Process Mapping Overview

Missy Sawyer
DIT Process Improvement

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State Government

The work of government is noble.

The people are amazing.

The process is a mess.

- Ken Miller

Lean Six Sigma

A methodology that relies on a **collaborative team** effort to **improve performance** by systematically **removing waste and reducing variation**.

Lean manufacturing and lean enterprise are combined with Six Sigma to eliminate the eight kinds of waste (*muda*): defects, overproduction, waiting, non-utilized talent, transportation, inventory, motion, extra processing (abbreviated as "DOWNTIME").

Lean Six Sigma not only reduces process defects and waste, but it also provides a framework for overall organizational culture change.

Lean Six Sigma

- Lean:

    Elimination of waste (muda). Waste is any activity that does not add value for the customer.

- Six Sigma:

    Creation of processes and products that are virtually defect and variation free.

Waste (muda) Reduction + **Defects & Variation Reduction** = **Lean Sigma**

Lean Six Sigma

- Structured Problem Solving vs Firefighting

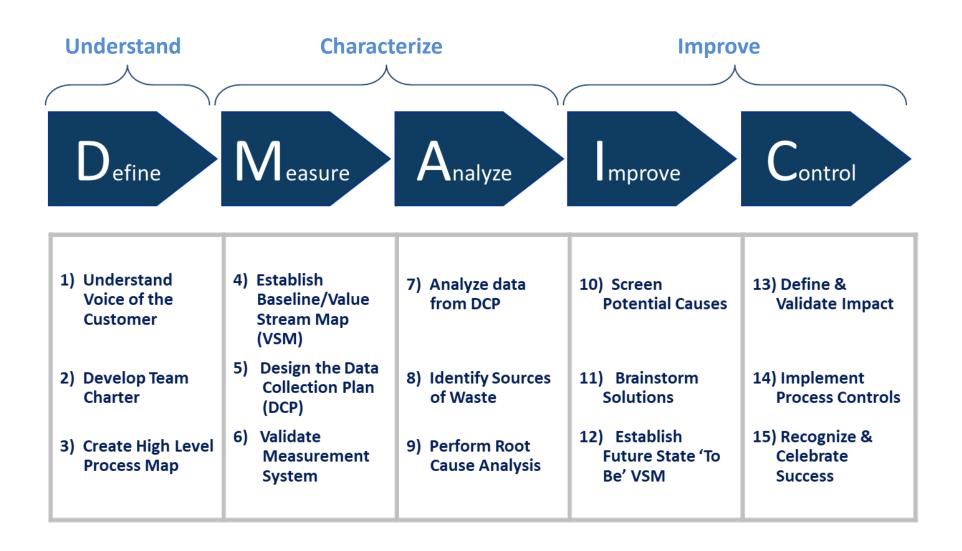- Fact Based Decision Making vs Assumption

- Data Driven Solutions vs Gut Feel

Lean Sigma Framework

The DMAIC Process...

D — Define

M — Measure

A — Analyze

I — Improve

C — Control

Lean Six Sigma Framework

Understand **Characterize** **Improve**

Define	**M**easure	**A**nalyze	**I**mprove	**C**ontrol
1) Understand Voice of the Customer	4) Establish Baseline/Value Stream Map (VSM)	7) Analyze data from DCP	10) Screen Potential Causes	13) Define & Validate Impact
2) Develop Team Charter	5) Design the Data Collection Plan (DCP)	8) Identify Sources of Waste	11) Brainstorm Solutions	14) Implement Process Controls
3) Create High Level Process Map	6) Validate Measurement System	9) Perform Root Cause Analysis	12) Establish Future State 'To Be' VSM	15) Recognize & Celebrate Success

Lean Six Sigma Tools

Voice of the Customer
Process Mapping
PACER
Stakeholder Analysis
Gantt Charting
Fishbone Diagrams
Kaizen
Data Collection Plan
Gage R&R
Control Charts
Normality Test
Non-Value Add Analysis
Constraint Analysis
Cause and Effect Analysis
Hypothesis Testing
ANOVA
Components of Variation
SMED
Work Control Analysis
Design of Experiments
Piloting and Simulation
Standard Operating Procedures (SOP's)
Standard Work
Statistical Process Controls (SPC)

