Lean Process Improvement

“Make the product or service *flow.*”

Process Map Types:

<table>
<thead>
<tr>
<th>High-Level</th>
<th>Detail-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIPOC (Suppliers, Inputs,</td>
<td>Top-Down</td>
</tr>
<tr>
<td>Processes, Outputs, Customers)</td>
<td>Value-Stream</td>
</tr>
<tr>
<td></td>
<td>Cross-Functional</td>
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</tbody>
</table>

*CSU The California State University  
QUALITY INITIATIVES*
Agenda

• Introduction
• Lean Background & Thinking
• Lean Tools: Waste Walk; 5s; A3
• Process Mapping:
  – Current & Future State
    • Top-Down; Cross-Functional; Value-Stream Mapping
• Initiating and completing your project:
  – Change Management Considerations; Project Identification/Charter; Action/Implementation Plan
About You

• In 1 minute or LESS:
  – Name/Title
  – Institution
  – Primary job responsibilities
  – Number of years working in higher education
  – This workshop will have been a success and made good use of my time if?
  – Are you familiar with Lean?
  – What process are you planning to improve?
About Us

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Challenges Facing Higher Ed

- Reduced funding
- Demand for greater accountability
- Perceived as expensive and inefficient
- Climate of continuously improving does not exist
$5-million worldwide benchmarking study on the auto industry

Books:
*The Machine That Changed the World* by Womack, Jones, Roos

*Lean Thinking* By Womack, Jones
History of Industry: Toyota Post War

The Need:

• High-quality (the first time around)
• Work based on demand vs work for work’s sake
• Dramatically lower costs
History of Industry: Toyota Post War

The Solution:

• Flow production: make what is needed when it’s needed
  – No inventory
  – Based on customer demand and specifications

• Highly flexible, highly capable, efficient processes

• Consider what customer wants: ‘voice of customer’
The Competitive Universe

“I WANT IT ON TIME and in the proper hands. I want it done correctly, accurately, exactly, precisely, perfectly, efficiently, reliably, expertly, proficiently, faithfully, totally, absolutely, unequivocally, unmitigatedly, maturely, lawlessly, supremely, unsurpassedly and certainly without fault. I want it unharmed, unbotched, untainted and unscrewed-up. And most of all I want it done CHEAP!”

“Our Most Important Package Is Yours.”
Speed – Cost – Quality
Pick any 2

- Speed
- Low Cost
- High Quality
Lean Thinking

A simple definition:

Deliver the most value from your customer’s perspective while consuming the fewest resources
Customer is King

What is a Customer?
Why a Lean Office? Does It Apply to Higher Ed?

• Most organizational costs are administrative
• Work completed faster and more accurately
• Improves productivity and morale
Lean Thinking:
The Fundamental Insight

• Focus on each product/service and its value stream (how it’s created)
• Ask which activities are waste and which truly create value
• Enhance the value and eliminate the waste to optimize the whole!

How do we gauge success? **Time**
Where’s the Time in a Typical Process?

- Traditional improvement efforts focus on the value added time – the good process steps that create value.
- Focusing on non value added (NVA) has the largest opportunity for improvement.

<table>
<thead>
<tr>
<th>Order</th>
<th>99% of total process time</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVA Time</td>
<td></td>
<td>VA Time</td>
</tr>
</tbody>
</table>

99% of total process time compared to 1% delivery time.
Shrinking Total Process Time

= Value Added Time

= Non Value Added Time

Remove Non Value Added Activities

4-weeks

→

2-weeks

Bike Shop Example
Lean Thinking in Summary

1. Specify **Value** by product/service
2. Identify the **Value Stream**
3. Make the product/service **Flow**
4. At the **Pull** of the customer
5. In pursuit of **Perfection**
Lean Thinking

1. Specify **Value** by product from the standpoint of the customer

   – Applies to “services” as well as “goods”: Most customers just want a solution to their problem!
Lean Thinking

2. Identify the **Value Stream** from the start of the process to the end

   – Eliminate steps that don’t create value and cause waste
Lean Thinking

3. Make the product/service **Flow** continuously

Avoid defects and bottlenecks
– Rework
– Errors
– Waiting
Lean Thinking

4. At the **Pull** of the Customer:

   – Delivering only what is needed, when it’s needed
5. In pursuit of **Perfection**

   - Perfection is the complete elimination of waste and non value added activities; requires a continuous improvement mentality.
Lean Principles

- The customers always define value for the process
- Lean distinguishes steps that create value from those that do not
- Lean reduces waste and builds in quality
- The people who do the work are the experts
- Learning to improve work is as important as producing the work output
Lean Tools:
Waste Walk & 5S
What is Waste?

• The elements of an activity that do not add value from the customer perspective
• Adds cost & time
Waste

Address the underlying problems (causes of waste) to improve performance:

1. Correction/Rework
2. Overproduction
3. Unnecessary Movement of Items/Materials
4. Unneeded Motion
5. Waiting
6. Inventory
7. Over-Processing/Complexity
8. Underutilization of Resources
Waste

1. **Correction/Rework:** Errors or mistakes; not doing it right the first time. Additional work or resources necessary to correct, rework or otherwise mitigate defects and mistakes.

   • **Ask:**
     - Do we have data entry errors, typos?
     - Do we have billing, or coding errors?
     - Do we forward incomplete documentation to the next process?
     - Do we receive incorrect information on a document?
     - Do we ever lose files or records?
     - Are your email distribution lists up-to-date?
     - Are instructions or requirements unclear or confusing?
Waste

2. **Overproduction**: Producing more of an item than is needed.

- Ask:
  - Are we producing more reports than needed? ARE they needed?
  - Are we making extra copies? ARE they needed?
  - Are we printing, faxing, emailing more than what is needed?
  - Are we entering repetitive information on multiple work documents or forms?
  - Are we doing more work than requested?
Waste

3. **Unnecessary Movement of Items/Materials**: Unneeded travel or movement of materials used when producing an item.

   - **Ask:**
     - Are you delivering/routing documents that are not required?
     - Are you doing excessive filing of work documents that will never be used again?
Waste

4. **Unneeded Motion**: Unnecessary motion required by a worker to complete a task.

- **Ask**:
  - Are you searching for computer files on your desktop? Unable to find or too many layers in electronic files?
  - Are you searching for work documents (files) in cabinets and/or drawers? Digging through stacks of paper?
  - Are you hand-carrying paper work to another process or department regularly?
  - Are you walking to a copier or printer?
  - Are you spending a lot of time traveling to meetings?
Waste

5. **Waiting**: Idle time while individuals wait for work to arrive; customers waiting for service.

• Ask:
  – Are there bottlenecks?
  – Are there excessive signatures or approvals required? (long approval cycles)
  – Is there too much dependency on others to complete a task?
  – Are there cross-departmental resource commitments issues? How do they know how to prioritize?
  – Are there delays in receiving information?
  – Is there time spent waiting for decisions?
  – Are there system downtimes, slow systems?
Waste

6. **Inventory**: Excessive inventory that ties up space and capital.

