




Mapping Techniques for Continuous Improvement

Randy Simons – PNM Resources

David Ortega – PNM Resources



Tactical Lean Program at UNM

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Mapping Techniques Agenda

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- Why Process Map
- Value and Waste
- Objectives and Considerations
- SIPOC
- Process Mapping Techniques
- Summary
- Q & A

Process Definitions

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- **Definition 1:** A business process is a collection of related, structured activities or tasks that produce a specific service or product for a particular customer or customers.

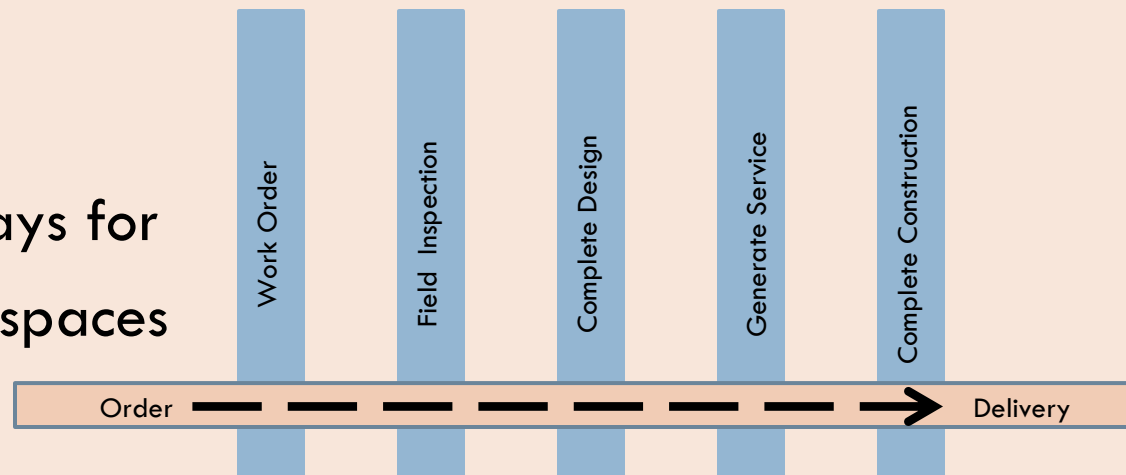
- **Definition 2:** Sequence of interdependent and linked procedures which, at every stage, consume resources (employee time, energy, machines, money) to convert inputs (data, material, parts, etc.) into outputs. These outputs then serve as inputs for the next stage until an end result is reached.

- **Fact:** No process is perfect, every process has inefficiencies due to fundamental design and inherent waste

Why Process Map?

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- Most organizations are structured vertically by function or department “silos”, but processes flow horizontally
- What’s between the functions “White Space”
 - ▣ Lack of communication
 - ▣ Delays and waste
 - ▣ Incorrect handoffs
 - ▣ Assumptions
- Customer ultimately pays for the waste in the white spaces



Why Process Map?

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- Provides process learning and a higher level of understanding
- Visualize process activities, connections and flows
- Identify the “White Space”
- Recognize the value added activities
- Identify the required and pure waste

- To improve processes, you map to:
 - ▣ Understand the Current State
 - ▣ Envision the Future State
 - ▣ Perform gap analysis to move to Future State

Lean Definition of Value

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- You customer defines value or value-added with the following three conditions¹:
 - The customer must be willing to “pay” for it
 - It must transform the product or service
 - It must be done correctly the first time

- If you don't meet all three of these criteria, then you have non-value-added activities or waste

Value Added:

- ↑ Customer Values it
- ↑ Changes the Thing
- ↑ Correct the First Time!

Lean's Seven Types of Waste

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- **Transportation**
- **Inventory**
- **Motion**
- **Waiting**
- **Overproduction**
- **Over Processing (Too Much)**
- **Defects**

T.I.M. W.O.O.D

Strategies for Addressing Waste

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Value Added Activity

Required Waste

Pure Waste

Keep!



Minimize



Eliminate

Value Added:

- ↑ **C**ustomer Values it
- ↑ **C**hanges the Thing
- ↑ **C**orrect the First Time!

Why is Value and Waste Important?

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- Typical Manufacturing Process¹
 - ▣ Non-Value added activity = 95%
- Typical Transactional Office Process¹
 - ▣ Non-Value added = 99%

- Should you put your efforts in improving the value added activities or eliminating the non-value added activities?

Typical Manufacturing NVA = 95%

VA = 5%

Typical Transactional (Office) NVA = 99%

1%

Process Mapping

Process Mapping Objectives

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□ To directly observe work As:

□ Activities

- Documentation of work steps or activities of the process
- Must be structured and standardized

□ Connections

- How is material or information transferred between every customer and supplier; who or what gives the instructions?

□ Flows

- Mapping is about flow; people, information, or material
- Flow should be specific and simple

Most Effective Process Mapping Tools

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Considerations for Map Selection

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What's the best map to use?

- Do you want to analyze, document, design, or manage?
 - work flow
 - logic flow
 - material flow
 - task relations
 - communications



Each map type provides a different perspective of the process

Process Map Types

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- The “best” map to use depends on the project needs & objectives
- Each map gives you a different perspective of the business process
- You can use several map types to document a process
- For today’s discussion
 - ▣ SIPOC
 - ▣ Logical Flow
 - ▣ Swim Lane
 - ▣ Top Down
 - ▣ Product – Process
 - ▣ Activity Map
 - ▣ Value Stream

