

Process Improvement Measurement

Minnesota Office of Continuous
Improvement



Agenda



- Welcome and introductions
- Process overview
- Why measure?
- How do I measure?
- Data Collection Plan
- Tools and Resources
- Your questions



Introductions



- Name
- Organization



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Learning Objectives



- Understand where measures fit in the improvement cycle
- Describe the importance of process measurement
- Understand how to use data to guide and sustain improvements
- Identify tools for collecting and displaying data to use for continuous improvement



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Examples of work activities that are processes:



- Issue licenses
- House offenders
- Review grant applications
- Hire staff
- Purchase supplies
- Conduct compliance reviews
- Determine client eligibility
- Test specimens
- Train staff



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Your processes...



Send pdf invoice via email on order complete



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Why measure? To.....



understand the process	identify problems/waste	inform solutions
assess if improvement occurred	verify assumptions	determine if customer needs are met
communicate progress	sustain work	

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Measurement answers many questions:



- How do I know I have a problem?
- What does the problem look like? How severe is it?
- What do I want to achieve? What does “better” look like?

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And...Is improvement occurring?



“You can’t manage what you don’t measure.”



W. Edwards Deming

Process Improvement Measures...



relate to the performance of your processes and have a client/customer focus.



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Process Measurement



Example: Inspect worksites

- Time to complete an inspection
- Cost per worksite inspection
- Value (to the customer)
- Accuracy (error rate)
- Completion Rates



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Process Improvement Measures



are not.....population indicators, such as:

- Obesity rates
- Unemployment rates
- Poverty rates
- Crime rates
- Per capita income
- Graduation rates

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Link to Results Based Accountability (RBA)



	Quantity	Quality
Effort: How hard did we try?	<u>How much did we do?</u>	<u>How well did we do it?</u>
Effect: Is anyone better off?	<u>Is your customer better off?</u>	

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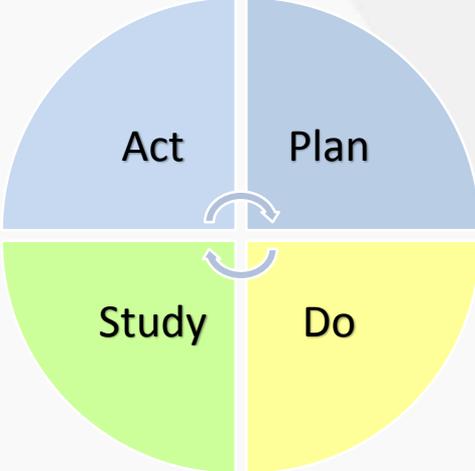
Example:



	Quantity	Quality
Effort	<u>How much did we do?</u> # of trainees # of trainings	<u>How well did we do it?</u> % of trainees satisfied with training % of trainees reporting taking action after training
	<u>Is your customer better off?</u>	
Effect	% of agencies achieving performance goals	

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Plan – Do – Study – Act (PDSA)

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Where and how does measurement begin?



BASELINE DATA

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What Makes a Good Measure?



Easy to Understand	Important to the Customer	Moves People to Act
Is Strategic – Relates to Goals	Is Robust - Meaningful	Provides Quick Feedback for Ease of Use

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Data Sources



Voice of the Customer

Program Data

Process Data

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Data Sources...another view

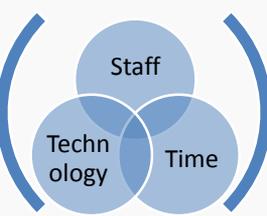


Measure



Input

Measure



Process

Measure



Output

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Voice of the Customer:



Voice of the Customer

Who are our customers?
 What do they need and want?
 Are we meeting their requirements?

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How do you know if you are meeting customer requirements?