- Ask:
  - Are files (work) sitting in an inbox (backlog of work)?
  - Are we processing information in batches?
  - Are we purchasing excessive supplies of any kind?
  - Do we have any obsolete files/folders/equipment in the area?
Waste

7. **Over-Processing/Complexity**: Doing more work than is necessary to complete a task.

- **Ask:**
  - Are we doing more work than is required for that process? (too many process steps)
  - Are Job descriptions/work processes clear?
  - Are we receiving unclear reports/memos?
  - Are we duplicating reports or information?
  - Are we entering repetitive data?
  - Are we producing repetitive documents from scratch?
Waste

8. **Underutilization of Resources**: Not getting what is possible from people, processes and resources. Limiting worker authority or responsibility. Inadequate resources to do the job. Inadequate training or education for workers.

- **Ask:**
  - Are we in positions we were trained to do?
  - Can we assist other areas when work is slow in our primary area?
  - Can we be trained to do more within the organization? (Cross training)
To Increase Output, Waste Must be Addressed
Use Continuous Improvement to Increase Value Added Work
5S

A five-step improvement process to create and maintain a clean, neat, and high performance workplace. Used to READY the workplace for future continuous improvement efforts.

1. **Sort** - distinguish needed items from unneeded; eliminate unneeded
2. **Straighten** - keep needed items in the correct place for easy access
3. **Shine** - keep workplace tidy
4. **Standardize** - method of making the steps above a habit
5. **Sustain** - establish procedures
1. Sort

- Sort out necessary and unnecessary items
  - Tag items for removal or storage
- Store often used items at the work area and infrequently used items away from the work area
2. Straighten

• Arrange all necessary items
  – Establish locations
    – Naming convention for electronic files
    – Signage for work production and supply areas
      “Visual Work Environment”
  – “A place for everything, everything in its place”
2. Straighten

CSU Chancellor’s Office Copy Center
Current Process: Electronic Job BOG Binder

Distance traveled = 210 ft

Distance traveled = 114 ft

46% decrease in distance traveled.
3. Shine

- To keep your area clean on a continuing basis
  - Physically clean
  - Clean electronic folders on
    - a regular basis; no outdated
    - versions
      - Can a colleague find it
  - No unused icons/shortcuts
4. Standardize

• To maintain guidelines – Sort, Straighten and Sweep
  – Develop schedules, checklists, audits, information boards
  – Periodically evaluate area using 5S spreadsheet
    – Workgroup agrees on naming conventions, where to save/store/retrieve data

• Prevents regression back to an unclean/disorganized environment (return items to where they belong)

• Continually improve neatness
4. Standardize
5. Sustain

• To maintain discipline, we need to practice and repeat until it becomes a way of life
  – Training everyone is vital
  – Involvement from all is necessary

• To build housekeeping into every day process
  – Commitment and discipline toward housekeeping is essential in taking the first step in being World Class
Benefits of 5S

• Organized workplace
• Reduces stress
• Reduces waste
• More pleasant place to work
• Credibility/impress customers
• Safer work environment
• Foundation for other improvement projects
A3 Template for Problem Solving

• “A3” is just a paper size (international 11x17)
• A3 planning began in the 1960s as the Quality Circle problem-solving format
• At Toyota, it evolved to become the standard format for problem-solving, proposals, plans and status reviews
• The purpose of the A3 process is to:
  – structure effective and efficient dialogue
  – foster understanding followed by Agreement
A3 Format for Problem Solving

- The format is not as important as the process behind it and the conversations it facilitates.
- An A3 lays out an entire plan, large or small, on a single sheet of paper.
- It should be visual and concise.
- It should tell a story, laid out like newspaper columns, which anyone can understand.
Process Description:

Step 1: Background
- What are we trying to do with this process?
- Give some background information about the problem.
- Give an explanation to better understand the problem.
- State the importance of the problem.

Step 2: Current Conditions
- Draw a diagram of the current condition.
- Highlight the problem(s).
- Use data to explain the extent of the problem(s).

Step 3: Root-Cause Analysis
- Collect and analyze data to identify the root cause(s).
- Consider what techniques are most useful for explaining root-cause insight:
  - Use the 5 Why’s?
  - Summarize the main findings of the root-cause analysis, visually, if possible.

Step 4: Target Condition
- Draw a diagram of target/improved process.
- Identify where the root causes/waste is being eliminated.
- Define any measurable targets to support proposed improvement.

Step 5: Countermeasures
- What specific actions are required to eliminate the problem(s)?

Step 6: Implement

<table>
<thead>
<tr>
<th>When?</th>
<th>Who?</th>
<th>What?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date/Time</td>
<td>Person responsible for action items?</td>
<td>Action Items to be completed?</td>
</tr>
</tbody>
</table>

Step 7: Evaluate
- Check the results. Did the improvement(s) work?
- Collect data and compare “before” and “after” results.

Step 8: Follow-Up (Actions)
- What follow up activities must occur to sustain the results?
- Schedule follow up meetings at 30/60/90 days after implementation
- Did you complete all action items by the 30 day milestone?
- Did you complete all action items by the 60 day milestone?
- Did you complete all action items by the 90 day milestone?
- Has the problem been eliminated and the process showing measurable improvements?
- Can you close this Problem Solving process and archive it as “Completed and Closed”?"
P-D-C-A Cycle

DEMING Circle

PLAN

DO

CHECK

ACT
Step 1: Background

• What are we trying to do with this process?
• Give some background information about the problem
• Give an explanation to better understand the problem
• State the importance of the problem
Step 2: Current Conditions

- Draw a diagram of the current condition
- Highlight the problem(s)
- Use data to explain the extent of the problem(s)
Step 3: Root-Cause Analysis

• Collect and analyze data to identify the root cause(s)
• Consider what techniques are most useful for explaining root-cause insight:
  – Use the 5 Whys?
• Summarize the main findings of the root-cause analysis, visually, if possible
Using the “5 Whys” to Identify Root Causes

1. Document all potential root causes
2. Ask if any causes are more likely the root than the other
3. “Drill down” by asking “why” on most likely root causes

When using “5 Whys?” ask the following...
- Do you think this is the root cause?
- Should we ask why again?
- Does it matter any more?

Know when to STOP!

Problem: There are too many flat tires on our trucks

Why?

The trucks are running over nails on the floor

Why?

The nails are spilling out of some boxes

Why?

The boxes have holes because they get wet and deteriorate

Why?

There is a hole in the roof

Why?

