

# Process Mapping and Waste Identification

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# Goal & Objectives for the Training

- To provide awareness about continuous improvement process mapping techniques and waste identification
- For Business Analysts
- By
  - Learning process mapping
  - Learning the difference between waste and value
  - Learning how to identify waste in a process
  - Learning how to categorize waste
- So That Business Analyst can efficiently and effectively analyze and synthesize information provided by a large number of people who interact with the business and elicit the actual needs of stakeholders
- Icon Used in Training:
  - Apply what you learned
  - QRC/Template



# Process Mapping

# What is a Process

A process is a structured set of activities designed to accomplish a specific objective. A process takes inputs and turns them into defined outputs.



## Process Characteristics

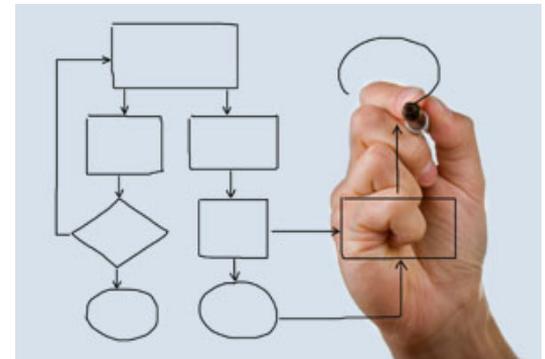
- Measurable
- Delivers a specific result
- Delivers results to a customer
- Traceable to a specific trigger

# Process Map Definition

- The process map gives a pictorial representation of the process as it really is – current state
  - You must go to the **gemba** (where the work takes place) when developing a process map
- How much detail is too much?
  - Various levels of detail are used to describe what influences the process
  - Make sure that all individuals understand the process map
- If there is a problem within the process, the process map provides the foundation for starting an improvement idea

# Why Map a Process?

- Why map a process?
  - Provides a step by step view of the process by the people who work the process
  - Identifies who performs each task or activity and when
  - Provides a baseline understanding for a process
  - Can lead to improvements for an individual work process
- What do you need?
  - You or any other individuals who are part of the work process
  - Data that is used in the work process
- Mapping Tools:
  - Anything you can get your hands on
    - > Virtual: Visio, PowerPoint, [www.draw.io](http://www.draw.io)
    - > Face to Face: Flipchart paper, post-its, markers, tape



## How do you map a process?

- Understand where the process starts and stops FIRST!
- Brainstorm the functions that touch the work process
  - If possible, invite all team members to participate in developing the process map
- Create a “swim-lane” in the map for each function identified
- Start by writing the first activity and then map the work process task-by-task
  - Process map denotes time from left to right; only stack tasks if they happen at the same time
- Review the process from start to finish to make sure that the tasks/decisions are in the right order and see if any activities are missing
- For each task, think about:
  - Estimated time to accomplish the task
  - Frequency of occurrence
- Capture any other relevant work process information on the map
  - Add a swimlane for systems/deliverables/job aids/templates etc.

# Process Mapping Symbols



- **Rectangle** – denotes a task in the process



- **Diamond** – denotes a decision to be made in the process



- **Oval** - Used to show the materials, information or action (inputs) to start the process or to show the results at the end (output) of the process



- **On or Off Page Reference-** Identifies a break in the process map and is continued elsewhere on the same page or another page



