

LEAN Ohio
BOOT CAMP

Data Collection Plans
Day 2 Module 2

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Lean Project Roadmap

Preparation	Level Setting	Current State: Make the Invisible Visible	Improvement Design	Implement and Action	Control and Sustain
Scoping and SIPOC	Team Formation	Current Process Map	Brainstorming and Evaluation	Implementation Plans - Action Registries	Reporting - Celebration
Project Charter	Consensus on Project Charter and SIPOC	Identification of Waste	Lean Principles in Process Design	Poka-Yoke	Project Management
Identify Team	Review Baseline Data	Identification of VA, NVA, NVAN	Clean Sheet Redesign	Visual Management - Dashboard	Change Management
Data Collection Plan (Baseline Data)	Data Collection	Analysis of Current State	Future State	Project Savings	Monitoring and Follow-up

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Data Collection Method

Measurement management starts with a data collection methodology

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graph TD
    A([Identify Measures]) --> B[Step 1: Develop operational definitions for measure]
    B --> C[Step 2: Develop measurement plan]
    C --> D[Step 3: Collect data]
    D --> E[Step 4: Display and evaluate data]
  
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Identify Measures



- First question: What data do you need to help you understand the problem or to establish a baseline?
- Second question: What measures will tell you if your improvement is successful?
- Third question: How can you clearly define the measurement of that data?

Balancing Measures

Primary Measure: What you are trying to improve
 Secondary Measure: To avoid sub-optimization

- Quality vs. Cost
- Errors vs. Time
- Speed vs. Cost
- Speed vs. Quality
- Customer Service vs. Time

Step 1: Operational Definitions

- An operational definition, when applied to data collection, is a **clear**, concise detailed definition of a measure
- Operational definitions **help ensure that the team does it right the first time** when it comes to data collection

Operational Definitions should be made before collecting data.

Operational Definitions

- Should be written anytime data is being collected
- Without them data will usually be inconsistent or wrong
 - It is easy to assume everyone understands
- Should be documented, standardized, accessible and tested routinely

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Operational Definition = Measurement Defined

- Overtime = paid time over 40hrs in a week
- Dark = street lights come on
- Weight = numbers that appear on scale in nurses office
- Backlog = total # of unprocessed requests at 5pm
- Late = 1 minute after the start of shift

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Operational Definition

- Good:
 - Response Time = minutes elapsed from application fax date/time to decision fax date/time
- Better:
 - The response time in minutes will be determined by the date and time of the fax received (as shown on the faxed application), to the time the approval or rejection letter is faxed to the applicant (as shown on the fax log)

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Operational Definitions Exercise

Write an Operational Definition for a “sweet” in groups

Are the following items a sweet based on the operational definition your group created?

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Operational Definition Exercise

- What would you do differently next time you write an operational definition?
- What experiences have you had at your organization with operational definitions or the absence of operational definitions?

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Step 2: Develop a Measurement Plan

Determining current process performance usually requires the collection of data. When developing a **measurement plan** ensure that:

- The data collected is meaningful
- The data collected is valid
- All relevant data is collected concurrently

The Measurement Plan is simply an extension of the Operational Definitions

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Questions to Answer

- How often do you want the data?
 - Monthly, weekly, daily (monthly but daily increments)
- What will the data be used for?
 - Performance measurement or causes of process deficiencies
- Do we analyze all relevant data or a sample?
- What tools are necessary?
 - Scale, ruler, yard stick, stopwatch, phone systems
- What logistical issues are relevant?
 - Who will collect the data, shift, region
- What format should the data be displayed in?
 - Excel, collection form, report, logs

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Data Collection: Quick Sheet

	Who	What	How	Where	When
Overtime Hrs/Dept.	Bill	# of OT hrs/dept.	Run Report	Payroll System	Every Monday - 6 months
Overtime Requests	Steve	# of requested hours /supervisor	Run Report	Payroll System	Previous calendar year
Data (3)					
Data (4)					

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Example Measurement Plan

Performance measure	Operational definition	Data source and 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 same time
Time to process an application	Fax date, time Decision fax date, time	applications S fax center	289	Tim Smith David Mann	During the first 2 weeks of the month, 3 rd to 17 th	Randomly selected from January	Type of loan Amount of loan Dealer Time of day Day of week

How will the data be used?
How will the data be displayed?

Examples:

- ◆ Identification of Largest Contributors
- ◆ Identifying if Data is Normally Distributed
- ◆ Identifying Sigma Level and Variation
- ◆ Root Cause Analysis
- ◆ Correlation Analysis

Examples:

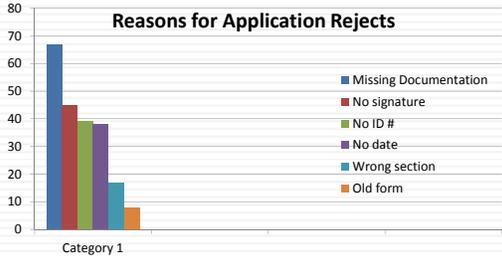
- ◆ Pareto Chart
- ◆ Histogram
- ◆ Control Chart
- ◆ Scatter Diagrams

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Step 3: Collect Data Check Sheet

Application rejects						
Reason	Day 1	Day 2	Day 3	Day 4	Day 5	Total
No date						38
No signature						45
Missing documentation						67
No ID #						39
Wrong section completed						17
Old application form						8
					Total	175

Step 4: Display and Evaluate Data



Questions on Data Collection?

Activity

1. Get in your DOP groups and review the DOP Slow Forms
2. Identify Measures
3. Collect data from the DOP forms
4. Create a visual representation (bar chart, pareto, pie chart etc.)

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