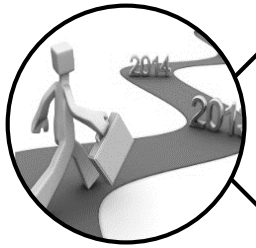
Lean Six Sigma White Belt

About Operational Strategic Initiatives

Mission

To continuously advance the framework for UC San Diego's sustainable excellence by identifying opportunities and providing solutions that improve overall service, dedication to people, and financial stewardship.

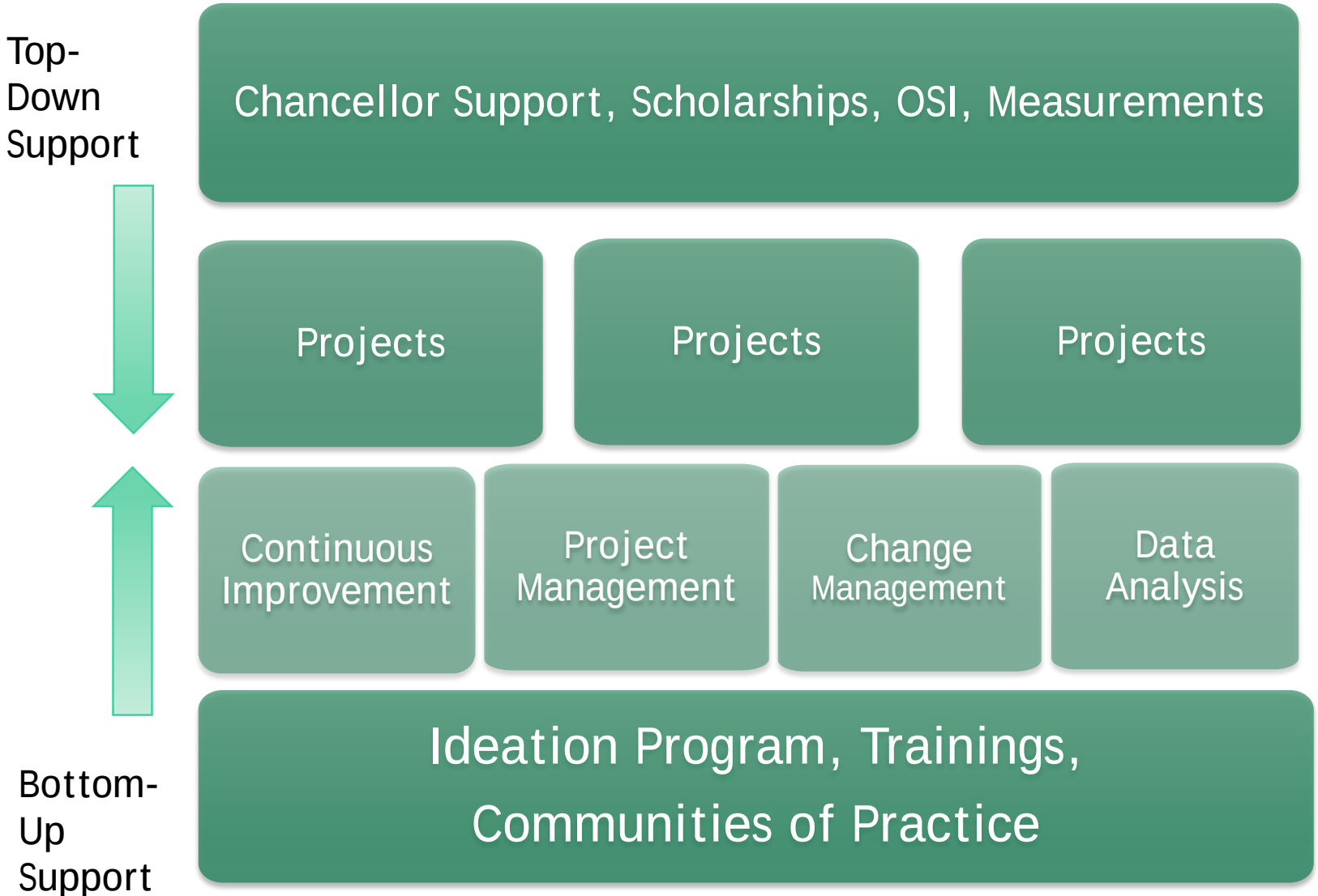


Strategic Planning and Initiatives

Tritonlytics

Innovation Management

Continuous Improvement Projects and Workshops


Top-
Down
Support
Chancellor Support, Scholarships, OSI, Measurements
Projects
Projects
Projects
Continuous Improvement
Project Management
Change Management
Data Analysis
Ideation Program, Trainings,
Communities of Practice
Bottom-
Up
Support

What is Lean Six Sigma?

LEAN

Focuses on waste reduction by streamlining a process.

+

SIX SIGMA

Focuses on preventing defects through problem solving.

=

LEAN SIX SIGMA

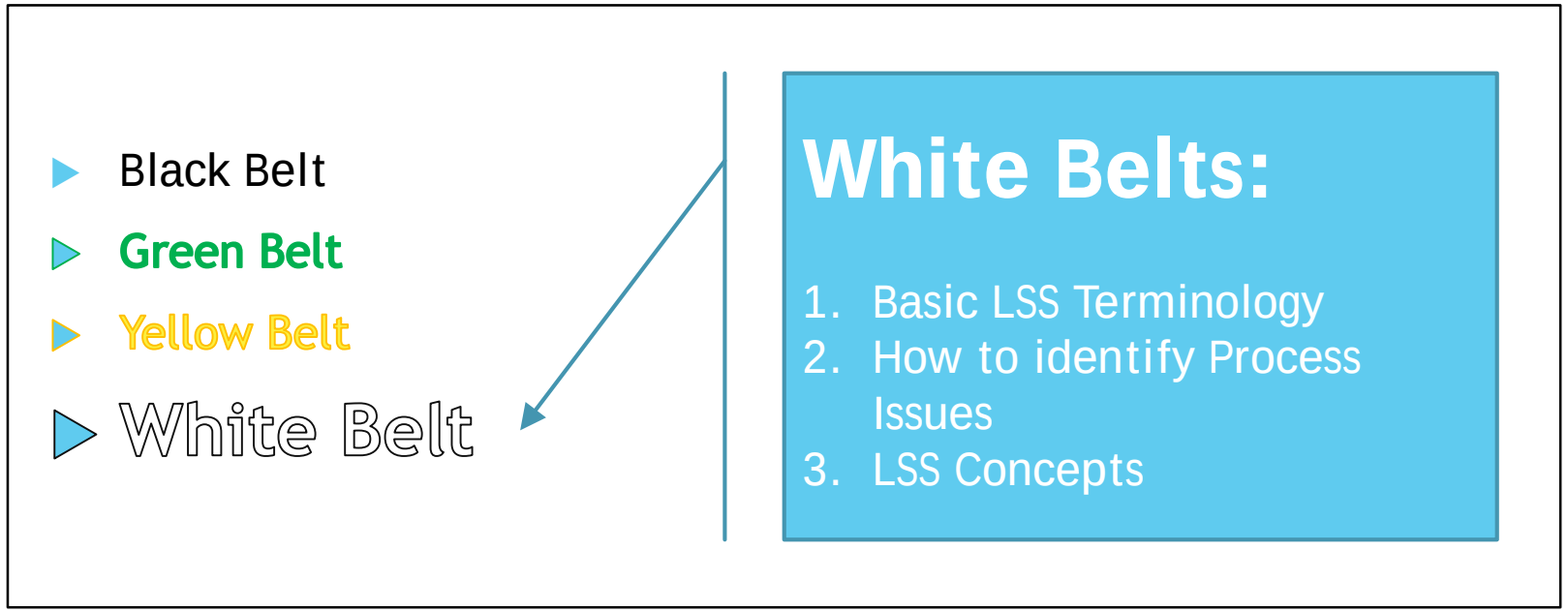
Lean strengthens Six Sigma: Problem solving + improving processes delivers greater results.