- **Arrows** - Show the direction or flow of the process

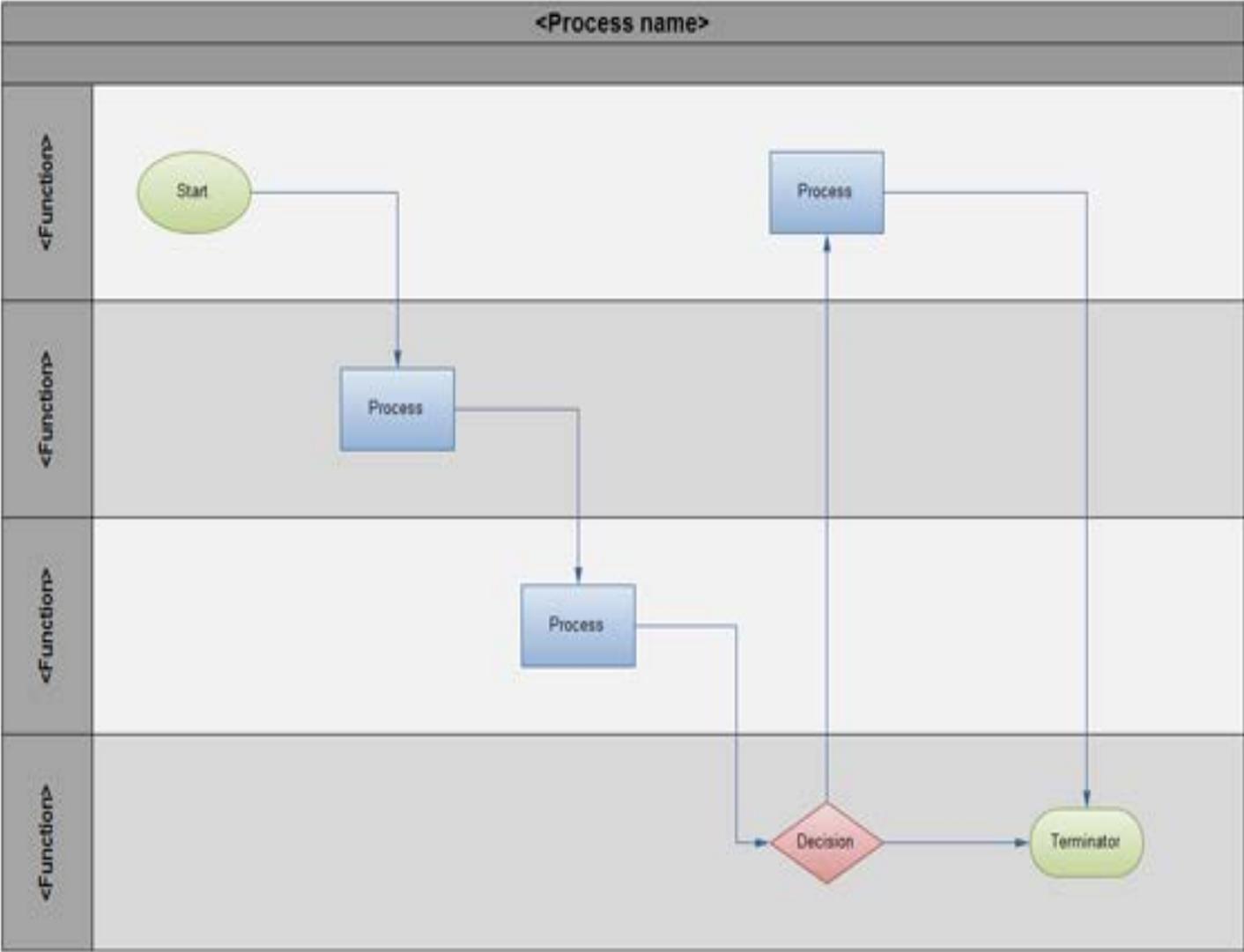


- **Sub-process box-** One or more tasks that accomplish a significant portion or stage of a process



- **Document** - This shape represents a step that results in a document

# Cross Functional Flowchart Template



# Remember.....

## Process Mapping Takeaways

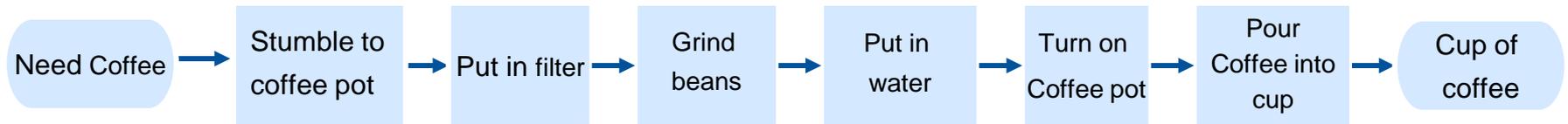
- Map the process as it REALLY is and Not as it:
  - should be, could be, might be
- Focus is on actual activities, not on planned. Take the following into account:
  - Formal and informal activities.
  - Other exceptions to normal activities (e.g. process of dealing with urgent orders).
- Check the current version of the process map with the process owner and ask:
  - Is this correct?
  - Is this what is happening at the moment?
  - How does it compare to the documented process?