Kano Analysis
Project Valuation
RACI and Quad Charts
Effective Meeting Tools
Belbin Analysis
Value of Speed
5S
Pareto Analysis
Kappa Studies
Histograms
Statistics
Takt Analysis
Overall Equipment
FMEA
Regression
Queuing Theory
Brainstorming
Kanban
Benefit and Effort Matrix
Solution Selection Matrix
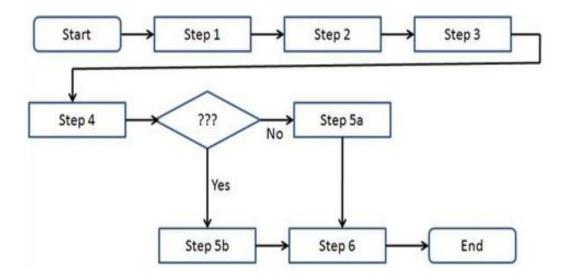Risk Management
Mistake Proofing
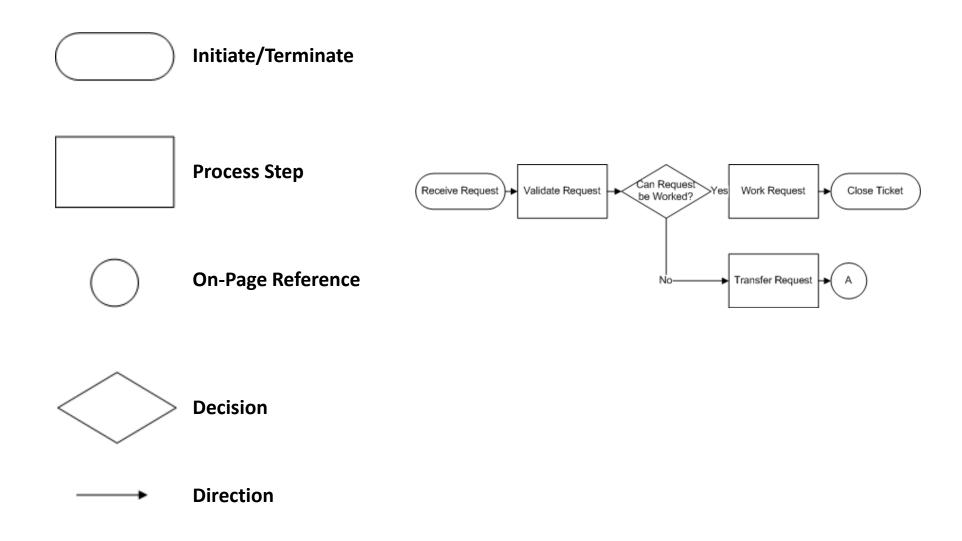Process Control Plans
A3

Process Mapping

- Workflow diagram

- Focuses on the work rather than on job titles or hierarchy

- Includes the level of detail needed to identify opportunities for improvement BUT its not overly complicated or difficult to understand

- Includes key stakeholders in the meetings to map out the process

- The map should expose the good (value-add) and the bad (waste) about what's happening in the process
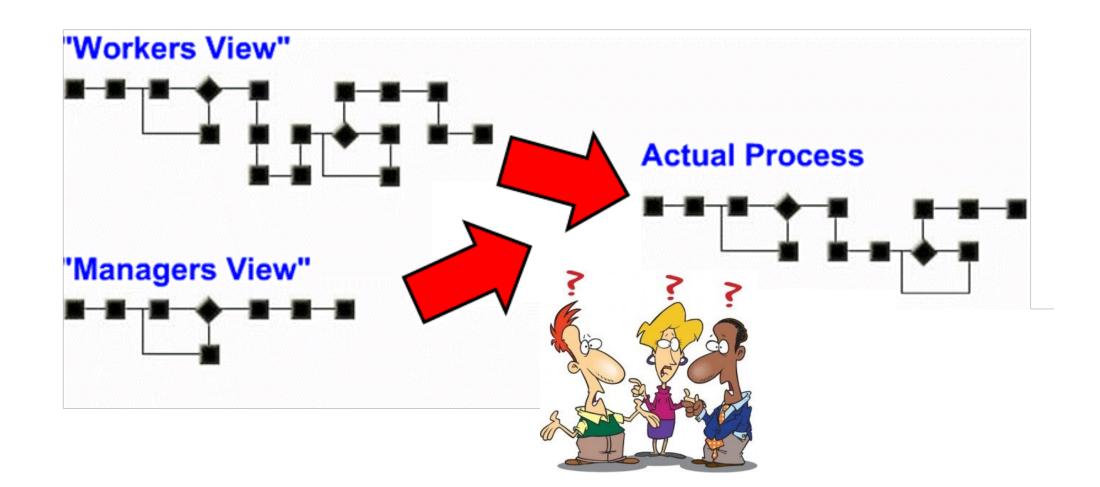
Process Mapping Symbols