SPEED

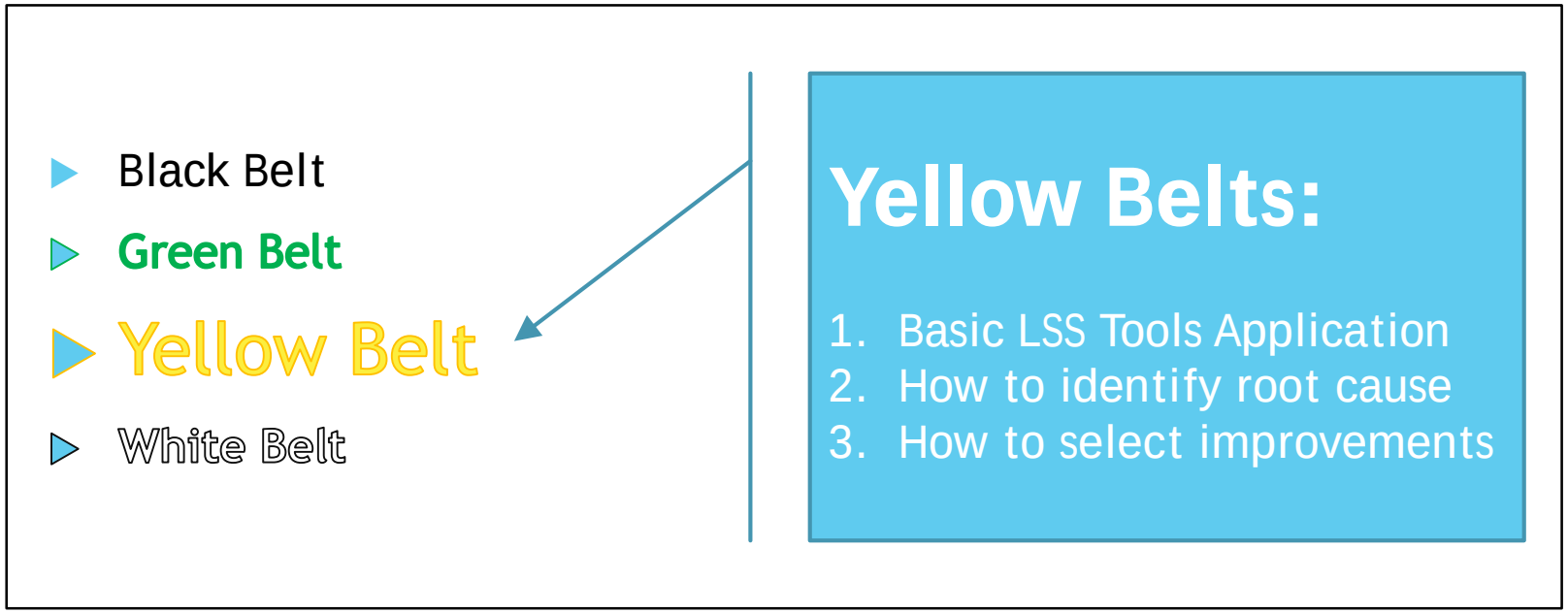
ACCURACY

RESULTS

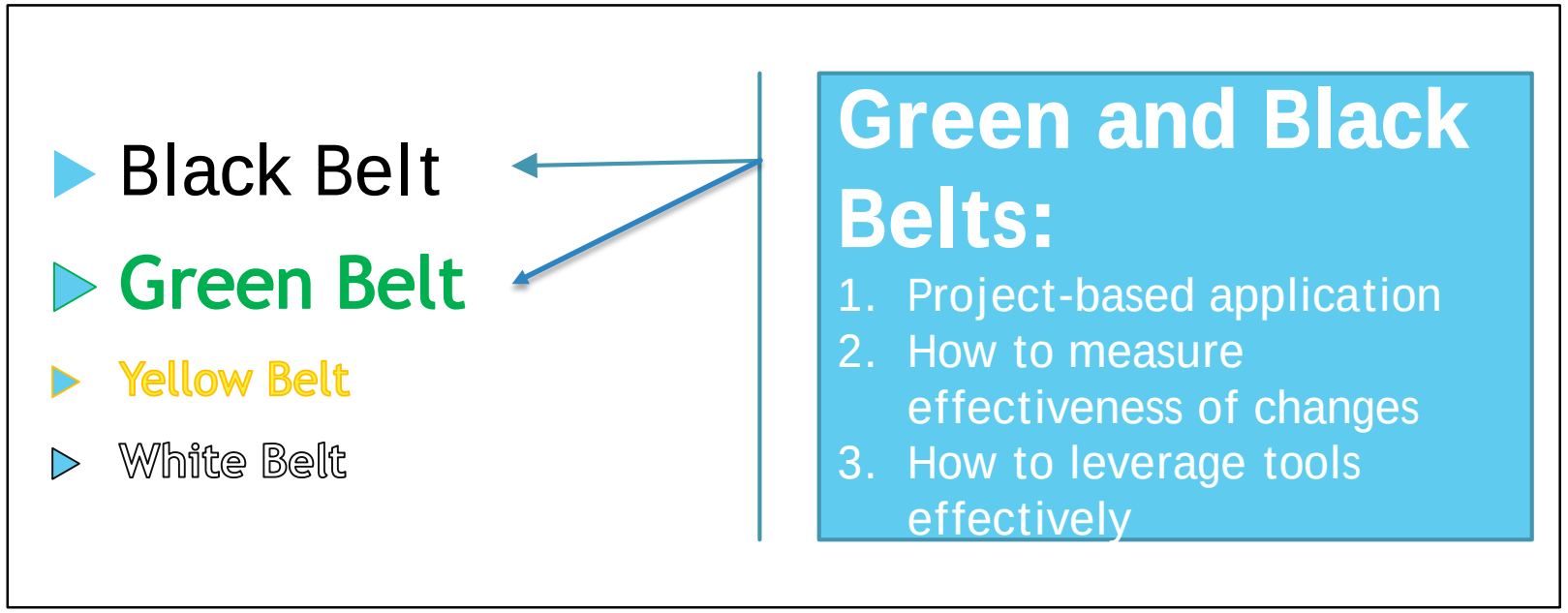
LSS Belt Levels



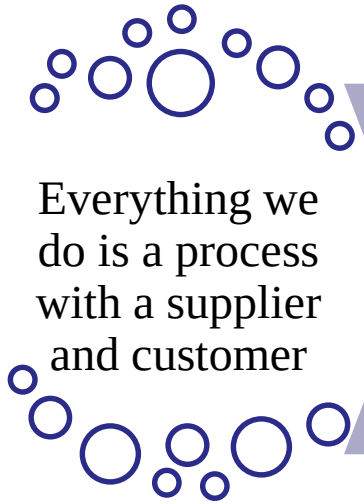
LSS Belt Levels



LSS Belt Levels



Basic LSS Concepts



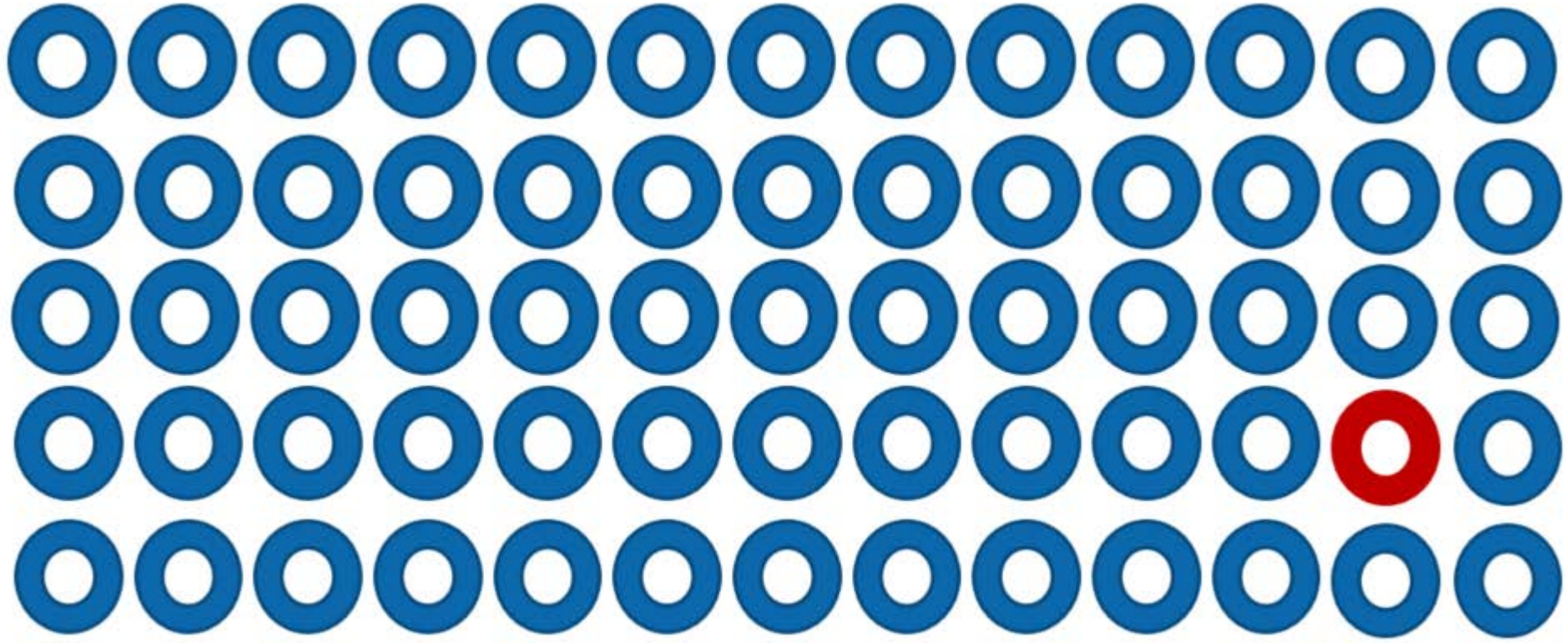
Everything we do is a process with a supplier and customer

All processes have variation and waste – no process is perfect