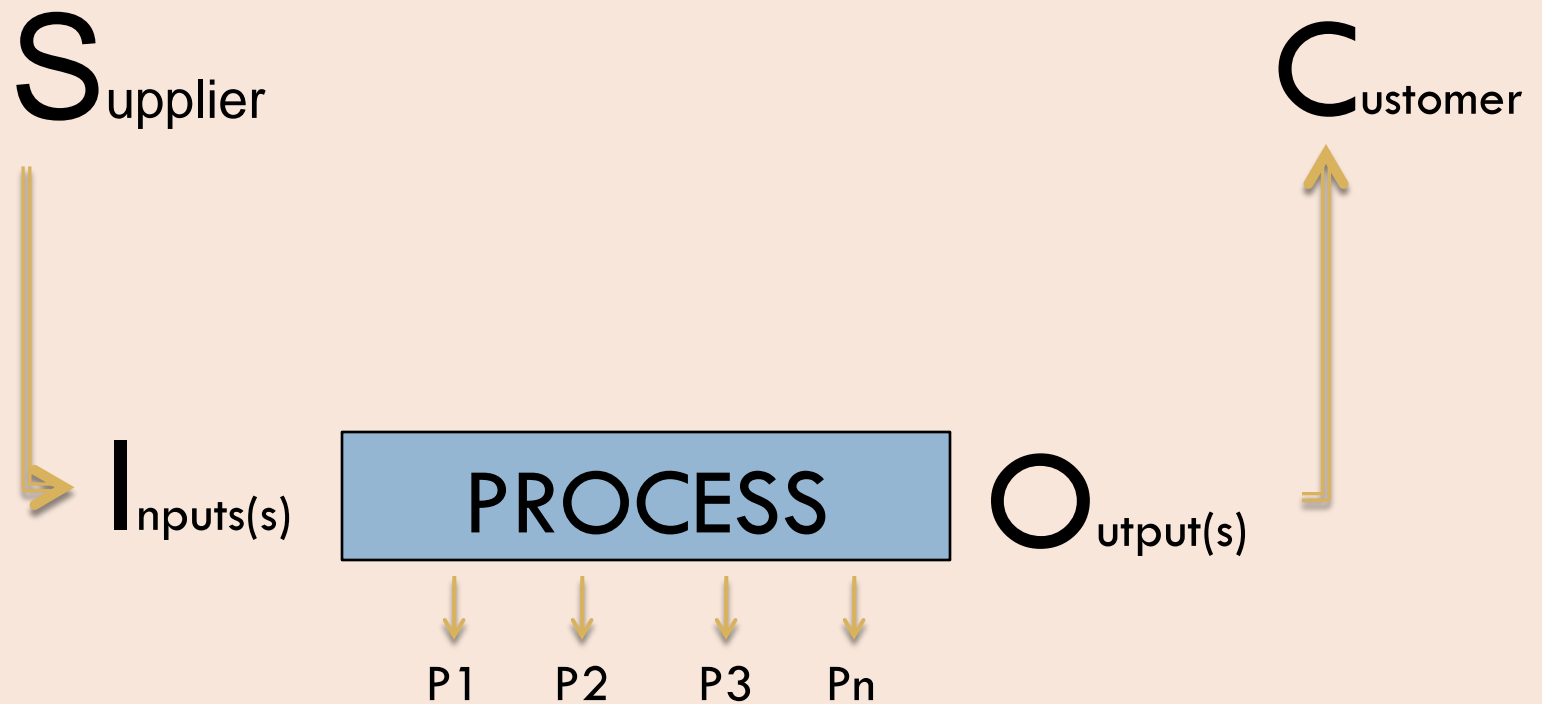
SIPOC Map

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- Foundational process improvement tool
- Identifies customer, suppliers, inputs, outputs, and process steps
- SIPOC used to identify and define
 - Suppliers
 - Inputs
 - Process
 - Outputs
 - Customers

SIPOC Map

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Example: Recruiting SIPOC Map

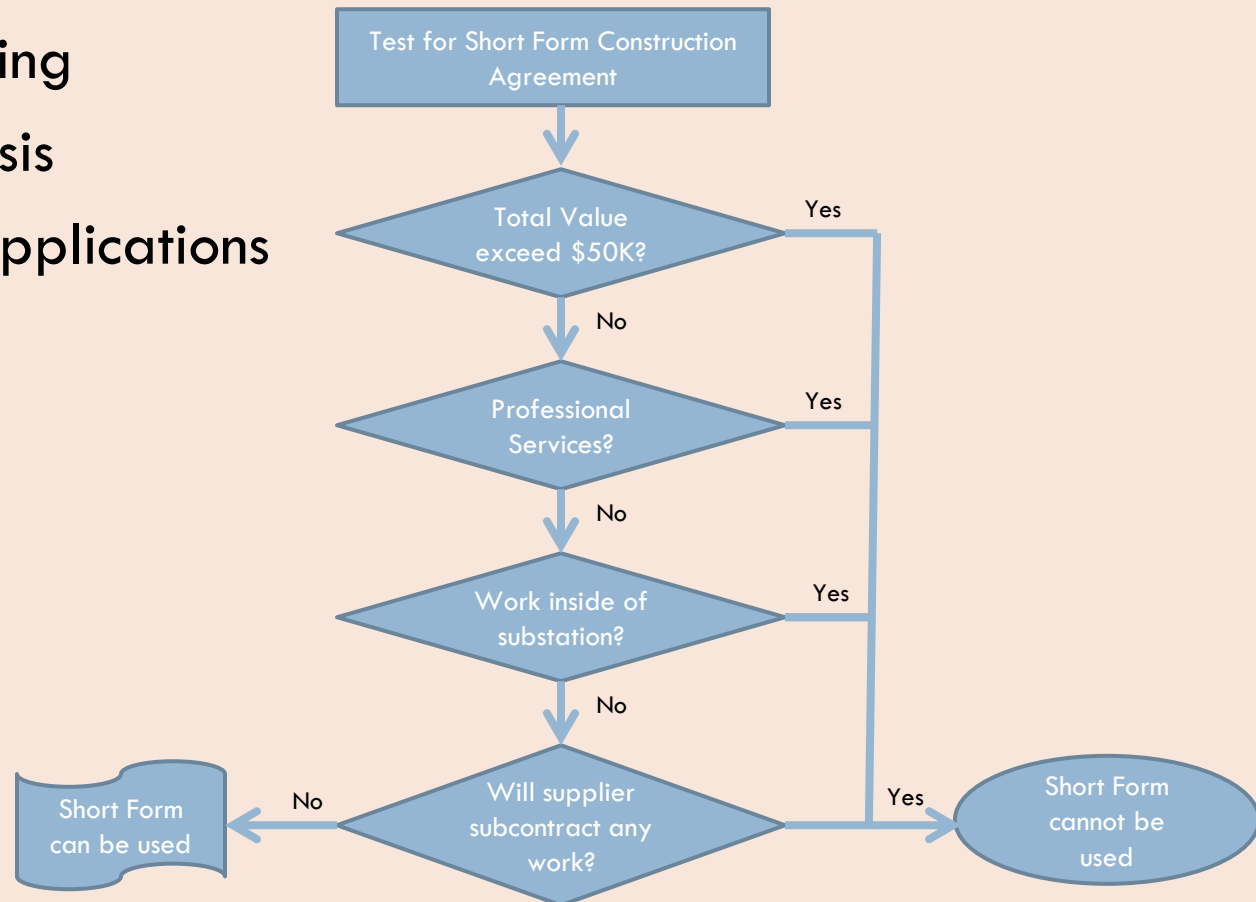
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Process: Recruit Staff				
Suppliers	Inputs	Process	Outputs	Customers
Line Manager	Request to fill a vacancy	<ol style="list-style-type: none">1. Specify needs2. Authorise recruitment3. Place adverts4. Assess applicants5. Offer appointment6. Confirm start	New member of staff	Line Manager