The funds have not been approved to fix the roof

Cheap tires
Step 4: Target Condition

- Draw a diagram of target/improved process
- Identify where the root causes/waste is being eliminated
- Define any measurable targets to support proposed improvement
Step 5: Countermeasures

- What specific actions are required to eliminate the problem(s)?
Step 6: Implement

- **When?** - Date/Time
- **Who?** - Person responsible for action items
- **What?** - Action items to be completed?
Step 7: Effect Confirmation (Results)

• Check the results: did the improvement(s) work?
• Collect data and compare “before” and “after” results
Step 8: Follow-Up (Actions)

- What follow up activities must occur to sustain the results?
- Schedule follow up meetings at 30/60/90 days after implementation
- Did you complete all action items by the 30 day milestone?
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- Can you close this Problem Solving process and archive it as “Completed and Closed”?
A3 Benefits

• It forces you to slow down and not jump to conclusions
• It fosters dialogue within the organization
• It develops thinking problem-solvers
• It exposes lack of agreement that can undermine plans
• It encourages PDCA (Plan, Do, Check, Act)
• It clarifies the link (or lack of link) among problems, root causes, countermeasures
Defining/Identifying Current Process
# Current State Process: Steps & Tools

<table>
<thead>
<tr>
<th>Purpose/Steps</th>
<th>Tools - What &amp; How</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Understanding of Big Picture</td>
<td>SIPOC</td>
</tr>
<tr>
<td>Quantify, Confirm, Understand</td>
<td>Baseline Data Collection</td>
</tr>
</tbody>
</table>
SIPOC

- High-level view of the organization
- Use when existing process has more significant changes to reach a new level of performance
- Depicts Suppliers, Inputs, Process, Outputs, Customer
- Leads to discussion and identification of:
  - Customer needs, priorities and view of performance
  - Main performance gaps and process shortcomings
### SIPOC

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Inputs</th>
<th>Processes</th>
<th>Outputs</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>The groups, companies, or individuals that give you the inputs or resources you need to conduct the processes.</td>
<td>The things you need in your process to create your output.</td>
<td>The main processes you use to convert the inputs to outputs.</td>
<td>What you deliver to others. Things, services, software, information, etc.</td>
<td>The various beneficiaries, groups, companies, or individuals that receive the outputs or use your services.</td>
</tr>
</tbody>
</table>
The Value Proposition: Spreadsheet Format

Consider a project in the context of suppliers who provide inputs in the form of data, knowledge or resources, and the outputs for whom there are customers who use the output of the process.

Consider all elements of the system and set clear boundaries for the overall scope of the process, (decide where work starts and stops for this project).
Process Mapping
What is a Process?

A process describes a sequence of events required to get results
What is Process Mapping?

- A graphical representation of how work is done that shows tasks in sequence and makes work visible
- Clarifies roles and responsibilities
  - What activities are completed by whom and in what sequence
Why Process Mapping?

• Orient and train employees and customers

• Improve a process:
  – Identify opportunities for improvement
  – Streamline activities and eliminate redundancies
  – Automate processes
  – Identify metrics (costs, resource allocation etc.) to improve
Why are there Process Issues?

• Process was not designed well initially
• Customer needs changed but process did not
• Technology changed but process did not
• Process was changed over time
  – Added steps, approvals, checks on accuracy
• Process dependent on a few individuals but not documented
Why are there Process Issues?

• Process owners rarely take/have the time to review a process
• Those working on a process don’t have a mechanism to fix the process
How to Map a Process

• Identify process name & owner
• Write Current State on map
• Identify start and stop points
• Show all the process activities
  – Most processes have exceptions; map what happens 80% of the time
• Don’t try to fix- document current process
  – Notate areas of concern/ideas/ possible solutions that come up
• You will utilize different flowcharts depending on the amount of detail needed and what you are trying to accomplish:
  – Top Down Flowchart
  – Cross Functional Flowchart
How to Map a Process

There is more than one way to gather information

• Individual
  – One person knowledgeable with the process independently creates the flowchart
    – Presents it to others familiar with the process, asks for input, revises as necessary

• Interviews, surveys & observations
  – One person interviews people who work the process
    – Interview current or former students
    – Focus groups with faculty or student
  – Direct Observation
    – Shadow a student as he scheduled and met with his advisor
    – Customer satisfaction surveys

• Group process
  – Assemble people who work in or with the process
Top Down Flowchart

• Why top down?
  – Display major process areas and steps
  – Gain consensus on process; begin to see a picture of the current state process
  – Indication of potential process issues; start to identify non value added steps
  – Can be used for training or planning a speech
  – Visual for customers to help them understand process
  – Focus on essential, value added steps

• Downside
  – Macro level tool, lacking specifics
  – Hard to measure, unable to see rework
  – Does not indicate handoffs between departments
Top Down Flowchart

Start Point: [Diagram showing the start point]
Stop Point: [Diagram showing the stop point]

Process Step 1
- Sub Step 1
- Sub Step 2
- Sub Step 3
- Sub Step 4

Process Step 2
- Sub Step 1
- Sub Step 2
- Sub Step 3
- Sub Step 4

Process Step 3
- Sub Step 1
- Sub Step 2
- Sub Step 3
- Sub Step 4

[Logo of The California State University Quality Initiatives]
Top Down Flowchart: Travel Expense Report Reimbursement

Start: Traveler fills out and submits expense report
Stop: Traveler is reimbursed

- Traveler fills out expense report in Excel
- Traveler prints the report
- Traveler sends report to manager for approval
- Manager approves the report
- Manager mails report to the Travel Desk

- Travel Desk performs audit
- Travel Desk inputs data into PeopleSoft
- Accounts Payable verifies that data was input correctly into PeopleSoft
- Travel Desk performs budget check in PeopleSoft
- Travel Desk prints checks and attaches to expense report
- Accounts Payable scans report into imaging system and mails check to Traveler
Top Down Flowchart

• Procedure
  – Define start and stop points
  – List the main steps (4-12)
  – Arrange them in order
  – Identify key tasks under each step

• Class exercise:
  – Getting to work in the morning
Cross Functional Flowchart

• Why Cross Functional?
  – Display process steps and current process
  – View department relationships and handoffs
  – Helps clarify roles in addition to the flow of events
  – Indicates potential areas of delay or rework
  – Identify baseline metrics
  – Can be used for improvement or training effort

• Downside
  – It is important to know this process is part of a greater system and to consider any downstream affects as a result of changes you make in your process
Basic Charting Symbols

Start/End: Identifies beginning and end of processes

Activity steps. Name of an activity, person, role, task or operation

Identifies a decision or branch point. Accept/reject, yes/no, complete/incomplete etc.