All variation and waste has a cause

Known causes can be eliminated, reduced or controlled

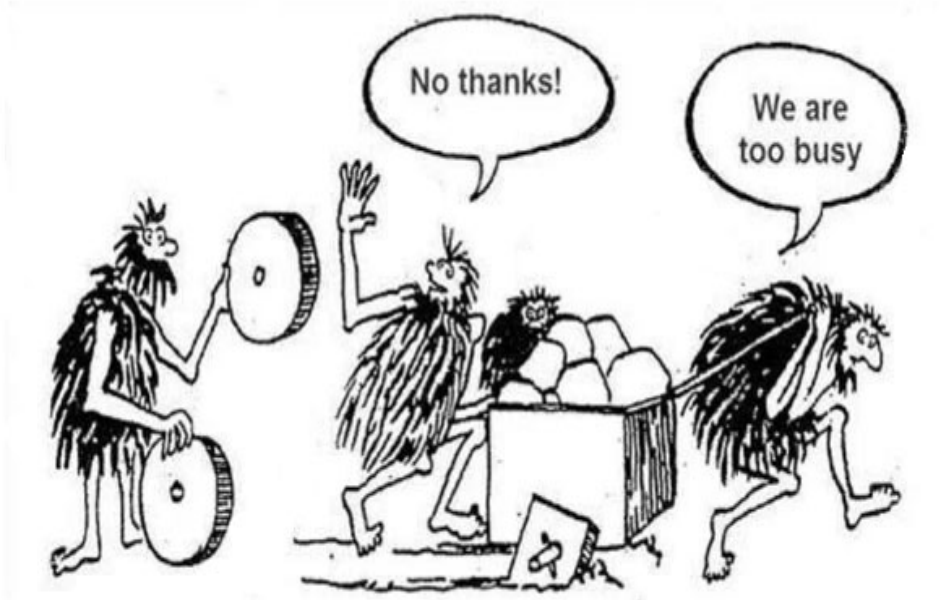
Pursuit of Perfection



To achieve Six Sigma, a process must fit within the customer specification limits 99.9997% of the time
(i.e., **only 3.4 out of 1 million instances** are considered defects).