# Process Map Example

## Making Coffee

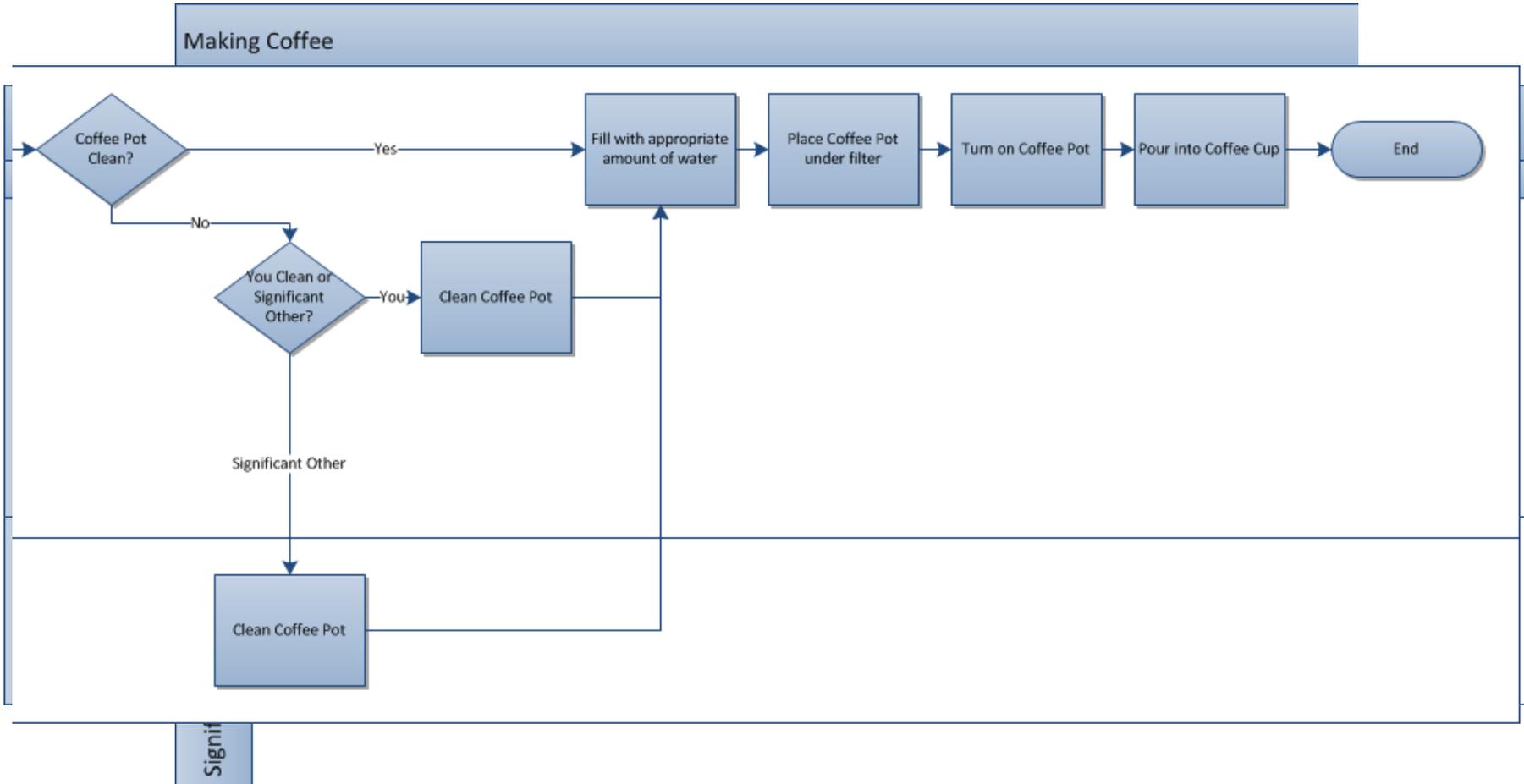
# Making Coffee

## High-Level Process Flow



# Making Coffee

## Detailed Process Map



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# Group Exercise

Pick an example that best fits your group



- Pick an example:
  - Making Cookies
  - Checking voice-mail
  - Washing the Car
  - Initiating a meeting via Outlook
- Using the flipchart paper and post-it notes in the room, work with your group to process map getting dressed in the morning
- Review the scope of each process: Start, End
  - See Group Exercise Worksheet
- Be prepared to share the groups DETAILED process map