Sub-process that may be separately mapped

Arrows: Indicates the direction of progression of the process

Connectors: Output from this flowchart will be an “input” to another flowchart
Create Cross Functional Flowchart

• Procedure
  – Write name of process and ‘Current State’ at top of map
  – Identify and write on two post-it notes, the start and stop points (also indicate at top of sheet)
  – On the left vertical axis list the departments/functional areas involved in order of appearance (use post-it notes)
  – Draw swim lanes between departments/functional areas
  – List each step on a sticky note and place in the proper order over time (left to right)
  – Pencil in arrows
  – Identify potential current state metrics, i.e., time per step, time in between step, total process time, number of steps, number of lane crossings
  – Do not attempt to solve issues at this point, make note of things that come up but focus on the current state!
Cross Functional Flowchart

Travel Reimbursement Process

Start: Traveler Fills Out and Submits Expense Report  End: Traveler is Reimbursed

Traveler
- Submit Travel Claim
  - Receive Reimbursement

Approver
- Sign Travel Claim to Approve Payment
  - No

Travel Desk
- Is form complete?
  - Yes
    - Enter Information into system
  - No

Accounts Payable
- Verify Information entered Correctly
- Budget Check
- Print and mail check

Time
Create Cross Functional Flowchart

• Group Exercise
  – Map process
Process Measures

Objective:

• Identify baseline metrics as basis of comparison to potential future state (helps identify if worth effort to improve) or actual future state (helps identify if changes were successful or if further changes needed)

What to watch out for:

• Are you using meaningful data?
• If you collect data use it!
• Don’t measure too many things
• Measure what is helpful not what is convenient
• Measure only what is important to your stakeholders & customers
  – There are no predefined set of measures for all processes: identify measures that capture the expectations of the customer!
Process Measures

- **Process Time (P/T)** – actual “touch time” of one work item; exclude interruptions
- **Delay Time (D/T)** – time work item is delayed or not touched
- **Lead Time (L/T)** – start time to finish time; \( L/T = P/T + D/T \)
- **% Complete & Accurate** – % of work entering a process that is complete and accurate
- **Cost** - operational cost; effort to maintain/enhance/support; direct staff costs; management cost; cost of defects
- **Performance** - system response time; amount of backlog; % of rework; customer feedback (complaints and compliments)
- **Total number of steps**
- **Involvement** - number of people and hours of involvement; departments; locations; number of handoffs between departments
Process Measures

- Problems must be quantified, exposed and confronted; lean cannot address an unacknowledged issue
- If you can measure it, you can change it
- MEASURE RESULTS, not effort and process compliance

Your recommendations are only as good as your analysis; your analysis is only as good as your data; your data is only as good as your measurement system…DATA INTEGRITY IS THE FOUNDATION OF A CREDIBLE PROJECT
Analyzing Flowcharts for Improvement Opportunities

<table>
<thead>
<tr>
<th>Process Improvement</th>
<th>Process Reengineering</th>
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<tbody>
<tr>
<td>Current State</td>
<td>Future State</td>
</tr>
</tbody>
</table>
# Future State Process: Steps & Tools

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<tr>
<th>Purpose/Steps</th>
<th>Tools - What &amp; How</th>
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<tbody>
<tr>
<td>Understand and document customer needs</td>
<td>Understand &amp; document the customer needs</td>
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<tr>
<td></td>
<td>Identify the characteristics that meet those needs</td>
</tr>
<tr>
<td>Identify Issues &amp; Summarize Root Causes</td>
<td>Process Review elimination of Waste &amp; Non Value Added Activities – 5 Whys</td>
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<tr>
<td></td>
<td>Internal/External Benchmarking</td>
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<tr>
<td>Identify &amp; Document Possible Solutions</td>
<td>Future State Flow Diagram</td>
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<tr>
<td></td>
<td>- Top Down Flow Diagram</td>
</tr>
<tr>
<td></td>
<td>- Cross Functional Flow Chart</td>
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<td></td>
<td>- Value Stream Map</td>
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<tr>
<td>Once Design and Project are Approved, Ensure</td>
<td>Communication &amp; Engagement Plans</td>
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<tr>
<td>Effective Adoption</td>
<td>Training Materials</td>
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<td></td>
<td>Process Measures</td>
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</table>
Analyzing Flowcharts for Improvement Opportunities

• Identify future state map
  – Where you can be in 30/60/90 days with current resources

• Identify ideal state map
  – Longer term with automation/technology or other resources/infrastructure not yet in place
  – Consider strategic vision and where organization/department wants to be
Analyzing Flowcharts for Improvement Opportunities

• What to look for:
  - Any activity that is not important to the customer
  - Waste or non value added steps: delays rework, storage, etc.
  - Frequently repeated steps: inspections, rework, signatures, etc.
  - No control points: need to add inspections & decisions
  - Optimal positioning of process participants
  - Excessive hand offs / lane changes
Analyzing Flowcharts for Improvement Opportunities

• Improve the process:
  – Clarify handoffs: what’s needed by whom, when, why
  – Clarify steps that are not understood
  – Reorder steps to be more logical
  – Minimize motion and distance traveled
  – Minimize time to perform a task
  – Ensure appropriate resources are used/available
  – Ensure appropriate amounts are produced/worked

• Activities can be….
  - Combined
  - Run concurrently, instead in serial
  - Made faster or reduce labor required via automation
  - Eliminated if proven to be unnecessary
  - Add steps if they are early and prevent rework later
Analyzing Flowcharts for Improvement Opportunities

Continually ask ‘why this activity/step is necessary’
Value Stream Mapping (VSM)
What is a Value Stream?

A value stream is all the steps, both value creating and non value creating, required to complete a product or service from beginning to end.
VSM: It’s Not Just Another Processing Mapping Tool!

- Uses a systems perspective
- Focuses on customer requirements
- Links work and information flow
- Documents delivery and quality performance
- Highlights problems
- Allows process redesign to meet specific agreed-upon objectives
Value Stream Mapping: Why

VSM helps us:

• understand how the process works now and how well it’s working
• expose waste and problems with flow in the value stream
• reach agreements on what changes need to be made to improve the process
• reach agreements on how to ensure that those changes are made
Understanding Flow

In the flow of value, there can be many obstacles!

Value

Unnecessary Documents

Unnecessary Queues and Wait Times

Multiple Approvals

Inadequate Resources

Customer
Identify Areas to Improve

FLOW

<table>
<thead>
<tr>
<th>Process 1</th>
<th>3-14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbox</td>
<td></td>
</tr>
</tbody>
</table>

1-2 days

Improvement

Countermeasure

CUSTOMER
Individual Efficiency vs. System Effectiveness

Rowing twice as fast
A VSM is a **simple tool** that visually represents what’s going on in a value stream.