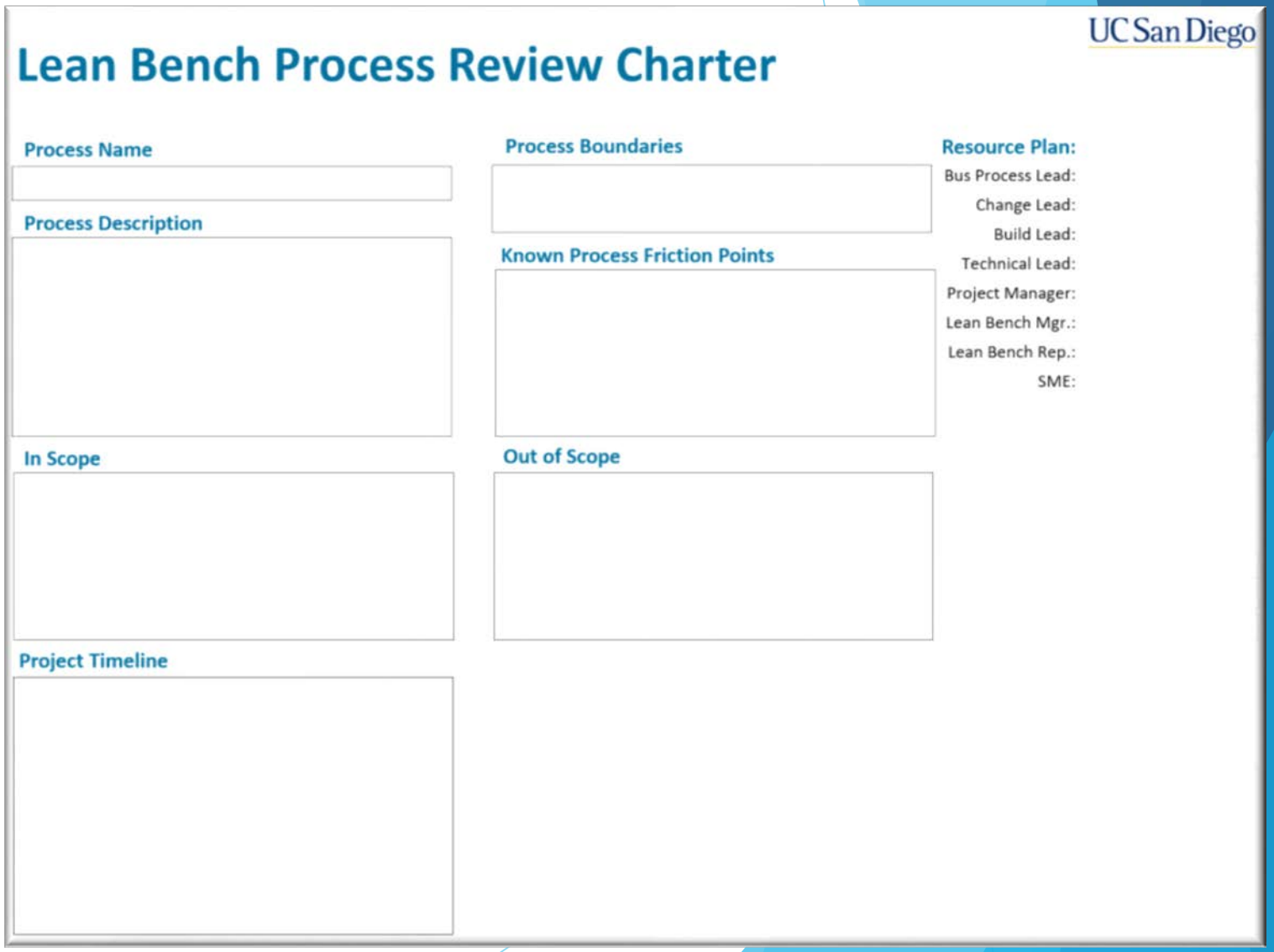
Problem Solving

DMAIC Model



Define: Project Charter

- Business Case
  - Why is it important for the business to complete this project?
  - What is the financial impact?
- Scope
  - What's in?
  - What's out?
  - Team Members
- Resources accessible to the team
- Schedule



Define: Voice of the Customer (VOC)

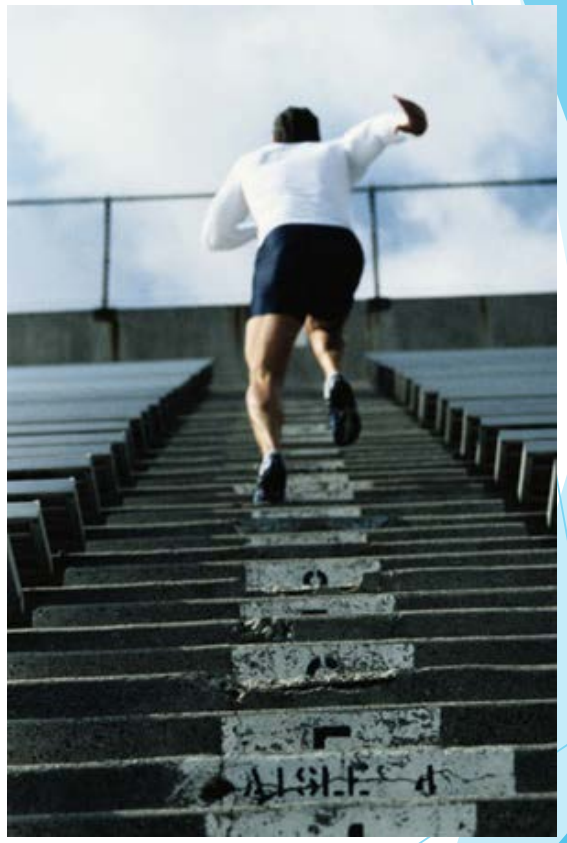
Customer Comment	Customer CTQ	Customer Definition of Defect	Metric
What is being said?	What is important to customer?	What is not acceptable for the customer?	How will you measure outcomes? (time / pass-fail / temperature / etc.)
Is there only one cook back there or what!?	Food prep time	Food takes too long to prepare	45 seconds or less

VOC activities translate what customers say they want into customer requirements: i.e., what customers find "critical to quality" (CTQ) and what they define as a "defect." Defects can then be measured.

Continuous OR Discrete data?

