

October 24, 2023











"LCI would like to acknowledge and thank Felipe Engineer-Manriquez of the Boldt Company and Stephanie Roldan of Rosendin Electric for their leadership, work, and collaboration to create this workshop. Learning opportunities like this exist because people like Felipe and Stephanie engage to create them."

> -Kristin Hill, LCI, Director Education Programs





Felipe Engineer-Manriquez

Co-Developed
Registered Scrum
Master™ (RSM) for
Construction
Professionals



https://thefelipe.bio.link/











LCI Chairman's Award Recipient



International Scrum Training
Virtual or In-Person







Dr. Jeff Sutherland Inventor and Co-Creator of Scrum and Scrum@Scale



LCI Course: Ready, Set, Go Scrum 4 CEU

Sign the sign-in sheet for credit



Learning Objectives





Gain an overview understanding of the Scrum framework and terminology.



Understand the relationship between Scrum and Lean.



Experience hands-on application of Scrum.



See the path to use the Scrum framework individually and/or with your teammates.

But wait, there's more...

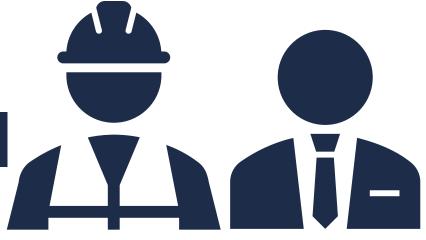
Introductions via Post-it notes



My name / role is...

Felipe
Project Delivery
Support
10+ | 25+

is the one thing I must learn in this session.



years Lean experience



years in industry

ean Construction Institute mmersive Education Program

Rules of Engagement



This is a safe zone



Everyone has equal status



Speak up and share your ideas



Actively listen to others



One conversation at a time



Use E.L.M.O.