# Difference Between Waste and Value

# What is value?

- Any activity the customer is willing to pay for
- Change to a product, service or information
- Done right the first time



# What is waste?

- Anything that adds cost without adding value
  - In any work process
  - Anywhere in the value stream



# Types of waste

- Type 1
  - Creates no value but is unavoidable because of technology, customer or regulatory issues
    - > (e.g. OSHA, ISO, SOX, Internal standards, ABC Policies and procedures, etc.)
- Type 2
  - Creates no value and are immediately avoidable



# How to Identify Waste in a Process

# 10 Forms of Waste



Form of Waste	Definition	Examples
Movement	Unnecessary movement	Handoffs, Travel from 1 workstation another, turning, bending lifting at a workstation
Waiting	Delay in work activity while some needed resources becomes available	Waiting for a reply from an email to continue to work
Interruptions	Stoppage in work activity due to some external factor	Machine breakdown, Phone call, Organizational support
Searching	Activity required to locate some needed resources	A person, tool, or piece of information
Inspections	Checking for defects by a workstation different from the producing workstation	Matching information to other sources

# 10 Forms of Waste

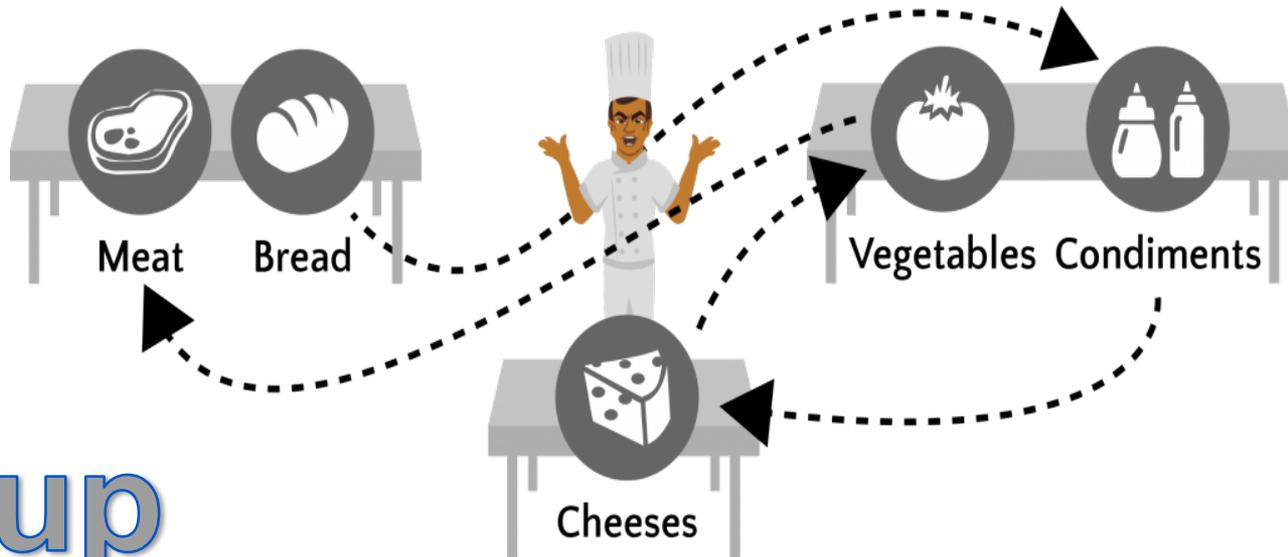


Form of Waste	Definition	Examples
Defects and Rework	Time required reprocessing a product, component or information item to fix the defective unit	Break/fix issues, Enhancement defects
Setup	Labor required readying a performer, machine or process, or change from one work process to another	Computer boot-up, printer warm-up time
Inventory, Storage and Overproduction	Making more, earlier, or faster than is required by the next process	Unnecessary hard copies being stored, Printing paperwork or processing an order before it is needed
Unnecessary Processing	Work activity that is repetitive or otherwise unneeded in order to advance progress of a product or service	Asking a customer if their CC is Visa, Master Card, etc. as well as ask for their CC#
Non-Utilized Talent	Underutilizing people's talents, skills and knowledge	Employees are not engaged, Not listening to their ideas or not supporting their careers

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# Sandwich Exercise

- What are the forms of waste that you see in this process of making a sandwich?