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Tool:



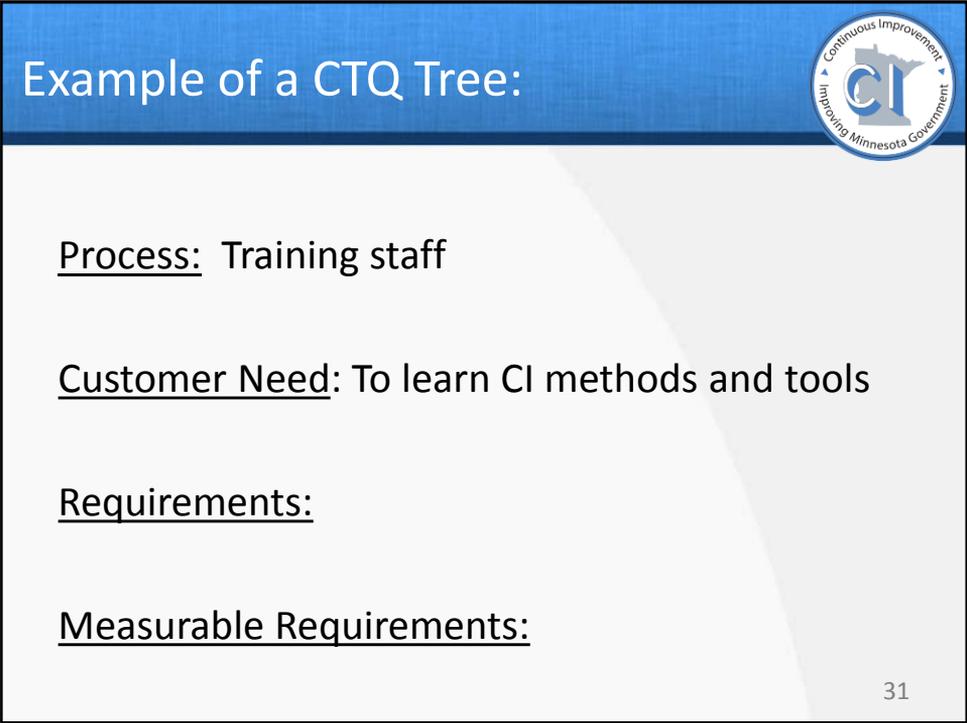
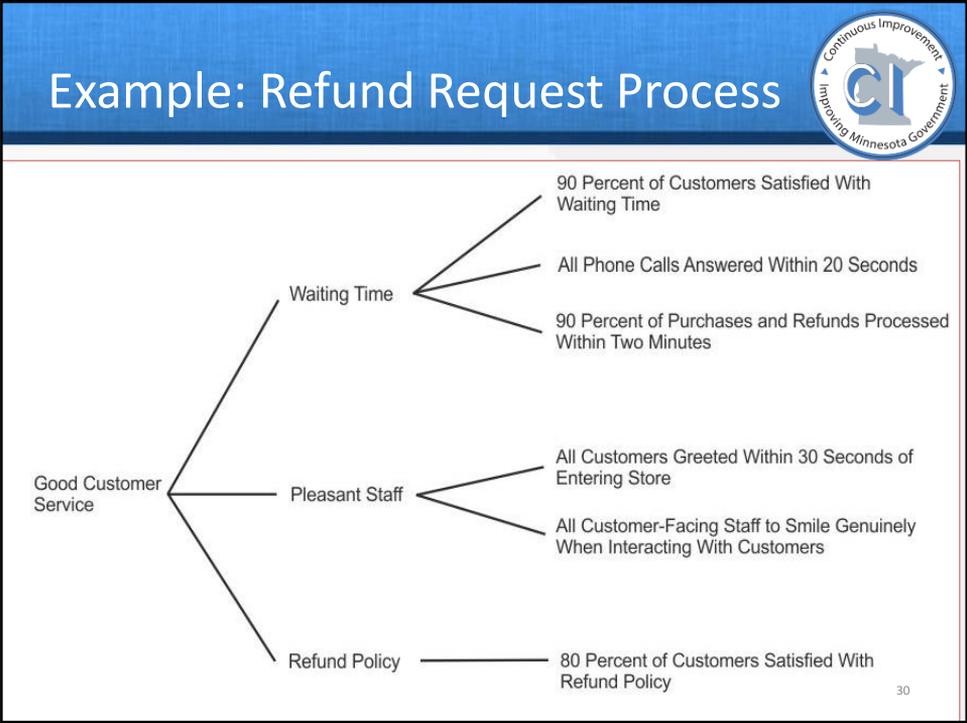
Critical to Quality (CTQ) Tree

CTQ trees deconstruct your **customer's needs** into **measurable requirements**.

