

Value Stream Mapping

Discovering Treasure Buried in your Process

Hosts: Alex Brown
Joe Justice

scruminc. Who We Are

Scrum Inc. is the Agile leadership company of Dr. Jeff Sutherland, co-creator of Scrum. We are based in Cambridge, MA.

We maintain the Scrum framework by:

- Capturing and codifying evolving best practices,
- Conducting original research on organizational behavior
- Adapting the methodology to an ever-expanding set of industries, processes and business challenges



Alex Brown

Joe Justice

We also help companies achieve the full benefits of Scrum through our full suite of support services:

- Training (Scrum Master, Product Owner, Agile Leadership, online courses, etc.)
- Consulting (linking Scrum and business strategy, customizing Scrum)
- Coaching (hands-on support to Scrum teams)
- Publishing and new content development

We run our services company using Scrum as the primary management framework, making us a living laboratory on the cutting edge of “Enterprise Scrum”

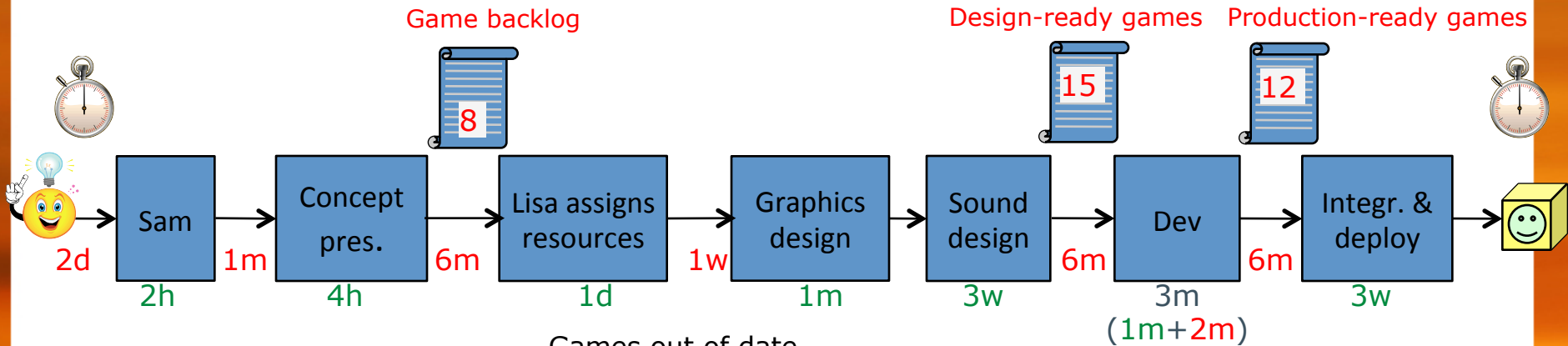
Find out more at www.scruminc.com.

Agenda

- Set the context for Value Stream Maps as a Scrum Master tool
- Share a step-by-step process for creating a VSM
- Illustrate how they are used
- Give LOTS of examples from different contexts

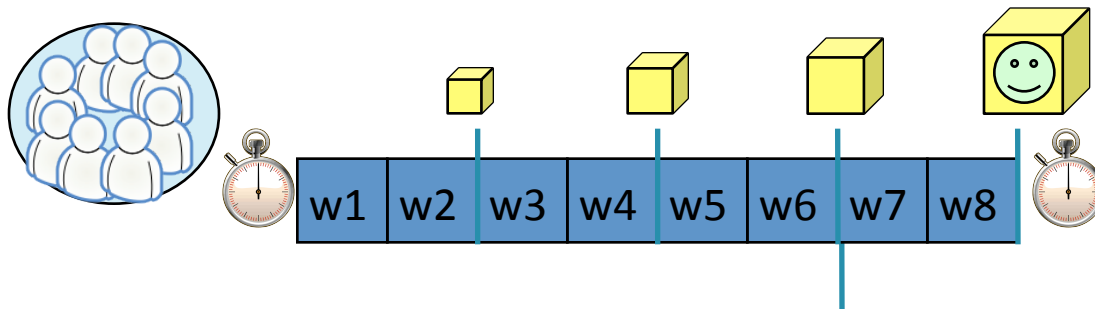
Motivational Example

Designing a New Video Game



Games out of date
 ⇒ Missed market windows
 ⇒ Demotivated teams
 ⇒ Overhead costs

$$\frac{3 \text{ m value added time}}{25 \text{ m cycle time}} = 12\% \text{ Process cycle efficiency}$$



Estimate

$$2 \text{ m cycle time} = 12\text{x faster}$$

Preliminary result

$$3\text{-}4 \text{ m cycle time} = 6\text{-}8\text{x faster}$$

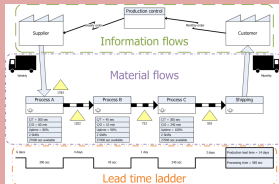
Source: Henrik Kniberg

VSM is One Tool in Scrum Master's Toolkit

Title: Circle, self-explanatory	Owner: Name: Date:
Background: Why is this important? Why should the reader care about this diagram and be motivated to participate in improving?	Countermeasures (Experiments): Proposed countermeasures to address each condition not state. They should be a series of quick experiments to identify causal relationships. Identify where in the cause-effect model changes are possible and likely to significantly improve the overall situation. Project results for each countermeasure.
Current Condition: How do things work today? What is the problem?	
Goal / Target Condition: What outcomes are expected for what reasons? What changes in metrics can be plausibly expected?	
Root Cause Analysis: What is the root cause(s) of the problem? Ask a team to create a fishbone diagram, a cause-effect network to show cause-and-effect relationships.	