Setup

Movement

Searching



# Group Exercise

Identify the Waste in the Process you mapped



- Using Pink Post it Notes, write the type of waste you see in your process and put that pink sticky on that step of the process map
  - i.e. Movement, Setup, Searching
- Be prepared to share the different types of waste you found!



# How to Categorize Waste



# Categorize Issues

- Categorization can be used to illuminate the relationship between the issues brainstormed and what type of solution may be needed
  - For example, you can't solve process issues with technology; culture issues may take longer to implement
- Method: Print or setup a space with the categories below and ask participants to align the issue with a category
- If the issue spans more than 1 category, then put the issue between the two categories or in another columns labeled "All"

People	Process	Technology	Culture	Information
<ul style="list-style-type: none"><li>• Motivation and competencies of the people involved</li><li>• Example: Training issues</li></ul>	<ul style="list-style-type: none"><li>• The conceptual soundness, fit and speed of the approach followed</li><li>• Example: Assigning user access issues</li></ul>	<ul style="list-style-type: none"><li>• The hardware, software, architecture and information flows used</li><li>• Example: Network bandwidth issues</li></ul>	<ul style="list-style-type: none"><li>• Leadership support and organizational incentives</li><li>• Example: Disregard for Risk</li></ul>	<ul style="list-style-type: none"><li>• Accuracy, timeliness, content and completeness of documents and data</li><li>• Example: Info in form is incorrect</li></ul>

# Categorization Example

Using the Sandwich Example from Identify Waste

## People

- **Defects and Rework** – The Chef hires an assistant that improperly makes sandwiches due to insufficient training

## Process

- **Movement** of the chef from one table to another
- Current **Setup** of the ingredients is not ideal

## Technology

- **Inventory, Storage and Overproduction** – Chef's system does not have enough storage to order all of his products

## Culture

- **Unnecessary Processing** – The Chef has a paper system for managing orders because he has always done it that way

## Information

- **Defects and Rework** – When reading the order the chef was missing what condiments the customer wanted



# Group Exercise

Categorize the Waste in the Process you mapped



- Write the issue/waste categorization type on the pink sticky's
- Be prepared to share the different categorizations you identified!

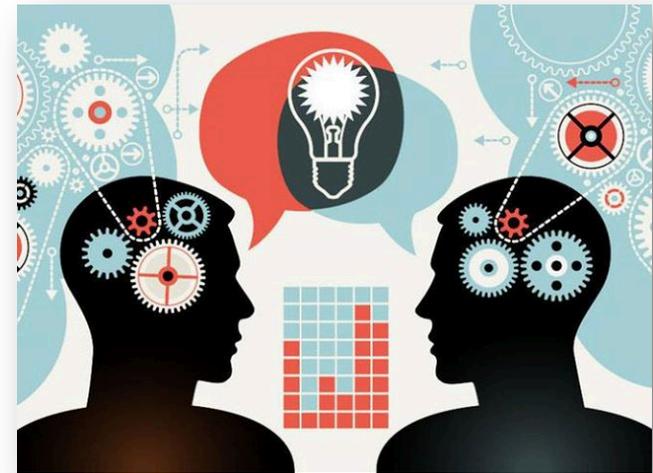


# Key Takeaways & Plus/Delta

# Key Takeaways

## Review

- Ensure that everyone understands the objective and has an understanding of the process – walk the process, see the output
- You can start high level and add detail as needed
- Include everyone who is part of the process in the process mapping session
- By thinking through the 10 forms of waste, you identify all the opportunities for improvement!
- Categorizing the waste can help ensure the solutions you develop will solve the right type of waste or issues
  - i.e. you cannot fix process issues with technology solutions



# What's Next

What still needs to be done to implement your improvements?

