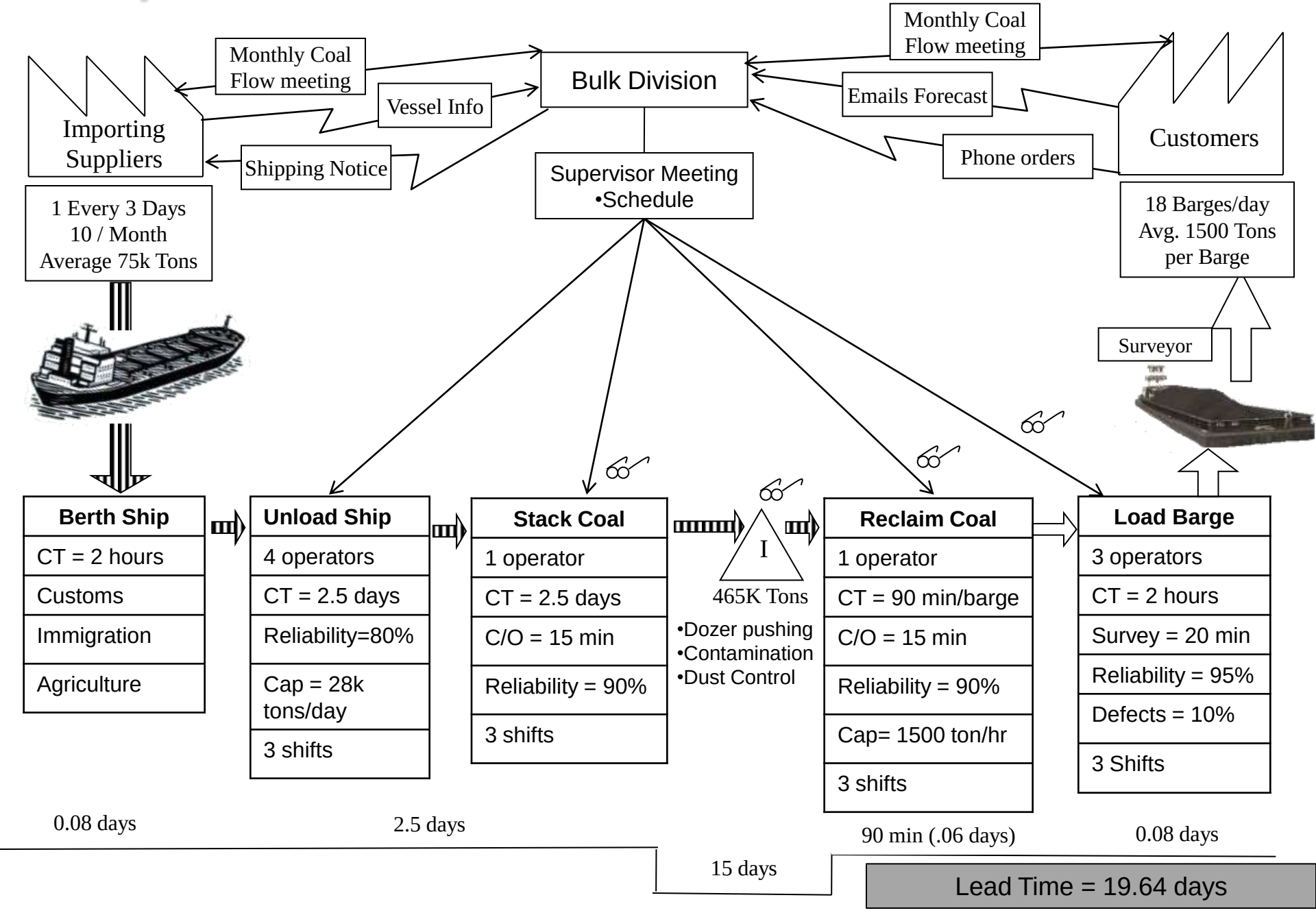
Current State Data

- Customers
  - How much do they want?
  - When and how often do they want it?
  - How do they want it delivered?
- Processes (anything that helps us understand what is happening)
  - Cycle times (lifts/hr, tons/hr, lifts/man hr, etc.)
  - Number of operators and shifts
  - Equipment reliability
  - Quality/defect rate
- Suppliers
  - How much do we order/request?
  - How and how often do they deliver?
- Information
  - How do customers place orders?
  - How do we order from our suppliers?
  - How do people on the yard know what do to?
  - How do we know our status?

Import Bulk Material Current State Value Stream



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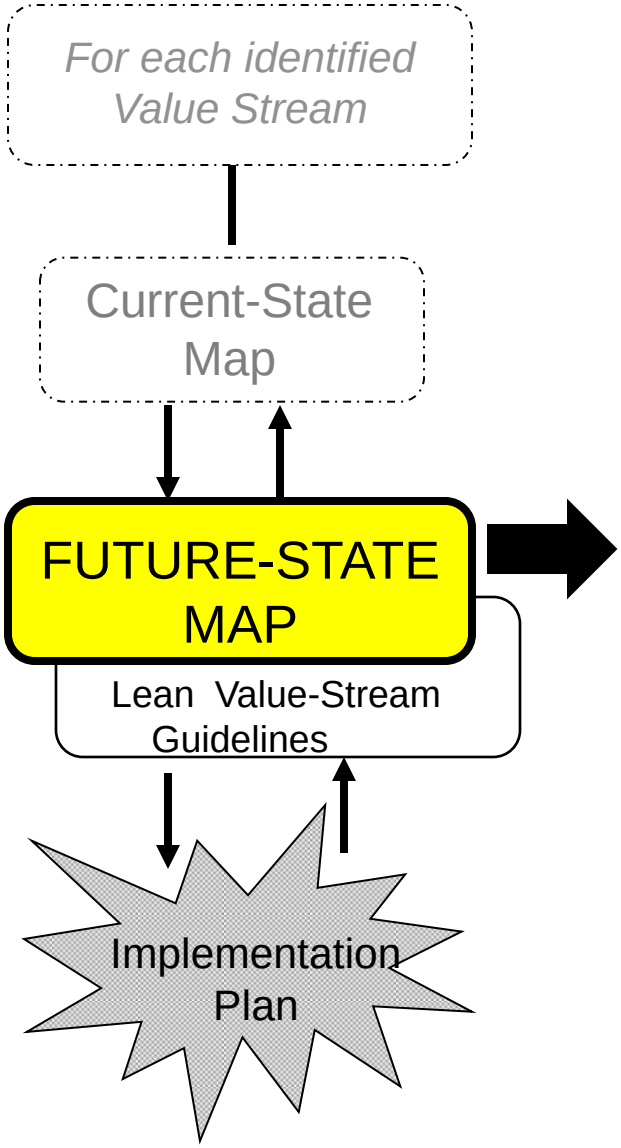
The Future-State Map



<u>Designing a lean flow</u>

- You <u>always</u> need a future state
- Design the material (cargo) flow first
- *Develop the information flow to support the material (cargo) flow*
- Begin by drawing on Current State
- Design for a feasible management timeframe (approximately 12-18 months down the road)

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Future State Questions

1. At what velocity do we need to flow cargo to meet customer demand?

2. Where in our processes are there wastes and disruptions in the flow of cargo?

3. What countermeasures can eliminate or reduce the wastes and disruptions of flow of cargo?

4. What would our operation look like if these countermeasures were in place?

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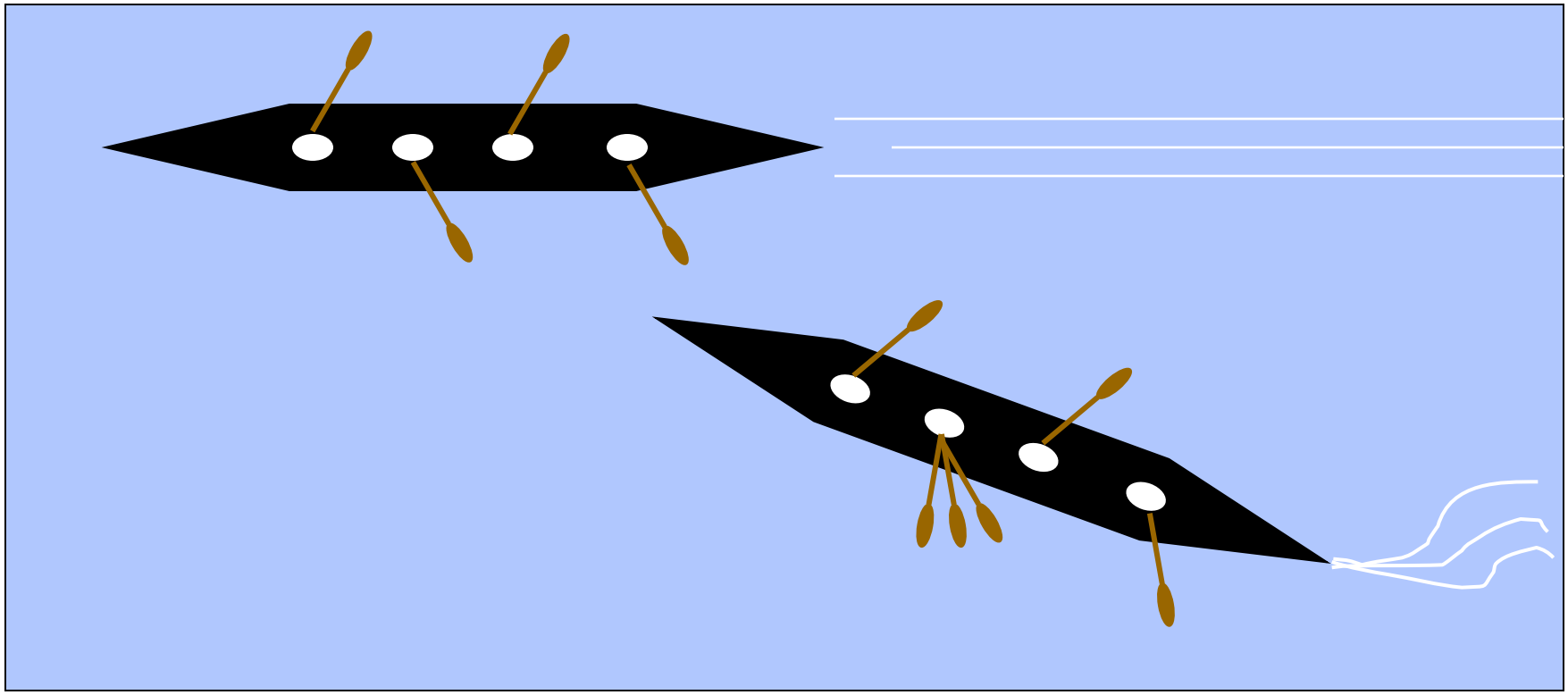
1. At what velocity should we flow cargo?