The A3 Process

This tool is a great way to find the root cause of more complex impediments and can help align an organization around their removal.



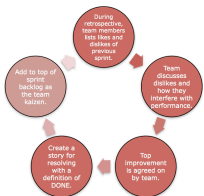
Value Stream Mapping

VSM enables you to identify breakthrough improvements in value delivery and process effectiveness. Regular use will ensure your processes are working for you and not against you.



The Happiness Metric





This metric helps drive continuous improvement by highlighting impediments that are brining down morale. It is one of the few leading indicators of what *will* happen, as happiness is a multiplier for velocity!



Scrumming the Scrum

Use the principles of Scrum to improve your scrum. Scrumming the Scrum enables your team to build a foundation of best practices by iterating on its process each sprint.

Steps for Completing a Value Stream Map

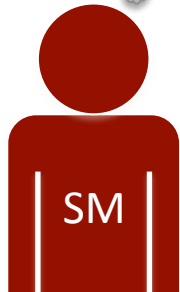
- 1 Pick a process to map
 - Tip: Think of your biggest impediment and map the process associated with it
- 2 Identify each action or activity needed to complete the process
 - Get all stakeholders needed to understand the full process in one room
 - Distinguish between value adding, queuing, and overhead activities
- 3 Refine – Split, combine and/or verify activities to ensure accuracy 
- 4 Make the Stream – Combine activities in chronological order 
- 5 Measure and record how long each activity takes 
 - Be sure to include lag or waiting times between activities
- 6 Calculate “Process Efficiency,” “Value Density” or other metrics
- 7 Retrospective on the full process 
 - From customer perspective, what is working and what is slow or frustrating?
 - Develop prioritized backlog of proposed improvements
- 8 (Optional) Build a forward-looking VSM of the process after planned improvements and update the estimated PE & Value Density

Step 1: Pick a Value Stream to Map

Are there processes that we believe to be inefficient, or sub-optimal?

Are processes not delivering a high return of customer value per effort?

What process is associated with our biggest team impediment?

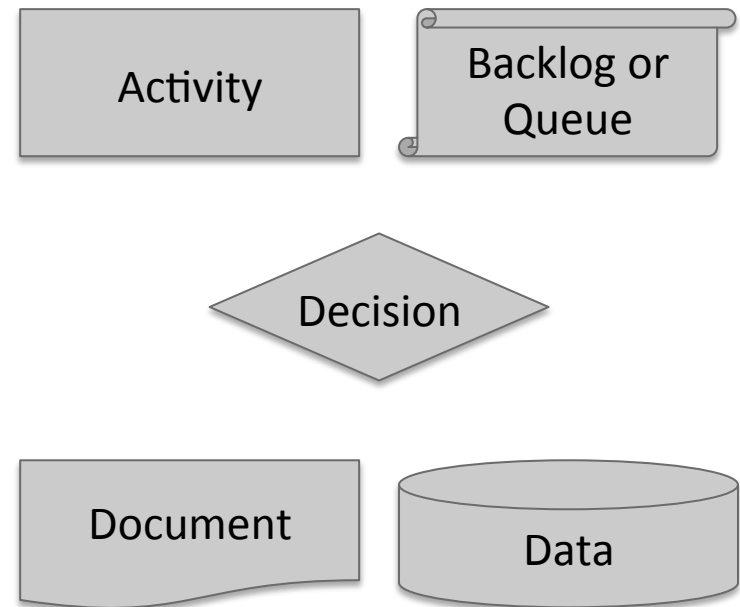


Remember...

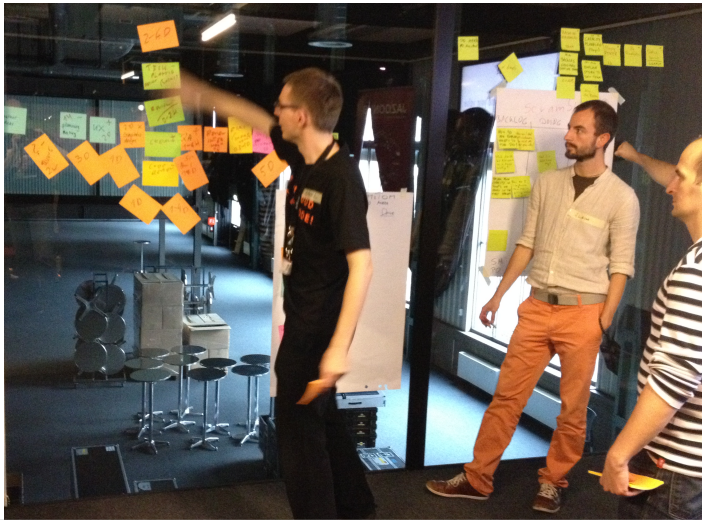
- You can map a process, a subset of processes, or a process of processes!
 - Important to pick the right process definition to optimize
- VSMs are a tool of continuous improvement
 - Highly successful organizations use them often
 - Don't be afraid to create a new VSM, they get easier with practice

Step 2: Identify Each Action in the Process

- Essential to have stakeholders with visibility into all process steps participate!
- Remember to include and distinguish between value adding, waiting, and overhead activities
- Helpful to use standard process flow symbols and color coding to clarify meaning
- Often useful to start at end delivery to customer and work backwards up the process flow