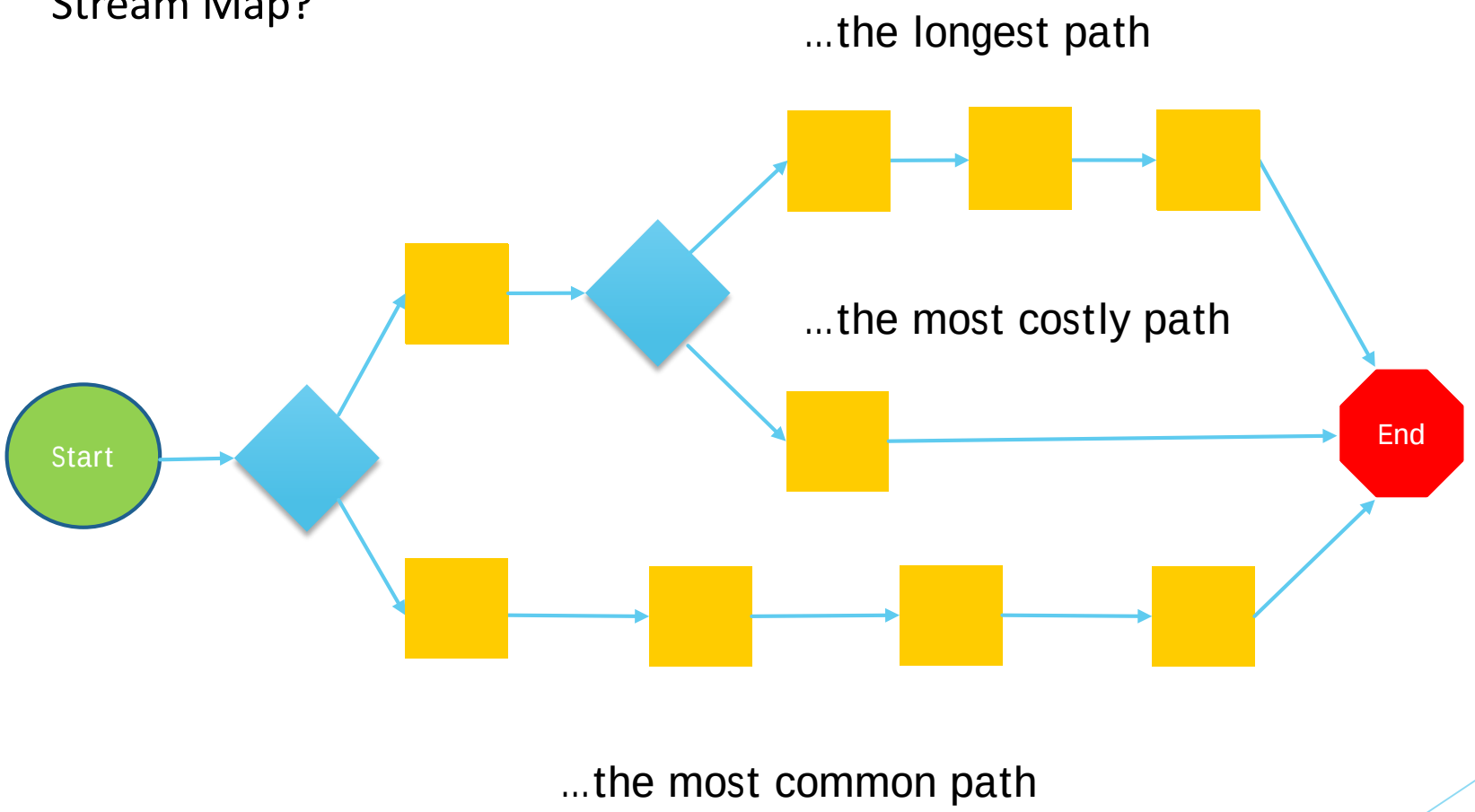
Gemba Walk

- Gemba means “the real place” in Japanese
- Learn through observation and engagement: go to the source(s) to experience a process firsthand
- Test your assumptions about a process against reality
    - Go see, ask why, show respect
    - Focus on the process, not evaluating the people performing the process steps



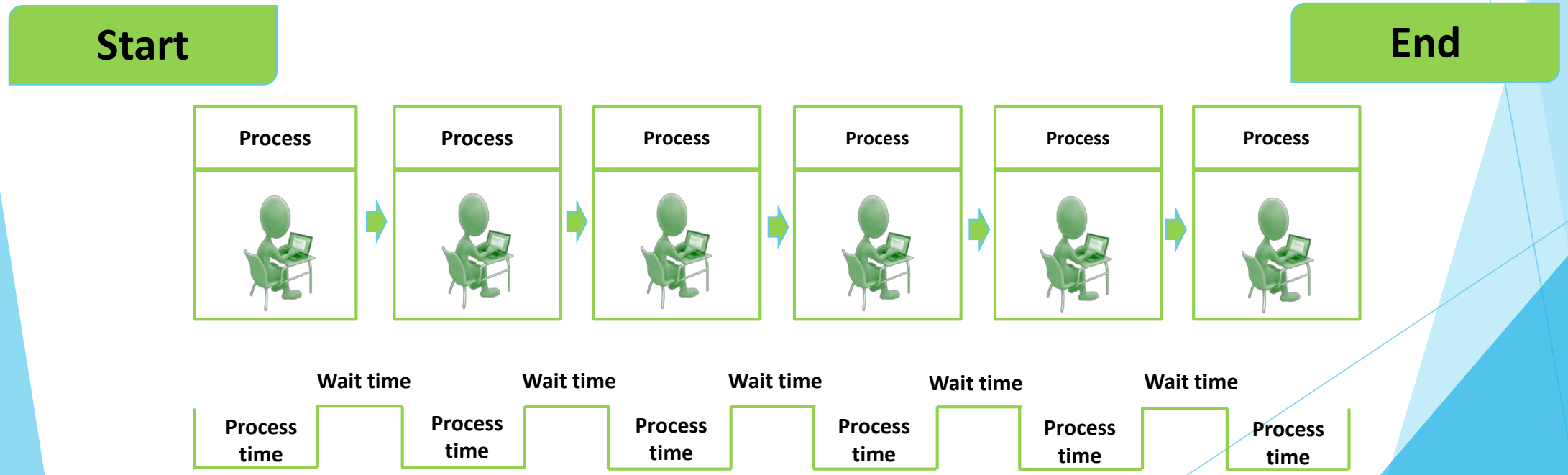
Critical Path

Problem: How to make a complex process map into a linear Value Stream Map?



Measure: Value Stream Mapping

- Follow a product or service's production path from beginning to end.
- Draw a visual representation of every process step in the current material and information flows.