They align improvement efforts with customer requirements.

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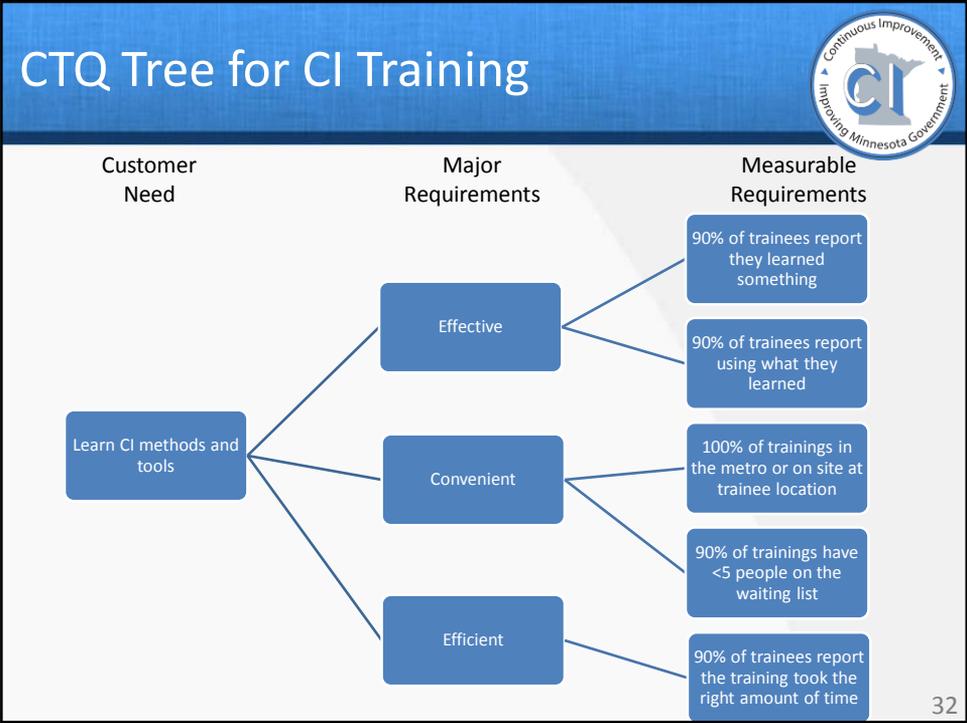
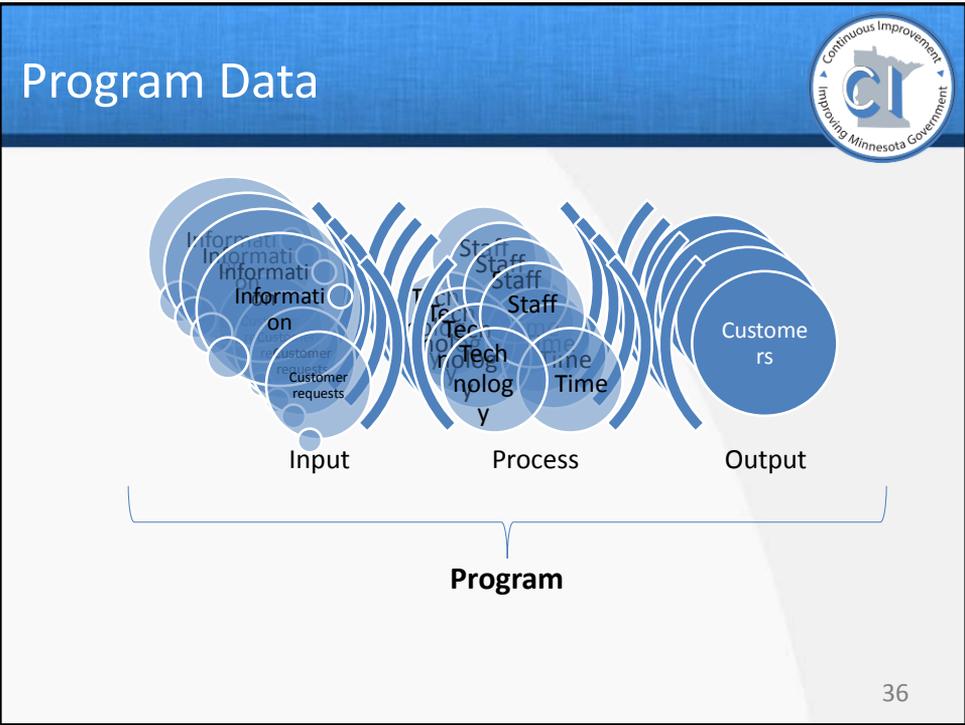
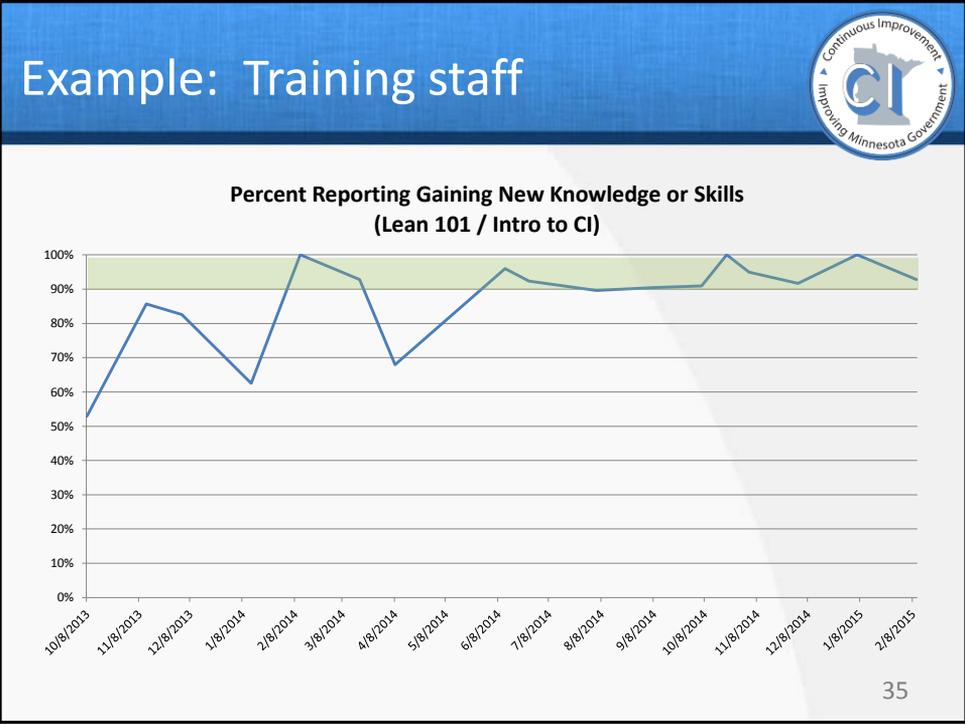


Table Exercise #1:

Critical to Quality Tree

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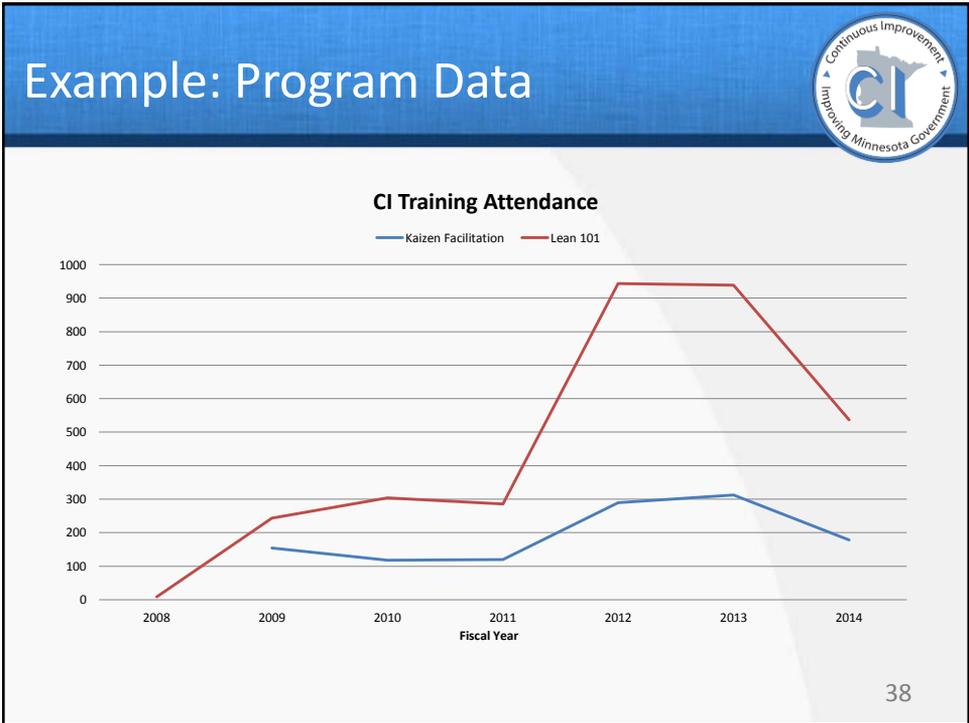
Program Data

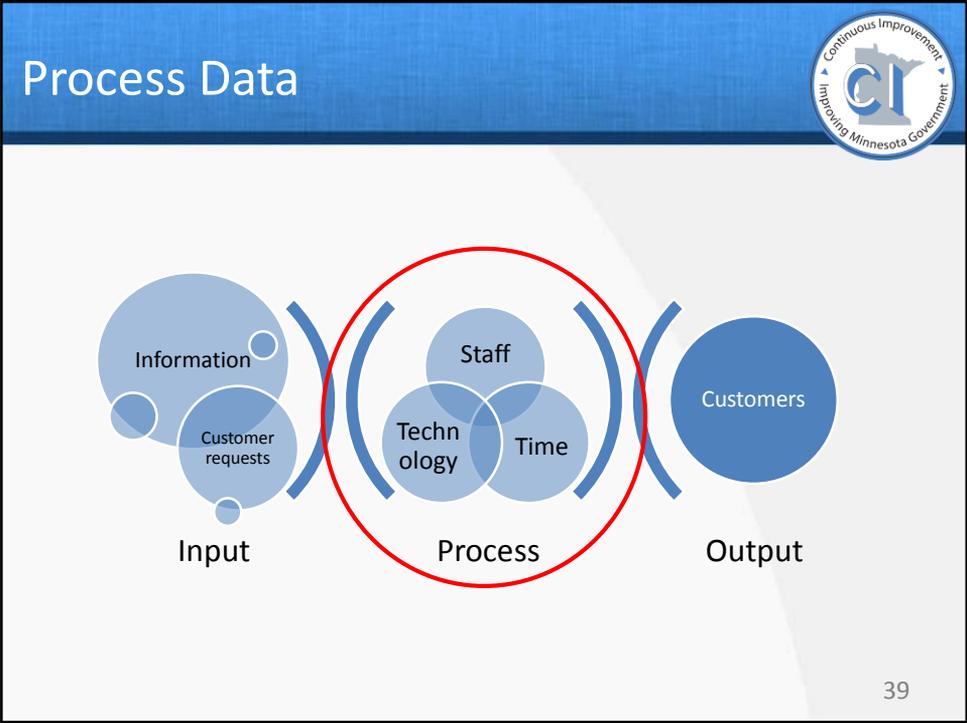
Historical data

Tends to be lagging

Important but has limits

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Process Data

Describes the efficiency and effectiveness of the process itself.