Individual Efficiency vs. System Efficiency

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2. Where is the Waste?

- Defects
- Overproduction
- Waiting
- Not Utilizing People's KSAs
- Transportation
- Inventory
- Motion
- Excess Processing

Remember…we create the current state in order to SEE WASTE!!

- Brainstorm existing waste
  - What activities add no value?
  - Where are there disruptions in the flow of value?

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Waste of Defects

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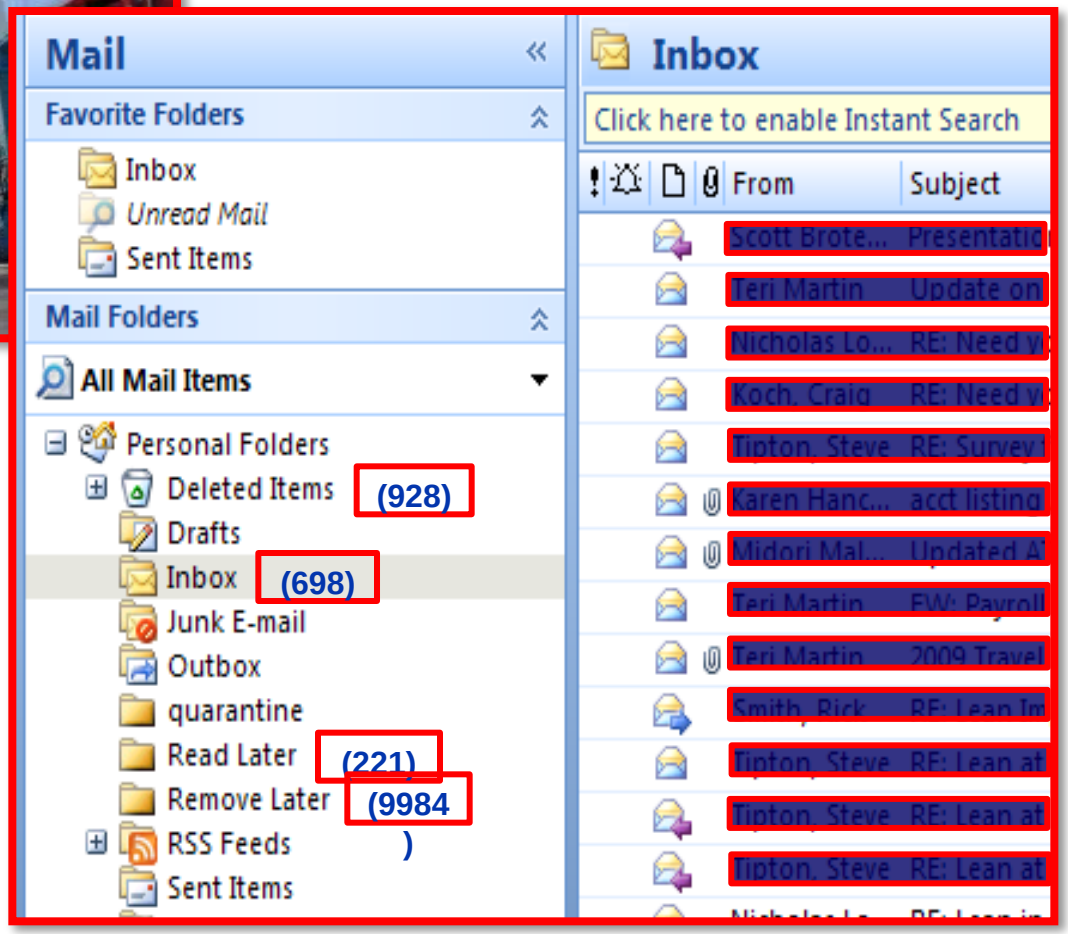
Waste of Overproduction



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Waste of Waiting

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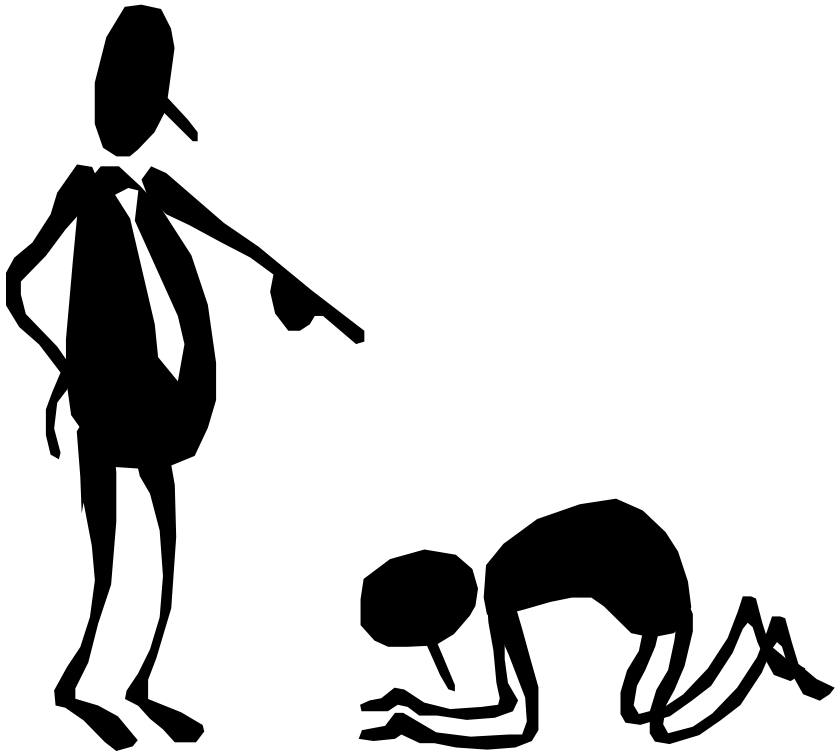
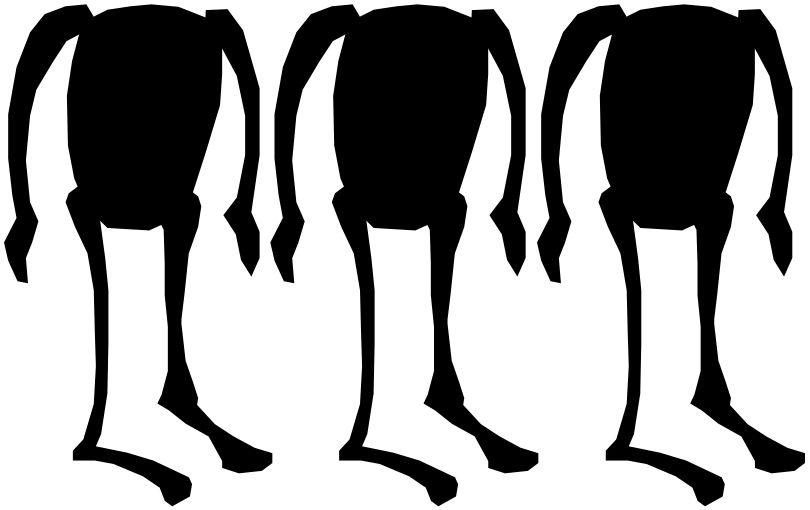
Waste of Not Using People's KSAs