Silence phones



Be focused and engaged



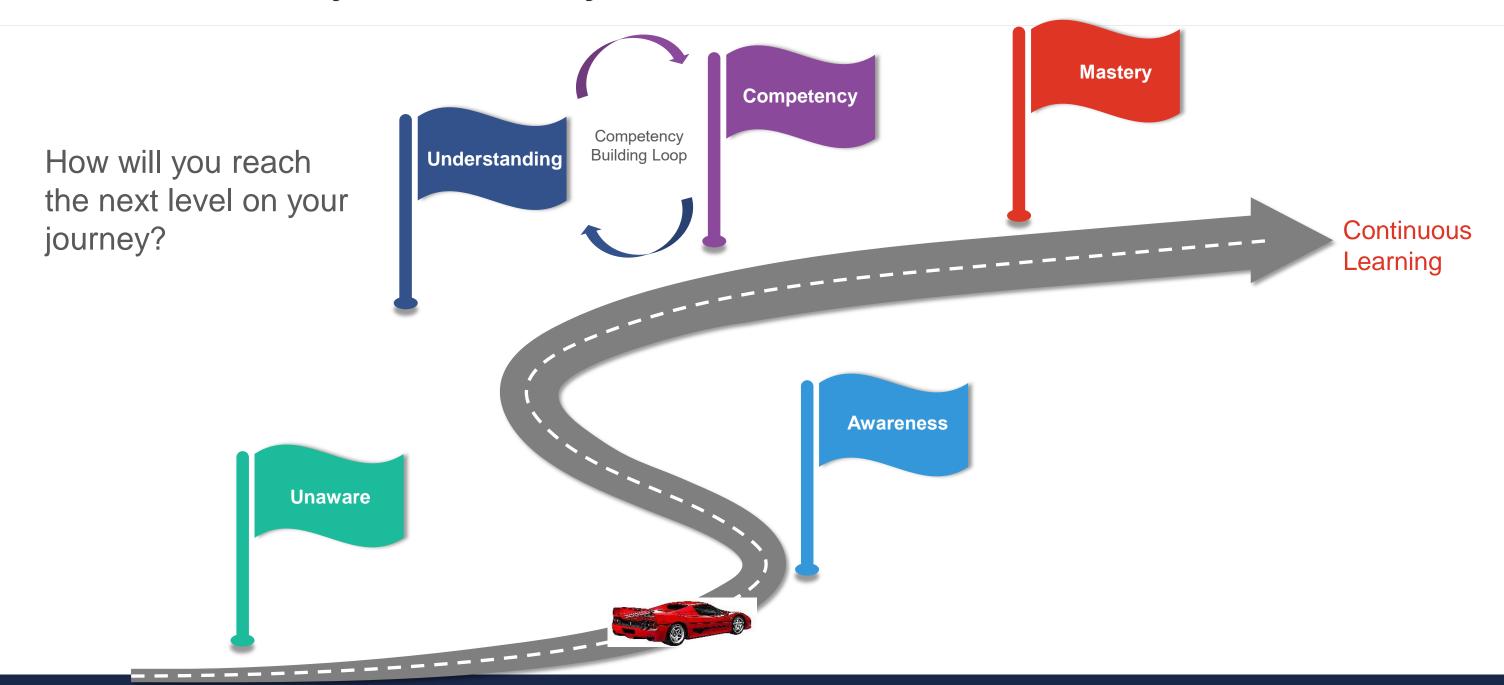
Stay on time



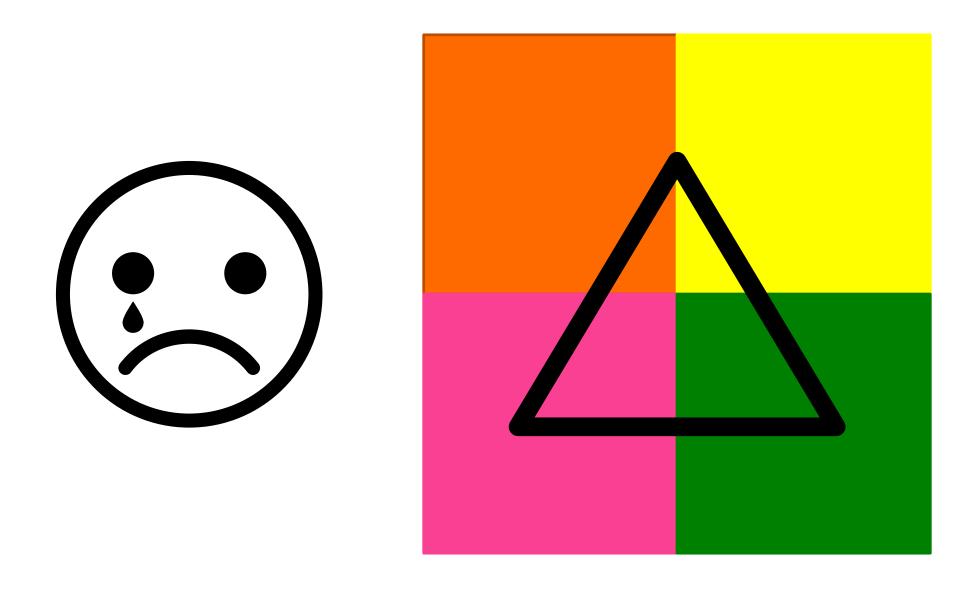
Have fun!

Lean Journey to Mastery





Simulation: Management Trauma – Team Shapes Game



Based on an exercise by Fredrik Lindgren

Team Shapes:

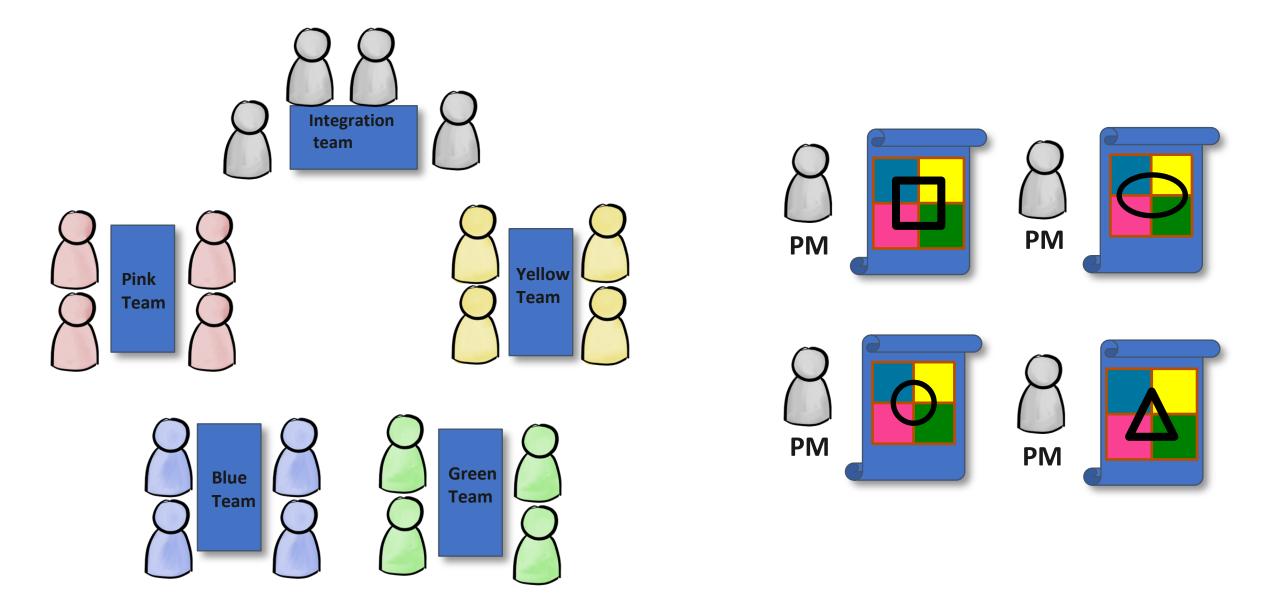
Role Self-Selection



Sit 6 people at a table:

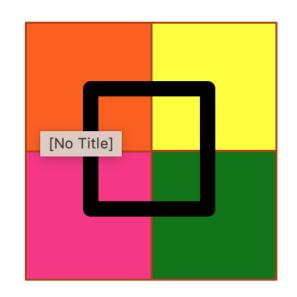
- 1. Each person picks a unique Post-it note color (4 people, 4 colors and you can only touch or draw on your own color).
- 2. One remaining person at each table identifies as an Integrator (only you can touch the white paper, you may touch the colored Post-its but cannot draw on them).
- 3. The remaining people are now Project Managers. Please report to the PMO to get your projects that must get done.
- 4. Wait for directions.

Traditional Organization: 24 people

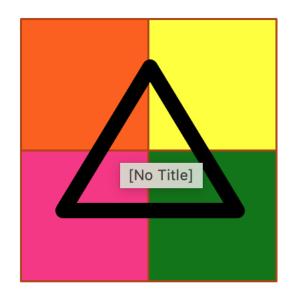


Round One: 4 Minutes

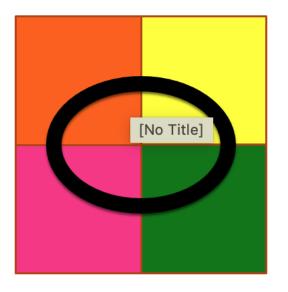
Record Results:



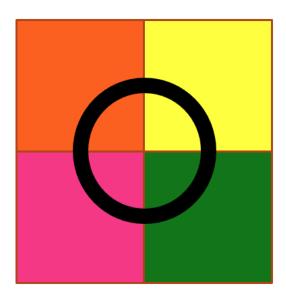
Total Shapes Made _____
Total Quality Makes _____