Step 3: Refine, Split, and Combine

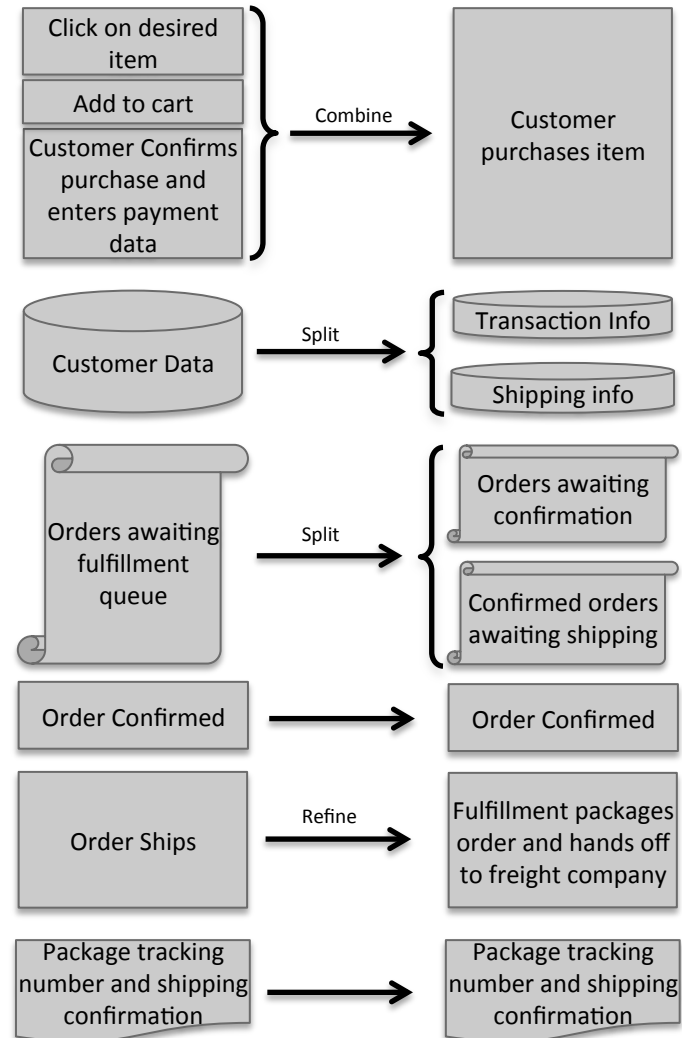


Goal: The simplest VSM that provides enough detail to assess the situation

A few questions to keep in mind when refining:

- Does variability built into one activity result in different potential outcomes?
- Do activities bake in waiting time that should be treated explicitly?
- Do identified activities give us what we need to have a discussion about the process?