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Waste of Transportation

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Waste of Inventory

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Waste of Motion

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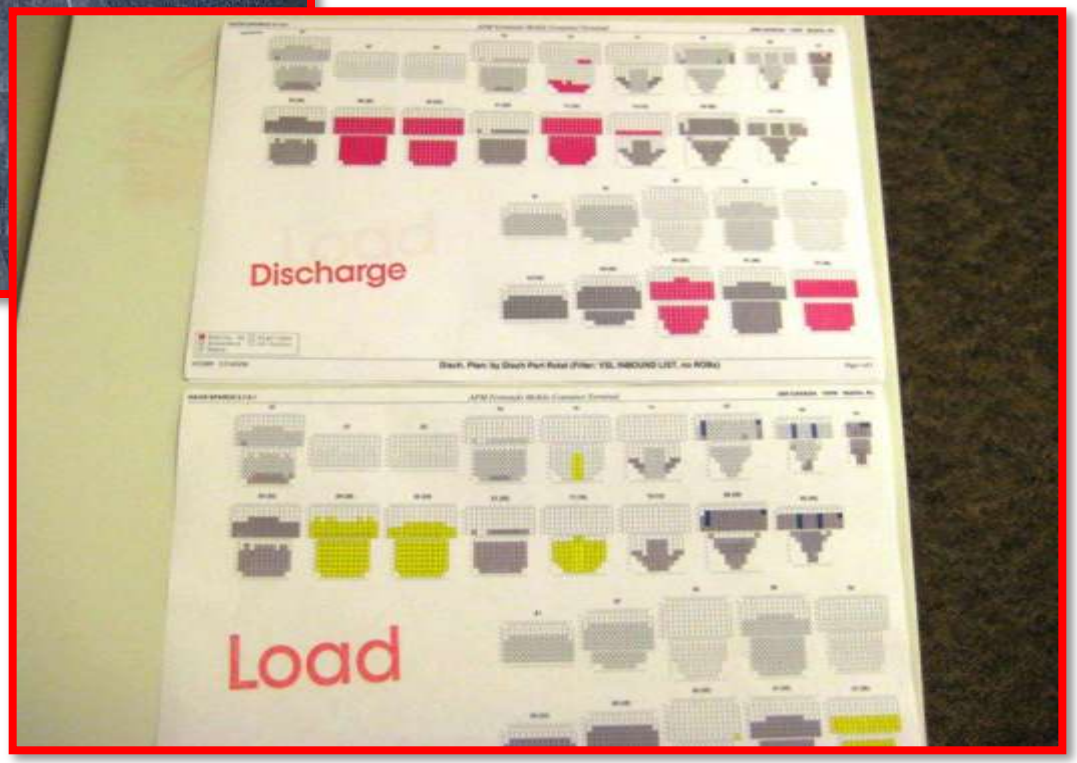
Waste of Excess Processing



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3. What Countermeasures are needed to address waste?

- Waste is really a symptom rather than a root cause of the problem

- Waste points to problems within the system (at both *process & value-stream* levels)

- We need to find and address root causes of waste

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5-Why: Root Cause Analysis

- 5 has been determined, as a rule of thumb, as the number at which most root causes are clearly identified
  - not always necessary to reach 5 before the root cause of a problem is fully explained
  - it may take more than 5 why's to get to the bottom of it
- Ask the full question including the problem or cause behind it.
  - If there is a problem with cargo locations misidentified, ask:
    - "why are cargo locations misidentified?"
  - If the answer is "inaccurate information in the computer system," ask:
    - "why is the computer system information inaccurate:
- If we do not follow this approach, answers to the "why's" tend to lose focus on the 3rd or 4th "why"

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Common 5 Why mistake

Problem: Increase in defective containers

WHY has there been an increase in defective containers?
- A: Containers are being damaged during the ship unload process

WHY are containers being damaged during the ship unload process?
- A: Containers are being set down off-center on the bomb cart

WHY are containers being set down off-center?
- A: Bomb carts are not positioned correctly

WHY are bomb carts not positioned correctly?
- A: Trucks are either pulling too far up or not far enough

WHY are trucks pulling up too far or not far enough?
- A: Truck drivers aren't paying attention

- The "root cause" points responsibility to someone else
- The "root cause" can't be corrected

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Effective Root Cause Analysis

Problem: Increase in defective containers

WHY has there been an increase in defective containers?
- A: Containers are being damaged during the ship unload process

WHY are containers being damaged during the ship unload process?
- A: Containers are being set down off-center on the bomb cart

WHY are containers being set down off-center?
- A: Bomb carts are not positioned correctly

WHY are bomb carts not positioned correctly?
- A: Trucks are either pulling too far up or not far enough

WHY are trucks pulling up too far or not far enough?
- A: No visual indicator/error-proofing to assure alignment

- We can correct the root cause
- A solution was implementable!

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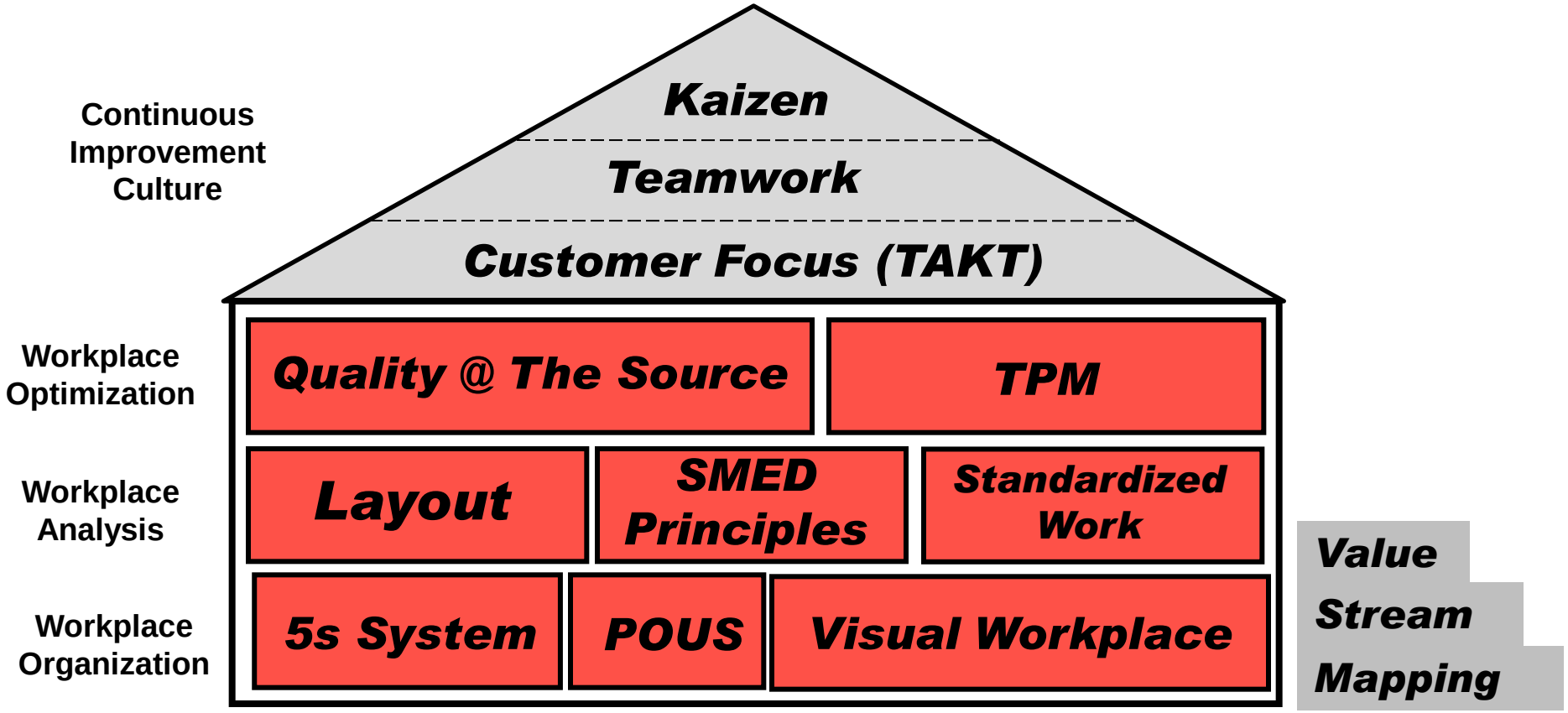
UAH Lean Enterprise for Port Operations



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Typical Lean Countermeasures

- Information (Operational Awareness)
  - Visual scheduling
  - Visual track and monitor real-time performance metrics
- Inefficient Process (long cycle times, changeovers, low productivity, etc.)
  - Workplace Organization (5S)
  - SMED Principles
  - Standardized work procedures
  - Layout for flow
- Defects, mistakes, poor quality
  - Standardized work procedures
  - Job instruction training
  - Error proofing
- Equipment Downtime
  - Total Productive Maintenance program (TPM)
  - Workplace organization (5S)
  - Track Overall Equipment Effectiveness (OEE)

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Workplace Organization Tools

- **5S**– (**S**ort, **S**et-in-Order, **S**hine, **S**tandardize, **S**ustain)
  - A safe, clean, neat, arrangement of the workplace provides a specific location for everything, and eliminates anything not required
- **Point-of-Use-Storage (POUS)**
  - Locate items necessary to perform job activities *where they are used* (Tools, materials, supplies, equipment, and information)
- **Visual Workplace**
  - Simple, self-explanatory signals that give immediate and accurate understanding of a situation or condition