Read upper-half from right to left:
- Supplier
- Information Flow
- Process Boxes
- Process Data Boxes (w/metrics)

Timeline & Summary Statistics (value stream metrics)

Read lower-half from left to right:
Current-State – Travel and Expense Reimbursement Process
Start: Traveler fills out
End: Traveler is reimbursed
Date: 6/9/2010

Value Stream Map Zones

Supplier

Customer

Information Flow

Process Boxes

Process Data Boxes (w/metrics)

Timeline & Summary Statistics (value stream metrics)

Read upper-half from right to left

Read lower-half from left to right
Typical Steps for Current State Mapping

1. Note customer and supplier issues
   • Process output(s) and customer(s)
   • Customer quantity and quality requirements; delivery types
   • Input(s) and supplier(s)
   • Supplier quantity and quality; delivery type(s)

2. Main process steps mapped in sequence

3. Value stream “walk” noting
   • Information flow
   • Technology used
   • Process performance metrics

4. Calculate cumulative range process time (P/T), lead time (L/T), and overall % complete and accurate (%C/A)
Lean Metrics

- **Process Time (P/T)** – actual “touch time” of one work item; exclude interruptions
- **Delay Time (D/T)** – time work item is delayed or not touched
- **Lead Time (L/T)** – start time to finish time; \( L/T = P/T + D/T \)
- **% Complete & Accurate (%C/A)** - % of work entering a process that is complete and accurate
Current-State – Travel and Expense Reimbursement Process

**Start**: Traveler fills out and submits expense report
**End**: Traveler is reimbursed
**Date**: 6/9/2010

- **Customer Requirements**: Reimbursement check in 7 days
- **Supplier Input**: 6 expense reports per day
Current-State – Travel and Expense Reimbursement Process

Start: Traveler fills out and submits expense report
End: Traveler is reimbursed
Date: 6/9/2010

Control Point
Approver

Submit Printed Expense Report for Signature/Approval

Traveler

Fill-out expense report and print

Customer Requirements:
Reimbursement check in 7 days

Supplier Input:
6 expense reports per day

Expense Report Audit
Travel Desk

Manually Key Information into PeopleSoft
Travel Desk

Validate That Data Keyed Correctly into PeopleSoft
Travel Desk
Accounts Payable

Budget Check/"Post" Expense in PeopleSoft
Travel Desk

Print Check And Attach To Expense Report
Travel Desk

Scan Hardcopy Expense Report Into Imaging System / Mail Check
Accounts Payable
Current-State – Travel and Expense Reimbursement Process
Start: Traveler fills out and submits expense report
End: Traveler is reimbursed
Date: 6/9/2010

Control Point
Approver

Submit Printed Expense Report for Signature/Approval

Fill-out expense report and print

Traveler

Customer Requirements:
Reimbursement check in 7 days

Supplier Input:
6 expense reports per day

Expense Report Audit
Travel Desk

Expense Report

Manually Key Information into PeopleSoft
Travel Desk

PeopleSoft

Key in Data

Validate

Validate That Data Keyed Correctly into PeopleSoft
Travel Desk

Budget Check

Budget Check/ "Post" Expense in PeopleSoft
Travel Desk

Print Check And Attach To Expense Report
Travel Desk

Scan Haradcopy Expense Report Into Imaging System / Mail Check

Mail Approved Report

Missing Information

Notify Traveler about missing information

Mail Check

Accounts Payable

Accounts Payable
Current-State – Travel and Expense Reimbursement Process

Start: Traveler fills out and submits expense report

End: Traveler is reimbursed

Date: 6/9/2010

Control Point
Approver

Submit Printed Expense Report for Signature/Approval

Traveler

Touch = 1

Customer Requirements:
Reimbursement check in 7 days

Supplier Input:
6 expense reports per day

Inbox
Fill-out expense report and print

Control Point
Approver

_0-5 days

Traveler

Inbox
30 reports 5 days

Expense Report
Audit

Mail Approved Report

Expense Report Audit
Travel Desk

Inbox
30 reports 1 days

P/T = 10 min.
D/T = 0-3 days
%C/A = 44%
Touch = 1

PeopleSoft

Notify Traveler about
missing information

Manually Key
Information into PeopleSoft

Travel Desk

Inbox
30 reports 1 days

P/T = 7 min.
D/T = 0 days
%C/A = 99%
Touch = 1

Validate That
Data Keyed Correctly into PeopleSoft

Travel Desk

Inbox
30 reports 1 days

P/T = 7 min.
D/T = 0 days
%C/A = 95%
Touch = 1

Validate

Accounts Payable

Inbox
30 reports 2 days

P/T = 5 min.
D/T = 0 days
%C/A = 100%
Touch = 1

Budget Check

Travel Desk

Inbox
30 reports 2 days

P/T = 5 min.
D/T = 0 days
%C/A = 100%
Touch = 1

Print Check And
Attach To Expense Report

Travel Desk

Inbox
30 reports 2 days

P/T = 5 min.
D/T = 0 days
%C/A = 100%
Touch = 1

Scan Hardcopy
Expense Report Into Imaging System / Mail Check

Accounts Payable

Inbox

P/T = 5 min.
D/T = 0 days
%C/A = 100%
Touch = 1

The California State University
QUALITY INITIATIVES
Current-State – Travel and Expense Reimbursement Process

Start: Traveler fills out and submits expense report
End: Traveler is reimbursed
Date: 6/9/2010

Value Stream Metrics
Process Time = 44 minutes
Lead Time = 19 days 44 minutes
Percent Complete & Accurate = 37%
# of Touches = 7

Control Point
Approver

P/T = 5 min.
%C/A = 90%
Touch = 1

Submit Printed Expense Report for Signature/Approval

Traveler

Customer Requirements:
Reimbursement check in 7 days

Supplier Input:
6 expense reports per day

Expense Report Audit
Travel Desk

P/T = 10 min.
D/T = 0-3 days
%C/A = 44%
Touch = 1

Inbox 30 reports 1 days

Manually Key Information into PeopleSoft
Travel Desk

P/T = 7 min.
D/T = 0 days
%C/A = 99%
Touch = 1

Inbox 30 reports 1 days

Validate That Data Keyed Correctly into PeopleSoft
Accounts Payable

P/T = 7 min.
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%C/A = 95%
Touch = 1

Inbox 30 reports 1 days

Budget Check/"Post" Expense in PeopleSoft
Travel Desk

P/T = 5 min.
D/T = 0 days
%C/A = 99%
Touch = 1

Inbox 1

Print Check And Attach To Expense Report
Travel Desk

P/T = 5 min.
D/T = 0 days
%C/A = 100%
Touch = 1

Inbox 1

Scan Hardcopy Expense Report Into Imaging System / Mail Check

P/T = 5 min.
D/T = 0 days
%C/A = 100%
Touch = 1

Inbox 1

<table>
<thead>
<tr>
<th>P/T</th>
<th>10 min.</th>
<th>7 min.</th>
<th>7 min.</th>
<th>5 min.</th>
<th>5 min.</th>
<th>5 min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/T</td>
<td>3 days 10min.</td>
<td>1 day</td>
<td>7 min.</td>
<td>1 days</td>
<td>7 min.</td>
<td>2 days</td>
</tr>
<tr>
<td>%C/A</td>
<td>44%</td>
<td>99%</td>
<td>95%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Mail Approved Report

PeopleSoft

Notify Traveler about missing information

Key in Data

Validate

Budget Check

Print Check And Attach To Expense Report

Scan Hardcopy Expense Report Into Imaging System / Mail Check

Supplier Input:
6 expense reports per day

Customer Requirements:
Reimbursement check in 7 days

Supplier Input:
6 expense reports per day
Analyzing the Current State
VSM: What’s a Problem?