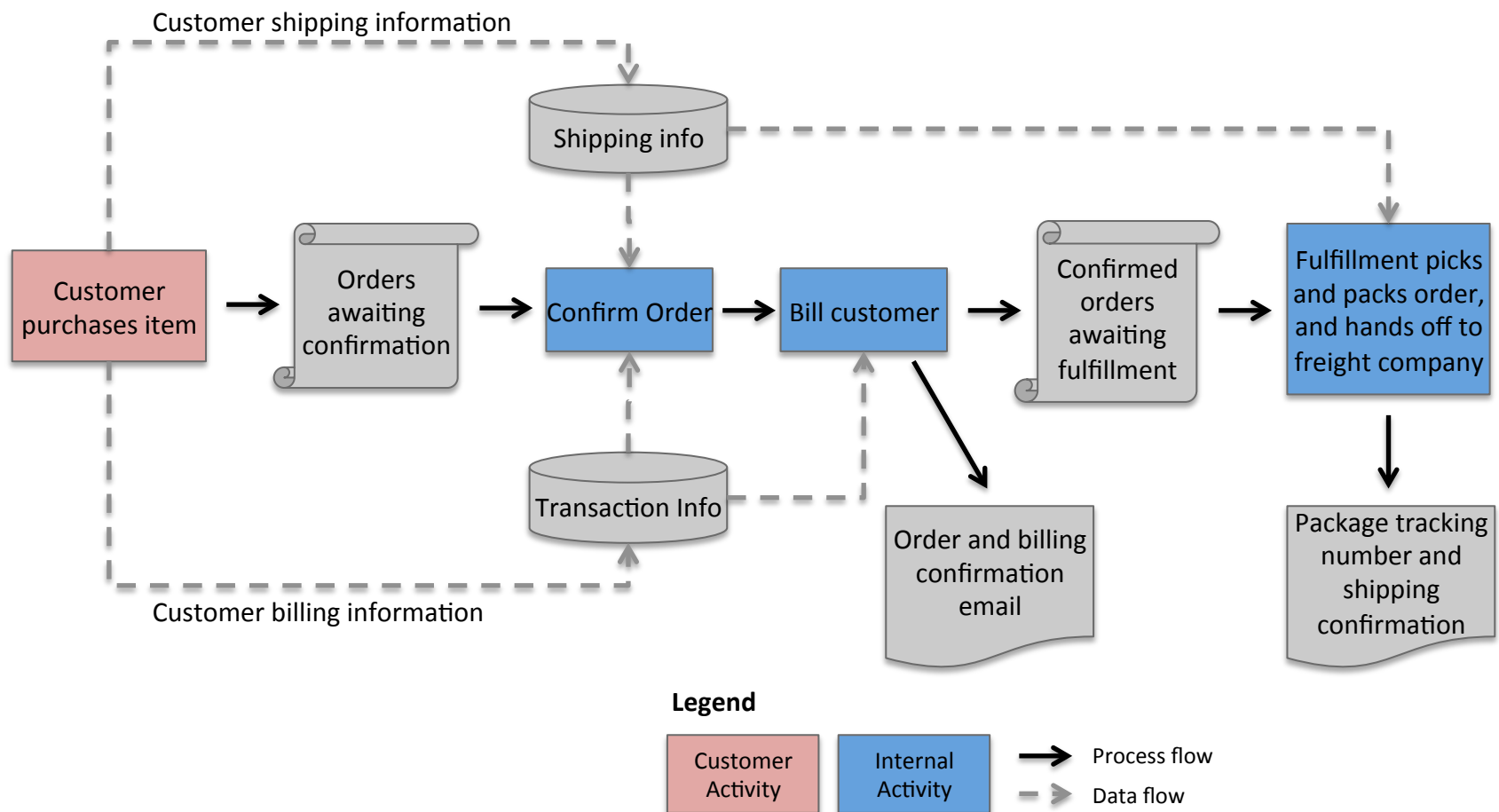
Repeat as many times as needed to align



Step 4: Make the Stream

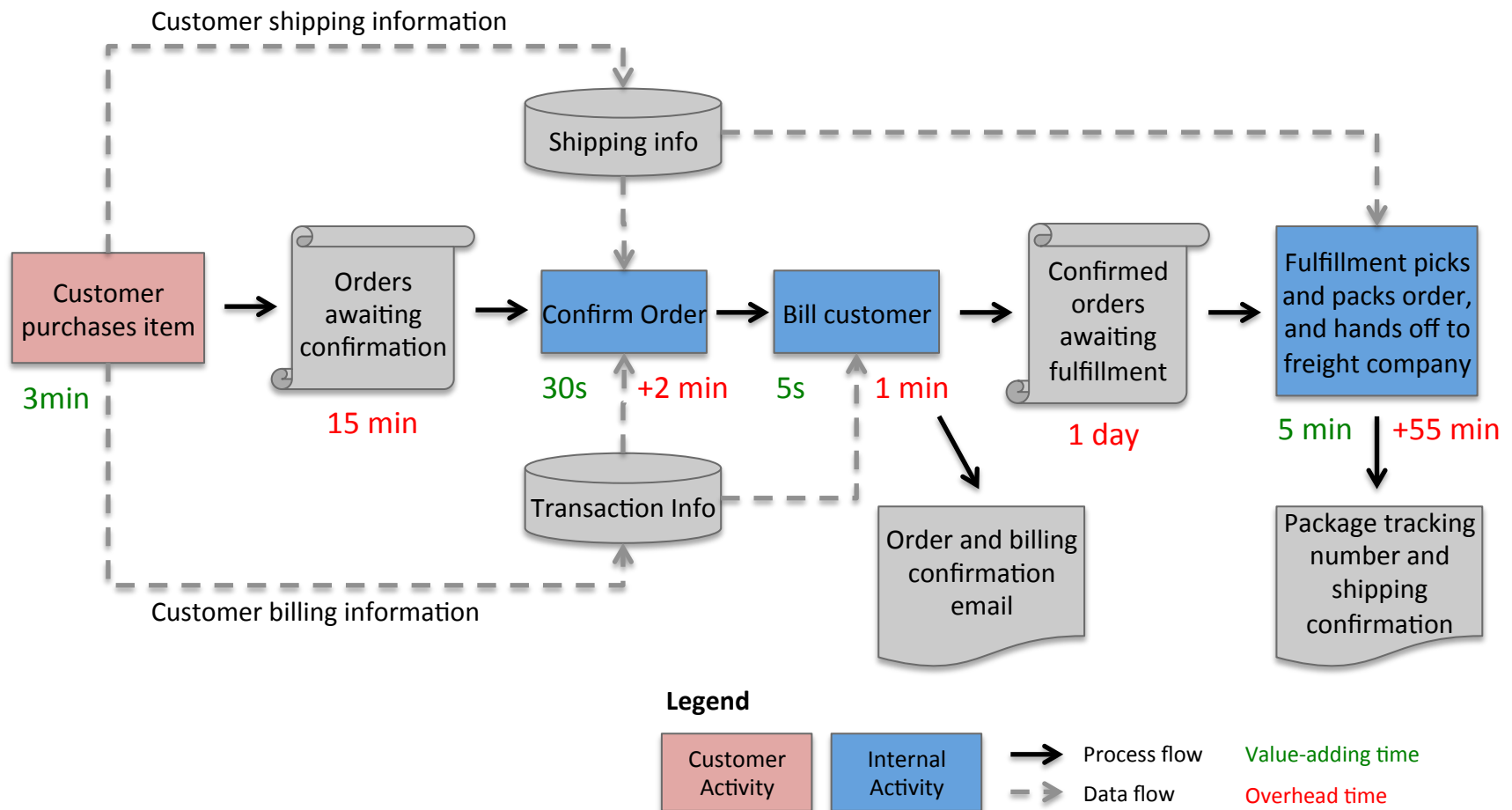


- Add order and decision logic connecting your identified activities
- Track information as well as process flows



Step 5: Measure and Record Duration

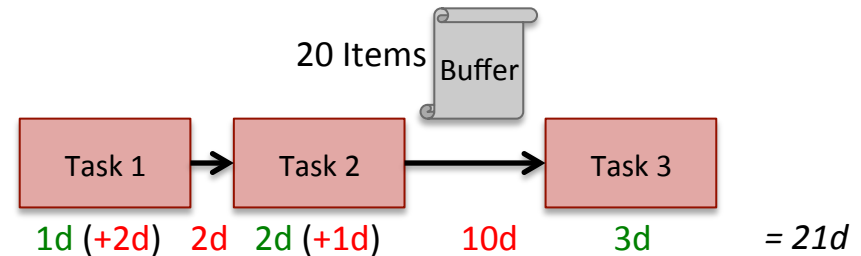
- Distinguish between “value adding” vs. waiting or other overhead times
- Measure actual processing times, not theoretical or ideal ones