Total Shapes Made _____
Total Quality Makes _____

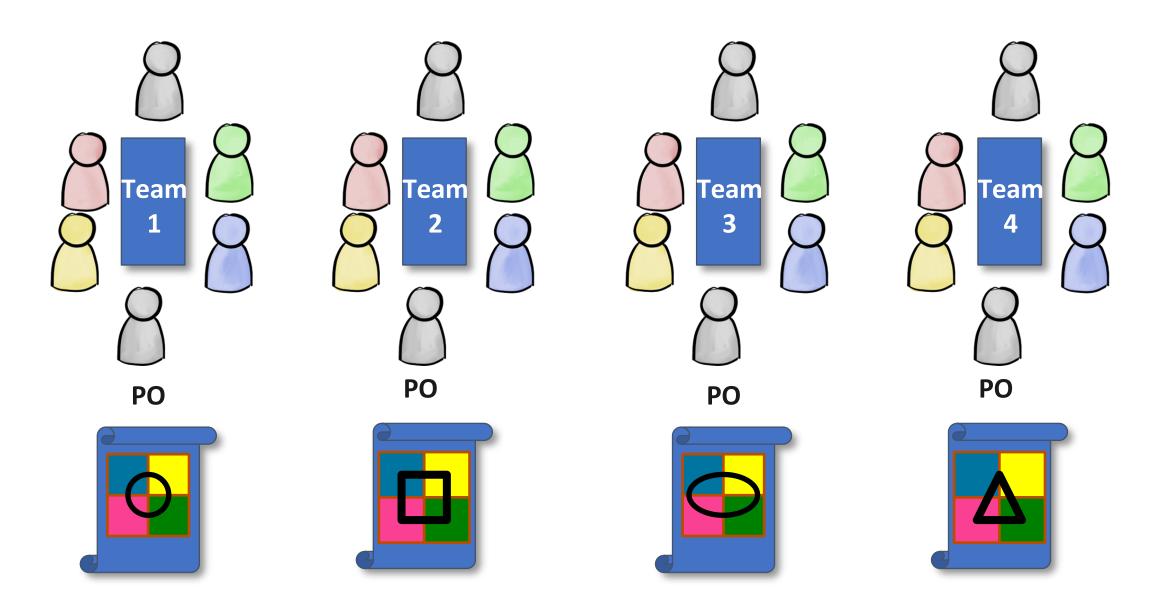


Total Shapes Made _____
Total Quality Makes _____



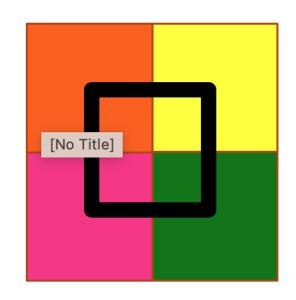
Total Shapes Made _____
Total Quality Makes _____

Single-skill Teams vs Cross-functional Teams

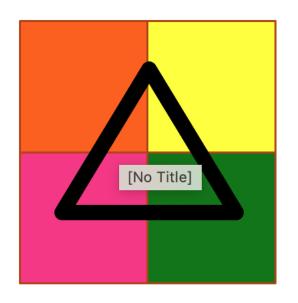


Round Two: 4 Minutes

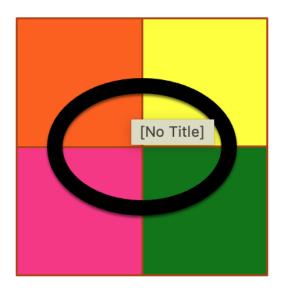
Record Results & Debrief



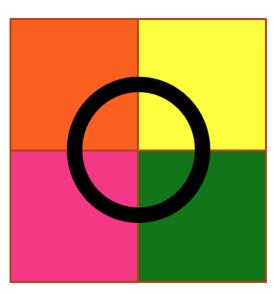
Total Shapes Made _____ Total Quality Makes _____



Total Shapes Made ____ Total Quality Makes _____



Total Shapes Made _____ Total Quality Makes _____



Total Shapes Made _____ Total Quality Makes _____

Total Shapes Made _____ Total Quality Makes _____ Total Shapes Made _____ Total Quality Makes _____

