



Finance Department

Lean Six Sigma Yellow Belt

Performance Improvement Division



Agenda

- Lean Six Sigma Overview
- Problem Solving (A3 Thinking)
- Voice of the Customer
- Data Driven Decisions
- PDSA
- Waste
- 5S
- Poka Yoke
- Process Mapping
- Standard Work
- Kaizen Events
- Organizational Change

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LSS Overview: What is Lean Six Sigma?

- **Lean Six Sigma is a customer centric way of thinking and problem solving that seeks to continually identify and eliminate waste**
- Lean Six Sigma focuses on:
 - Meeting the customer needs
 - Eliminating waste (non-value adding activities)
 - Problem solving
 - Developing people
- In most businesses, > 90% of resources are spent performing non-value adding activities. Thus, the biggest benefits are driven by eliminating waste.
- The elimination of waste results in increased speed and capacity, as well as reduced costs and customer complaints.

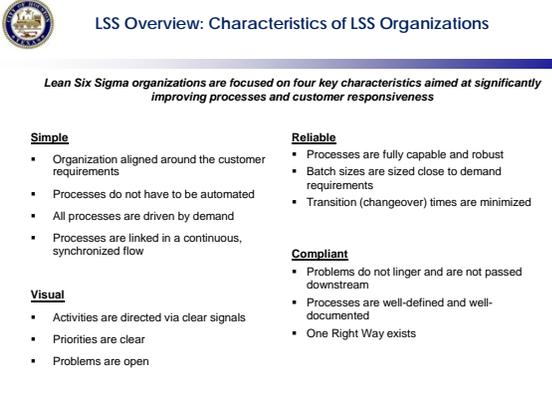
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Pillars of Lean Six Sigma

- Customer Focus
- Data Driven Decisions
- Respect
- Results
- Accountability
- Excellence

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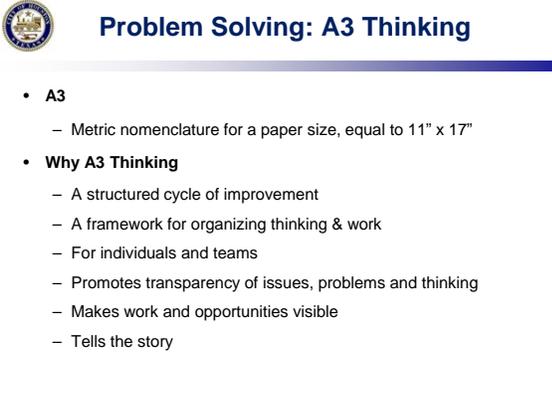


LSS Overview: Characteristics of LSS Organizations

Lean Six Sigma organizations are focused on four key characteristics aimed at significantly improving processes and customer responsiveness

Simple <ul style="list-style-type: none">Organization aligned around the customer requirementsProcesses do not have to be automatedAll processes are driven by demandProcesses are linked in a continuous, synchronized flow	Reliable <ul style="list-style-type: none">Processes are fully capable and robustBatch sizes are sized close to demand requirementsTransition (changeover) times are minimized
Visual <ul style="list-style-type: none">Activities are directed via clear signalsPriorities are clearProblems are open	Compliant <ul style="list-style-type: none">Problems do not linger and are not passed downstreamProcesses are well-defined and well-documentedOne Right Way exists

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Problem Solving: A3 Thinking

- A3**
 - Metric nomenclature for a paper size, equal to 11" x 17"
- Why A3 Thinking**
 - A structured cycle of improvement
 - A framework for organizing thinking & work
 - For individuals and teams
 - Promotes transparency of issues, problems and thinking
 - Makes work and opportunities visible
 - Tells the story

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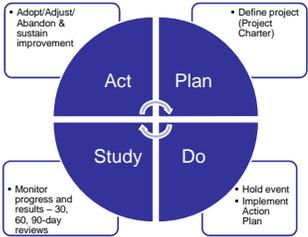
 **Data Driven Decisions**

Give the most weight to information that can be verified with data, make decisions based on analysis rather than anecdote or intuition.