Step 6: Calculate Process Efficiency, Value Density or Other Metrics

Process Efficiency

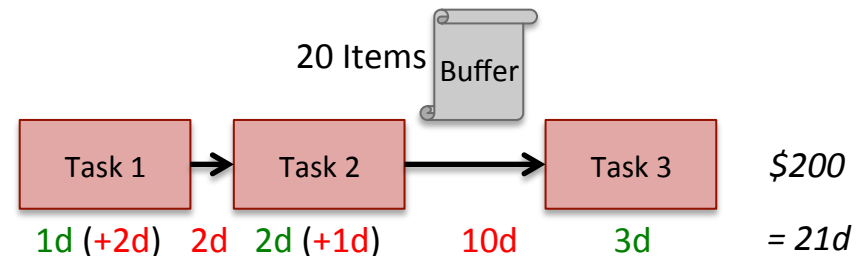
What percentage of total cycle time is consumed by actions that generate customer value?



$$\frac{\text{Value Adding Time} = 1d + 2d + 3d = 6d}{\text{Total Cycle Time} = 1d + 2d + 2d + 2d + 1d + 10d + 3d = 21} = 28.6\%$$

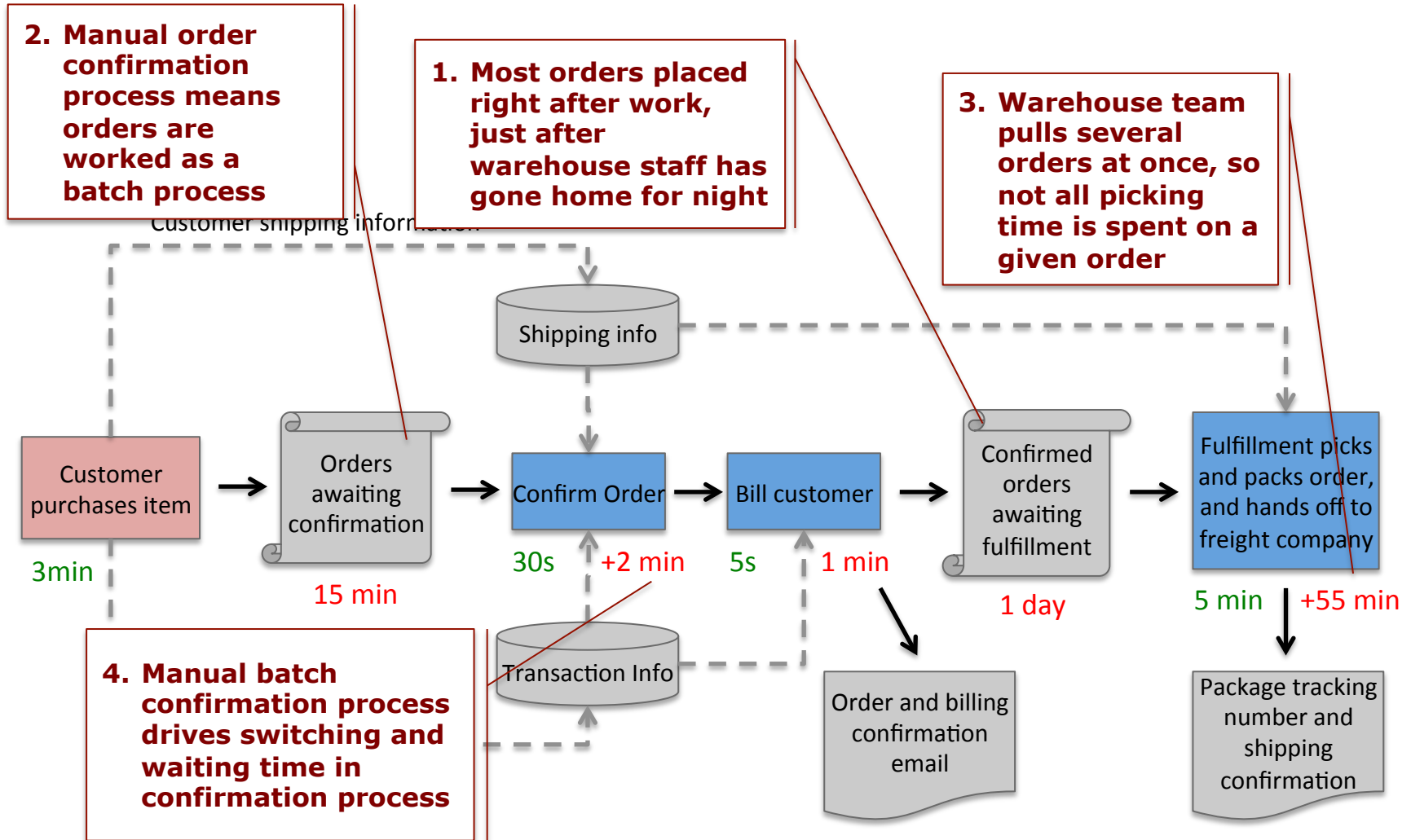
Value Density

How much customer value does the process create per unit of effort/investment?



$$\frac{\text{Customer Value Created} = \$200}{\text{Total Cycle Time} = 21 \text{ days}} = \$9.52 \text{ per day}$$