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Process Data – Types of Measures



<p>Cost</p> <p>What is the cost per unit?</p>	<p>Cycle/Time</p> <p>How long does the process take?</p>	<p>Complexity</p> <p>How many steps or handoffs occur in the process?</p>
<p>Production</p> <p>How many units are produced?</p>	<p>Quality</p> <p>What is the error rate? What is the customer satisfaction rate?</p>	<p>Value</p> <p>What is the percent of value-added time or steps in the process?</p>

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Potential sources of data about your process:



- Process Maps
- Financial Reports
- Time or Observational Studies
- Data Base/System Reports
- Audits/Quality Assurance Data
- Voice of the Customer
- Check Sheets



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Example: Swim Lane Map

Swim Lane Map Metrics

Worksite Inspection Process				
	Current		Future	
	Qty	Time		
Tasks	85	16 hrs		
Waits	22	57 days		
Handoffs	35			
Decisions	12			
File/stores	32			
Total time		59 days		

Example: Check Sheet



Inspection Delays – Champlain, April 2014			
Reasons	Number	Total	Percent
Contact absent	///// //	8	27%
Contact busy	///// ///// //	13	43%
Wrong address	//	2	7%
Vehicle problems	////	4	13%
Weather issues	/	1	3%
Business closed	//	2	7%
Total		30	

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Example: Data for CI Training



Quality Measure:

Overall rating of training by trainees in post-training surveys

Production Measure:

Number of trainees per month

Cost Measure:

Staff hours per training



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Example: Flu Specimen Testing



Time Measure:

Percent of specimens that take > 6 days to verify

Quality Measure:

Testing errors

Process Complexity Measure:

Number of handoffs



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What Makes a Good Measure?



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Important to the Customer

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Is Robust - Meaningful

Provides Quick Feedback for Ease of Use

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Questions?



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10 Minutes



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Group Exercise #2:



Understanding Process Performance



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Fine Tuning Data Collection



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The Data Collection Plan



A document that defines all the data collection details, including how much and what type of data collection is required and when and how it should be collected.

Performance Measure	Operational Definition	Data Source & Location	Sample Size	Who Will Collect The Data	When Will Data Be Collected	How Will Data Be Collected	Other Data That Should Be Collected at the Same Time
Course is developed within 10% of industry opportunities.	1 hour e-Learning developed in no more than 200 hrs. 3 hour Workshop developed in no more than 12 hrs.	Project Plans	17 (100%) of courses with data	Adam Isom	6/6 - 6/24	Development list will be identified from project plan data	Less than 10% of development time is associated with newops
Less than 10% of development time is associated with newops	No more than 20 work hours for 1 hour e-learning No more than 12 work hours for a 3 hour workshop	Project Plans	17 (100%) of courses with data	Kathryn Blain	6/6 - 6/24	Workshop data will be identified from project plan	N/A

Attributes for Data Collection Plan

Title	Clear, easy to understand, applicable
Operational Definition	Scope of the measure. What are we talking about?
Purpose	Why are we monitoring this? Does it relate to the problem/issue?
Target (or when do we expect the curve to turn?)	Do we have mandates/standards we are not meeting? What is our goal?
Formula/Calculation	Is there a formula/calculation for this measure?
Frequency	How frequently will the data be collected?
Source	Where will the data come from? How will it be collected?
Responsibility	Who will be responsible for collecting the data? Analyzing? Reporting? Communicating?

