



Lean 101

An introduction to Lean principles, methodology, tools and terminology

1

Learning Objectives



- Start “thinking Lean”
- Understand the Lean methodology of PDSA
- Basic knowledge on Lean tools for removing waste and enhancing customer value
- Understand your Lean role
- Begin applying Lean principles and tools

2

Agenda



- Lean overview
- Lean principles
- Lean concepts and tools
- Your role
- Next steps



3

What is Lean?



A time-tested method and set of tools to help us improve “how” we produce our products and services.

Lean helps us understand:

- What adds value to our customers
- How work gets done
- How we can identify root causes of problems
- What an “ideal / no waste” process looks like
- How we can improve performance
- Whether process changes were successful

Lean is also a mindset, where we ask each day “How can we make our services better for customers?”

4

Lean is about Simplifying our Work



- Eliminate tasks that do not add value
- Make things easy and intuitive for customers and staff
- Automate repetitive tasks
- Leverage staff talent

5

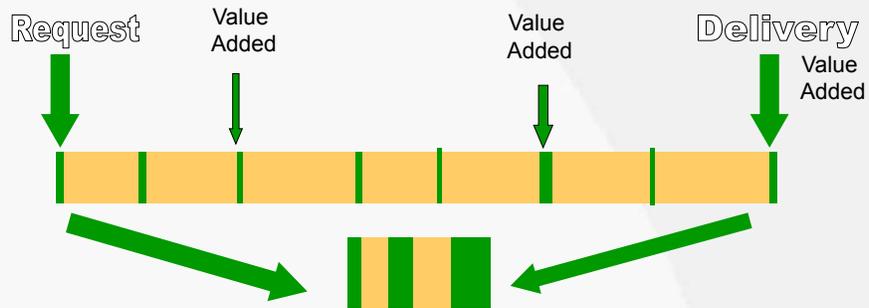
How Do We Define Value-added?



- | <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 (often CYA)• Low percent of the time work is complete and accurate (%CA)• Requires extra time, effort, or resources |

6

Lean is About Removing “Waste”



- Task time is typically 10% of total process time (lead time).
- Less than 30% of the tasks in a process add value from the customer's perspective

7

Lean is NOT...



- Not an acronym (LEAN)
- Not a diet
- Not a solution to personnel or performance issues
- Not an initiative to reduce headcount – it's about improving service
- Not a silver bullet or quick fix
- Not a replacement for Six Sigma – it is complementary
- Not a “manufacturing thing”

Lean does NOT require special expertise

8

Lean in Action



The power of Lean:

- [Meals Per Hour.mp4](#)

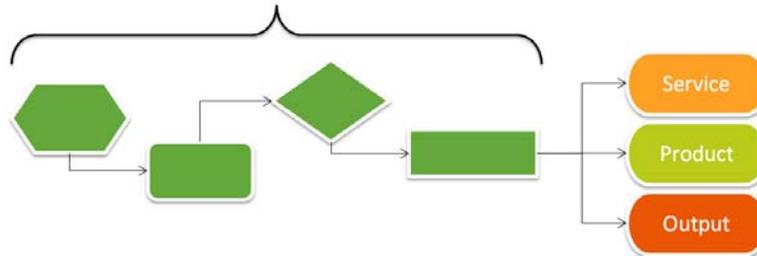
9

Why Focus on Process?



85%

of improvement opportunities are here



10

Why Lean?



- Minnesota's population is getting older
- Increasing customer expectations
- Pressure for greater accountability and transparency
- Tight and shrinking budgets
- Shrinking workforce and increasing need for a more skilled workforce.

Lean helps us improve quality, reduce costs, increase customer and employee satisfaction, & capture knowledge

11

Lean Partners



- Results-Based Accountability
- Plain Language Initiative
- The *Unsession*



12

History of Lean



- Continuous improvement originated in 1920s with Walter Shewart and Bell Laboratories
- Early founders: Joseph Juran and W. Edwards Deming
- Refined by and attributed to Toyota Motor Corporation in early 1960s (Toyota Production System)
- Now successfully adopted across all organizations and sectors
- Enterprise Lean (now MNCI) launched in 2007



13

Lean Principles



14

Principle 1: Customer Focus



Better, faster, cheaper...



15

Principle 2: Data Driven Decisions



- Verify anecdotes and feelings with data!
- 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 data!

