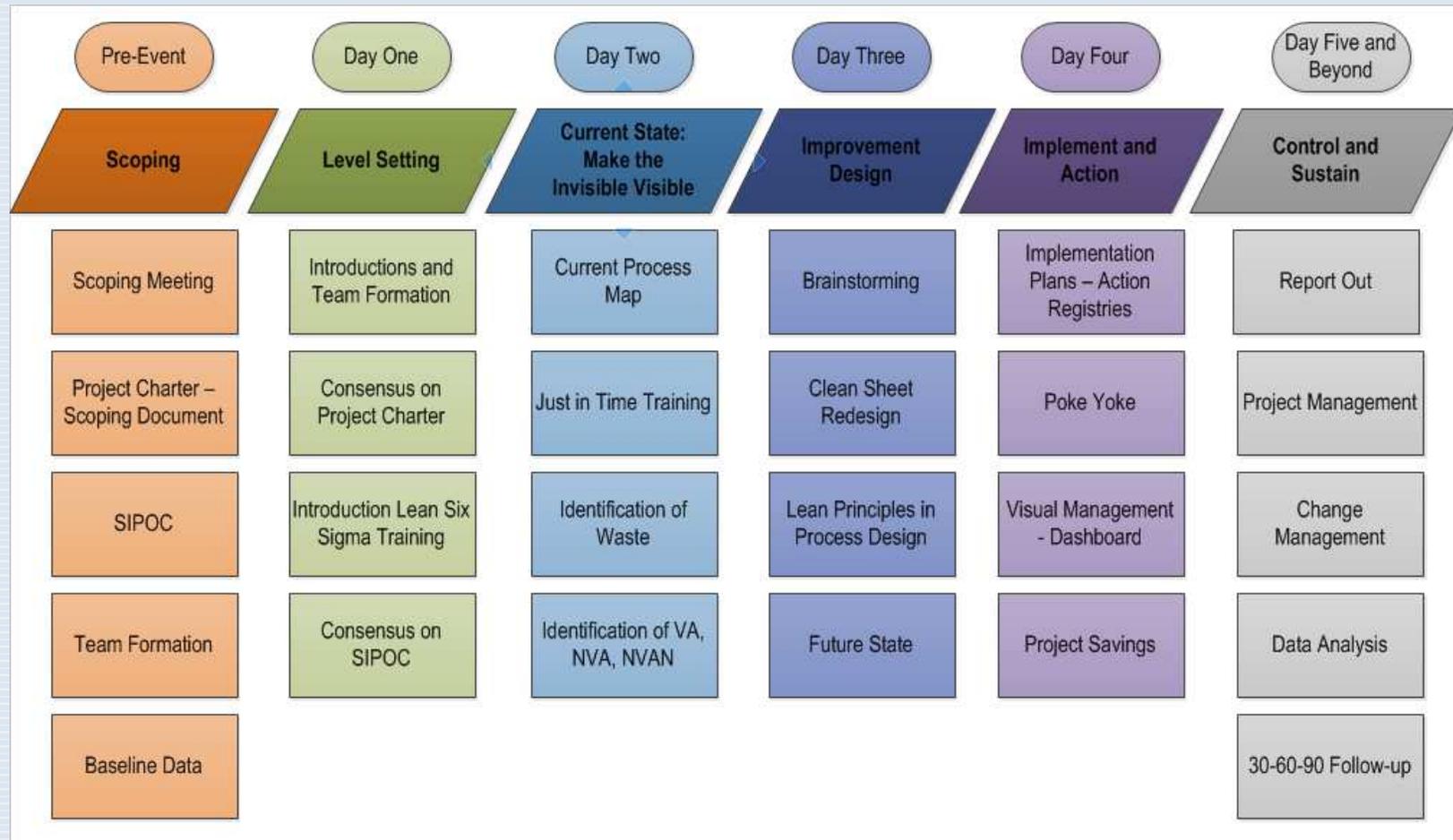


LEANOhio

Data and Data Collection Plans

SIMPLER. FASTER. BETTER. LESS COSTLY.

Lean Kaizen Flow



SIMPLER. FASTER. BETTER. LESS COSTLY.

LEANOhio

Lean Kaizen Flow: Business Process Map



SIMPLER. FASTER. BETTER. LESS COSTLY.