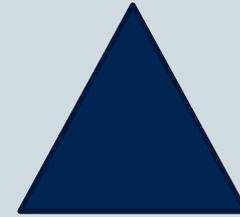
- **Prioritize Issues**
  - Sample Tool: Issue/Waste Matrix
- **Brainstorm Solutions**
  - Sample Tool: Mistake Proofing Scale
- **Prioritize Solutions**
  - Sample Tool: Solutions Matrix
- **Create a Project Plan to Implement those solutions**
  - Sample Tool: Implementation Plan Enhanced (Includes Measures)

## Plus Delta



Things you like  
about today

Things we should  
keep doing

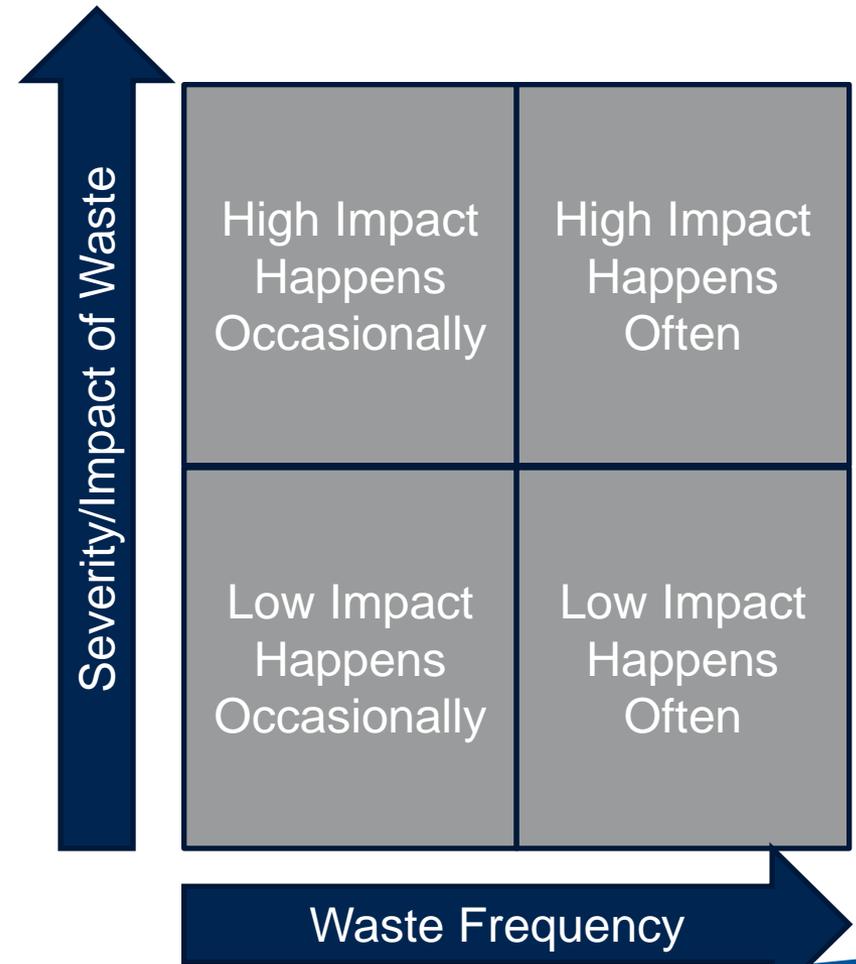


Improvement  
Idea for next time

спасибо  
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ngiyabonga  
teşekkür ederim  
tapadh leat  
dank je  
gracias  
mochchakkeram  
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maunuru  
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## Prioritize Issues/Waste

- Rank the issue/waste by impact and frequency
- Use matrix to prioritize
  - Severity/Impact – How much does it impact the output of the process?
    - > Customer Requirements, addressing root causes, etc.
  - Frequency – How often does this issue/waste occur?
    - > Always occurs, Rarely occurs
  - Start with Severity first; then Frequency
  - Define these for your own process