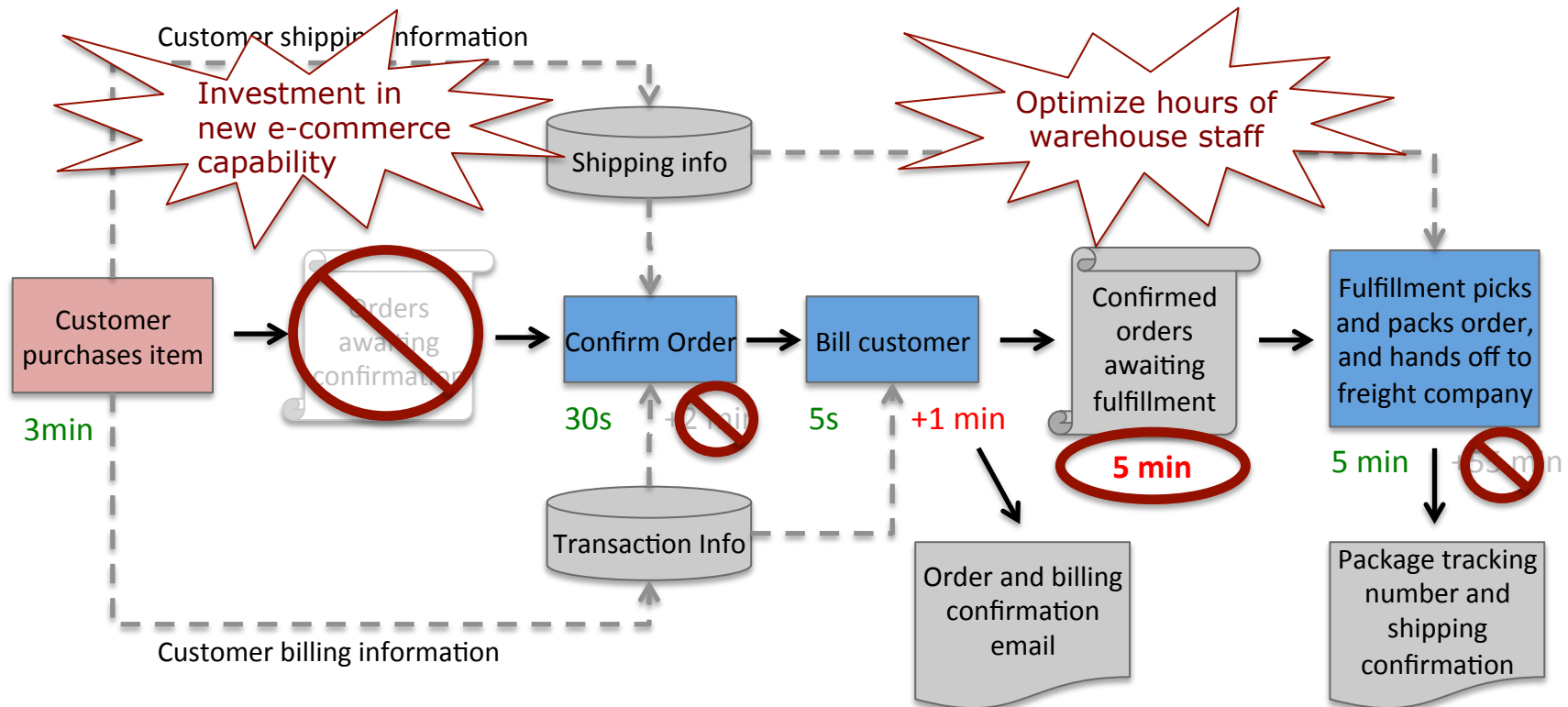
Step 7: Conduct a Process Retrospective



Current Process Efficiency = 0.6%

Step 8: Build a Forward-Looking VSM (optional)

- If organizational alignment needed (e.g. to support investment) a VSM can be used to illustrate the magnitude of the benefit



Current Process Efficiency = 0.6%

Future Process Efficiency = 59%



Customers get near-instant order confirmation and their orders arrive more than a day sooner!