LEANOhio

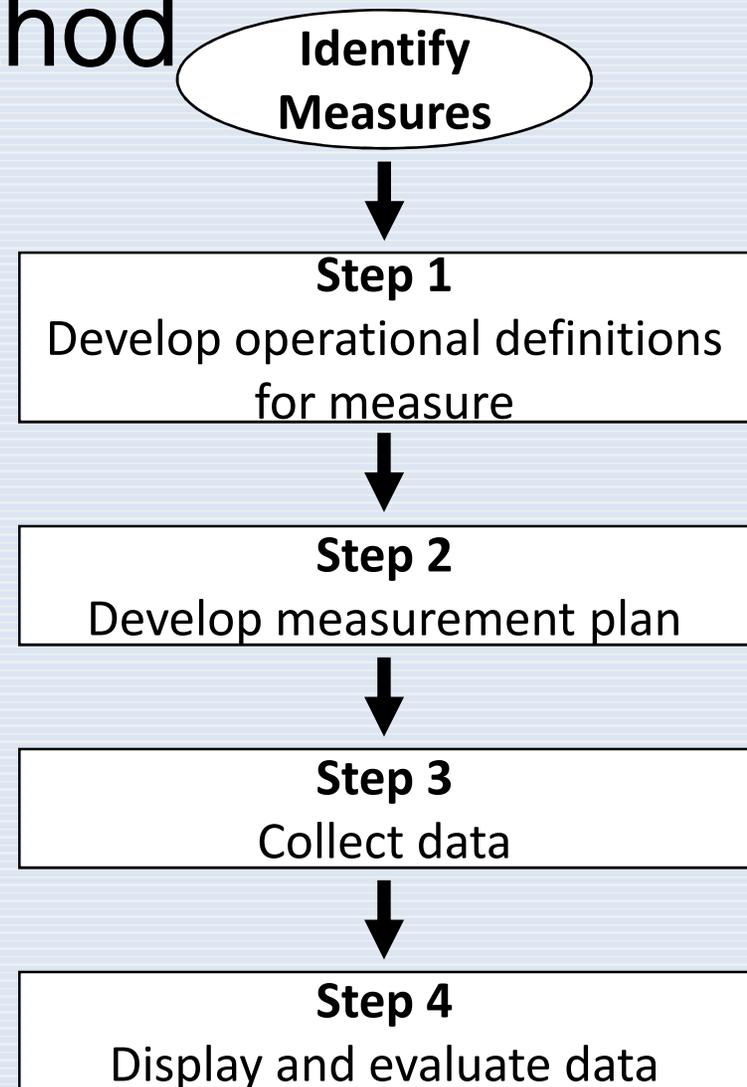
Data Collection Plan

Agenda

- Write operational definitions for each key measure.
- Develop a measurement and sampling action plan.
- Collect data using measurement plan using check sheets and templates if needed.
- Summarize and organize data using Excel

Data Collection Method

- Measurement management starts with a data collection methodology.



Identify Measures



- First question: What data do you need to help you understand the problem or to establish a baseline?
- Second question: How can you clearly define the measurement of that data?

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 - Why

- Fundamental when **collecting** all types of data.
- Use when:
 - Decision is being made on whether something is correct or incorrect
 - Visual check is being made
 - Where there is room for confusion

When to use them

- When collecting data, it is essential that everyone in the system has the same understanding and collects data in the same way.

Operational Definitions should be made before collecting data.

Step 1: Operational Definition

- A precise description of the:
 - Specific criteria used for the measures (the what)
 - The methodology to collect the data (the how)
 - The amount of data to collect (how much)
 - Responsibility to collect the data (the who)

Operational Definition: Quick Sheet

	Who	What	How	Where	When
Data (1)					
Data (2)					
Data (3)					
Data (4)					

SIMPLER. FASTER. BETTER. LESS COSTLY.

LEANOhio

Operational Definitions

- Helps guide the team's thinking on what to measure.
- Ensures everyone will be measuring the same thing.
- Ensures that consistency and reliability are built in up front.
- Describes the scope of the measure (what is included and what is not included).

When to Write Operational Definitions

- **Any time data is being collected.**
- Data that is not defined will usually be inconsistent or wrong.
- It is easy to assume everyone understands.
- Ensure consistent data collection
- **Eliminates ambiguity.**

How to Write Operational Definition

- Identify the characteristic of interest to be measured or defect type.
- Select the measuring instrument.
 - Physical piece of measuring equipment.
 - Or a visual check.

How to Write Operational Definitions

- **Describe the test method:** The procedure used for taking the measurement or collecting the data.
- Time: specify start and finish points.
- Measurement: degree of accuracy (hours, minutes, or seconds).
- Dates: how the date will be written.

Decision Criteria

- **State the decision criteria:** the conclusion of the test. Does the problem exist? Is the item correct?
- Clear acceptable and unacceptable:
 - Physical examples
 - photographs
 - with written support

Whenever a visual check is used, a clear definition of acceptable versus unacceptable is essential.

Document the Operational Definition

- Operational Definition Needs to be:
 - Documented
 - Standardized
 - Available to Everyone
 - Accessible
 - Tested Routinely
 - Include Training Materials
 - Job procedure sheets.

Testing Operational Definitions

- Input from those who are doing work
- Make them clear and easy
- Ask different people to test the operational definition.
- Watch how the test is performed and make needed changes.

Test the operational definition before implementation.

Example: Operational Definition

- Poor:
 - Cycle Time for applications.
- Good:
 - Collect data from all applications received by fax from January 3 to January 17. The response time 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).

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

Questions to Answer

- What precise data will be collected?
- Do we analyze all relevant data or a sample?
- What tools are necessary?
- What logistical issues are relevant?
- What do you want to do with the data?

Sample Data Measurement Plan Form

Performance Measure	Operational Definition	Data Source and Location	Sample Size	Who Will Collect the Data	When Will the Data Be Collected	How Will the Data Be Collected	Other Data that Should Be Collected at the Same Time

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

SIMPLER. FASTER. BETTER. LESS COSTLY.

LEANOhio

Example

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 a loan application	Fax date, time Decision fax date, time	Loan applications Representative fax center	289	Time 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

SIMPLER. FASTER. BETTER. LESS COSTLY.

LEANOhio

Operational Definitions Exercise

- Write an Operational Definition for a “sweet” in groups.

Operational Definition Exercise

- Rate the food item as sweet or non-sweet based on the operational definition.

Lunch Activity

- With your group, go to lunch and measure how long it takes to get lunch. You need 30 data points so you will need to observe others as well as your own group members.

Questions

SIMPLER. FASTER. BETTER. LESS COSTLY.

LEANOhio