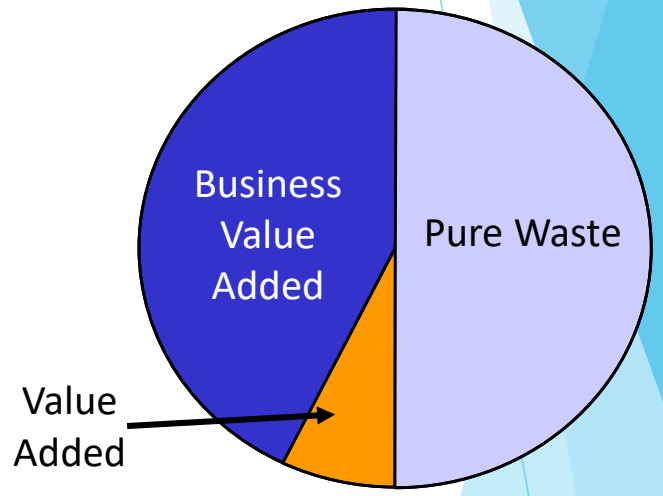


Analyze: Value Add Defined

Value Added to Customer: Process steps that matter to customers

Value Added to the Business: process work that does not create value from the standpoint of the customer

Waste: Steps that create no value and can be eliminated



Value add requirements:

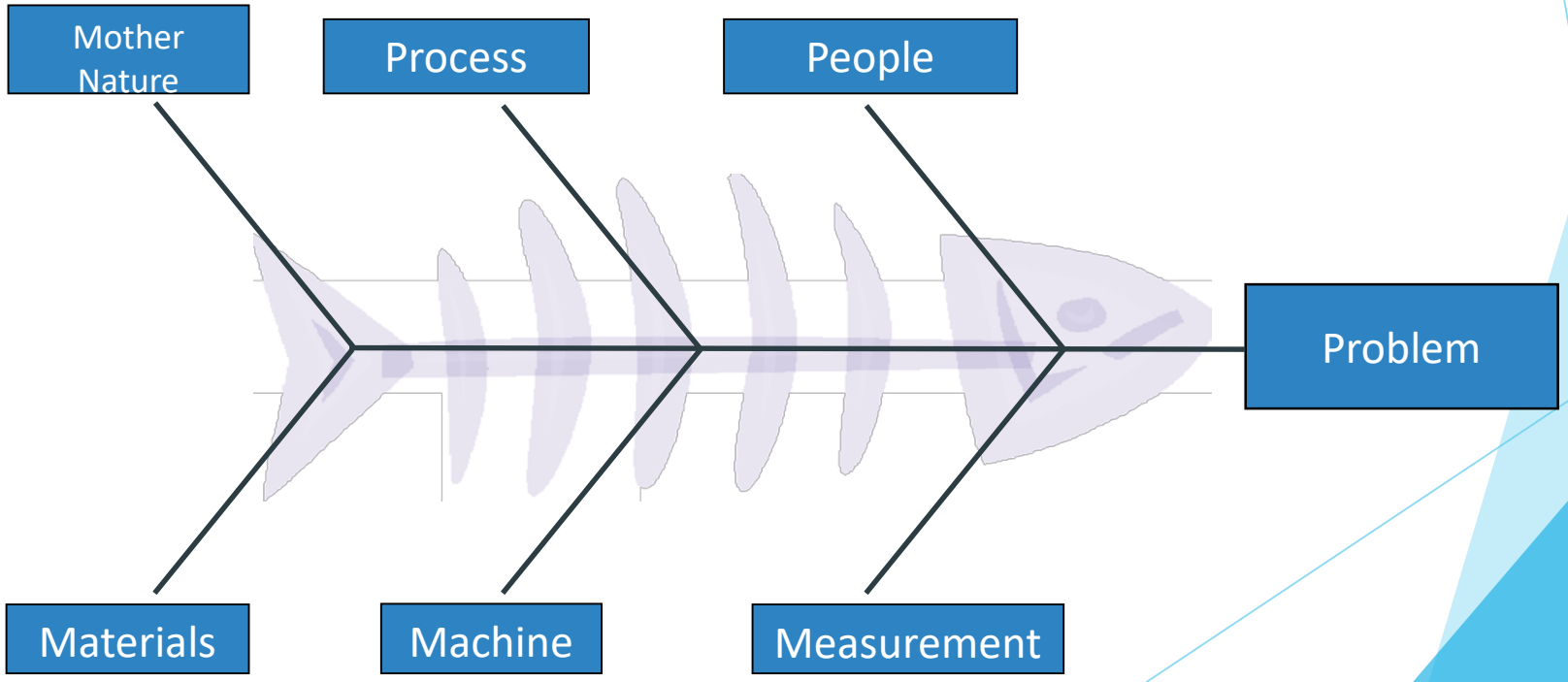
- The activity physically changes the product (or adds important information).
- The activity must be done right the first time (i.e., it should not be rework).
- Customers must be willing to pay for it.