16

Principle 3: Respect



“A bad process
will beat
a good person
every time”

- W. Edwards Deming

It's about the Process

17

Principle 3: Respect



- Grow leaders who understand, model, and teach performance improvement principles and practices to others.
 - Go to the Gemba – (See, Ask questions, Show respect)
- Develop exceptional people and teams who follow Lean principles.
 - Employees know where a process is not working well, so engage them in improving the process
 - Empower your employees to solve problems (e.g., standardize decision making)
- Collaborate with partners and suppliers to improve customer value.

Employees are your most important resource!

18

Principle 4: Results



Set SMART goals and measure results

- Specific
- Measurable
- Attainable (challenging, but within reach)
- Relevant (aligned with your strategic priorities)
- Time-bound
 - Example: Reduce the time it takes to pack a meal box from <current time> to <target time> by <date>.

19

Principle 5: Accountability



- Think and act in a manner needed to achieve results
- Hold others responsible for following through on commitments
- Communicate progress
- Capture learning

Project	P	D	S	A	Results
1. Hiring	G	R	G	G	😊
2. Contracts	Y	G			
3. Permitting	G				
4. Safety	R	G	R		

- Green = on schedule,
- Yellow = slightly behind schedule
- Red = significantly behind schedule

20

Principle 6: Excellence



Incremental
(local improvement)

Systematic
(evolutionary)

Revolutionary
(breakthrough)



Improving
what exists

Distinctly
different/better

Radically new &
different/better



21

Lean Concepts and Tools

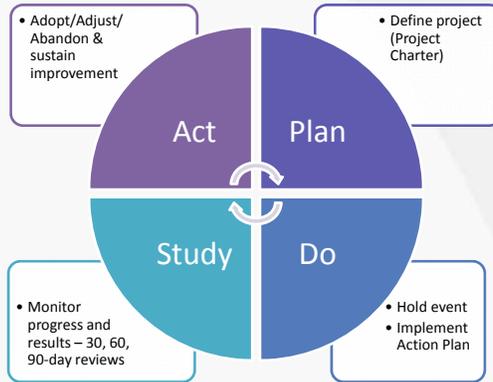


- PDSA
- 7 Wastes
- 5S
- Standard Work
- Visual Management
- Kaizen (Kaizen Event)
- Problem solving



22

PDSA – The Lean Methodology



Following the Lean methodology ensures knowledge creation and continuous improvement

23

7 Wastes



1. Defects
2. Overproduction
3. Waiting
4. Non-utilized staff talent
5. Transportation
6. Inventory
7. Motion
8. Extra processing

24

7 Wastes: Defects



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



25

7 Wastes: Overproduction



Lucy and Ethel fighting a losing game.

Producing more products or services than the customer needs or wants.

26

7 Wastes: Waiting



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



27

7 Wastes: Non-utilized Talent



Staff hired to do X and spending time on Y

Don't let your employee's skills go to waste!

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

28

7 Wastes: Transportation



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



29

7 Wastes: Inventory



Unnecessary storage of materials.



30

7 Wastes: Motion



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



31

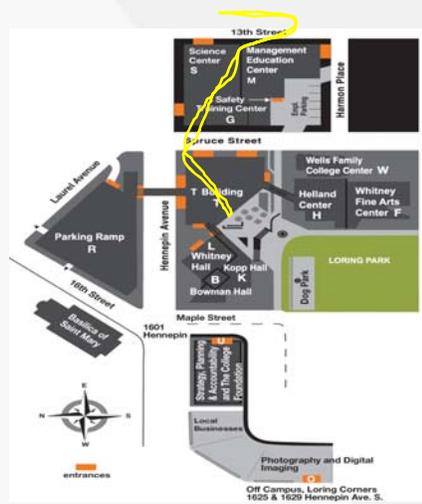
7 Wastes: Motion Example



Per semester

500 Trips required to collect course change forms per semester

80 Hours of walking between buildings required per semester



32

7 Wastes: Extra Processing



Producing a higher quality product or service than what is required by the customer, and using elaborate or expensive equipment when more simple options exist.



33

Video



“Toast”

Watch for examples of the eight wastes in the following video.

Make a note of what you would do differently if you were making the toast.