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Tools and Equipment at the Point of Use

Tools and equipment located exactly where needed

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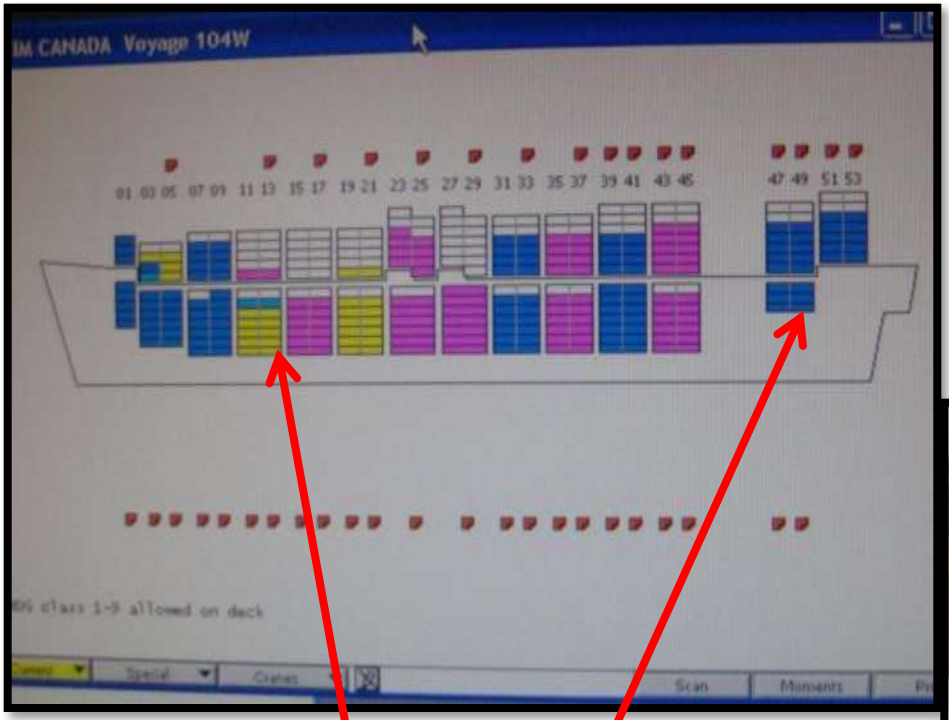
Visual Workplace



Color-coding cargo by destination

Clearly marked yard locations

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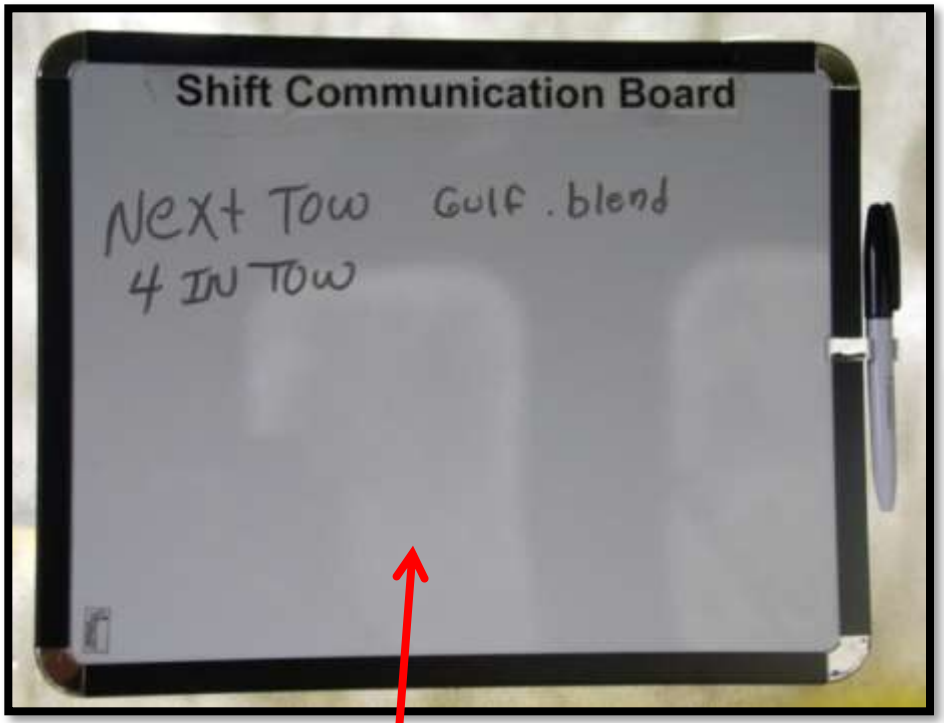
Visual Communication



Visual communication board

Ship unloading status

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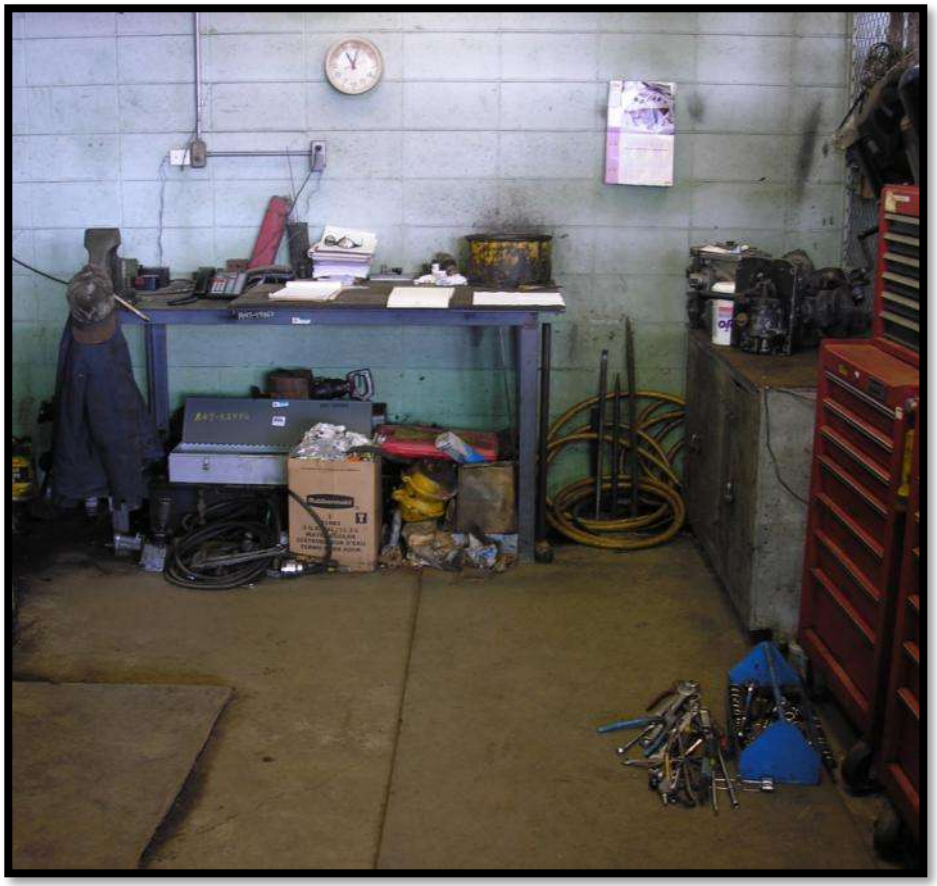
Workplace Organization