Initiate/Terminate

Process Step

On-Page Reference

Decision

Direction

Receive Request → Validate Request → Can Request be Worked? —Yes→ Work Request → Close Ticket

Can Request be Worked? —No→ Transfer Request → A

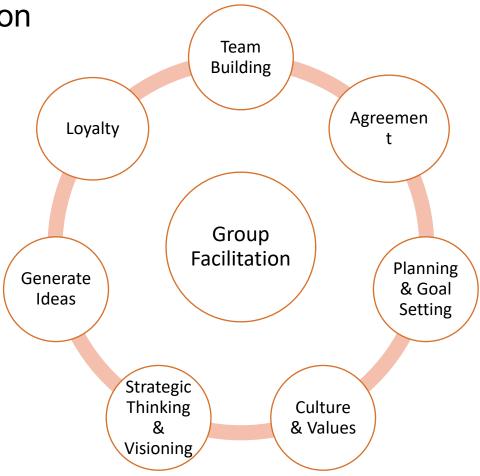# Process Map

There are usually at least 3 versions of each process:

Gemba

- Gemba means "the real place"

- Team walks through each step of the process to make sure it is understood

- "Staple yourself to the product"

- Ask question…ask more questions…ask even more questions

Facilitation

- A facilitator is a person who helps a group or team:

  - Achieve results in an interactive session

  - Solve problems

  - Deals with conflict

  - Focuses on the "how"

Facilitation Tips

- ## Schedule meeting

  - Find a date and time where you can get all of the people that are involved in the process in a room together for 2-3 hours

- ## Get materials

  - Flip board paper, post it notes, and markers

- ## Set ground rules

  - Communicate that this is an open session that will involve everyone's feedback
  - Make sure the room allows for open conversation
  - Stick to task – creating a process map

Facilitation Tips

- ## Ask questions
  - Use open ended and probing questions
  - Document what ACTUALLY happens not what SHOULD happen
  - BE NEUTRAL!

- ## Common Questions:
  - Where does this process start?
  - How long does it take to complete that task?
  - What happens next? Is that what ACTUALLY happens?
  - Who takes care of this?
  - Where does this go?
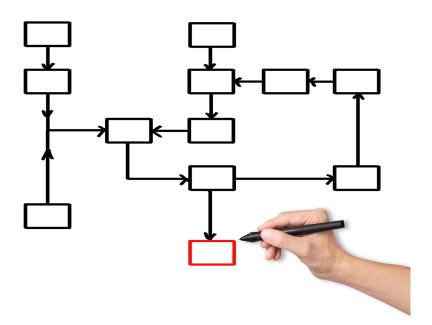 - What do they do with that document?

Facilitation Tips

- ## Just draw it
  - Identify process map type, use your shapes, number your steps

- ## Make it neat
  - It may look like a sloppy mess with lines everywhere. As soon as possible, redraw it neatly

- ## Validate it
  - Send out your new neat copy to everyone at the session and get them to identify what might have been missed or captured on paper incorrectly
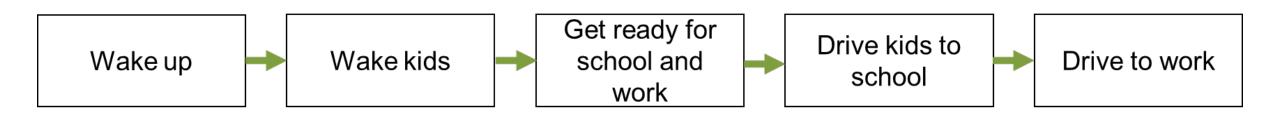
Types of Process Maps