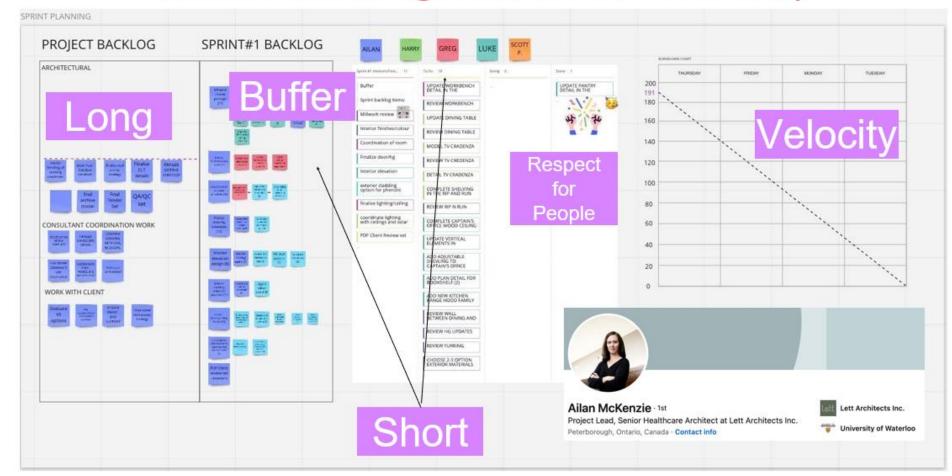
Total Quality Makes _____

Total Shapes Made ____ Total Shapes Made ____ Total Quality Makes _____

Questions?



Scrum In Design for More Creativity









https://thefelipe.bio.link/

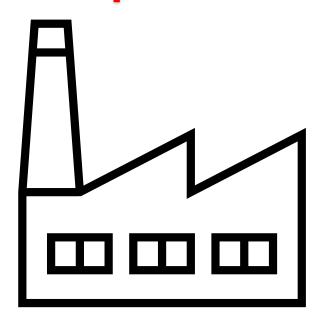


WARNING

Using Lean principles and Agile methods result in increased capacity.

More time to improve, optimize, and coach others will be YOUR problem.

Felipe Co.



Exercise: Getting Work Done

Requirement: Write the Arabic numerals "1" to "10", the Roman numerals "I" to "X", and the Letters "A" to "J"

Time how long it takes to complete all steps using two different work policies...

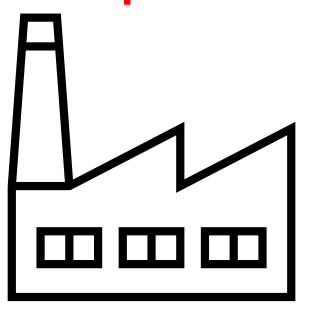
Working
Smarter @
Felipe's
Company



2

Concept: If waiting is a form of waste, we should do everything at once in big batches. Never keep a customer waiting.

Felipe Co.



Policy A: Never keep a customer waiting

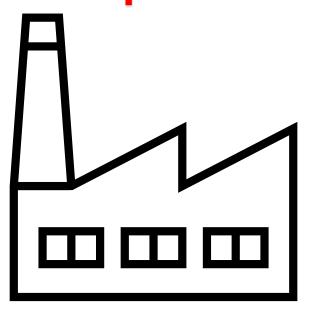
	Arabic	Roman	Letter
Across	1	ı	Α
	2	II	В
he rows	3	III	B C
1 by 1	4	IV	D
	5	V	E
	6	VI	F
	7	VII	G
	8	VIII	Н
	9	IX	I
	10	X	J

Total time = ____

Felipe Co.

3

Felipe Co.



Concept: Finish as we go. Minimize multitasking. Smaller batches finish faster. Limit work in process. #LEAN