A “problem” is… the gap between the way things are now and the way they’re supposed to be, or you want them to be, in the future
Problem Categories

To improve a process look for problems in:

- Meeting customer requirements
- Making work flow
- Doing the work
- Managing to improve and learn
Identifying Current State Problems: Group Activity

1. Review the current state map
2. Write problems on post-its
3. Post problems where they appear on the current state map
4. Don’t solve, just identify!
Current-State – Travel and Expense Reimbursement Process

Start: Traveler fills out and submits expense report
End: Traveler is reimbursed
Date: 6/9/2010

Value Stream Metrics

<table>
<thead>
<tr>
<th>Process Time</th>
<th>44 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Time</td>
<td>19 days 44 minutes</td>
</tr>
<tr>
<td>Percent Complete &amp; Accurate</td>
<td>37%</td>
</tr>
<tr>
<td># of Touches</td>
<td>7</td>
</tr>
</tbody>
</table>

**Approver passing on reports with errors**

- P/T = 5 min.
- %C/A = 90%
- Touch = 1

**Control Point**

- Approver

**Are ‘wet’ signatures required?**

- P/T = 5 min.
- %C/A = 95%
- Touch = 1

**Rework due to missing information**

- Touch = 1

**Manually keying data time consuming**

**Expense Report Audit**

- Travel Desk
  - P/T = 10 min.
  - D/T = 0-3 days
  - %C/A = 44%
  - Touch = 1

**Manually Key Information into PeopleSoft**

- Travel Desk
  - P/T = 7 min.
  - D/T = 0 days
  - %C/A = 99%
  - Touch = 1

**Validate That Data Keyed Correctly into PeopleSoft**

- Travel Desk
  - P/T = 7 min.
  - D/T = 0 days
  - %C/A = 95%
  - Touch = 1

**Budget Check/”Post” Expense in PeopleSoft**

- Travel Desk
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%
  - Touch = 1

**Print Check And Attach To Expense Report**

- Travel Desk
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%
  - Touch = 1

**Scan Hardcopy Expense Report Into Imaging System / Mail Check**

- Accounts Payable
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%
  - Touch = 1

**Batch delay up to 5 days**

- Inbox 30 reports 5 days

**Mail Approved Report**

- Mail Check
  - 30 reports 1 days

**Missing Information**

- Key in Data
  - Validate

**Data starts out electronic and is printed**

- Fill-out expense report and print
  - Printed report for Approval
  - Traveler

**Customer Requirements:**
- Reimbursement check in 7 days

**Supplier Input:**
- 6 expense reports per day

**Low percent complete and accurate**

<table>
<thead>
<tr>
<th>P/T</th>
<th>7 min.</th>
<th>7 min.</th>
<th>5 min.</th>
<th>5 min.</th>
<th>5 min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>%C/A</td>
<td>44%</td>
<td>99%</td>
<td>95%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lead Time</th>
<th>1 day</th>
<th>1 days</th>
<th>2 days</th>
<th>5 min.</th>
<th>2-days</th>
<th>5 min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>%C/A</td>
<td>44%</td>
<td>99%</td>
<td>95%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Current State VSM Reflection

1. What have you learned thus far that changes how you think about your work?

2. What do you need to think/learn more about before you use it?

3. What can you immediately apply to your work?
Current State Mapping Tips

1. Identify the basic process boxes before performing the actual walk through.
2. Identify the metrics that the team will collect for each process box.
3. Add other information (via visual icons or metrics) as you observe the process steps in motion.
4. Guard against making the map too unwieldy; start simply, and add boxes as necessary.
Current State Mapping Tips

5. Walk the value stream to gather the performance data associated with creating the value.

6. Ask questions regarding activities and issues you see to understand potential barriers in designing future states.

7. Map the whole value stream as a team.

8. Assign team members specific tasks to perform in the mapping process.

9. Always draw by hand and in pencil.
What is a “**Lean** Value Stream”?

- **Value** - from the perspective of the customer
- **Flow** - no waiting or rework
- **Work** - standardized, built-in quality
- **Monitoring performance** - milestones, checkpoints, and lean metrics
Creating a Future State Map

1. Define customer requirements
2. Determine scope of change
   • Radical vs. incremental
3. Make the work flow
   • Optimize value creating steps
   • Apply appropriate lean tools/approaches
Creating a Future State Map

4. Improve work quality and reliability
   • Control variation
   • Standardize

5. Monitoring performance
   • Milestones
   • Regular checks and reflection
   • Feedback learning

6. Estimate your results
   • Quality and process improvements (% C/A, P/T, L/T)
Quality at the Source

• People must be certain that the product/information they are passing to the next work area is complete and accurate

• People must be given the means to perform inspection at the source, before they pass it along
Techniques for Catching Defects as Close to Source as Possible

- Posted procedures & checklists (for both work steps & quality requirements)
- Self checking (visual confirmations built into work sequence)
- Successive checking (following process checks)
- Mistake proofing (automatic error detection)
- Zone control (checks before leaving the group or area)
- Product checks (final or functional inspection)
- Systems for immediate giving feedback about abnormalities to the processes where they originated
Future-State – Travel and Expense Reimbursement Process

Start: Traveler fills out and submits expense report
End: Traveler is reimbursed
Date: 6/9/2010

Value Stream Metrics
- Process Time = 22 minutes
- Lead Time = 6 days 22 minutes
- Percent Complete & Accurate = 89%
- # of Touches = 2

Control Point
Approver
- P/T = 5 min.
- %C/A = 99%
- Notification - Ready for Approval
- Electronic Approvals

Traveler
- Touch = 1
- Customer Requirements: Reimbursement check in 7 days
- Supplier Input: 6 expense reports per day

Expense Report Audit
- Travel Desk
  - 2 day SLA
  - P/T = 7 min.
  - D/T = 0-1 day
  - %C/A = 90%
  - Touch = 1

Budget Check/"Post" Expense in PeopleSoft
- Travel Desk
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%

PeopleSoft
- Notify Traveler about missing information
- Hardcopy Receipts and any Missing Information
- Capture data directly in PeopleSoft
- Error checks in PeopleSoft

Print Check
- Accounts Payable
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%