Before



After

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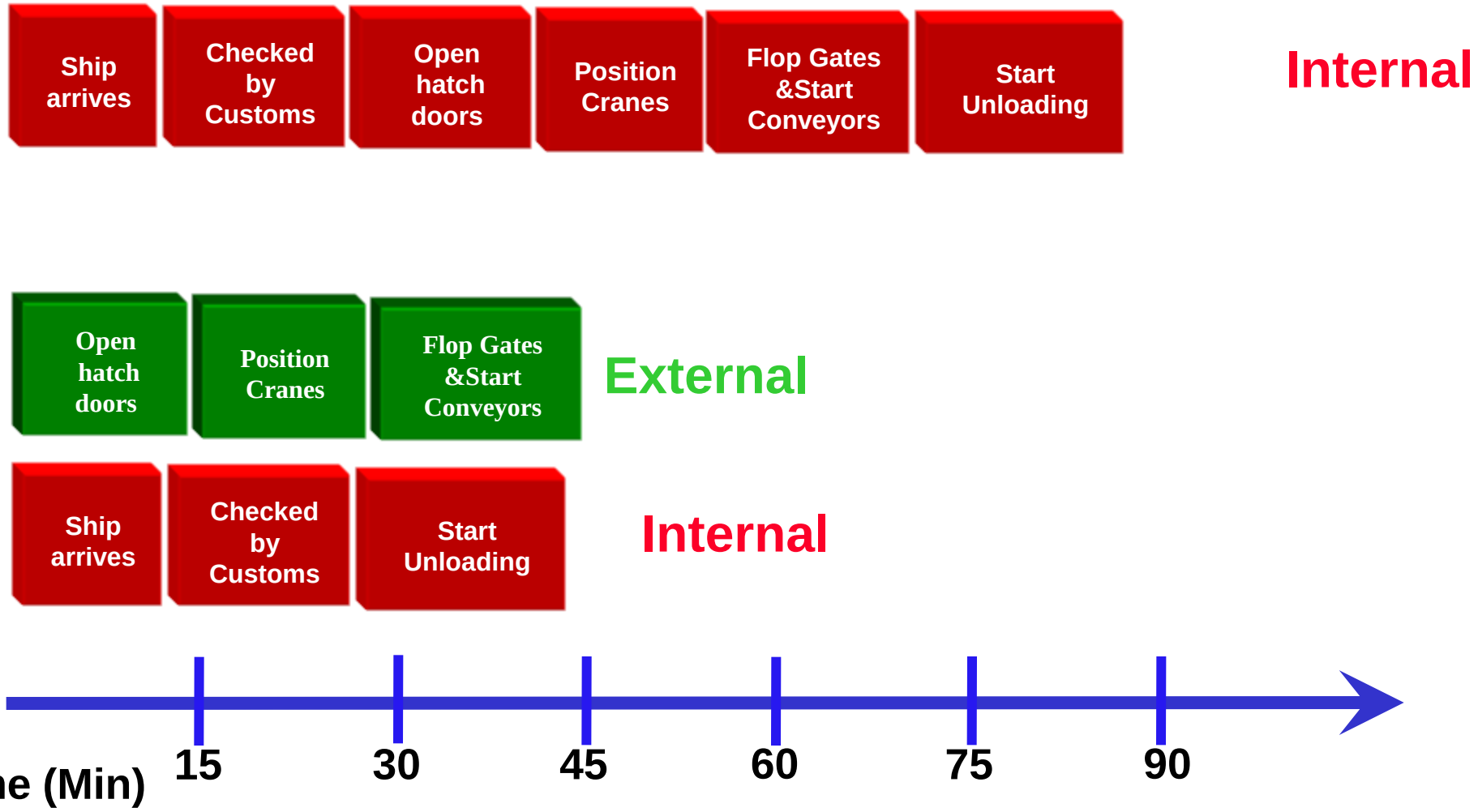
SMED Principles: Internal vs. External Steps



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Standardized Work Procedures

Truck Loading Procedures

8. When loading is complete do a load check verifying: correct product was loaded, load is tight and can be transported safely, loaded in proper order to minimize customer movement. **Note:** on Roll tight trailers roll canopy from front to back ensuring there are no obstructions interfering with canopy movement

9. Sign paperwork, turn it in to office, and pick up next assignment

Raise Bridge	Lower Bridge
1 Turn Control Key to on Position	1 Using Marine radio state drawbridge is clearing for rail traffic (wait 15 seconds for response)
2 Switch Emergency stop to run position	2 Turn Control Key to on Position
3 Switch Railway signal to stop	3 Switch Emergency stop to run position
4 Switch Machine brake to release	4 Switch machine brake to release
5 Switch Span Locks to Pull position (allow 15 seconds for locks to release)	5 Switch Span Locks to Pull position (allow 15 seconds for locks to release)
6 Switch span operate to raise	6 Switch span operate to lower position
7 Press horn button for 5 seconds	7 Press horn button for 5 seconds
8 Press run button and release	8 Press run button and release
9 Bridge raiser, stops automatically and orange light signals bridge is fully raised	9 Bridge lowers, stops automatically and white light signals bridge is fully lowered
10 Once bridge is raised switch Span operate and span locks to neutral position	10 Switch span locks in the drive position (allow 15 seconds for locks to engage)
11 Switch machine brake to set	11 Switch railway signal to clear (should get green light on top of bridge tower)
12 Switch Emergency stop to stop position	12 Switch Span operate and span locks to neutral position
13 Switch control key to off	13 Switch machine brake to set
	14 Switch Emergency stop to stop position
	15 Switch control key to off

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Standardized Work Procedures

Barge Loading SOP

8	Call loaders to send coal

9	Load coal until the bottom of the pile builds up to the weld line on the wall of the barge (Note: Keep coal out of the corners of the bow)
10	Once the first pile is the correct height move the barge north keeping the pile consistent height (Note: Monitor barge list and correct as needed by positioning chute in shore/out shore)

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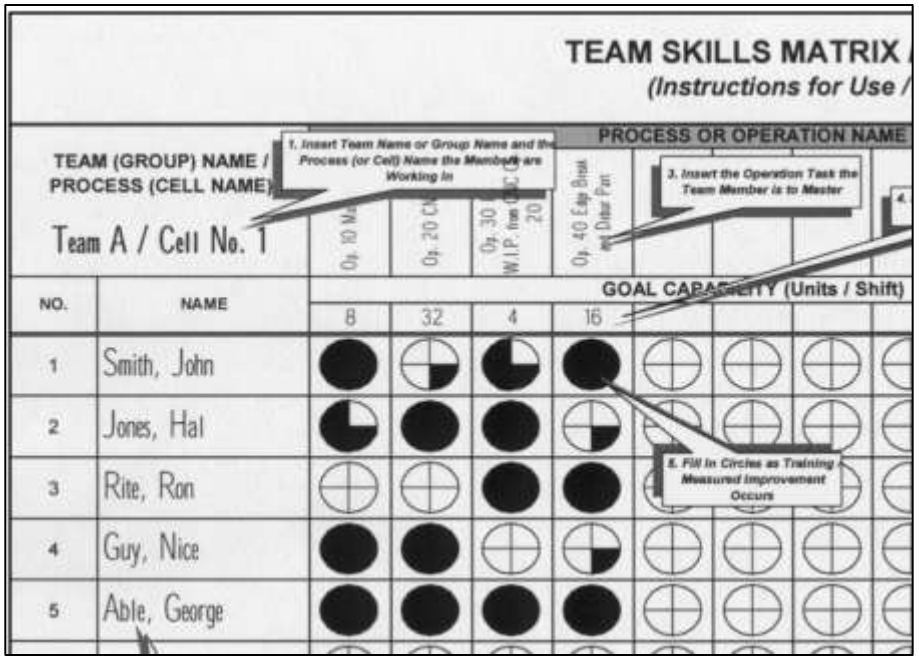
Quality at the Source

- Training on standardized work to improve quality

4-Step Job Instruction

1. Prepare the trainee
2. Demonstrate the job- main steps, key points, reasons why
3. Trainee performs job explaining- main steps, key points, reasons why
4. Feedback and evaluation

Circle of Skills Training Matrix



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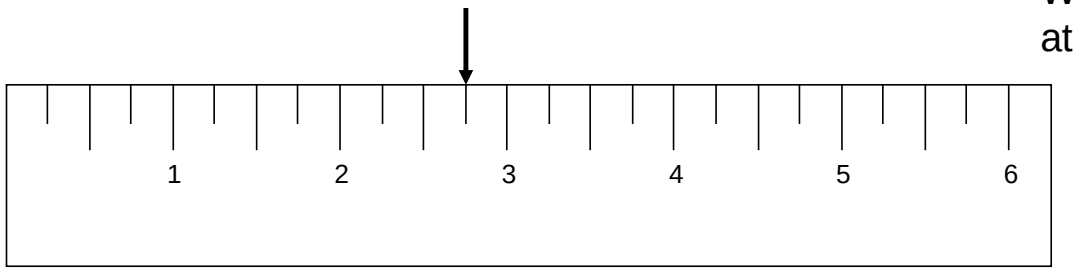
Quality at the Source

Hiring practices

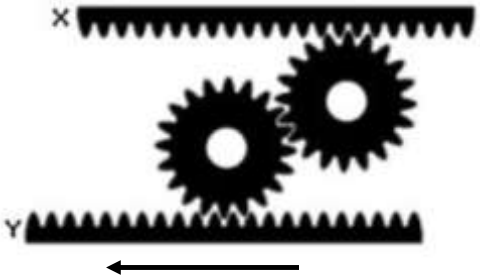
3.



What is the measurement at the arrow?

a. 2 1/2
b. 2 5/8
c. 2 3/4
d. 2 11/16

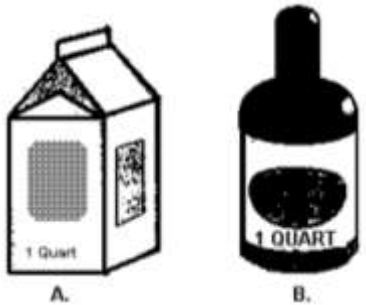
4.



If bar Y moves left at a constant speed, how does bar X move?

a. Faster than Y
b. Same speed as Y
c. Slower than Y

5.