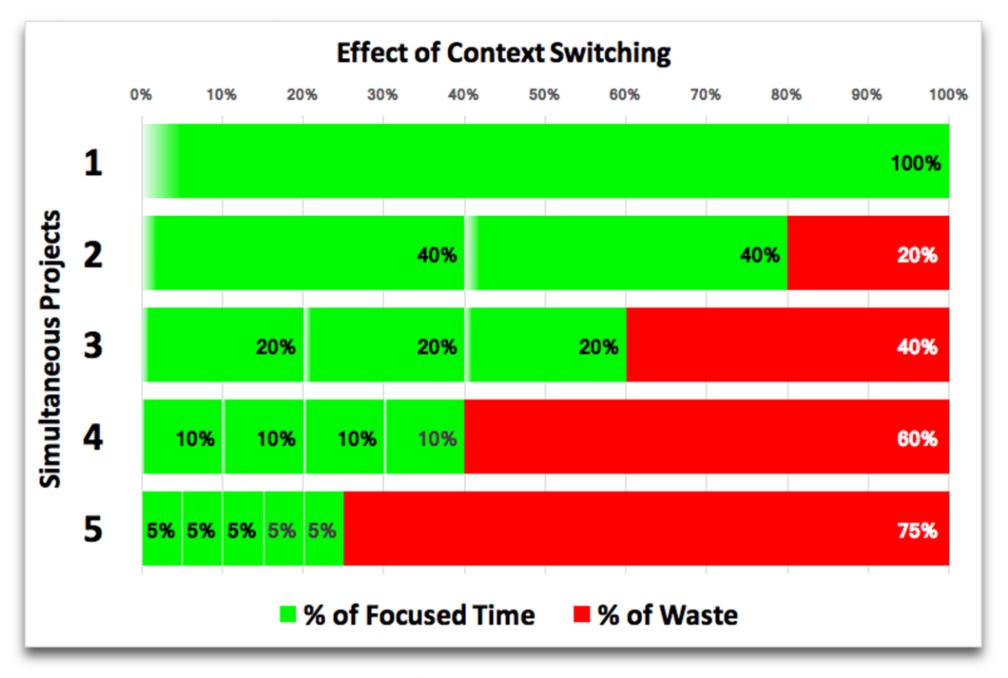


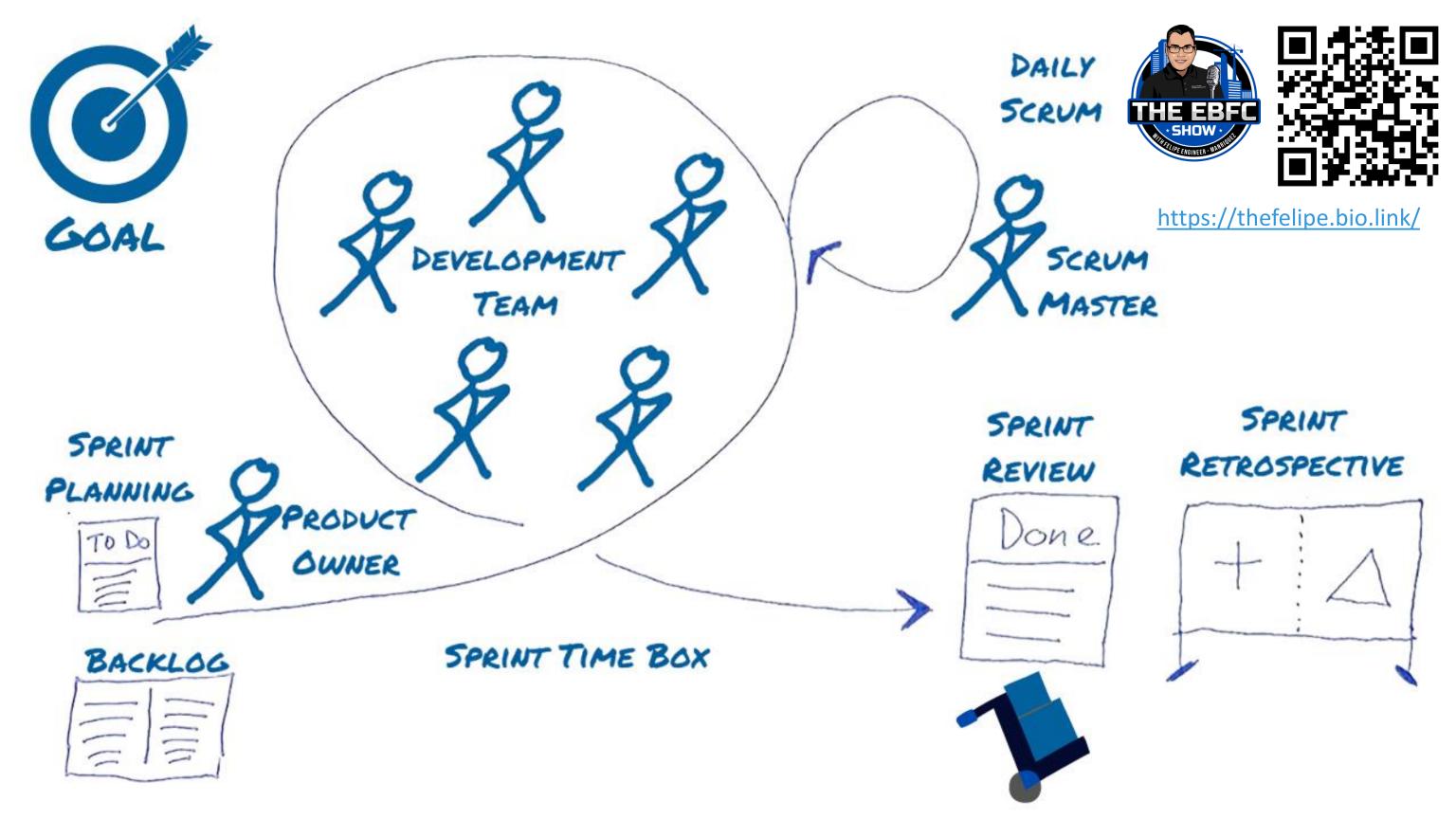
_	Arabic	Koman	Letter
Down the columns 1 by 1	1 2 3 4 5 6 7 8 9		ABCDEFGHIJ