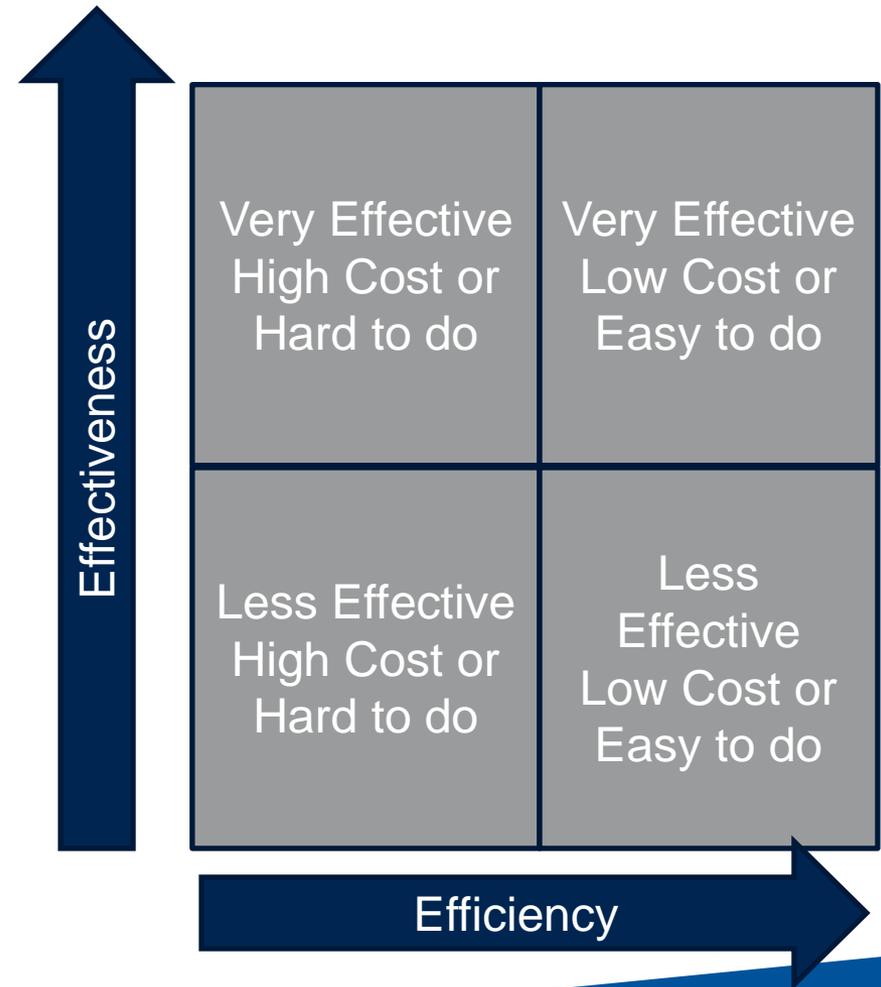
# Mistake Proofing Scale for Solutions

Ensure the issue that the solution is solving is higher on the Mistake Proofing Scale

	Relative Mistake Proofing Power	Method	Description	Feedback	Corrective Action	Example	
↑	<b>HIGH</b>	<b>10</b>	<b>Eliminate</b>	Redesign product or process so task or part is no longer necessary	<b>Automatic</b>	<b>Compulsory</b>	Simplify process and remove step in which error is occurring
	<b>9</b>	<b>Control</b>	Prevent errors from becoming defects by providing immediate feedback and <u>self-correction</u>			Part features only allow assembly the correct way	
	<b>8</b>	<b>Shutdown</b>	Prevent errors by triggering process to shut down when error is detected			Website will not advance to next screen unless data is entered into field	
	<b>7</b>	<b>Replace</b>	Exchange current process with more reliable process			Bar code scanner replaces manual data entry.	
	<b>6</b>	<b>Mitigate</b>	Minimize effect of making errors, or provide easy means of recovery or rework			Fuses prevent overloading circuits	
	<b>5</b>	<b>Warn</b>	<u>Automatically</u> alert operators of abnormal conditions (Correction requires operator vigilance)		<b>Discretionary</b>	Car seatbelt buzzer or light	
	<b>4</b>	<b>Sensory Alert</b>	Operator initiates signal once error is detected through sight, sound, touch, smell or taste	<b>Operator Dependent</b>		Eggcrates <sup>1</sup> in small parts packaging	
	<b>3</b>	<b>Facilitate</b>	Use aids to help make it easy to do something correctly			Visual controls, checklists, forms	
	<b>2</b>	<b>Build Standards Into Workplace</b>	Make work environment itself communicate established standards (Put knowledge in the world)			Visual displays, color coding, labels	
	<b>1</b>	<b>Share Standards</b>	Establish standard methods for right way to do something and communicate to all necessary individuals			Procedures, training	
<b>LOW</b>	<b>0</b>	<b>Share Information</b>	Identify key information needed for successful processing and communicate to all necessary individuals			Informal sharing of knowledge	