Logic Flow Chart

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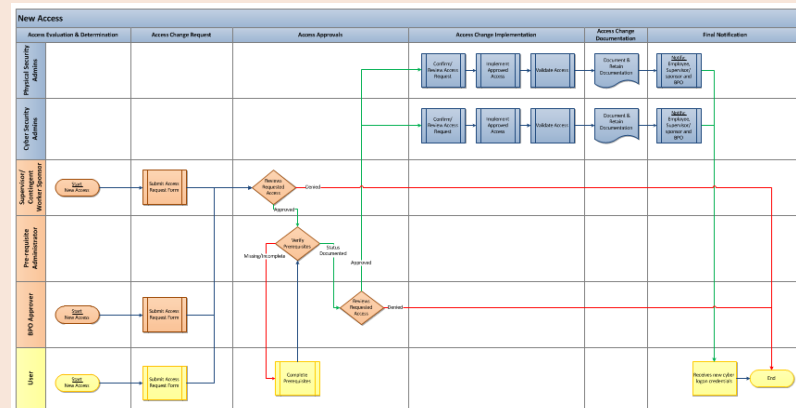
- Logical flow point of view
 - Algorithm modeling
 - Logic flow analysis
 - Process design applications



Swim Lane Map

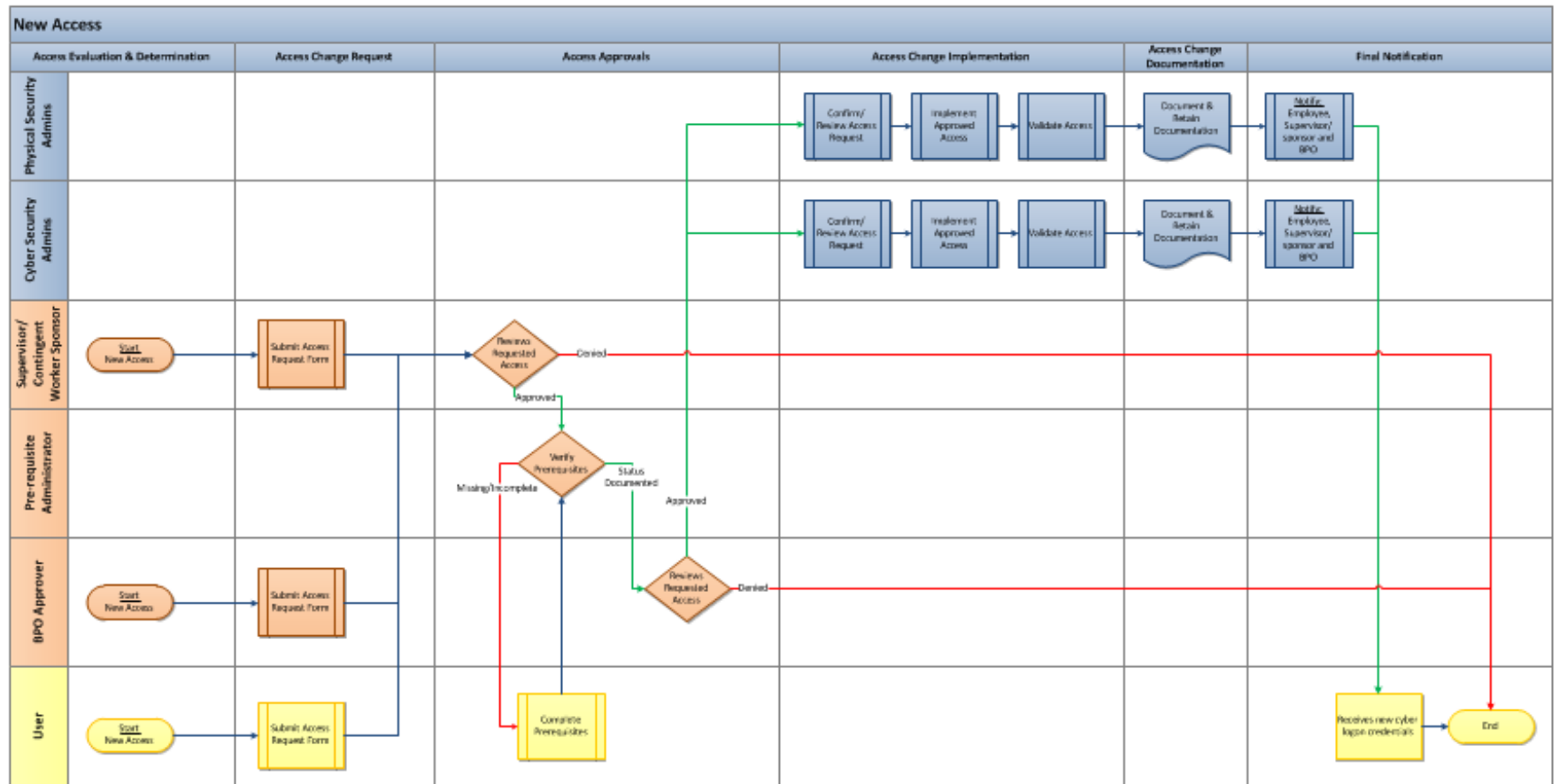
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- Map from the participants role point of view
 - Defines roles and responsibilities
 - Process flow
 - Work flow
 - Swim lane look



Example: Swim Lane Map

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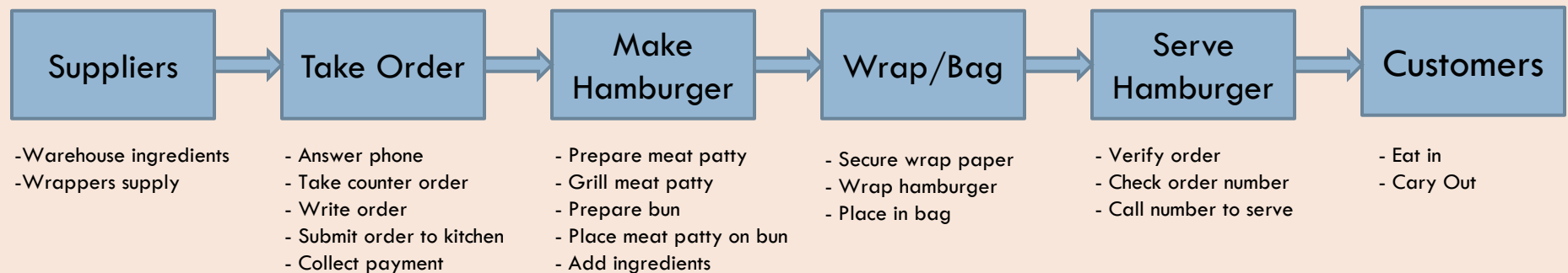


Top Down Map

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- High level work flow point of view
 - Major steps of process
 - Major activities at each step
 - Suppliers and customers identified in flow