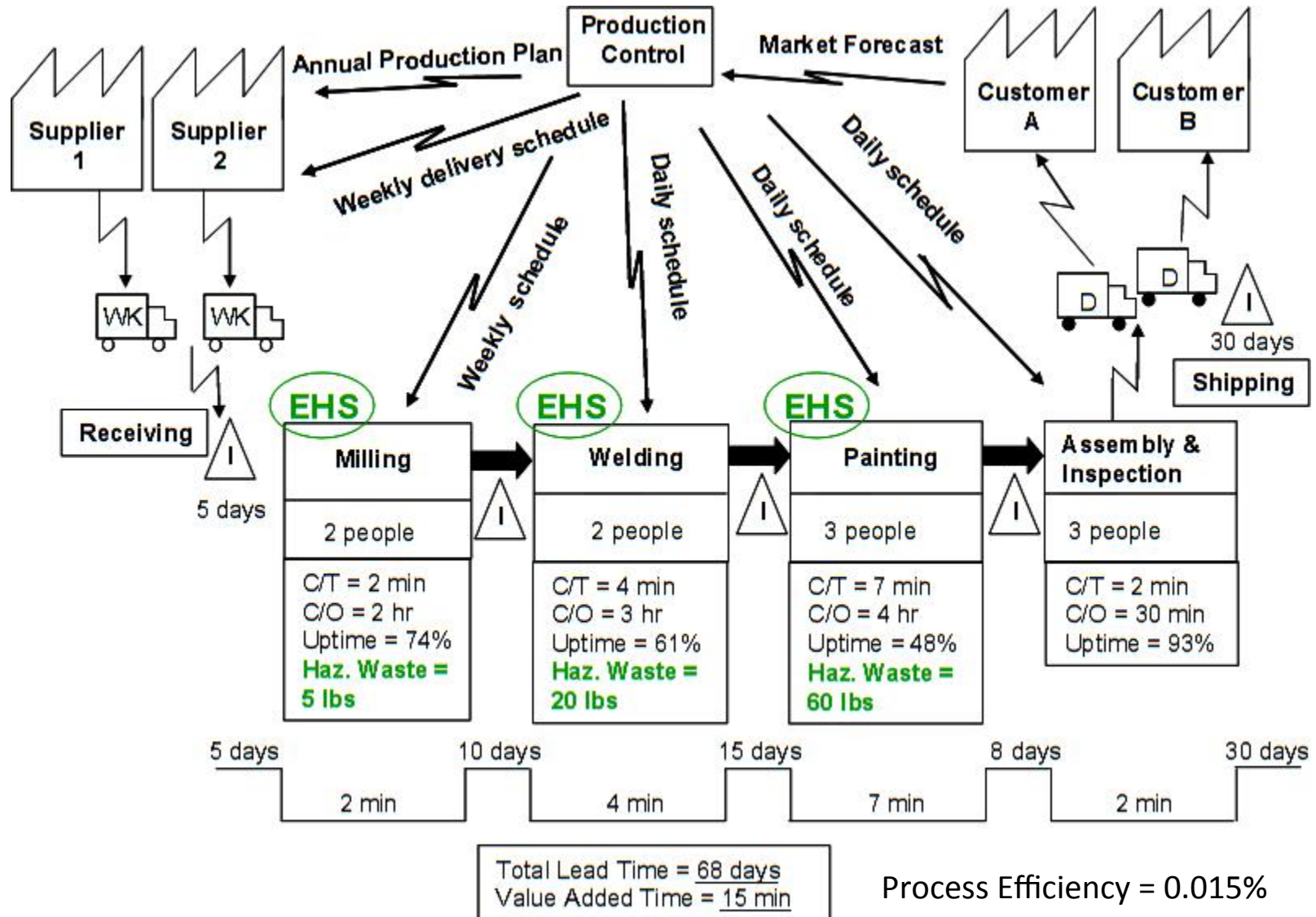
What to Do with a VSM Once You Have It

- Add prioritized issues identified by VSM to impediments backlog
- Address each impediment one at a time in priority order
 - Don't implement all solutions at once!
 - Complex adaptive systems often have unanticipated connections between elements
- Update your VSM to illustrate the new reality
 - Useful for confirming hypotheses
 - Makes progress transparent
- Repeat retrospective process to inspect and adapt proposed countermeasures, as needed
- Don't forget to celebrate your successes!