- Complaints that a process doesn't work or is too slow?
 - Gather data to confirm
- Difficulty deciding which solution will work best?
 - Test, make decision based on the data

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 **Plan, Do, Study, Act**



• Adopt/Adjust/Abandon & sustain improvement

• Define project (Project Charter)

• Monitor progress and results - 30, 60, 90-day reviews

• Hold event
• Implement Action Plan

Following the Lean methodology ensures knowledge creation and continuous improvement

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 **Value-added vs. non value-added**

<u>Value-added</u>	vs.	<u>Non Value-added</u>
<ul style="list-style-type: none">• Customer is willing to pay for it• Actually transforms a product or service• Done correctly the first time		<ul style="list-style-type: none">• Consumes resources without creating value for the customer• Low percent of the time work is complete and accurate• Requires extra time, effort, or resources

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Voice of the Customer: Exercise

- Pretend you are a clerk who oversees ticket payment at the local court.
- Who are your internal and external customers?
- What do those customers want?
- What must you do to accomplish those wants?




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Waste: Types of Waste

There are three types of activities that add cost to any process.



Value Added Activities:

- Activities which change the form, fit, or function of the product/service and
- What the "customer" is willing to pay for and
- Activities done right the first time

Required Waste Activities:

- Required (regulatory, customer mandate, legal)
- Activities causing no value to be created but which cannot be eliminated based on technology
- Necessary (because of non-robustness of process, currently required, current risk tolerance)

Pure Waste Activities:

- Activities that consume resources but create no value in the eyes of the customer
- Waiting Time

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Waste: Types of Waste

1. Transportation 
2. Inventory 
3. Motion 
4. Waiting Time 
5. Over Processing 
6. Overproduction 
7. Defects 
8. Unused Human Talent 

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 **Transportation Waste**

Transportation of products, equipment, materials or people without adding value.



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 **Inventory Waste**

Unnecessary storage of materials.



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 **Motion Waste**

Movement of people that does not add value to a product or service and may create health and safety issues.



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 **Waiting Time**

When people, parts, systems, or facilities wait for a prior step in the process to be completed.

Waiting is typically 90% of process time.

Goal is smooth and continuous flow between each process step



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 **Over-Production**



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 **Over Processing**

- Making things more complicated than required.



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 **Defects**

The effort involved in inspecting for and fixing defects (errors and mistakes).



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 **Unused Human Talent**

Staff hired to do X and spending time on Y

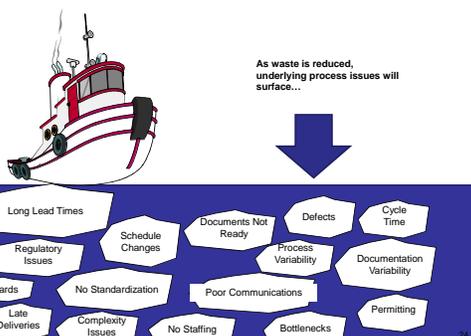


Don't let your employees' skills go to waste!

Remove process barriers so that staff can do the work they were hired for and want to do!

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 **Waste: Continual Reduction**



As waste is reduced, underlying process issues will surface...

Waste

- Long Lead Times
- Regulatory Issues
- Rewards
- Late Deliveries
- Schedule Changes
- No Standardization
- Complexity Issues
- Documents Not Ready
- Poor Communications
- No Staffing
- Defects
- Process Variability
- Bottlenecks
- Cycle Time
- Documentation Variability
- Permitting

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5S

A simple method for creating a clean, safe, orderly, high performance work environment.

- Sort
- Set In Order
- Shine
- Standardize
- Sustain
- 6th "S" for "Safety"

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Look Familiar

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Numbers Game Instructions

When I say go, please turn over your sheet and circle in chronological order numbers 1 through 49. Your goal is to circle as many numbers in chronological order as possible within 90 seconds.