34

Improvement Strategies



Handoffs and batching are common barriers to process flow



Eliminate non-value added tasks



Combine tasks or functions



Concurrent processing



Co-locate work



Shift roles and responsibilities



Eliminate or reduce batching



Automate



Solve Problems

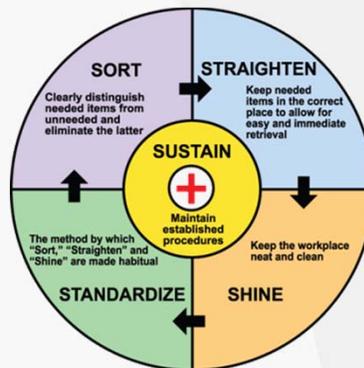
35

5S



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

1. Sort
 2. Set In Order
 3. Shine
 4. Standardize
 5. Sustain
- 6th "S" for "Safety"



36

Before



37

5S Numbers Game – Round 1



90 seconds

38

1S - Sort



*“When in doubt,
move it out.”*



39

“Numbers” – Round 2



60 seconds

40

2S – Set in Order (Straighten)



“A place for everything, and everything in its place.”

A visual management strategy!



41

3S - Shine



“The best cleaning is to not need cleaning.”

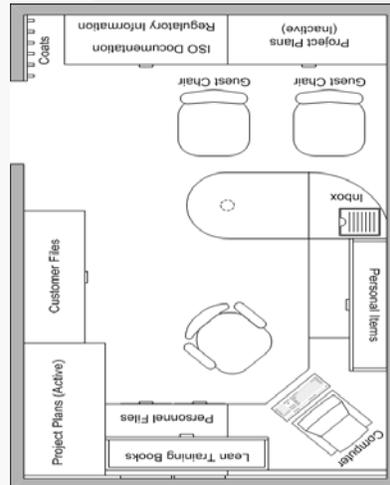


42

4S - Standardize



“See and recognize what needs to be done.”



43

5S - Sustain



“Effective, ongoing application of 5S”

The most difficult step!



44

After



45

5S Tips



- Keep it fun – consider friendly competition
- Leverage teamwork
- Take before and after photos
- Rotate maintaining shared areas among staff
- Provide positive reinforcements



46

Poka Yoke – Error Proofing



47

Visual Management



A communication device that tells, at a glance, how work should be done.

- Where items belong
- How many items
- Standard procedure
- Work-in-process (WIP)



There is only one place to put each item.

48

Visual Management Example



Head of Bed Tilt – VAP Bundle

The little gauge on the side of the bed is fine when you're 24 inches away.

Everyone who walks past the room and looks in should be able to see an error from the doorway

There is no reason to assume your first idea will be your best. Pella generated 7 designs before selecting 1.

Additional improvements are possible...

Mistake Proofing to Reduce Medical Errors presented by the Lean Enterprise Institute



49

Communication Boards



Visual management tools that can be understood in 30 seconds or less

Examples: In/Out, project status, staffing, wait times, etc.

Can also communicate accomplishments

50

Kaizen



A Kaizen Event is a facilitated, small-scope improvement activity that engages the creativity of employees to reduce waste in a work process. A Kaizen Event typically lasts 3-5 days.



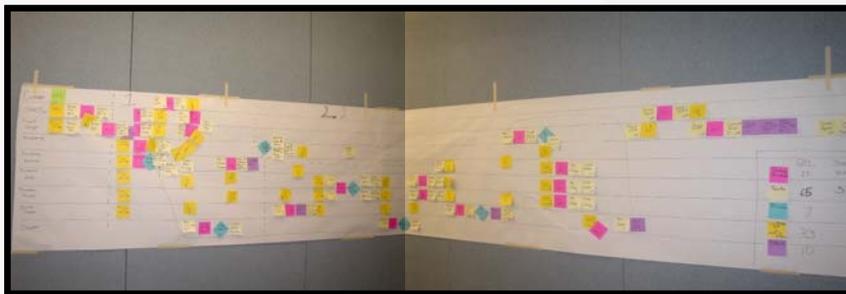
Kaizen,
A combination of two Japanese symbols for “change” and “good,” most commonly translated as “change for the better.”

51

Kaizen Event



Kaizen events use a swim lane map to document the current and future process.

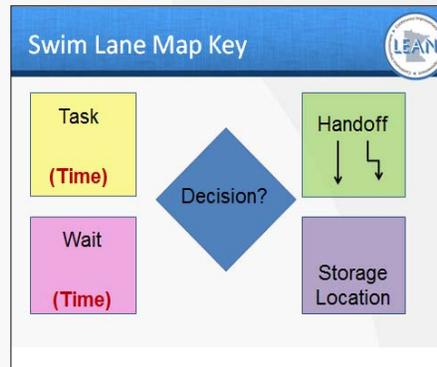


52

Group Mapping Exercise



- What: Pizza order and delivery process
- Who:
 - Customer
 - Order taker
 - Cook
 - Register attendant
 - Other?