Example: Ordering a Hamburger

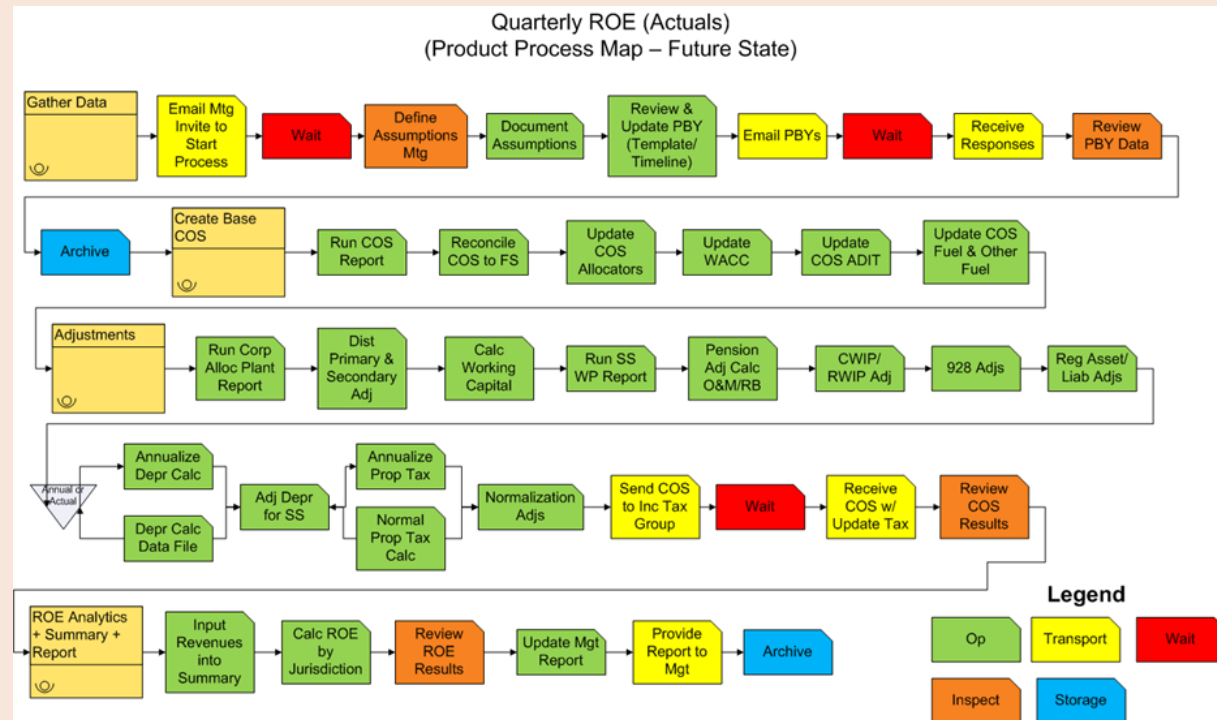


Product – Process Map

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- Map from the product point of view
 - ▣ Identifies what is happening to product
 - ▣ Value add analysis

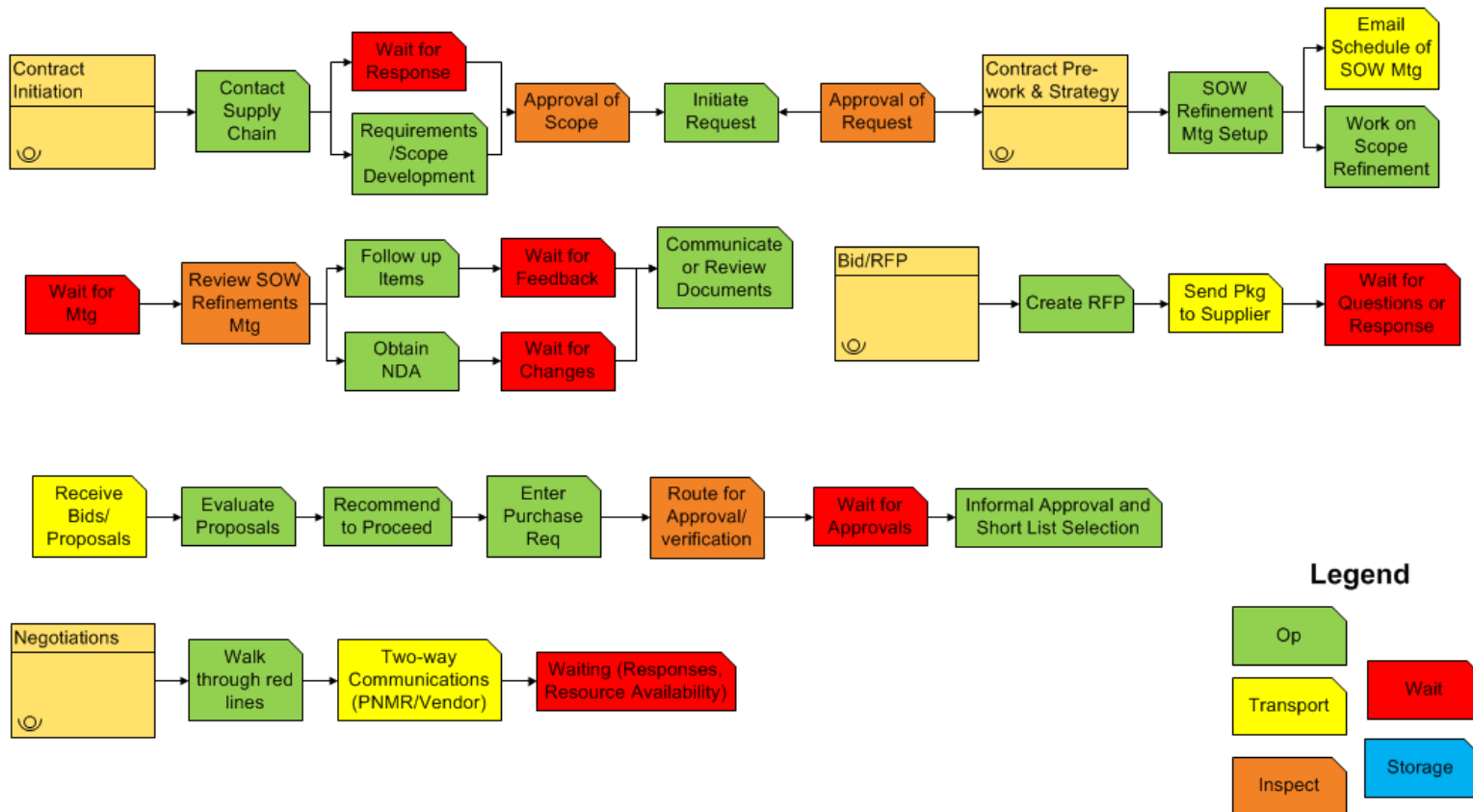
Card Color	Activity Type	Count	Total Time
Green	Operations		
Yellow	Transportation		
Orange	Inspection		
Red	Wait		
Blue	Storage		



Example: Product – Process Map

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Contract Process – Service Contract
(Current State Product Process Map 1 of 2)



Product – Process Map

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Completed Product – Process Map