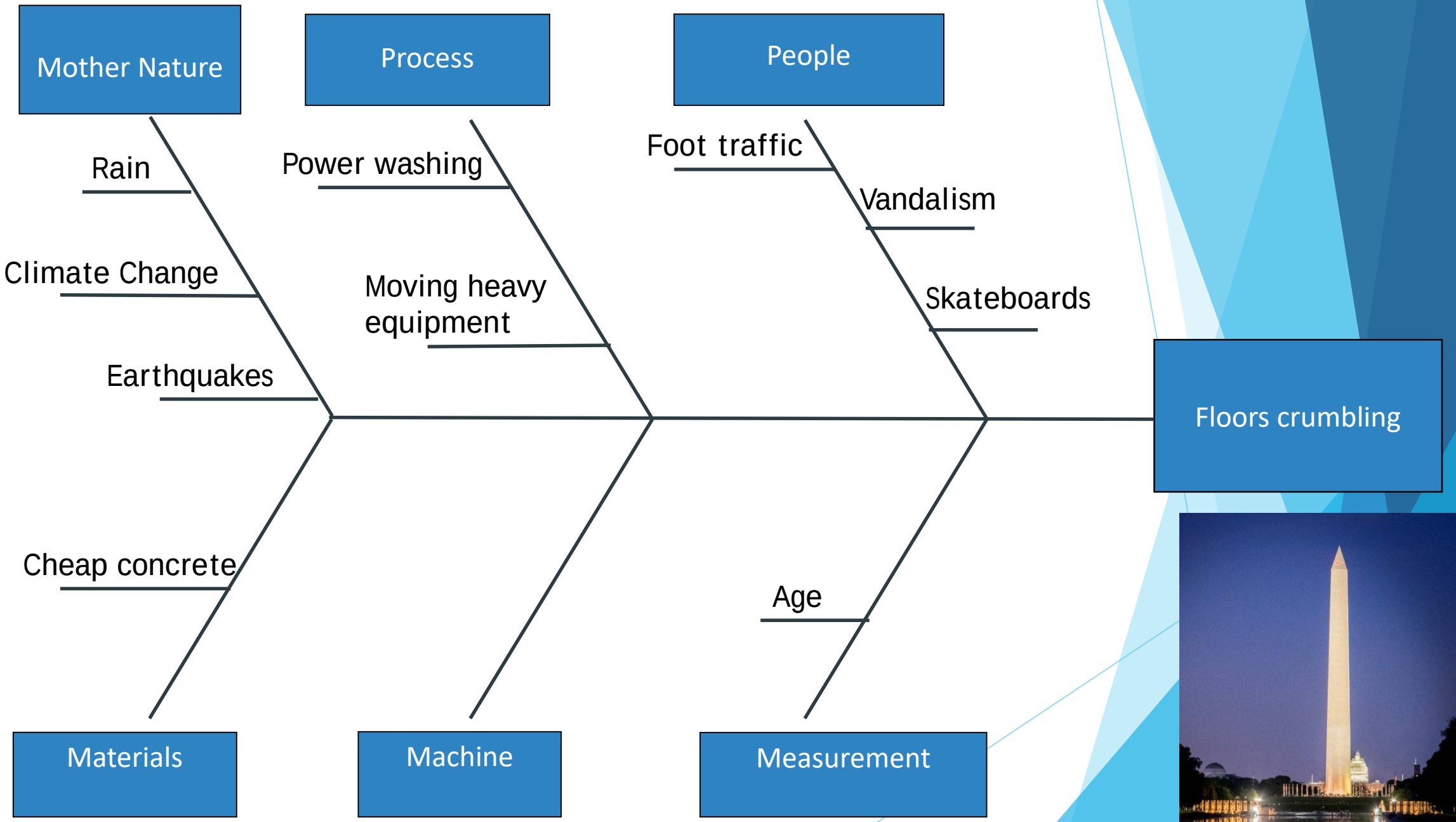
8 Wastes: DOWNTIME

Analyze: Cause-and-Effect Diagram

A cause-and-effect diagram shows possible relationships between potential causes in order to identify likely “root” causes.

- Can also be called a “Ishikawa” diagram or a “Fishbone” diagram
- Major causes and root causes make up the bones of the fish and are grouped into categories
- Use the ‘5 Whys’ technique to get to the root cause



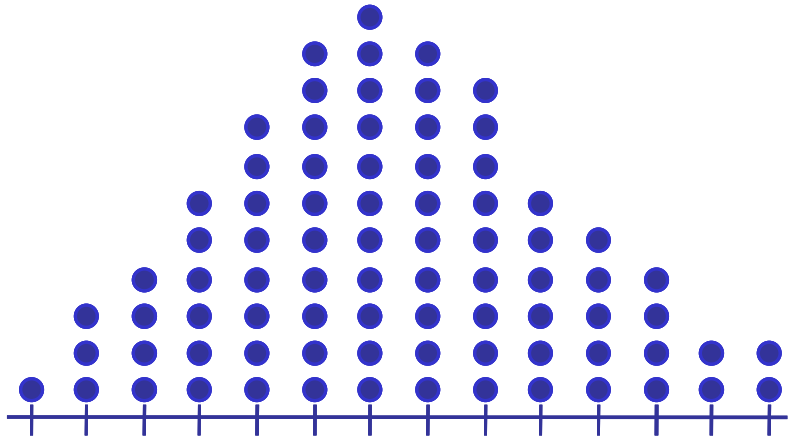

Mother Nature
Process
People
Rain
Climate Change
Earthquakes
Power washing
Moving heavy equipment
Foot traffic
Vandalism
Skateboards
Floors crumbling
Cheap concrete
Age
Materials
Machine
Measurement

Analyze: 5 whys

- Monument floors are crumbling – Why?
- Harsh chemicals and power washing needed often – Why?
- Lots of bird droppings – Why?
- Many more tasty spiders around – Why?
- Lots of yummy gnats around – Why?
- Gnats are attracted to the lighting – Why?
- Gnat biology – Why?

Frequency Plot / Histogram

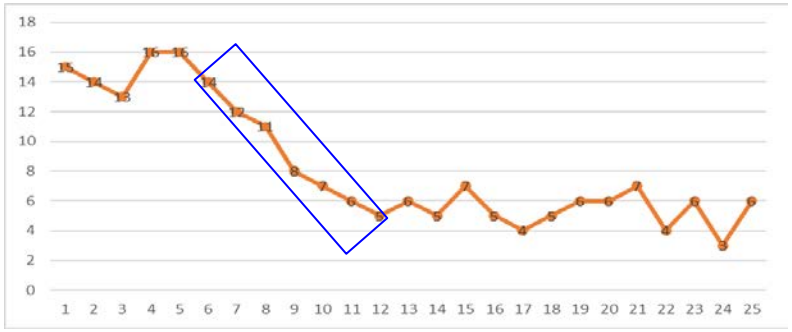
- A picture of the variation in a process
- Reveals patterns that provide clues to certain types of problems
- Rough check if data are distributed normally



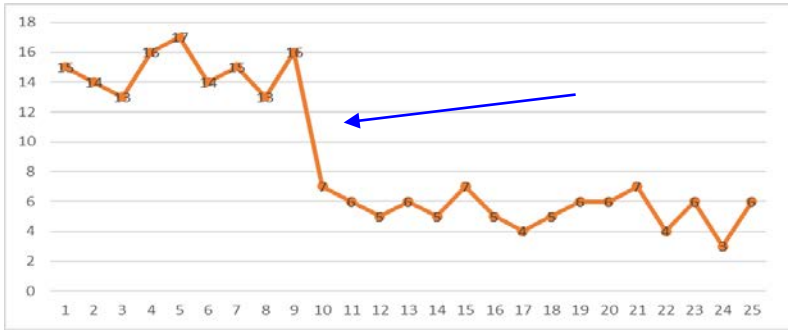
Run Charts and Examples of Signals

Run Chart: Reveals trends over time and forms the basis for Control Charts that check statistical significance of process variation.