- High-level Map
- SIPOC
- Swim Lane Diagram
- Value Stream Map
- Spaghetti Diagram

High Level Process Map

- An over-simplified representation of a process that can be easily understood
- Typically drawn as blocks; however, it can be written as steps
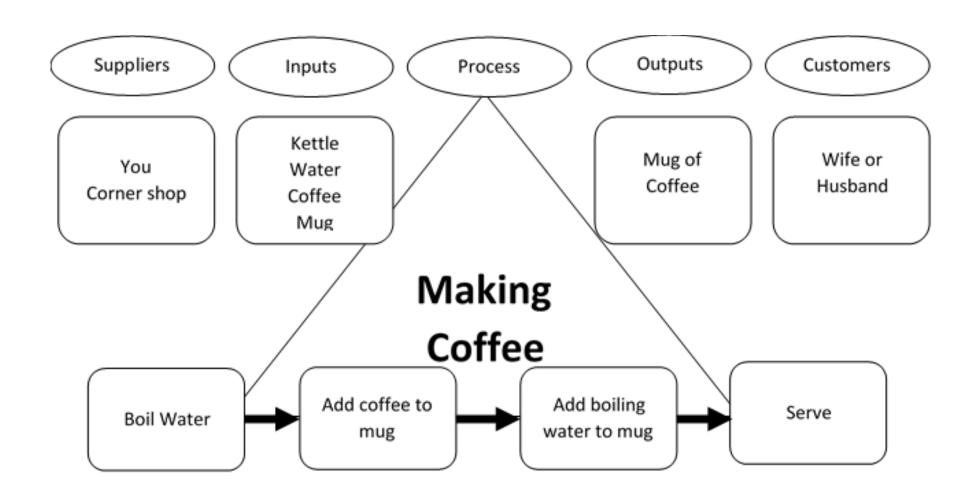- As a general rule, no more than 10 steps

| Wake up | → | Wake kids | → | Get ready for school and work | → | Drive kids to school | → | Drive to work |

SIPOC Diagram

- A SIPOC Diagram is a tool that identifies:

  - **Suppliers** - internal / external that supply the inputs to the process

  - **Inputs -** material, forms, information, etc. that go into the process

  - **Process** - the major high-level process steps

  - **Outputs** - outputs to internal/external customers

  - **Customers** - internal / external customers to the process

SIPOC Diagram

SIPOC

Supplier	Input	Process	Output	Customer
Who are the key suppliers to the process?	What are the key process inputs?	What are the main steps in the process?	What is the key process output?	Who are the main users of the output?
3rd This is the person, department or function that gives you the input.	4th This is what the process begins with and converts into an output.	5th List 5–7 Main Steps. Stay at High Level *1st Start here!	1st Start here! The Output is referred to in the Problem Statement of your Charter.	2nd Next, complete this. The customer receives the output.

- SIPOC diagram (Supplier – Inputs – Process – Outputs – Customer) helps the team develop a high-level understanding of the process under study. It is developed in the Define phase and used in all the other DMAIC phases of the project.
  - The five to seven high level Process steps convert or transform the listed Inputs into the Outputs. Viewing all forms of work in these SIPOC terms supports process thinking within an organization.

The SIPOC can start in either the Output or Process depending on Agency or process.

SIPOC Diagram

SIPOC
High-level process map
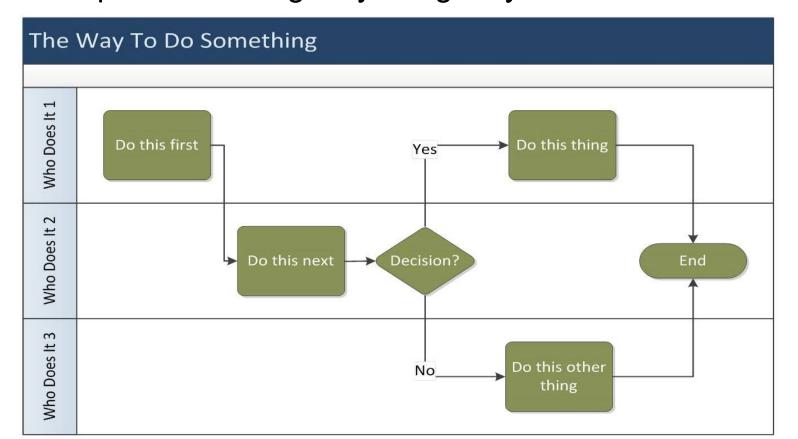
Lightsaber Inc. IT Call Center