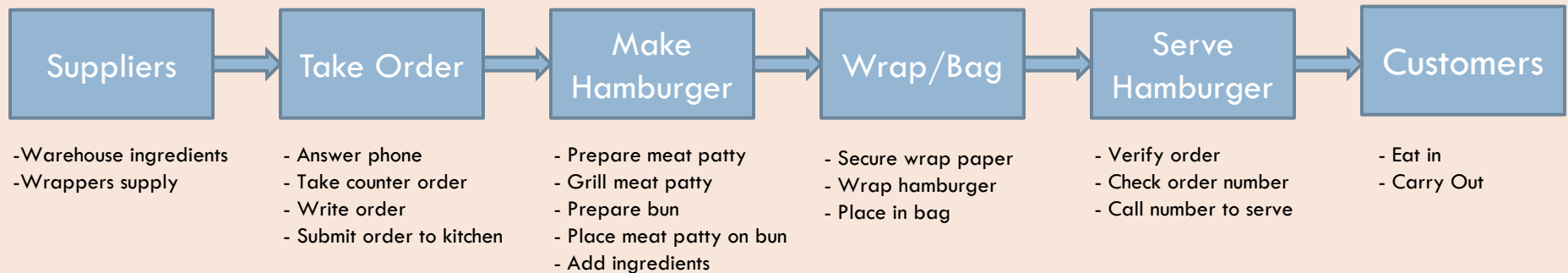
- Value add operations 14%
- Waiting 76%

Activity Map

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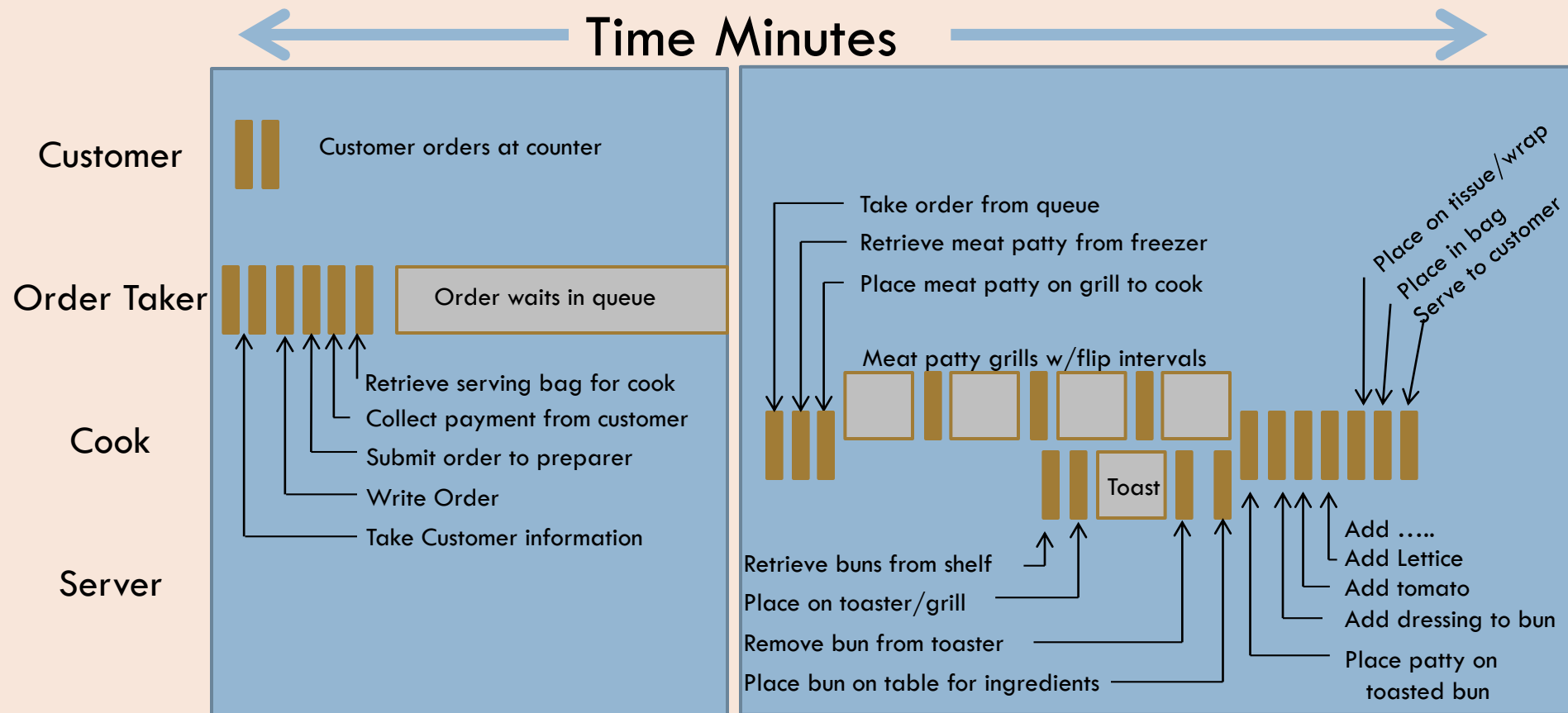
- Map from the operators activities perspective
 - ▣ Identifies how long activities take
 - ▣ Identifies connections or handoffs

Example: Ordering a Hamburger



Activity Map

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Cut post-it note evenly sized representing unit of time. Example one slice equals 15 seconds

Value Stream Map (VSM)

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□ What is a Value Stream

- ▣ A value stream is a list of all the actions required to bring a product or service to completion
- ▣ It is the way you do business!

□ Value Steam Map (VSM)

- ▣ A tool to create a map of your Value Stream
- ▣ It helps you understand all activities, connections, flows, and communications