Service-Level Agreement (SLA)
- Electronic Inbox
  - 10 reports
  - 2 days

Audit
- 2 day SLA

Budget Check

P/T 7 min. 5 min. 5 min.
L/T 1 day 7 min. 5 min. 1-day 5 min.
%C/A 90% 100% 100%
Current-State – Travel and Expense Reimbursement Process

**Start:** Traveler fills out and submits expense report

**End:** Traveler is reimbursed

**Date:** 6/9/2010

---

**Value Stream Metrics**

- Process Time = 44 minutes
- Lead Time = 19 days 44 minutes
- Percent Complete & Accurate = 37%
- # of Touches = 7

---

**Control Point**

- **Approver**
  - P/T = 5 min.
  - %C/A = 90%
  - Touch = 1

---

**Customer Requirements:**
- Reimbursement check in 7 days

**Supplier Input:**
- 6 expense reports per day

---

**Expense Report**

- **Audit**
  - Travel Desk
  - P/T = 10 min.
  - D/T = 0-3 days
  - %C/A = 44%
  - Touch = 1

- **Manually Key Information into PeopleSoft**
  - Travel Desk
  - P/T = 7 min.
  - D/T = 0 days
  - %C/A = 99%
  - Touch = 1

- **Validate That Data Keyed Correctly into PeopleSoft**
  - Accounts Payable
  - P/T = 7 min.
  - D/T = 0 days
  - %C/A = 95%
  - Touch = 1

- **Budget Check/"Post" Expense in PeopleSoft**
  - Travel Desk
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%
  - Touch = 1

- **Print Check And Attach To Expense Report**
  - Travel Desk
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%
  - Touch = 1

- **Scan Harcopy Expense Report Into Imaging System / Mail Check**
  - Accounts Payable
  - P/T = 5 min.
  - D/T = 0 days
  - %C/A = 100%
  - Touch = 1

---

<table>
<thead>
<tr>
<th>P/T</th>
<th>L/T</th>
<th>%C/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 min.</td>
<td>3 days 10min.</td>
<td>44%</td>
</tr>
<tr>
<td>7 min.</td>
<td>1 day</td>
<td>99%</td>
</tr>
<tr>
<td>7 min.</td>
<td>1 days</td>
<td>95%</td>
</tr>
<tr>
<td>5 min.</td>
<td>2 days</td>
<td>100%</td>
</tr>
<tr>
<td>5 min.</td>
<td>5 min.</td>
<td>100%</td>
</tr>
<tr>
<td>5 min.</td>
<td>2-days</td>
<td>100%</td>
</tr>
<tr>
<td>5 min.</td>
<td>5 min.</td>
<td>100%</td>
</tr>
</tbody>
</table>
Summary of Results & Potential Impact

- Entering data directly into PeopleSoft and allowing electronic approvals helped to eliminate data entry and checking steps.
- Service-Level Agreements put in-place to meet customer requirements.
- New lean value stream has fewer process steps and automatic error checking.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current State</th>
<th>Future State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Time (L/T)</td>
<td>19 days 44 minutes</td>
<td>6 days 22 minutes</td>
</tr>
<tr>
<td>Percent Correct and Accurate (%C/A)</td>
<td>37%</td>
<td>89%</td>
</tr>
<tr>
<td>Process Time (P/T)</td>
<td>44 minutes</td>
<td>22 minutes</td>
</tr>
</tbody>
</table>
Organizational Change
Managing Toward Perfection

Current State  

Future State  

Next Future State

Original State
Organizational Change Challenges

• Perceived resistance to change
  – People are willing to change, just need a compelling reason
  – Show how change benefits them and solves their problem
    – How does change help students?
  – Allowing employees input in process improvement effort may enrich jobs and enhance own satisfaction
  – Address any perceived threats to jobs – do not use Lean to reduce workforce!

• University culture may not be set up to continuously improve
  – Employees know process is ‘broken’ but there is no formal mechanism to share suggestions
Organizational Change Solutions

• Ask:
  – What are some low-hanging fruit?
  – What can be done immediately to improve customer satisfaction?

• Look to:
  – Create a culture of continuous improvement
    – Communicate improvements to gain momentum for future efforts
  – Remove silos: if a process crosses divisions an improvement by one department may have negative upstream/downstream consequences: COULD MAKE PROCESS LESS EFFICIENT
  – Solicit and accept feedback
  – Have no fear of failure
Leadership’s Role

• Create vision
  – Where are we going and why?
  – Goals and objectives
• Participate in the process
• Commit resources
• Remove barriers
• Communicate
  – Vision, results, lessons learned, and desire for culture of continuous improvement
Project Identification, Planning & Implementation
Project Selection

Leadership endorsement, dedicated resources, and commitment to change a process that:

1. Consumes too many resources or has significant quality, cost or delivery problems
2. Has a compelling business case
3. Has clear ownership
4. Can be mapped, with defined scope and performance metrics
5. Is worth the time and effort to improve
Project Selection

- Broken processes/processes in crises may already be known and identified
- Projects can also be identified and prioritized by conducting organizational assessments and surveys
- Selection criteria will depend on organization
  - Low hanging fruit
  - High impact on students
  - Where is support?
    - Organizational wide project vs Individual department
Project Charter

1. Process, problem statement
2. Project objective
3. Process owner, project scope - in scope/out of scope
4. Suppliers, inputs, process steps, outputs, customers (SIPOC)
5. Issues, impacts, benefits
6. Stakeholders, workshop participants, decision panel
7. Project schedule
Planning & Implementation

Current State ➔ Changes ➔ Future State

The specific changes needed to move from current state to future state are what you need to plan for

The Action Steps are how you will get there
What is a Plan?

A set of agreements for making a change or series of changes
Some Common Problems in Planning

- Lack of continued support from leaders
- Failure to address internal conflicts that get in the way of change effort
- Failure to make compelling case for need to change
  - Can be demonstrated in reduction of steps, $$ saved, show savings offset any purchasing costs
- Solutions identified without clear understanding of the problem
- Responsibilities and deliverable specifics not clear
- Plan in silos
- Underestimate the time and effort required to implement
- Reviews not part of the plan
What do you need to have Agreement on to have a Plan?

1. **Implementation Goals** - necessary changes that you’ve identified in the current state
2. **Action Steps** - tasks needed to make each change happen
3. **Responsible Person(s)** - participant(s) in the workshop who will serve as a leader to ensure completion of a goal and/or action steps
4. **Target(s)** - measurement indicating that a goal or action step has been achieved
5. **Timeline** - beginning and ending dates for the overall project and individual action steps
6. **Support** - people who will help or provide resources
7. **Review/Control Points** - scheduled points during and after the implementation to review whether it went as planned and achieved the intended results
Goals vs. Actions

A goal is not the same as an action. It is an outcome or new condition that needs to be achieved.

An action is what you do to get the outcome (your real purpose).