PHASE: Define

3/25/2020

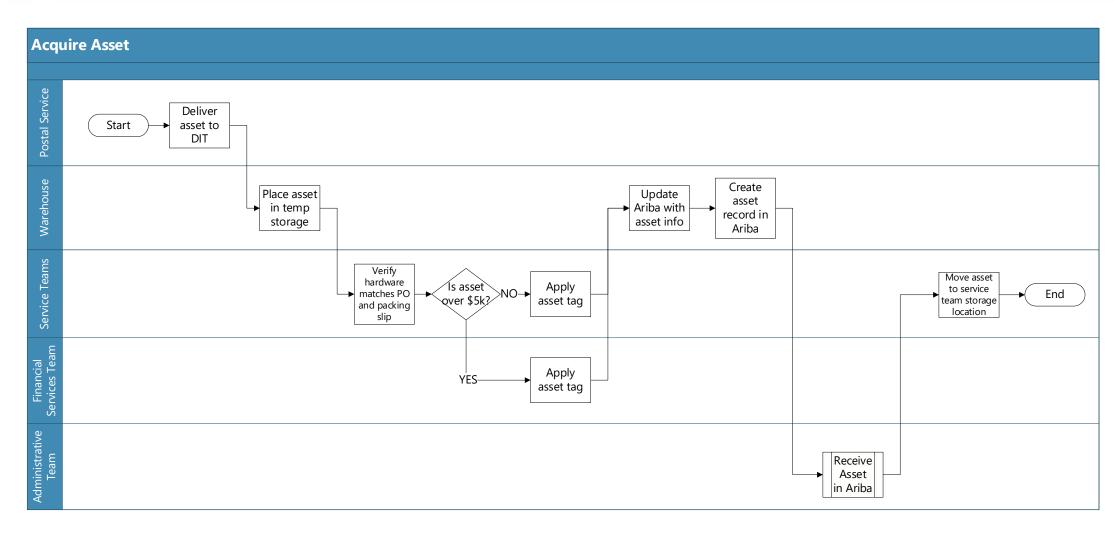| Provides the input to start the process	Trigger that initiates the process	Transforms the input into output	Product/service that is generated by the process	Receives the output of the process
SUPPLIER	**INPUT**	**PROCESS**	**OUTPUT**	**CUSTOMER**
Customer with problem	Problem Identified	1. Call Help Desk	Ticket Created	Call Center Agent
Call Center Agent	Triage customer issue	2. Gather Customer Information	Information in System	Customer with problem Call Center Agent
Call Center Agent	Information in System	3. Assess ability to Resolve	Escalation Decision	Call Center Agent
Call Center Agent	Escalation determined	4. Transfer Call	Next Level Support Staff Engaged	Next level Support Staff
Next Level Support Staff	Review Information in System and Knowledge Bases	5. Gather Resolution Information	Resolution Information determined	Next level Support Staff
Next Level Support Staff	Identify customer contact information	6. Deliver Resolution Information	Resolution Given to Customer	Customer with problem
Call Center Staff	Resolution accepted from customer	7. Log Call Data	Call Data logged to customer file and FAQ	Call Center Management
IT Group	Survey Request sent to customer	8. Confirm Resolution with Customer via Survey	Documented call resolution	Call Center Management