Example: CI Training – Trainees use what they learned	
Title	Trainees use what they learned
Operational Definition	Six months after CI training, trainees report using what they learned at least once
Purpose	Ensure that trainees are using what they learned, report on this
Target	90%+ of trainees should be using what they learned
Formula/Calculation	Percent of respondents to 6-month post-training surveys who report using what they learned at least once
Frequency	Monthly surveys of trainees 6 months prior
Source	6 month post-training survey
Responsibility	Cathy Beil will collect and summarize the data. Cathy will report on the data to the CI team.

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Data Collection Plan Exercise

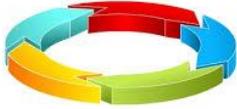




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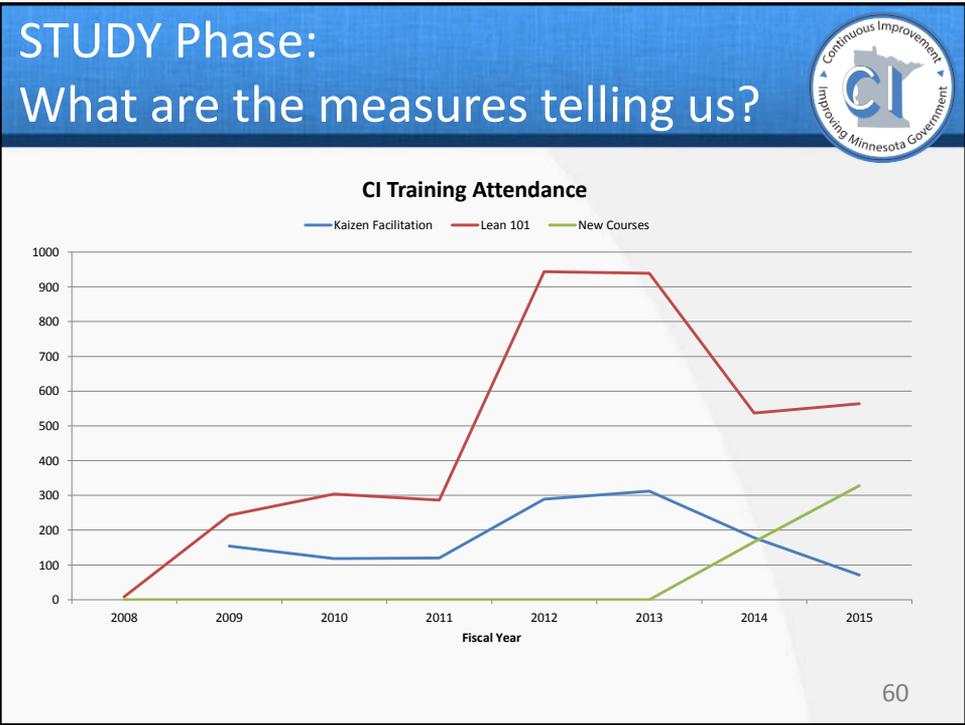
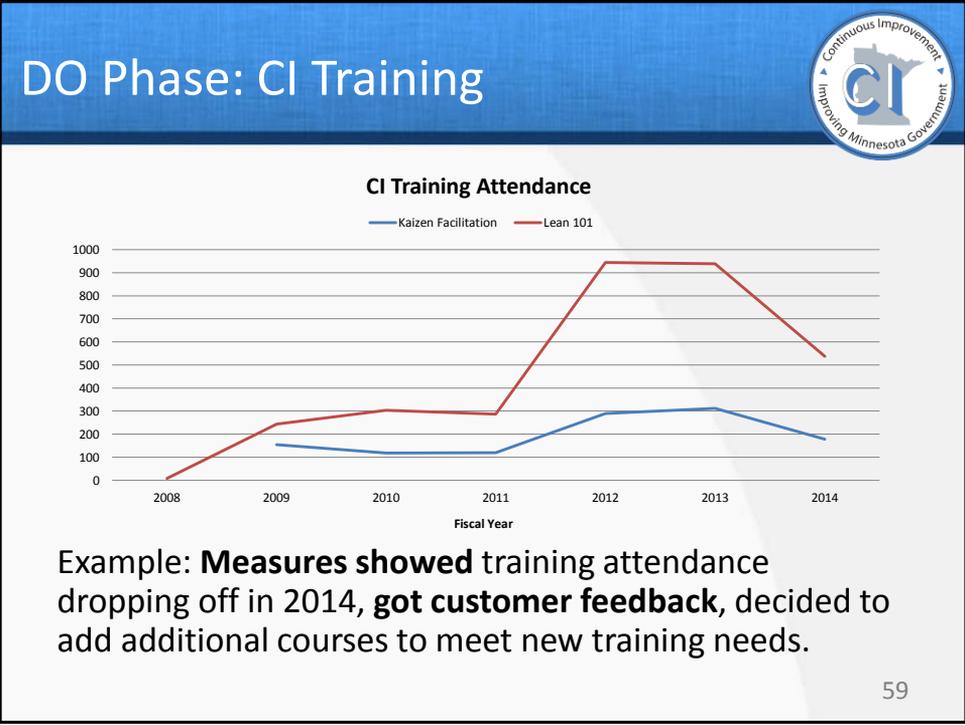