Which container holds more

a. Container A
b. Container B
c. Equal

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Quality at the Source

- Improving process quality– (mistake-proofing)

Guides to simplify pick-up of containers

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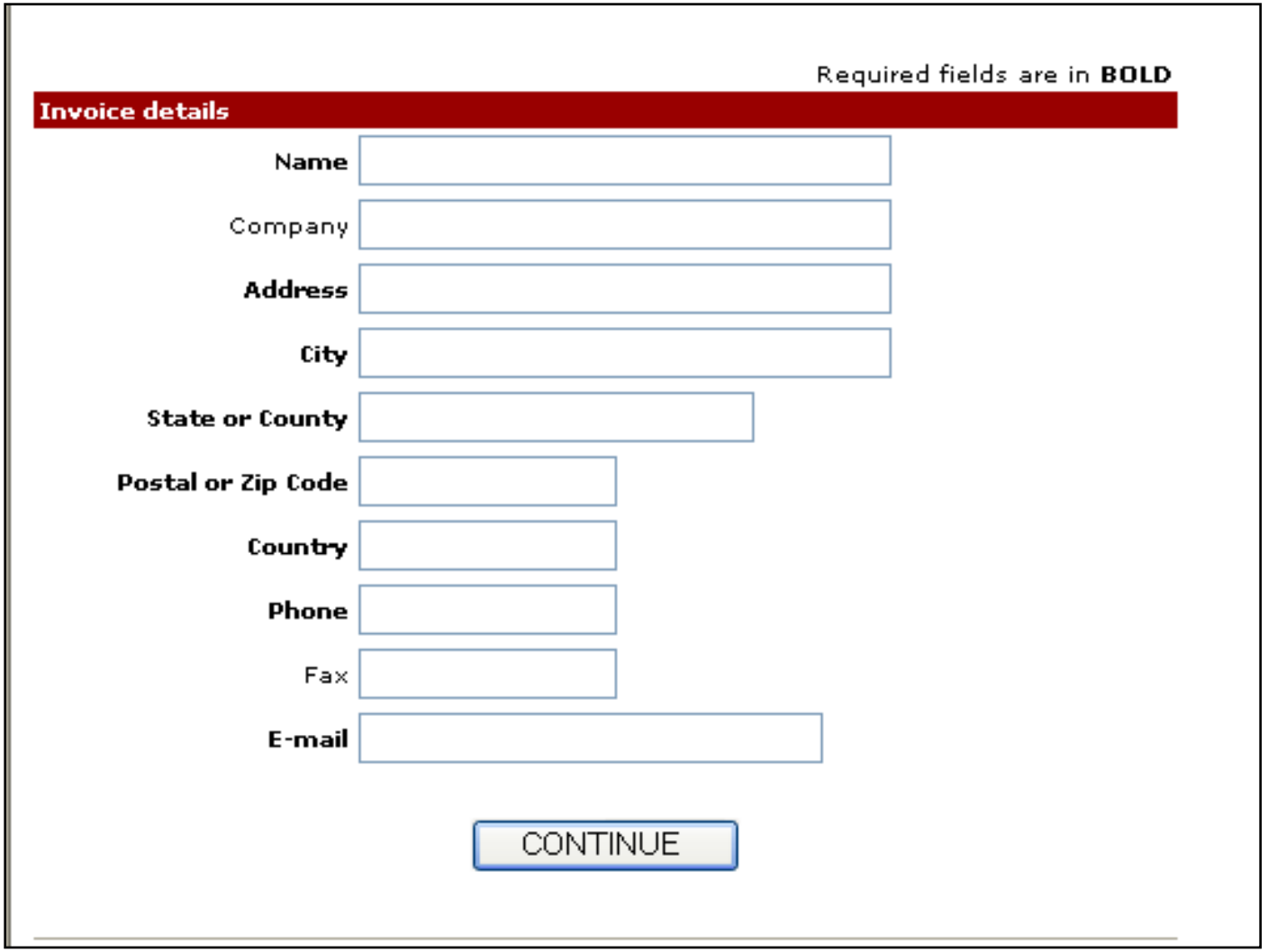
Quality at the Source

- Improving process quality– (mistake-proofing)



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Total Productive Maintenance

- TPM is a company wide equipment maintenance program that permanently improves the overall effectiveness of equipment with the active involvement of all employees

- Goal is to eliminate/minimize downtime due to breakdown maintenance and to maintain machines at peak performance.

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Current State Maintenance

Typical conditions:

- **There is often a run-to-failure mentality**
- **Breakdowns occur regularly**
- **Temporary repairs are the norm**
- **Minor stoppages occur frequently**
- **Processing speed decreases**
- **No one is accountable for tracking these losses**
- **Operator training may not be adequate**

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Overall Equipment Effectiveness

OEE is a metric to:

- Immediately indicate the current status of your equipment
- Allow you to understand the effect of the various equipment issues, not just breakdowns, and how they affect the entire process

OEE = Availability × Performance Efficiency × Rate of Quality

Availability

When or how often do you lose total availability of your equipment?

How long are your set-ups?

Does your equipment break down frequently?

Performance Efficiency

Does your equipment start and stop a lot?

Does your equipment run at 100% of its designed speed?

Rate of Quality

Do you manufacture quality products?

Are your processes repeatable?

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4. How will our operations look with countermeasures in place?

Current State

Load Barge
3 operators
CT = 2 hours
Survey = 20 min
Reliability = 95%
Defects = 10%
3 Shifts

Develop SOP for barge loading

SMED- survey performed on tug boat

Visual communication board

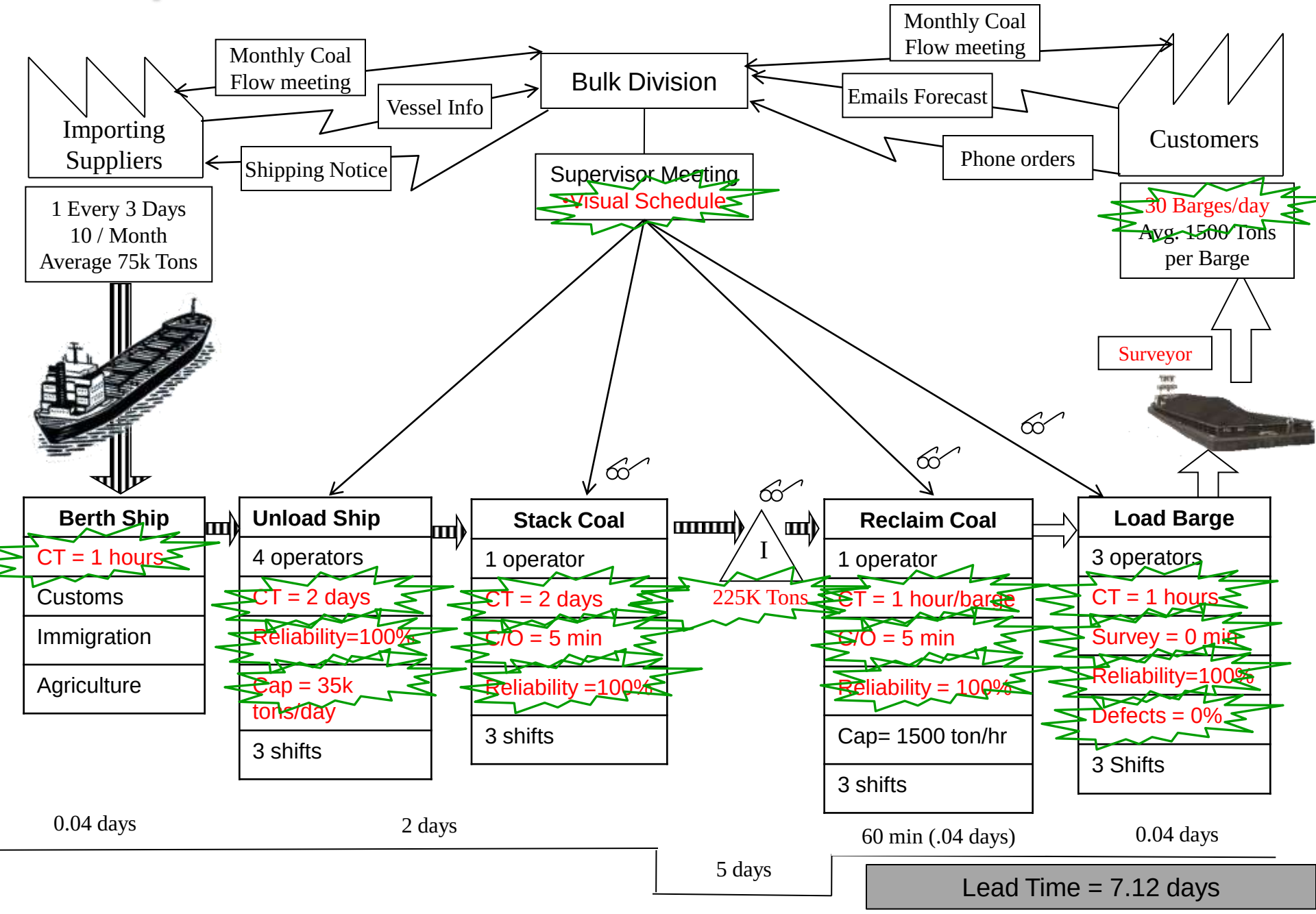
Collect OEE and implement TPM

Job instruction training on new SOP to prevent listing and sinking defects

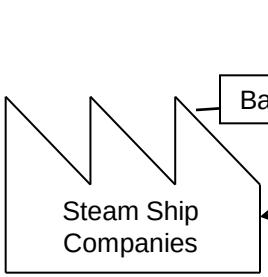
Future State

Load Barge
3 operators
CT = 1 hours
Survey = 0 min (performed externally)
Reliability = 100%
Defects = 0%
3 Shifts