Swim Lane Diagram

- This shows who does what along with the interactions between people and departments. Also known as a "deployment" chart as the page is divided into horizontal lanes showing the various actions and how the process moves from department to department or agency to agency.
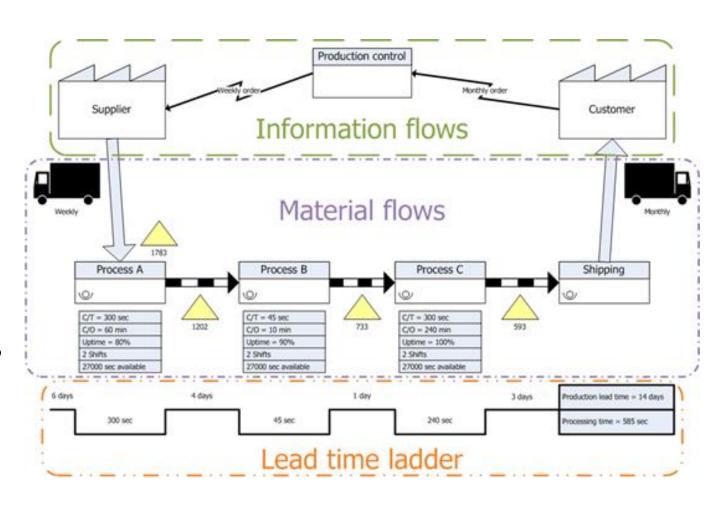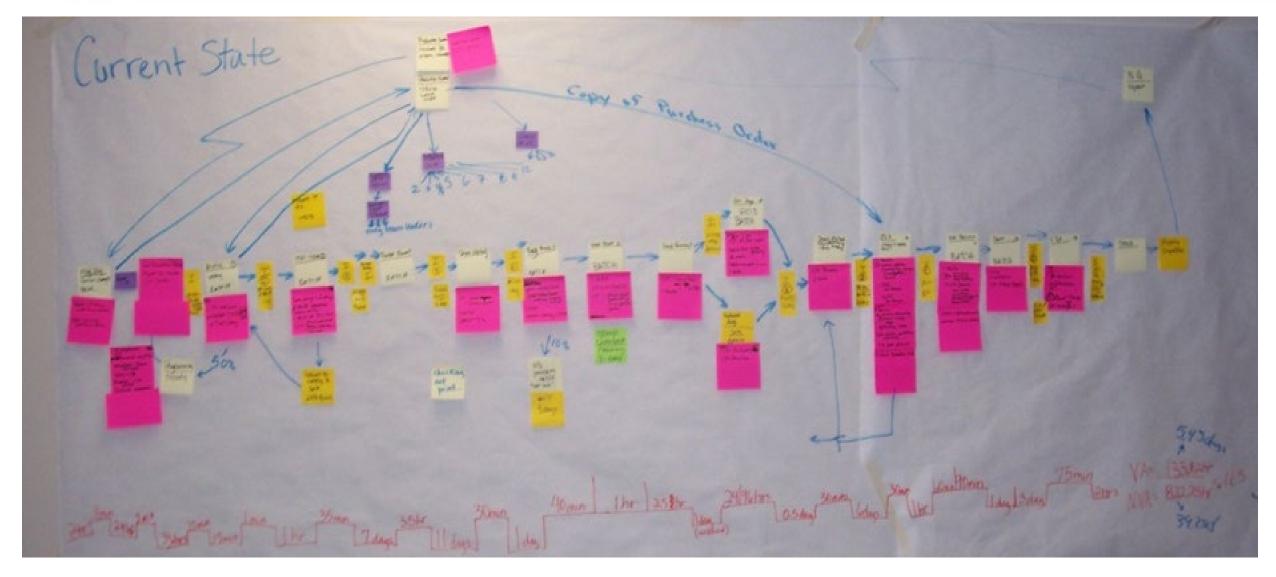
Swim Lane Diagram

Value Stream Map

- Gather & display a broader range of information than a typical process map
- Identify sources of waste by using data:
  - Hands-on time needed for each process step
  - Accuracy of each process step
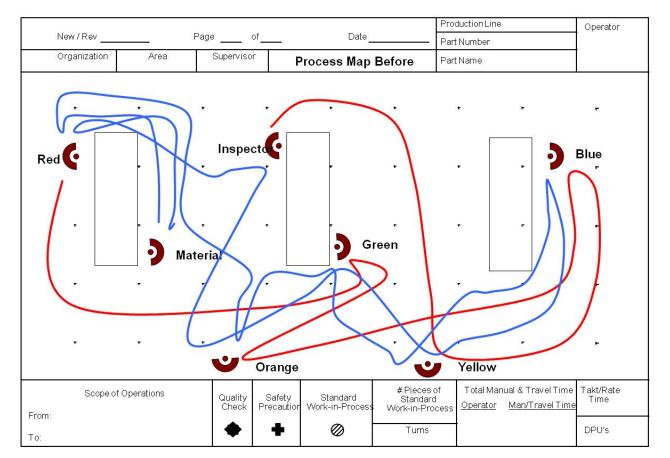 - Wait time between process steps