For those of you who are innovative, you may NOT circle the number 1 in the number 12.

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 **5S Numbers Game**



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 **Set in Order 2S**

"A place for everything, and everything in its place."

A visual management strategy!



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 **Shine 3S**

"The best cleaning is to not need cleaning."



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Mistake proofing overview

"Cease dependence upon inspection as a way to achieve quality."
- W. Edwards Deming

- Build quality into the process by:
 - Recognizing that people make mistakes and errors
 - Eliminating errors before they occur
 - Detecting errors before they occur
 - Ensuring defects cannot be passed on to next operation
 - Warning associates of an improper process
 - Utilizing common sense methods to eliminate opportunity for errors
 - Providing instant feedback by stopping production when an error occurs
 - Using controls that prevent a process from accepting poor quality

Most Preferred

Elimination
Replacement
Prevention
Facilitation
Detection
Mitigation

Least Preferred

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Process Mapping

Why a process map?

- Gain buy in
- Documents Process
- Easily identify unnecessary steps
- Waste elimination
- Makes the process known and knowable

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Process Mapping: Process Understanding

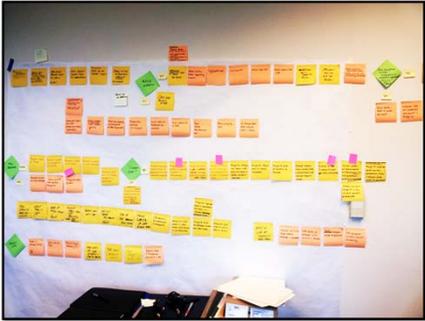
What You Think The Process Is...

What The Process Actually Is...

What The Process Should Be...

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 **Process Mapping: Processes gone wrong**



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 **Standard Work Activity**

1. DRAW A PIG ON A BLANK SHEET OF PAPER
2. NAME YOUR PIG
3. POST YOUR PIG ON THE WALL
4. WAIT FOR FURTHER INSTRUCTIONS



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 **Standard Work Activity Cont.**

1. Utilizing handout #1, draw another pig.
2. Use the visual aids provided in handouts #2 and #3
3. Follow the sequence of operations provided in handout #4
4. Name your new pig
5. Post your new pig on the wall immediately below your original pig
6. Talk about some advantages of standardizing

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 **Advantages of Standard Work**

- The basis for continual improvement
- A powerful tool for eliminating waste.
- A method of building in quality
- Simple, clear & visual documents showing a standard method of doing a job.
- Results are consistent
- Live and continuously updated documentation, owned by the team.
- Ensures correct use of tools and machines.
- Shows safe work, based on human movements.

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 **Kaizen Philosophy**

Kaizen literally means

- Kai – Change
- Zen – To become good

The foundation of the Kaizen method consists of 5 founding elements:

- Teamwork
- Personal Discipline
- Improved morale
- Quality Circles
- Suggestions for improvement

改善
Kai = Change Zen = Good

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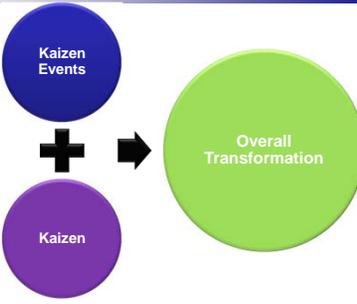
 **Leading Kaizen Events: Kaizen's Role In Continuous Improvement**

Kaizen Events:

- Formalized, Focused Events
- Dedicated Time
- Bigger Problems
- Done on a Schedule
- Multiple Participants
- Aggressive Objective

Kaizen:

- Way of Thinking, a Philosophy
- Does Not Require Management
- Daily Waste Removal
- Daily Improvements
- Incremental Improvement



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LEADING KAIZEN EVENTS: Underlying Mindset