Import Bulk Material Future State Value Stream



Import Container Current State Value Stream Example



Baplie File

Manifest

Line Releases

SPARCS Express

Request Container Pickup

Truckers

322 Messages

Railroad

Import Customers

Pier Pass

CTF TMF

350 Messages

E-instructions 418 messages

6000 cont/week

3 ships/ week
SCX- 2900 cont/wk
CCX- 2900 cont/wk
MRX- 200 cont/wk

Customs

Discharge Plan

RFID

Rail (35%)	Truck (65%)
2100 cont/wk	3900 cont/wk
2 day TA	45 min TA
	Peak pickup

On-dock Rail 1-2 days

Berth Ship
Vessel Agent
CT = 2 hours
Position crane
CBP Clearance
Bridge mark

Unload Ship
4-5 gangs(aprx.140 ppl)
1 SM, 2 AOM
CT = 25 GMPH
Equipment Rel: Crane = 95% TopHand= 90% UTR = 90% PU Truck=95%
2x 8-hr shifts

Discharge Transport
8 UTRs/Gang
Verbal instruction
CT = 8-15 mins
Availability: Chasis= 99% Bomb cart= 99 % Space= 80 %
2x 8-hr shifts

Yard Management
6-7 Top Handlers
1 SM, 3-4 AOM
5 UTRs per shift
24 RTG/week
Cap= 39k TEUs
Yard grooming (shift, flip, consolidate)
2x 8-hr shifts

Load Rail
1-2 units; 3-6 dock-a-lofts
2-4 TH, 9-16 UTRs
Load by destination
CT= 270 GM/shift
Car avail= 95 %
2x 8-hr shifts

Local 4 days

Off-dock Rail 2-3 days

Load Truck
1-2 TH, 2-5 RTG
CT = 50 min turn
UTL= 1%
Equip. Rel = 95%
Chass. Avail =90%
In-gate delay=10%
2x 8-hr shifts

Out Gate
4-7 clerks
Issue EIR
7 lanes (10 shifts)
Maintenance Turn around = 5 %

Process Time =	139.4 minutes
Lead Time =	4 days local truck 2 days on-dock rail 2 days off-dock rail

120 min	2.4 min	8-15 mins	4 days local truck 2 days on-dock rail 2 days off-dock rail	2 minutes/move 50 min truck turn 48 hour rail turn

Import Container Future State Value Stream Example

RED- changed from current state

BLUE- needs revisited

Baplie File

Manifest

Line Releases

SPARCS Express

Request pick-up appointment

Truckers

Railroad

Import Customers

Steam Ship Companies

322 Messages

CTF TMF

Pier Pass

350 Messages

Customs

Discharge Plan

RFID

E-instructions 418 messages

3 ships/ week
SCX- 2900 cont/wk
CCX- 2900 cont/wk
MRX- 200 cont/wk

7500-8000 cont/week

Rail (35%)	Truck (65%)
2800 cont/wk	5200 cont/wk
2 day TA	45 min TA
	Peak pickup

Berth Ship	Unload Ship	Discharge Transport	Yard Management	Load Truck	Out Gate
Vessel Agent	4-5 gangs(apprx.1 40 ppl)	8 UTRs/Gang	6-7 Top Handlers	1-2 TH, 2-5 RTG	4-7 clerks
CT = 2 hours	1 SM, 2 AOM	EDI instruction	1 SM, 3-4 AOM	CT = 45 min turn	Issue EIR
Position crane	CT = 30 GMPH	Various Eq. type	5 UTRs per shift	UTL= 0%	7 lanes (10 shifts)
CBP Clearance	Equipment Rel: Crane = 95% TopHand= 95% UTR = 95% PU Truck=95%	CT = 8-15 mins	30-32 RTG/week	Equip. Rel = 95%	Maintenance Turn around = 0 %
Bridge mark	2x 8-hr shifts	Availability: Chassis= 99 % Bomb cart= 99 % Space= 100 %	Cap= 39k TEUs	Chassis Avail =95+%	
		2x 8-hr shifts	Yard grooming (shift, flip, consolidate)	In-gate delay=5%	
			2x 8-hr shifts	2x 8-hr shifts	

On-dock Rail 1-2 days

Load Rail

2 units; 3 dock-a-lofts

4 TH, 16 UTRs

Load by destination

CT= 270 GM/shift

Car avail= 95 %

2x 8-hr shifts

Local 4 days

Off-dock Rail 2-3 days

120 min	2 min	8-15 mins	3 days local truck 2 days on-dock rail 2 days off-dock rail	2 minutes/move	
				45 min truck turn 48 hour rail turn	

Process Time =	139 minutes
Lead Time =	3 days local truck 2 days on-dock rail 2 days off-dock rail

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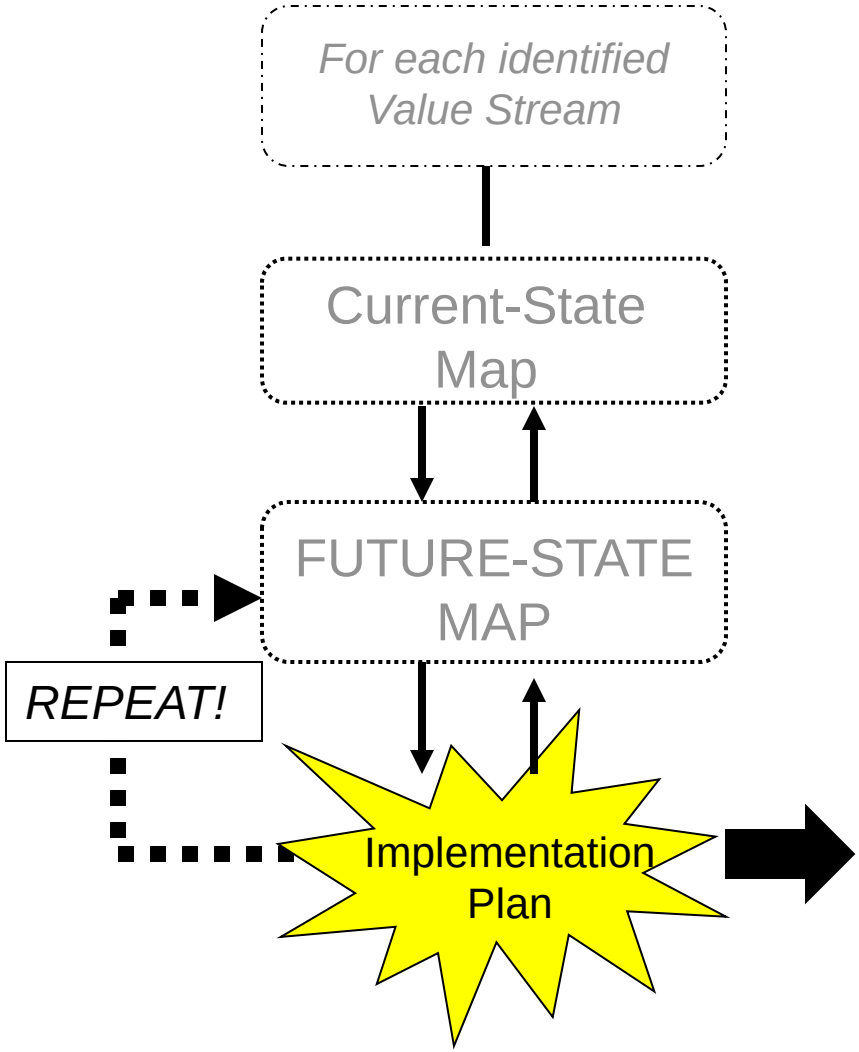
A Plan to Get There



IMPLEMENTATION:

- Don't Wait! Make a VS Plan: What to do, by who, by when
- Tie it to business objectives/strategic plan
- Break Future State into phases
- VS Manager must manage to the plan

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Value Stream Implementation Plan

Date	4/27/11	Value Stream Plan
VS Manager	Tammy	

Signatures

Kaizen Burst	Value Stream Objectives	Type of Activity	Monthly Implementation Schedule: Q2 11			Q3 11			Q4 11			Q1 12			Q2 12			Q3 13			Person In Charge	Date
			A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	A	M	J		
1	Develop an appointment system for truck delivery and receiving	Project																			Linda	10/31/11
2	Develop new layout and SOP for decking	Kaizen Event																			Kenny,Kent, Bill	5/31/11
3	Develop ship unloading SOP	Kaizen Event																			Eric	6/30/11
4	Develop SOP to improve truck turn times	Kaizen Event																			Kent	8/31/11
5	Investigate EDI improvements & new technology																					
	- live update of BIT	Project																			Kwang, Ralph	7/31/11
	- live update of FHWA inspection dates	Project																			Kwang, Ralph	7/31/11
7	Improve equipment utilization																					
	- pooling top handlers	Go Do																			Eric, Joe	5/31/11
	- hot swapping UTR's	Go Do																			Eric, Joe	5/31/11
8	Investigate shift start/stop times and extended break times	Project																			Marco, Kenny, Ray	9/30/11
9	Investigate new procedures/location for increased container X-rays and develop new SOP	Project /Kaizen Event																			Phillip	5/31/11
10	Investigate upgrading hardware & software for container handling equipment to improve inventory accuracy	Project																			Kwang	9/30/11
11	Investigate installing additional amp plugs	Project																			Joe, Linda	5/31/12
12	Develop and implement a TPM program	Project																			Sean, Patrick	5/31/12