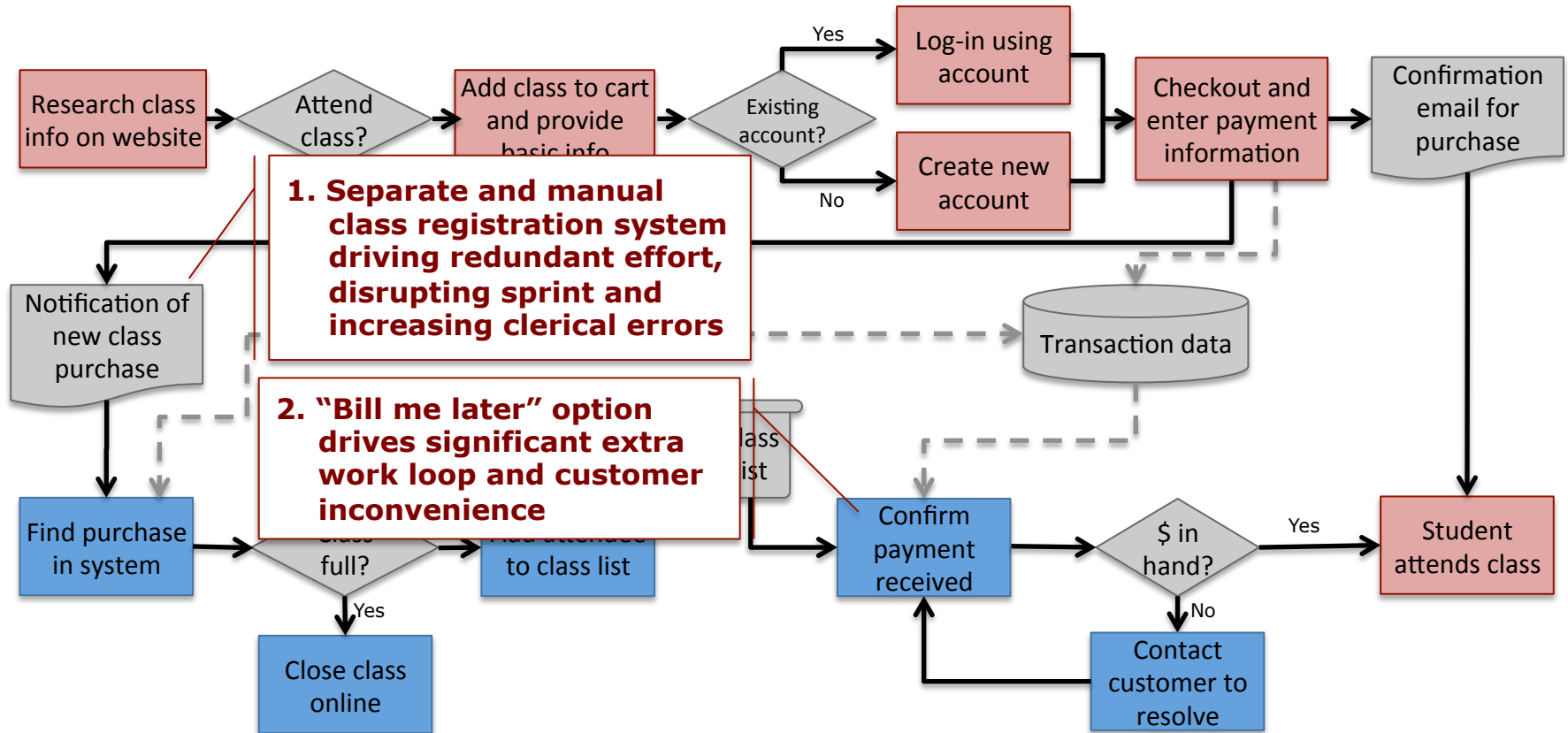
VSMs Work in Many Different Contexts

Physical Manufacturing Example



VSMs Work in Many Different Contexts

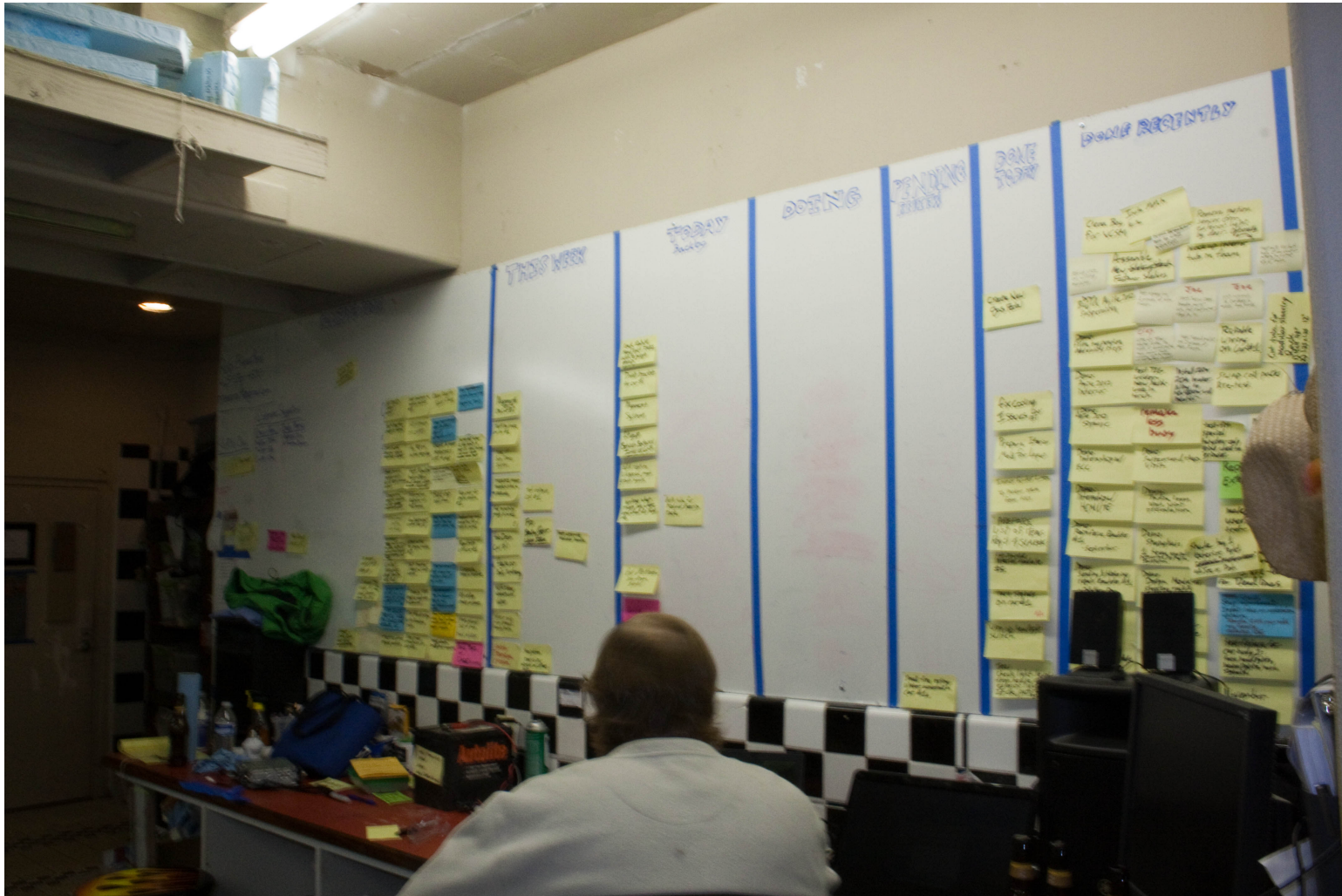
Services Business Example



Save 10 pts/sprint (5% of team velocity)

Equivalent to \$125,000/yr. at current team value generation rate!!!

Taking it to the Next Level: A Living, Visible VSM



Set your Scrum Board up to mirror the steps of your current VSM!

Conclusion

- VSMS are a versatile and extremely useful tool in the Scrum Master's toolkit
- Allows the team to systematically visualize and quantify macro issues that slow teams down or degrade customer value delivery
- VSMS can uncover opportunities for breakthrough improvement
- How you use a VSM can differ by the problem you are trying to solve, the nature of the required solution, and the organization itself
- But don't shortcut the process, or you risk missing out on many of its potential benefits

Questions?



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