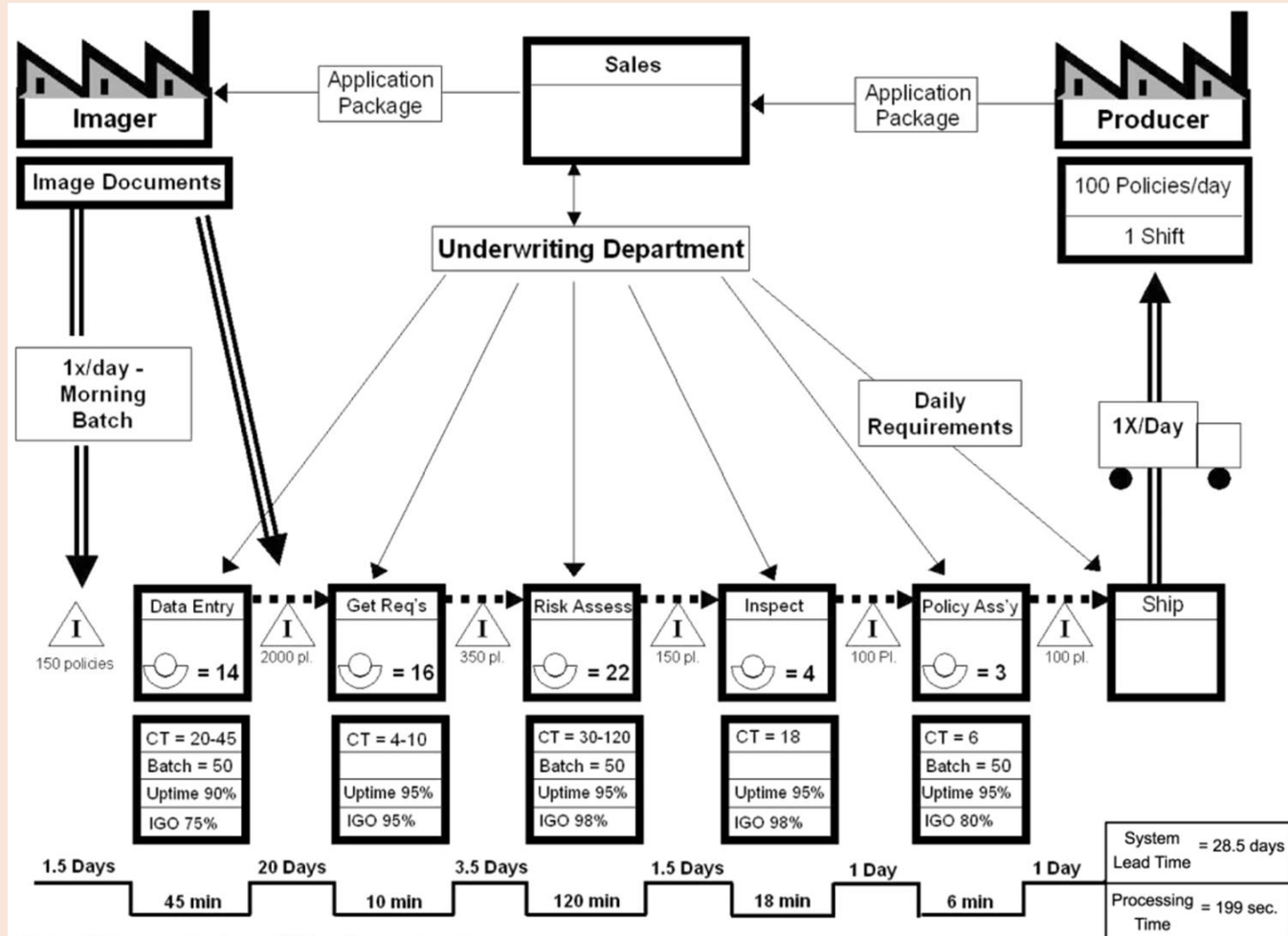
Unique Advantage of a VSM

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- Maps Communication flows
 - ▣ Communication flows are invisible
 - ▣ Often are chaotic and conflicted
 - Example: Multiple paths work is assigned to employee leads to redirection, frustration, defects, and waste
 - ▣ Communications are often taken for granted or assumed
 - ▣ Will not be improved without a focused effort

Underwriting Value Stream Map

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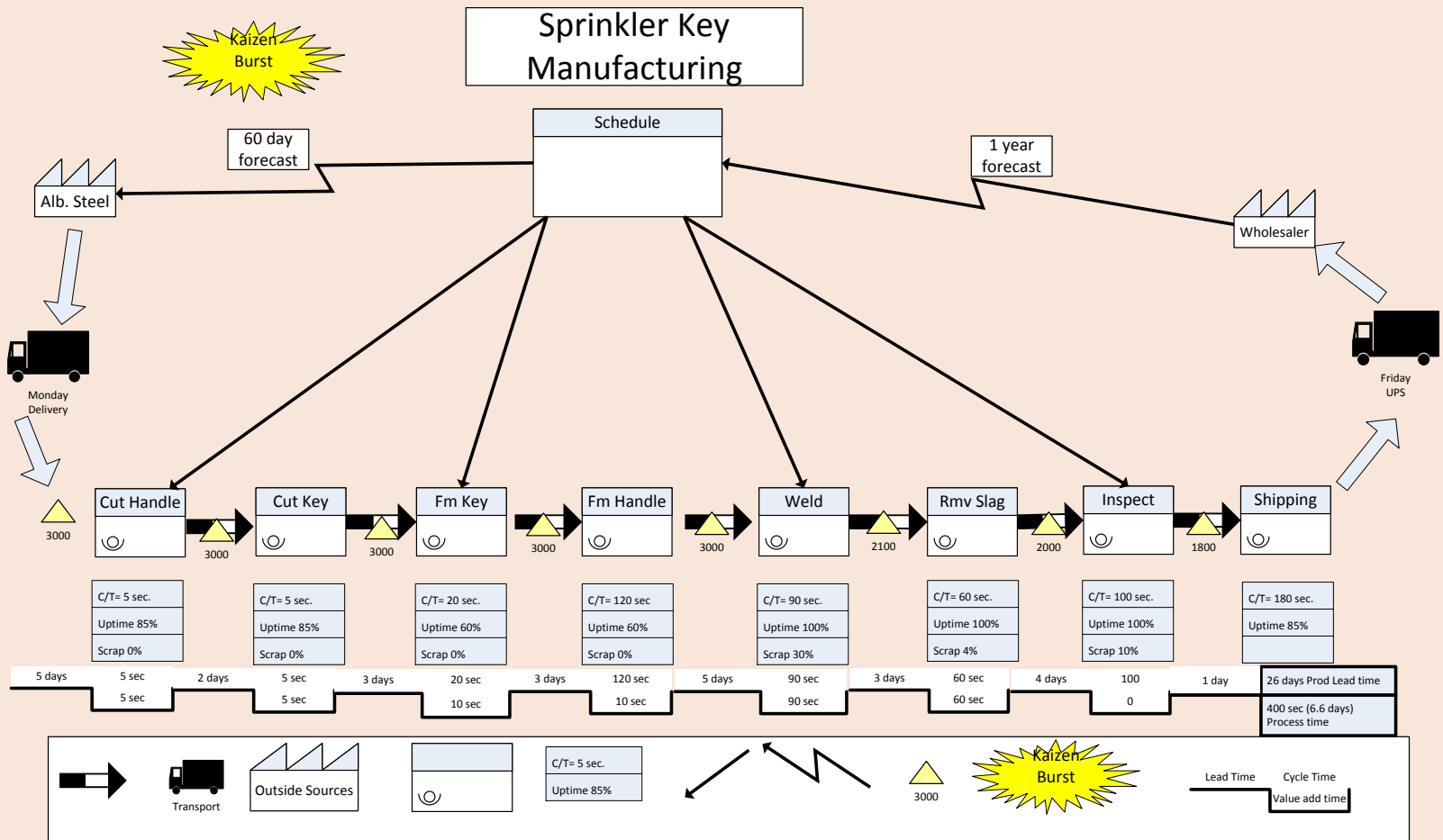
Note: C/T = cycle time; IGO = in good order