- Trend:
  6 or more points in a row increasing or decreasing

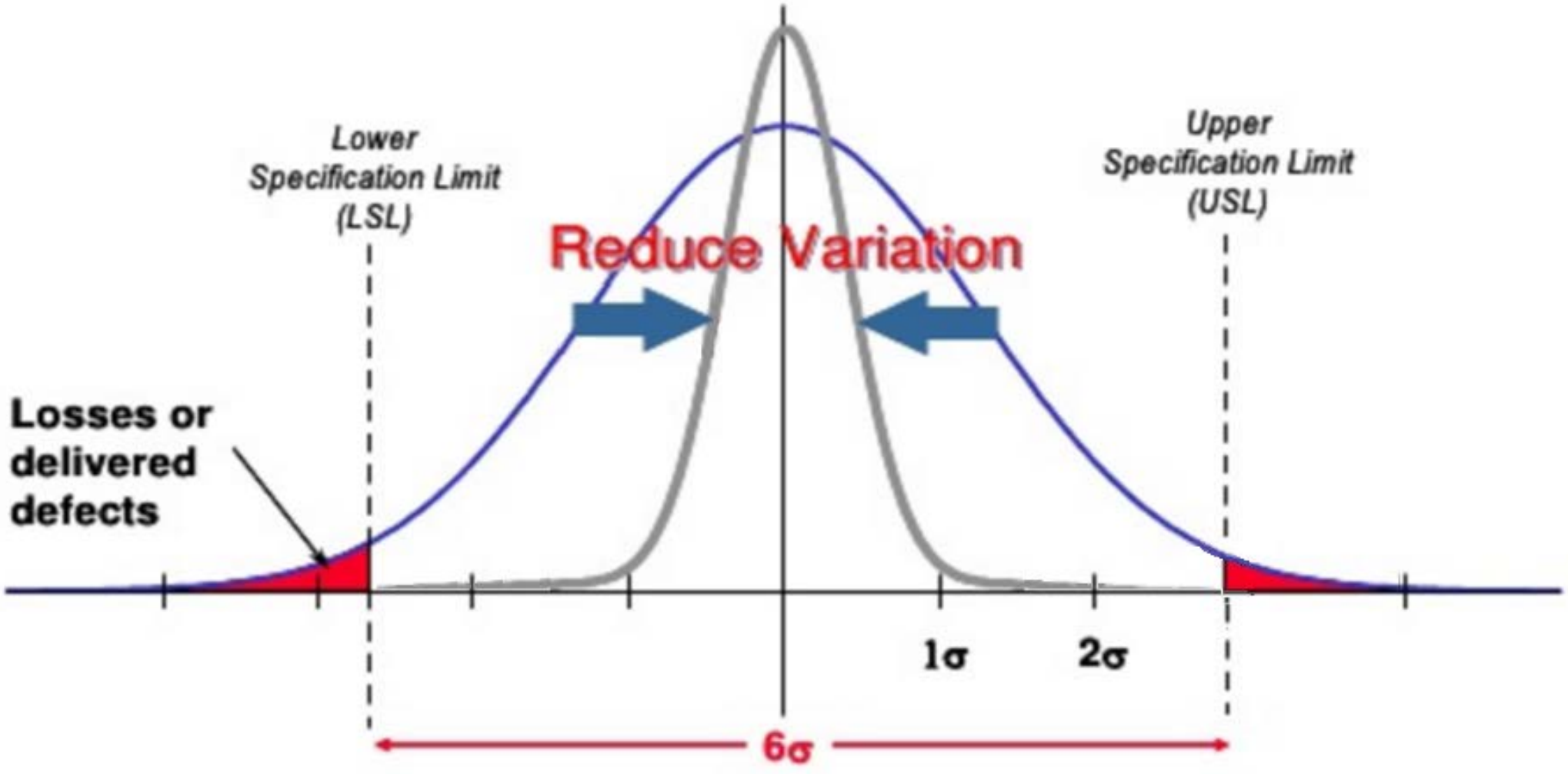


- Process Shift:
  8 or more points in a row above or below the mean



- Bias or Sampling Problem:
  14 or more points in a row alternating up and down (“saw tooth”)

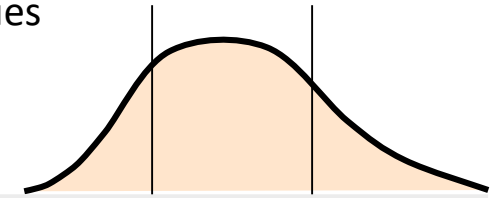
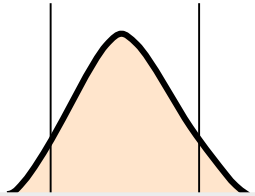
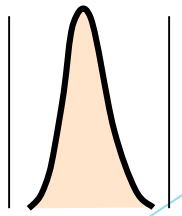
Process Capability



To achieve Six Sigma, a process must fit within the customer specification limits 99.9997% of the time (i.e., **only 3.4 out of 1 million instances** are considered defects).

Process Sigma Definition

- Process Sigma (or σ) is a statistical concept that represents how much variation there is in a process relative to customer specifications.
- The Process Sigma value is based on defects per million opportunities.
- “Six Sigma” is defined as 3.4 Defects Per Million Opportunities.

Lots of variation	Hard to produce output with customer requirements (specifications)	Low sigma values (0–2)	
Moderate variation	Most output meets customer requirements	Middle sigma values (3–5)	
Very little variation	Virtually all output meets customer requirements	High sigma values (6)	

Kaizen Format

Measure Current Process

- Objective analysis of current state
- Value Stream Map
- Data Driven

Prioritize Solutions

- Identify biggest opportunities to make improvements
- Identify root causes

Develop Action Plan

- Assign owners and deadlines
- Progress Updates

Control and Reaction Plan

- What needs to be measured?
- What safeguards should be built in to avoid errors?
- What standard operating procedures need to be developed?
- Who, how, and when will we assess our new process?

Controls: Mistake Proofing

Sorry, there was a problem.
You'll find more details highlighted below.

Sign up

Meetup members, Log in

Your real name

john johnson

Your email

john@gmail.com

We hate spam too. We won't share your address!

Pick a password

Location:

Country: USA

ZIP code

Please enter your zip code.

Applications

Travel Requests	Student employee travel requests returned fewer errors and reduced overall time by 7 days.
Capacity	Reduce resolution time for ITS systems downtime activity, resulting in more productivity, less rework, greater compliance, and an annual savings of $250K ($285K to ~$3K).
Safety	Reduce number of knife cuts in Housing Facilities by 50%
Inventory and waste	Create and implement process for tracking, measuring, and billing for oncology drug waste in IV rooms. Results in approx. $1.6M annual revenue recovery
Quality	Improve UCSD Alumni Association Workzone tool to increase user satisfaction survey score from 4 to 8.5 points
Billing	Reduce delivery time for ARUP lab paperwork to reach billing department from 5-10 days to <5 days.
Recruitment	From the time a candidate is identified to the moment they received an official offer letter, the cycle time was reduced from 5.5 months to 3.6 months.
Onboarding	Improve ITS onboarding process to eliminate unnecessary steps to increase completion rate of onboarding form from 48% to 100%

Key Takeaways

- LSS empowers employees at all levels to be change agents
- Formal training provides a common language and tools
- LSS emphasizes collaboration between departments, and can address institutional silos
- Change initiatives are more successful when true root cause is addressed, and when all levels of staff are driving the change

Next Steps

- What is your 15%?
- Where do you have discretion and freedom to act?
- What can you do without more resources or authority?

Thank you!

For more info regarding upcoming Lean Six Sigma training and events, visit: osi.ucsd.edu

Or email us at: OSI@ucsd.edu

Questions?