You now have a better understanding of your process. You realize there are performance gaps. Now what?



PDSA





PDSA

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Act: Monitor and Sustain Work

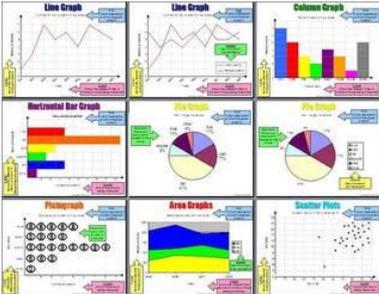
- Use your data collection plan. Be intentional.
- Post Charts on the Wall
- Have check-ins! How is it going?

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Displaying & Communicating Data



Use the visualization that makes the most sense for your data and audience!



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Displaying & Communicating Data



- Box & Whisker Plot
- Check Sheet
- Control Chart
- Histogram
- Pareto Chart
- Run Chart
- Scatter Plot (Scatter Diagram)

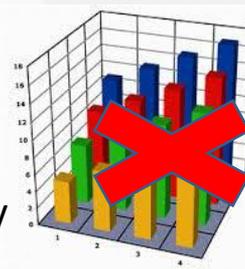


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Displaying Measures - Guidelines



- Simplify, simplify, simplify
- Consider when charts or tables are more appropriate
- Include a title and label both the x and y axis
- Do not use 3D
- Use the right chart for the right message
- Charts should be self-explanatory – test them!

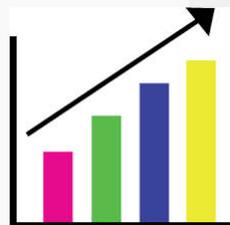


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Tips for Successful Measurement



- Be intentional about selecting measures.
- Measures should focus on the process, not people
- Engage process owners



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Tips for Successful Measurement



- Share data with the group
- Define the measure
- Analyze and use the data



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Tips for Successful Measurement



Customer requirements need to be considered.



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Understand your process



- What does the process look like?
- What are the steps?
- How long is it taking?
- Where is the waste?
- What are my customer requirements?

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Use data throughout the PDSA cycle



- Collect baseline data on your process.
- Use data to make, assess, & sustain improvements.



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What Makes a Good Measure?



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Resources



MDH Office of Performance Improvement (OPI):
 QI Toolbox - <http://www.health.state.mn.us/divs/opi/qi/>

American Society for Quality (ASQ): Tools
<http://asq.org/knowledge-center/index.html>

MN Office of Continuous Improvement:
<http://mn.gov/admin/lean/resources/index.jsp>

State of Maine – Department of Health & Human Services
<http://www.maine.gov/dhhs/btc/training-material/Lean-Takt-Time.pdf>

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Questions?



THANK YOU!

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