RandySimons1@gmail.com

Ortega93David@gmail.com

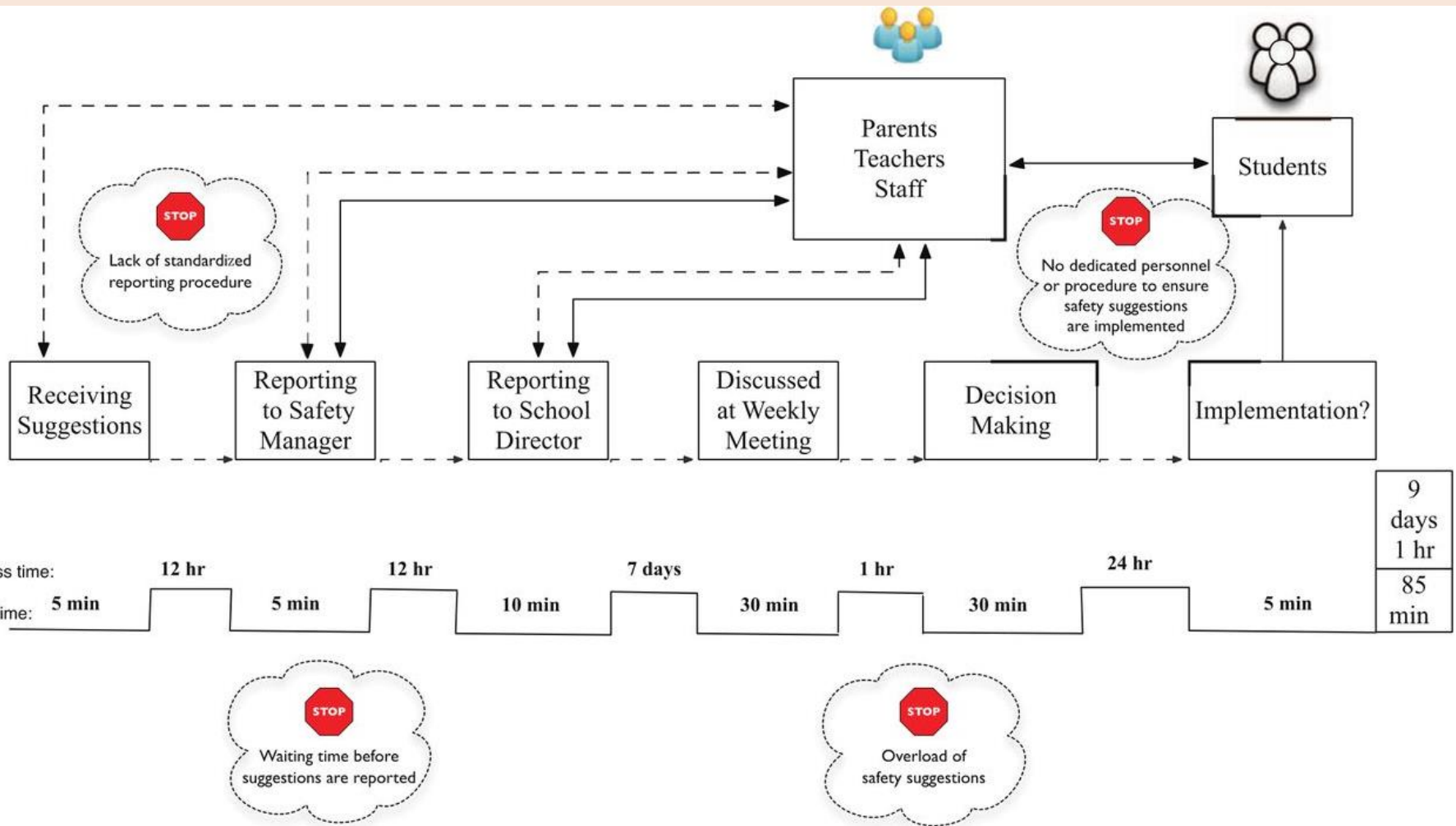
Manufacturing Value Stream Map

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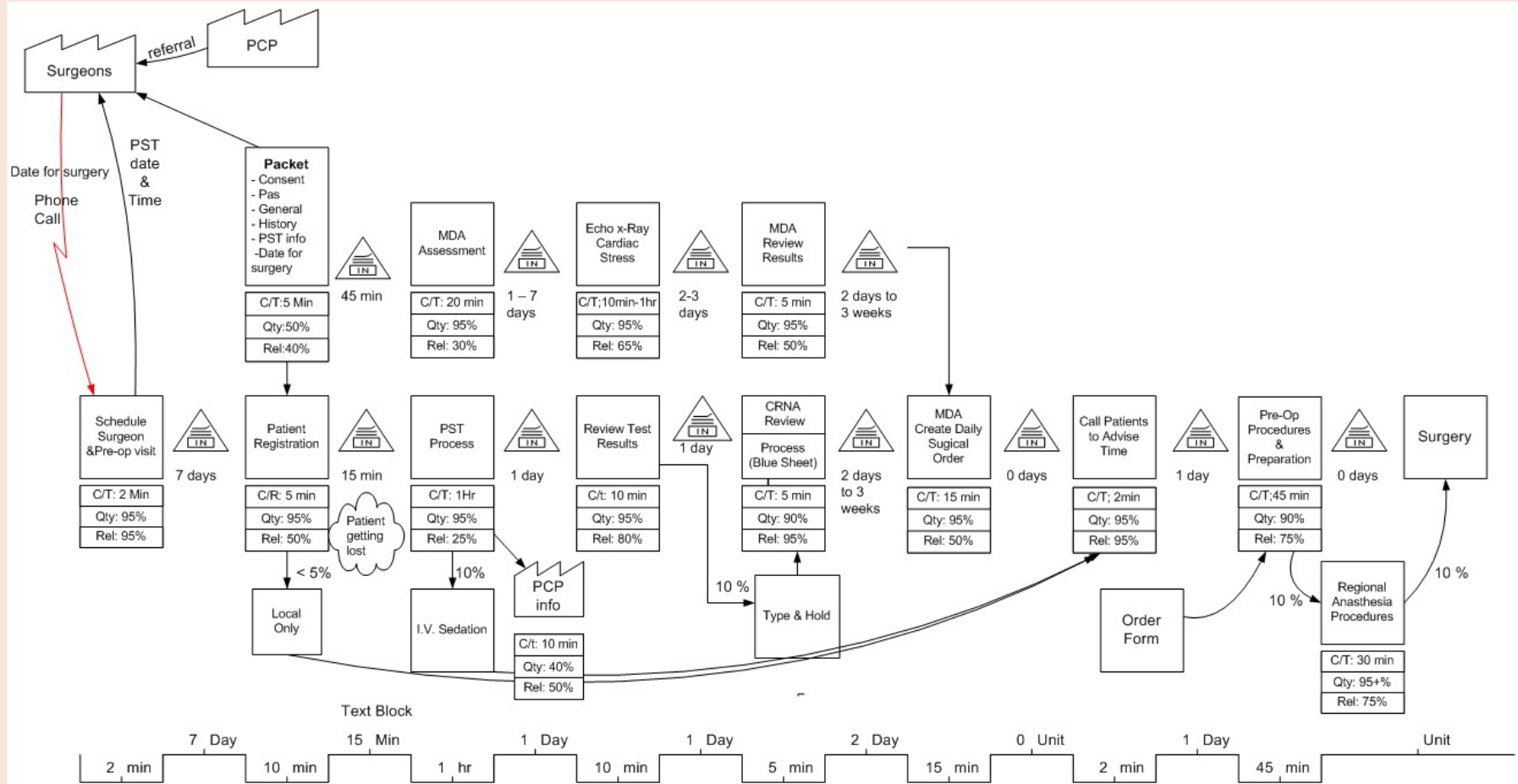
Education Value Stream Map