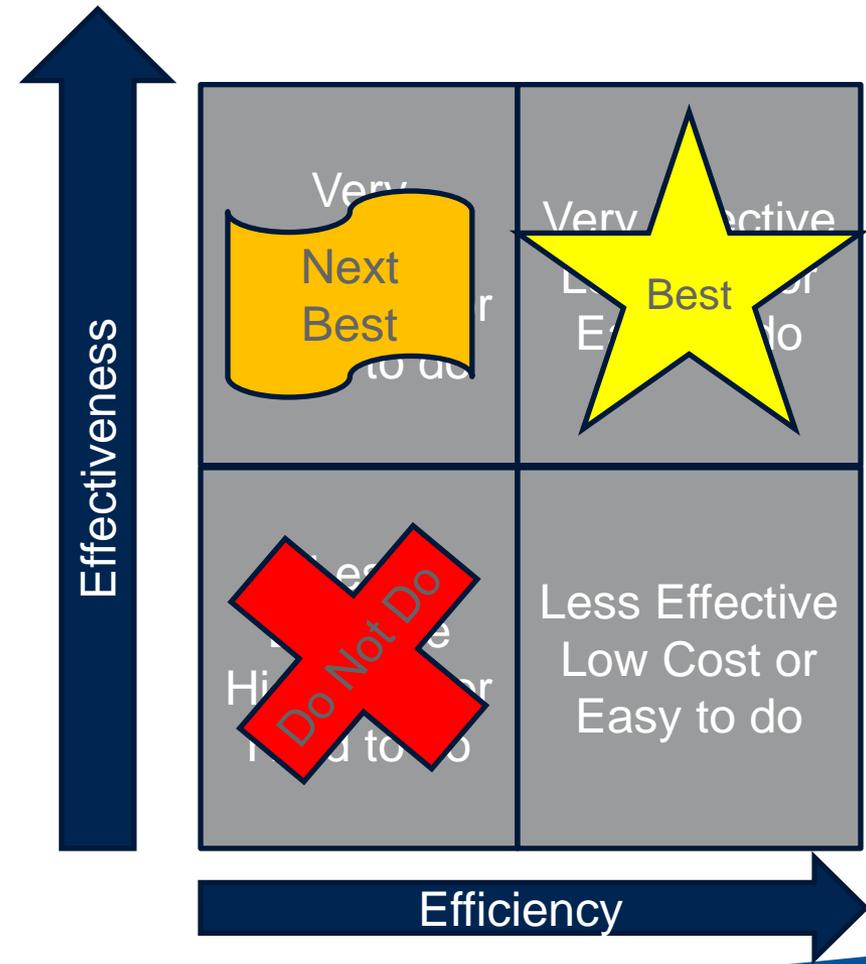
## Prioritize, select and implement solutions

- Review every brainstormed idea
- Prioritize using the Solution Matrix
  - Effectiveness – Can you produce what is needed for the output of the process?
  - Efficiency – How long will it take? How much effort is involved?
  - Define these for your own process
- **Being effective is about doing the right things, while being efficient is about doing things right!!!!**



## Prioritize, select and implement solutions

- Review the solutions in order of:
  - High Effectiveness/Low Efficiency
  - High Effectiveness/High Efficiency
- Document the selected solutions
  - Think about it from a knowledge transfer perspective
- Determine who is responsible to implement and by when



# Evaluate Requirements for Gaps

Review all Requirements and Evaluate against the step intended to accomplish that requirement

- Does that step (or steps) accomplish the goal of the requirement? Is the measure sufficient to know if we are accomplishing that goal?
- Determine Solutions for any of the gaps and input into the Implementation Plan

What solution is being implemented?	Who will implement it?	When will it be implemented?	What does the new process look like? (e.g Link to process map, SIPOC)	Who has responsibility if/when problems arise?	Who else needs to know about the new process? (e.g. Other Processes, Training/Knowledge Transfer)	What is the proposed measurement?	Who can provide the information?	How often will the information be collected?
Pre-Project Comms need sufficient information: Create standard Communication Schema and process/responsibility for Project Comms including when it should be sent	IT Project Sponsor	Upon Process Go Live	See SIPOCPortGovFUTURE		IT Project Sponsors	Customer Survey	Process Owners/Managers	After Warranty Period & Quarterly