53

Standard Work



The safest, highest quality, and most efficient way to perform a task or process.

- Focuses on helping the employee be successful
- Reduces variation and increases consistency
- Improvements cannot be sustained without it

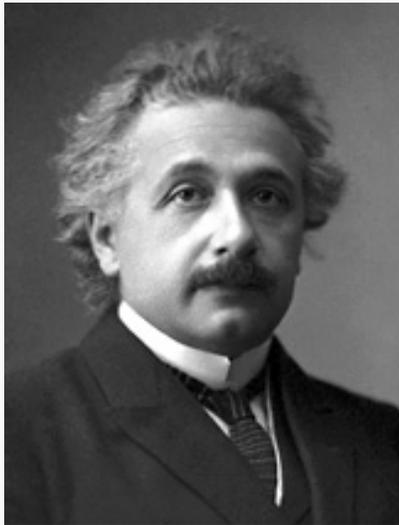


“Where there is no standard, there can be no Kaizen.”

Taiichi Ohno, Vice-President Toyota Motor Company

54

Problem Solving



“If I were given one hour to save the world, I would spend 59 minutes defining the problem and one minute solving it.”

- Albert Einstein

55

Problem Solving



Symptoms: You see it, people talk about it; it is visible!



Root Cause: The one to address. It is often hidden. You need to find it!

Defining the “wrong” problem wastes considerable time looking in the wrong direction for solution.

56

5 Whys



- 5 Whys is a SIMPLE but POWERFUL technique for uncovering the root cause of a problem when you lack data regarding why the problem is occurring.
- If we don't solve problems at the level of the root cause, we risk the same problem resurfacing in the future.

57

5 Whys Example



Problem: The Jefferson Memorial was disintegrating rapidly

Why was it disintegrating?

Because the cleaning methods were abrasive

Why?
Why?
Why?

Root Cause!

Five Why Analysis helps drive to source of the problem.

The actual technique can take more or fewer iterations.

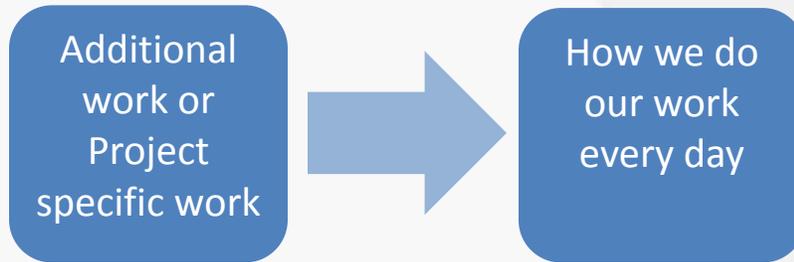
How many whys did it take to get to the root cause of the Jefferson Memorial's problem?

58

To Create a Lean Culture...



We need to move from viewing Lean as:



59

Are You Challenging Yourself?



If you don't fall once in a while...
you're not trying hard enough to improve.



60

Are You Stymied by Perfection?



Sheryl Sandberg,
Chief Operating Officer
of Facebook



61

Managements' Role



- Model the way
- Challenge the status quo
- Set goals and performance targets
- Align work and dedicate resources
- Engage and empower staff
- Remove barriers
- Build a problem solving culture
- Reward/Recognize high performers

62

Action You can Take



- Try a tool you learned today!
- 5S your desk, network drive, or common work area
- Create standard work
- Learn more about Lean practices and tools
- Ask your customers what they want
- Think about your goals and how to collect data to start measuring where you are now (so that you can show improvement!)

63

Learn More!



- Books
 - Ken Miller's *We Don't Make Widgets*
 - John P. Kotter's *Leading Change*
 - Ken Miller's *Extreme Government Makeover*
- Join the CI User Group:
<http://mn.gov/admin/lean/resources/user-group/>
- Join the MN CI Community Yammer Network:
<https://www.yammer.com/minnesotacontinuousimprovementcommunity?>
- Take additional training
<http://mn.gov/admin/lean/training/>
- <http://twistedifter.com/2013/01/50-life-hacks-to-simplify-your-world/>

64

Stay Connected!



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65



Thank you for investing in your learning and building your capacity to improve the quality and efficiency of government products and services!

66