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Health Care Value Stream Map

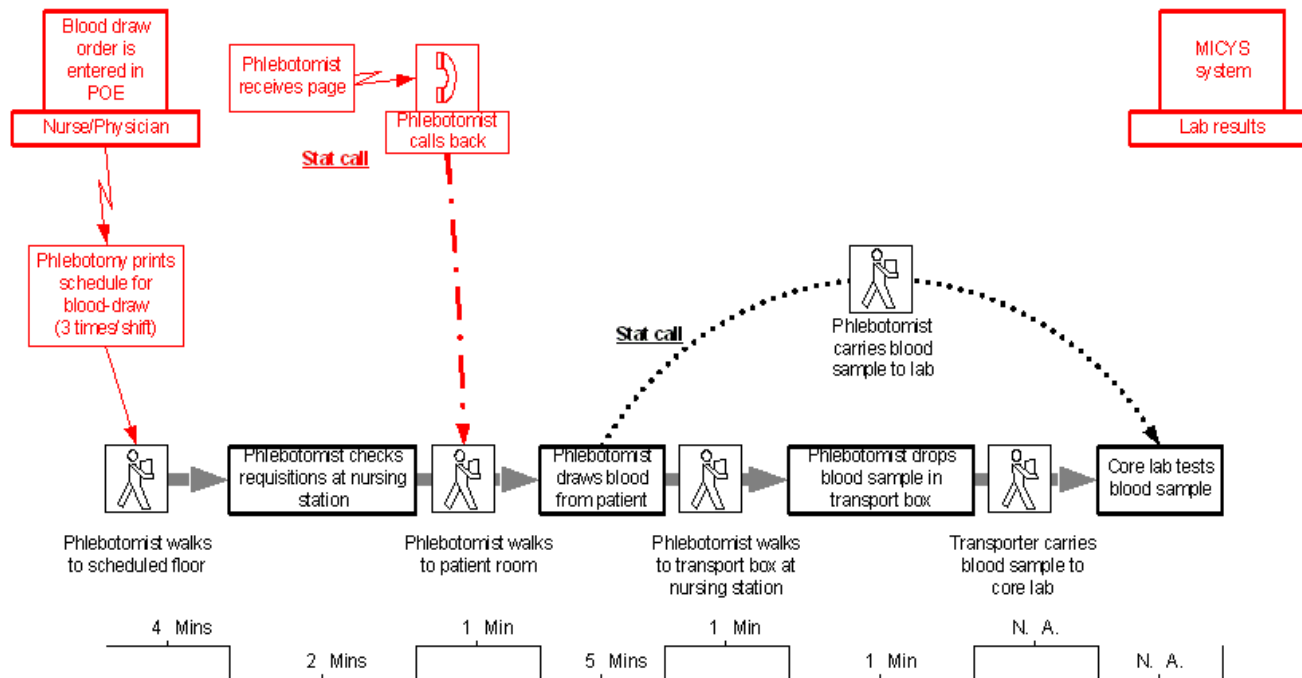
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Health Care Value Stream Map

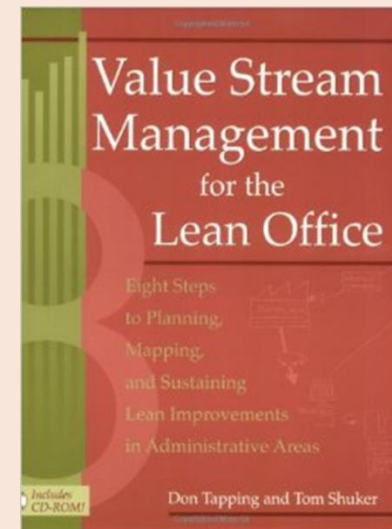
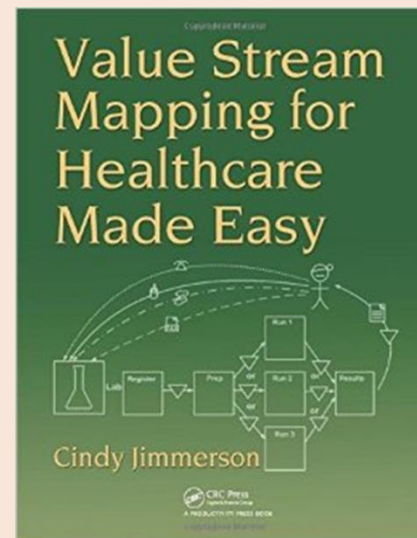
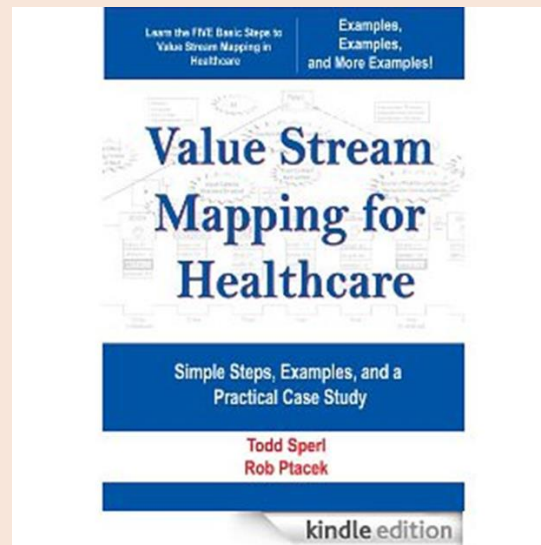
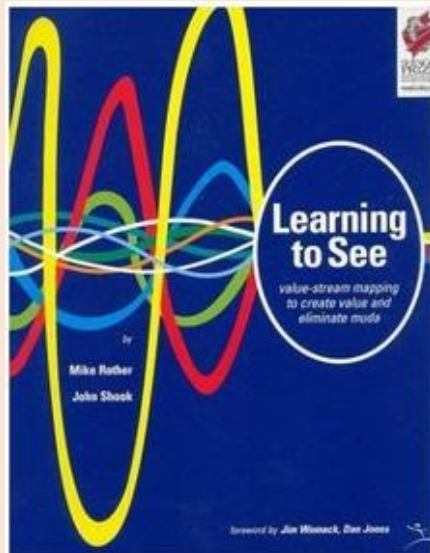
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PHLEBOTOMY HIGH-LEVEL VALUE STREAM
MAP (CURRENT STATE)



Reference Material

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Process Mapping Summary

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- Mapping enables you to directly observe work as:
 - Activities
 - Connections
 - Flows
- The mapping technique used will provide a unique perspective of the process
- Mapping surfaces and makes visible the waste inherent in every process
- Mapping sets the stage for improving the process and moving to a new and better future state

Questions

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