Care to all continuous improvement thinking is the underlying mindset of PDCA. PDCA is constantly done over and over again on each problem regardless of size or approach (DMAIC vs. Just Do It vs. Kaizen)

Act / Adjust:
Understand why results didn't match expected results and fix it

Plan:
Establish the goals (targets) and determine how you are going to achieve the goals

Check:
Review expected results against actual results

Do:
Execute against the plan – make it happen



PDCA is a scientific approach to problem solving, but it is no different than what we do everyday without thinking about it – like driving to a friend's new house

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Leading Kaizen Events: Review

Group Kaizen activities (Kaizen Events) are focused, action oriented, immediate action events to significantly improve a process within a short period of time

Kaizen Events Are:

- Focused efforts (typically 2 – 5 days) to improve a specific set of processes using selected Lean Six Sigma tools
- Participants include cross-functional team members typically representing suppliers, customers and process owners, along with relevant support roles
- Conclude with the implementation of short-term process improvements and action plans for implementing longer-term improvements
- Should be applied to high-value processes at least once every 12 months or whenever a significant change in equipment, process or technology occurs
- Although generally applied in a group setting, individuals can kaizen their specific work activities and work areas
- Kaizen events are applicable in every department

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Organizational Change

Lean drives fundamental change in an organization. It inspires people to look at their processes differently through waste awareness and to discover, characterize and control their processes. In so doing, this behavior drives process improvements, which often require changes to be communicated, deployed and managed.

The following are examples of how a Lean Six Sigma rollout could affect employees and require specific change management techniques:

- New methodology to understand (*process-thinking*)
- A change in behavior (*efficiency vs. wastefulness*)
- New language and terminology (*What is "Poka Yoke"?*)
- On-boarding of new employees (*Master Black Belt, Lean consultant, etc.*)
- Different arrangement of teams / groups of people than in the past
- Additional responsibilities added to job descriptions
- A new and different way of thinking...

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Organizational Change: Cont.

Lean Six Sigma in itself is a Change Management methodology and, if effectively deployed, will create:

- Process view of the organization, where critical inputs and performance metrics are understood
- Clearly defined vision where a future state is achieved with process improvements and continual measurements
- Team-based problem-solving culture, which empowers employees to make improvement through process changes
- Creates a "change culture"—where continuous improvement becomes the norm and Lean practitioners take pride in performance excellence
- Standard for quality data and the risks of different conclusions

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Organizational Change: Cont.

Changing your business on paper is easy. Getting your employees to embrace/adopt as intended ...that's where Change Management comes in.

Resistance can be categorized simply in three knowing

Why?

- Their transition has been ignored
- Have a general fear of change
- Don't understand the changes

- Have not been trained
- Don't have the right skills for the new environment

- Lack of communications
- Do not understand the business realities driving the goals or new technology
- Think it won't make their job easier

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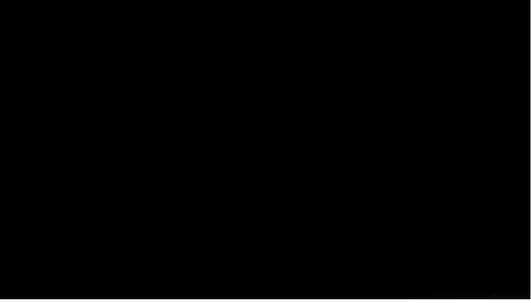
Organizational Change: Transitions

Leaders must develop and execute a plan that effectively manages the organizational and individual change that will occur as a result of a transformational initiative.

- **Organizational Change:** situational process teams, projects, and organizations go through to reach future state
- **Individual Transitions:** psychological process individuals go through to come to terms with the new situation
- Adjusting to change requires time, but properly managing the change can help individuals move more quickly along the change curve
- Effective communication can bridge the gap between individual transition curves and decrease the steepness of the change curve
- Effective training can help individuals move quicker from 'despair' to 'improvement'

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 **Organizational Change:
Start with Why**



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