Value Stream Map

Spaghetti Diagram

- A Spaghetti Diagram is a type of map that shows the physical flow and distance that information and people travel to process work
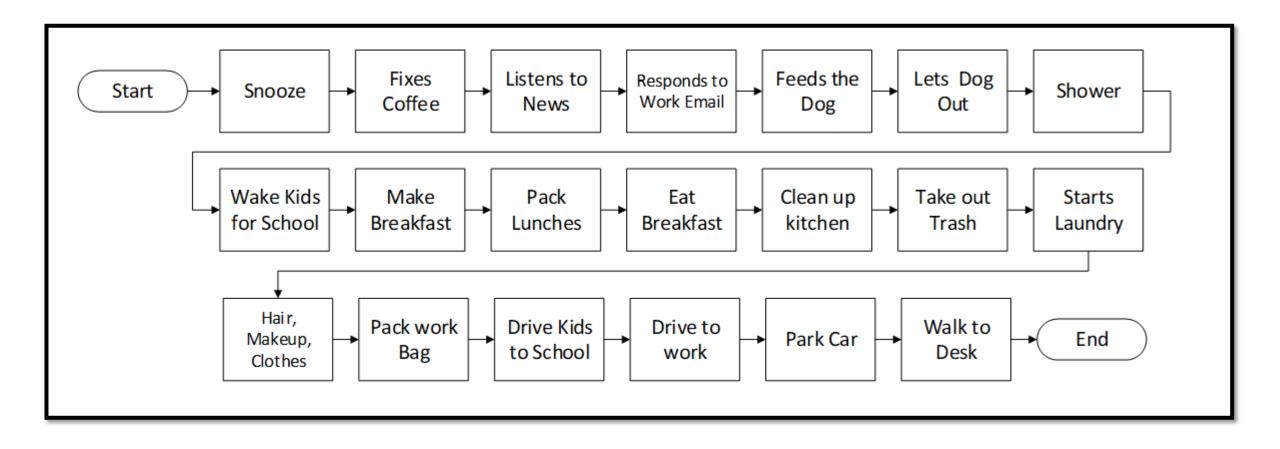
Mapping Exercise

- Instructions:

  - Map out all of the steps to your daily routine.

  - Start from the moment your alarm clock goes off in the morning, until you get to the building.
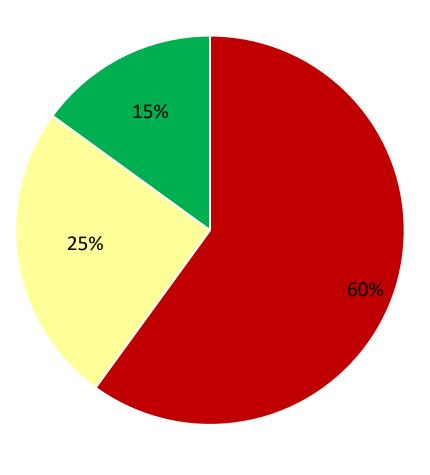
Mapping Exercise

Value Added vs Non-Value Added

Typical Processes

- Non-Value Added (waste)
- Non-Value Added, but required
- Value Added

Value Added vs Non-Value Added

Value Added (VA)	Non-Value Added (NVA)
An activity that transforms material or information for the first time to satisfy the customer. (3Cs)	Activities that take time or resources, but do nothing to satisfy the customer. (8 Wastes)

The Three C's

- The <u>C</u>ustomer cares about it

- <u>C</u>hanges the 'thing.' The 'thing' can be a widget, a form, an application, the medical condition of a patient or whatever your process is supposed to change.
  - *If you have a step that is not changing the thing, it is not **<u>value-added</u>** and you should look for ways to eliminate it.*

- <u>C</u>orrect the first time

ALL THREE C's must be TRUE for a step to be VALUE-ADDED!