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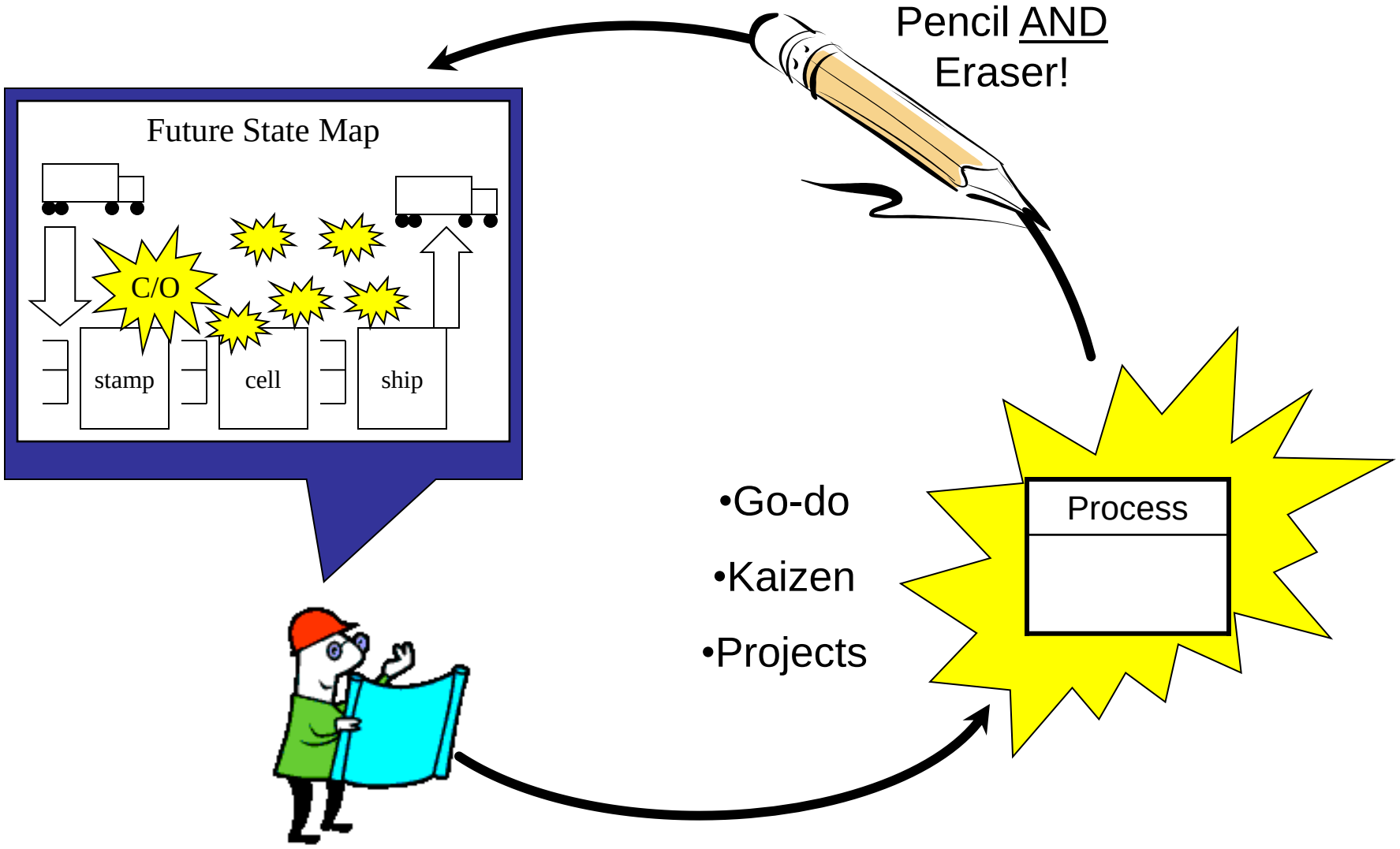
Implementation



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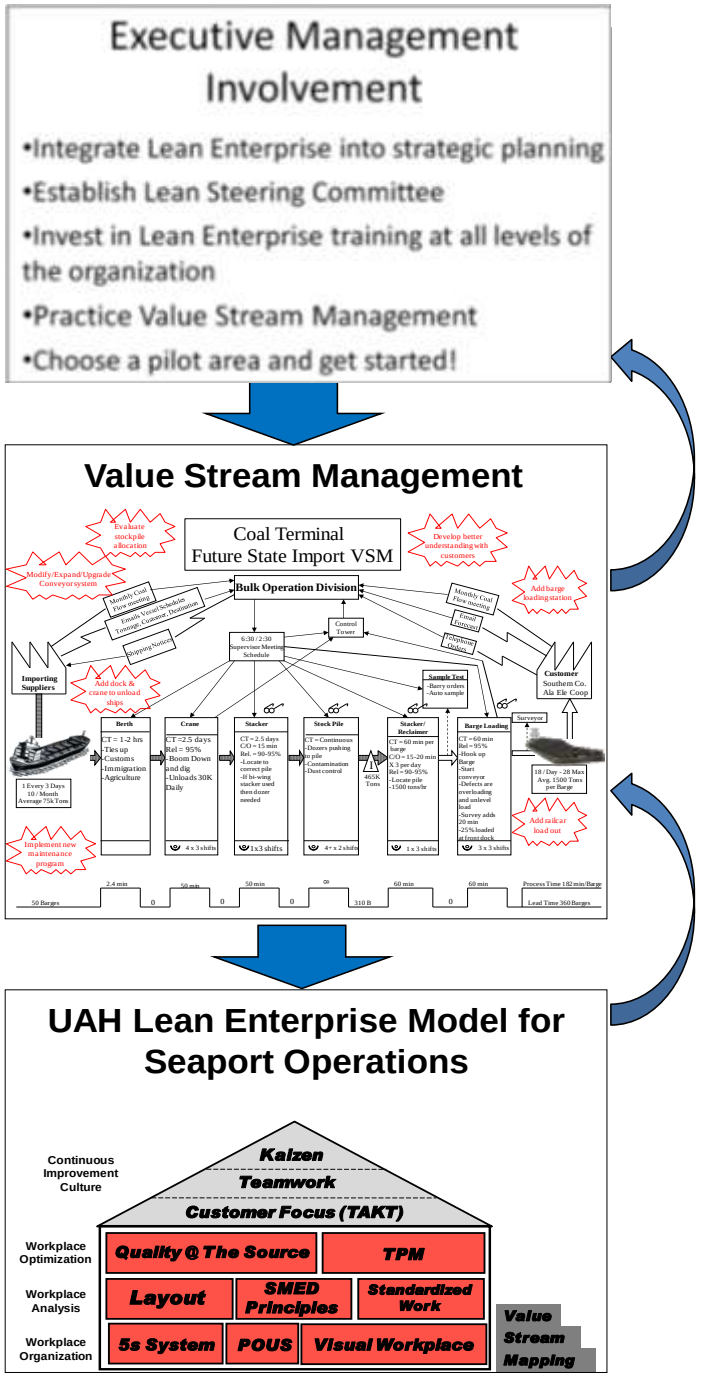
Path to Becoming a Lean Port

- Integrate Lean Enterprise into strategic planning
- Establish a corporate Lean Steering Committee to champion efforts
- Invest in Lean training at all levels
- Practice Value Stream Management and Map Value Streams
- Schedule improvements (kaizen!) based on implementation plan
  - Go-do actions
  - Kaizen blitz events
  - Projects
  - Manage to the implementation plan!



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Value Stream Mapping Review

Date: May 31, 2010			**Value Stream Review**		**Signatures**
Facility Manager: Rickson Gracie					
Value Stream Manager: Wade Johnson					
Loop	**Objective & Measurable**	**Progress**	**Evaluation**	**Remaining Issues/Problems**	**Comments/Ideas on Future Objectives**
1	Decrease barge loading time by 50%	Kaizen event on May 3- went from 2 hrs to 1 hr 20 min	Partial success--reduced by 33%	Can load if barge in 53 min if new standardized procedure is followed, need more training and foreman attention	Implement visual cross-training and metric system to monitor use of standardized procedure
	Success	Limited Success	Unsuccessful		**Product Family:**

- Value stream manager must hold reviews and monitor progress
- Update the Future State Map based on results
- Elevate issues and make decisions on data and facts
- If you do not manage to the plan, the plan is useless

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Path to Becoming a Lean Port

- Integrate Lean Enterprise into strategic planning
- Establish a corporate Lean Steering Committee to champion efforts
- Invest in Lean training at all levels
- Practice Value Stream Management and Map Value Streams
- Schedule improvements (kaizen!) based on the Value Stream implementation plan