You need commitment to the outcome ---- not just to the action.
Future-State – Travel and Expense Reimbursement Process
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Date: 6/9/2010

Value Stream Metrics
Process Time = 22 minutes
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Percent Complete & Accurate = 89%
# of Touches = 2

Service-Level Agreement (SLA)
Electronic Inbox 10 reports 2 days
Expense Report Audit
Travel Desk
P/T = 7 min.
D/T = 0-1 day
%C/A = 90%
Touch = 1

Budget Check/’Post’ Expense in PeopleSoft
Travel Desk
P/T = 5 min.
D/T = 0 days
%C/A = 100%

Control Point
Approver
Electronic Approvals
Electronic Inbox 0-2 days
Notification – Ready for Approval
P/T = 5 min.
%C/A = 99%

PeopleSoft
Input report and scanned receipts into PeopleSoft
Notification – Ready for Audit
Error checks in PeopleSoft
Capture data directly in PeopleSoft

Control Point
Approver
Electronic Approvals
Electronic Inbox 0-2 days
Notification – Ready for Approval
P/T = 5 min.
%C/A = 99%

Supplier Input:
5 expense reports per day
Customer Requirements:
Reimbursement check in 7 days

P/T 7 min. 5 min. 5 min.
L/T 1 day 7 min. 5 min. 1-day 5 min.
%C/A 90% 100% 100%
Implementation Planning
Clarify the Goals

1. Identify the scope of the future state to be achieved in first implementation project and set project completion date
2. Identify the major changes required to move from the current state to the future state on future state map
3. State each change as a goal (use verbs such as decrease, increase, eliminate, create, establish), including the purpose for the change
4. State targets for each change
   - Timing (start and completion)
   - Impact (how much, how many, or how well – if appropriate)
5. Sequence the goals (changes) working back from project completion date
6. Assign responsibility for each goal to a workshop participant
7. Identify necessary support
Planning Tool #1: Project Goals

Goal (the change to be made + the purpose for the change):
Capture Traveler expense report data directly into PeopleSoft in order to increase accuracy, use electronic routing and use built-in error checking.

Targets (Measureable/observable impact & timing):
100% input directly into PeopleSoft by the Traveler by June 2011.
90% Correct & Accurate reports received by the Travel Desk by July 2011

Responsible: Sally
Support: Ruth
Implementation Planning:
Develop Action Plans for Each Goal

1. In breakout groups, brainstorm a list of action steps for each goal on a flip chart with post-it notes
2. Sequence the action steps working back from the due date for the goal
3. Set targets for each action step
   - Timing (start & completion)
   - Impact: how much, how many, how well (optional)
4. Assign responsibility for each action step to a workshop participant; assign support (if necessary)
5. Set review dates at key milestones (e.g. at 30/60/90 days)
6. Estimate your required resources
Planning Tool #2: Action Plan

- Capture Traveler expense report data directly into PeopleSoft in order to increase accuracy, use electronic routing and use built-in error checking
- 90% Correct & Accurate reports received by the Travel Desk by July 2011

<table>
<thead>
<tr>
<th>Action Step/Task</th>
<th>Responsible</th>
<th>Timing / Target</th>
<th>Support / Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Design the process map for the PeopleSoft Travel Module</td>
<td>Sally</td>
<td>March 1</td>
<td>Select module functions</td>
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<td>2. Identify/Program error checking</td>
<td>Lena</td>
<td>April 15</td>
<td>Review most common errors</td>
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<td>3. Conduct training for end-users</td>
<td>Alex</td>
<td>May 6</td>
<td>Gina</td>
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<td>Etc.</td>
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Plan

Goal 1

Goal 2

Goal 3

30 day

Actions

60 day

Actions

90 day

Actions

Actions

Actions
A Project Tracking Center

• A document board in a highly visible area as close to the work area as possible
• Current State and Future State Maps
• Timelines
  – Master schedule for the project
  – Action plans for the changes
• Key Measures of Progress & Success
  – Value stream performance improvement indicators
  – Implementation progress & impact at the process level
• Other documents as required (as few as possible)
  – Roles and responsibilities
  – Review schedules
  – Countermeasure sheets
Example Tracking Center

Goals

1. Installation
   Welcome to the widget tracker guide of an imaginary product.
   1.1. Setting up your computer
       This paragraph has no meaning. Well, at least it's gibberish, which is necessarily meaningless.
   1.2. Setting up your server
       I should really see an actual example of a user guide.
   1.3.1. Setting up a Series 3J model
       The Series 3J model basically sets up itself. Just boot it up to the computer and wait a bit.
   1.3.2. Setting up a Series 6FZ model
       Follow these steps to set up a Series 6FZ model. Remember, calibration accuracy calibrated materials in a brittle manner.
   2. Maintenance

30/60/90 Plan

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Key Measures of Progress

Current State

Future State

Scheduled Reviews
President Cho of Toyota: Three Keys to Lean Leadership

• Go see
  – Senior Management must spent time on the ground observing the process
    – “You can observe a lot by just watching” – Yogi Berra

• Ask why
  – “Use the “Why?” technique daily”

• Show respect
  – “Respect your people”
  – Harness their creativity to solve problems
Continuing the Quality Journey

- **Organizations & Resources**
  - ASQ [www.asq.org](http://www.asq.org)
  - NCCI (Higher Ed) [http://www.ncci-cu.org](http://www.ncci-cu.org)
  - Lean Enterprise Institute [www.lean.org](http://www.lean.org)
  - CCE (California) [www.calexcellence.org](http://www.calexcellence.org)

- **Certifications**
  - ASQ
    - Certified Manager of Quality/Organizational Excellence
    - Quality process Analyst
  - PMI [www.pmi.org](http://www.pmi.org)
    - PMP
Slide Content Adapted from:

- Lean Higher Education: Increasing the Value and Performance of University Processes by William K. Balzer
- Lean Thinking: Banish Waste and Create Wealth in Your Corporation by James P. Womack and Daniel T. Jones
- Lean Thinking with Six Sigma presentation by Kurt E. Robertson
- Learning to See: Value Stream Mapping to Add Value and Eliminate MUDA by Mike Rother, John Shook, Jim Womack and Dan Jones
- Mapping to See Participant Guide by Beau Keyte
- Managing to Learn: Using the A3 Management Process by John Shook
- The Machine That Changed the World: The Story of Lean Production by James P. Womack, Daniel T. Jones and Daniel Roos
- The Basics of Process Mapping by Robert Damelio
- The Team Handbook by Peter Scholtes
- The Complete Lean Enterprise: Value Stream Mapping for Administrative and Office Processes by Beau Keyte and Drew Locher
- The New Lean Office Training Set by Don Tapping
- Understanding A3 Thinking: A Critical Component of Toyota's PDCA Management System by Durward K. Sóbek II. and Art Smalley
- The Kaizen Event Planner by Karen Martin and Mike Osterling
- Lean in Government Starter Kit Version 2.0 from the United States Environmental Protection Agency