What Are the 8 Non-Value Activities (Wastes)?

- Defects
- Overproduction
- Waiting
- Non-utilized talent
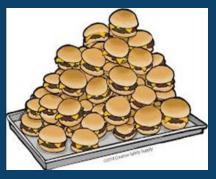- Transportation
- Inventory
- Motion
- Extra processing

D	O	W	N	T	I	M	E

The Eight Wastes

Defects		• Poor repair • Poor documentation • Lack of standards • Uncontrolled inventory levels • Rework
Overproduction		• Multiple forms with the same information • Poorly applied automation • Producing to forecast • Too many reports • Too many reviews • Too many approvals • Batching paperwork

The Eight Wastes

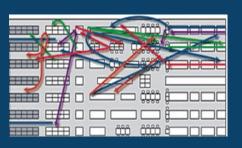|		
Waiting		• Unplanned downtime • Worker absences • Waiting for information • Waiting for meetings to start
Non-utilized Talent		• Staff skills not being utilized • Over or understaffing • Workload not balanced
Transportation		• Excessive stops • Routing of unnecessary approvals • Shipping costs and time • Poor office layout • Long travel distances

The Eight Wastes

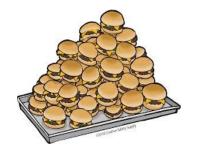|	
Inventory	• Excessive backlog of work to be processed • Too much paperwork to be handled, processed or filed • Products that become obsolete
Motion	• Walking to delivery paperwork • Workstation congestion • Shared tools and machines
Extra Processing	• Too many handoffs • Re-entering data and duplicative data • Performing extra tasks on the product that is not required by the customer • Unnecessary stops

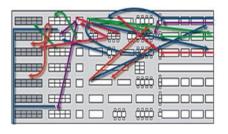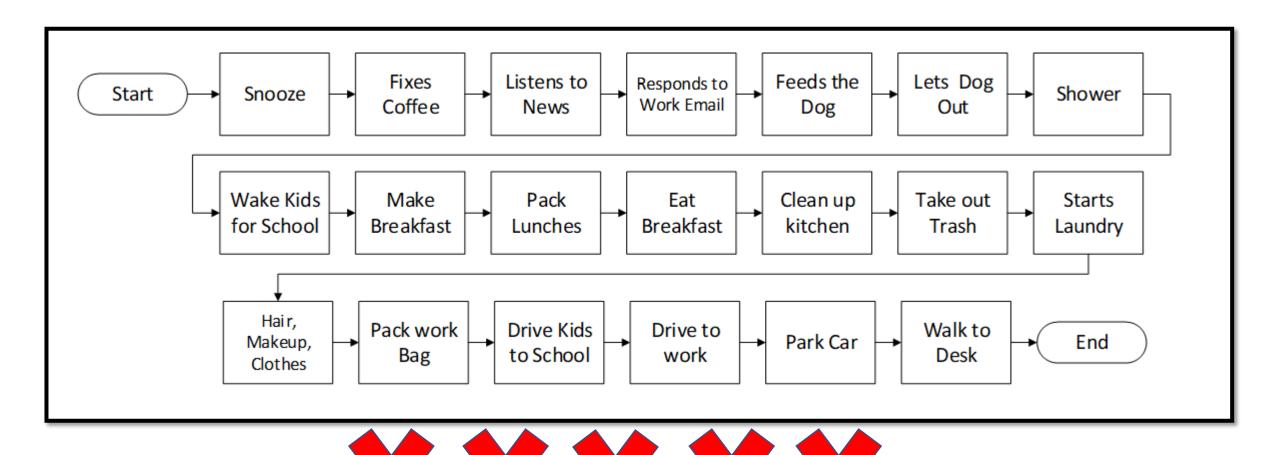**Instructions: Identify the 8 Wastes.**

Mapping Exercise

Process Map Summary

- Process Maps:

  - Are used to document and illustrate your process

  - Help your organization understand what is occurring within a process

  - Create a basis for evaluating and improving your process

  - Serve as training aids for your customers and employees

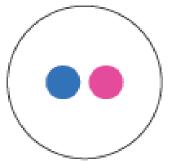# Let's Connect!

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