Total time = ____

Felipe Co.

Weinberg's Table of Context Switching Waste





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What is Construction Scrum?

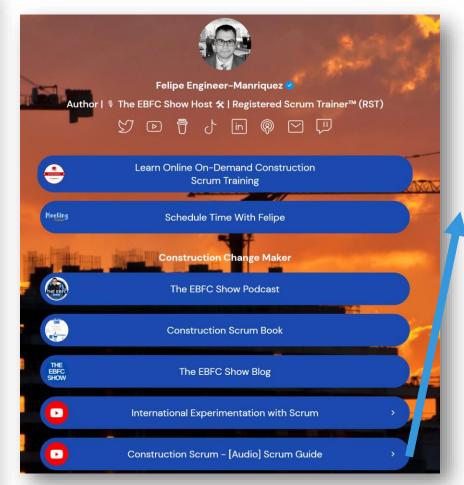


[Updated] Scrum Framework - How Scrum Works in Construction

https://youtu.be/OmFJ_RwoUN4



Ken Schwaber & Jeff Sutherland The Scrum Guide The Definitive Guide to Scrum: The Rules of the Game November 2020







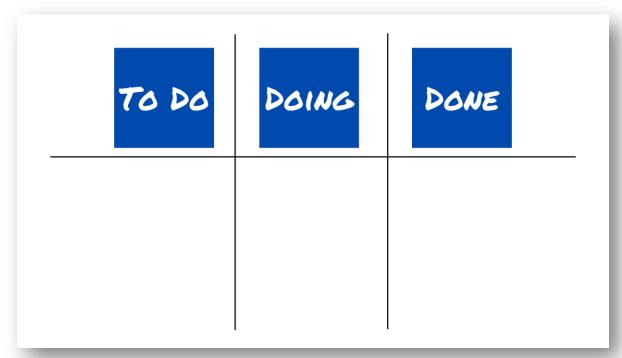
https://www.theebfcshow.com/construction-scrum-bonus-chapter-9-using-the-scrum-guide-to-make-your-playbook/





Make a Team Learning Scrum Board

 Use QR Code to download slides and access more Scrum resources





https://store.theebfcshow.com/lci2023-scrum

Questions?



Scrum In Construction for Pursuits & More











https://thefelipe.bio.link/



Six Tenets of Lean



- 1 Respect for people
- 2 Generate Value
- Focus on Flow
- 4 Eliminate Waste
- 5 Continuous Improvement
- 6 Optimize the Whole



Scrum and Lean Connection

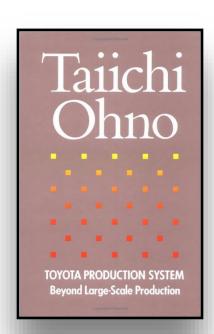
TPS 1950s

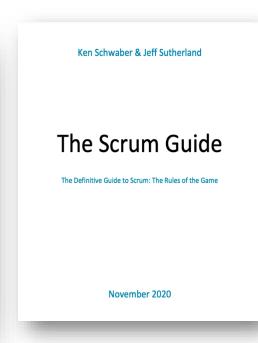
Scrum Guide 1990s - Today

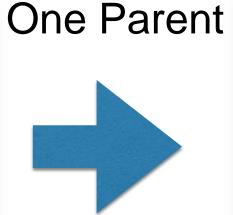
2001

Scrum Red Book 2014



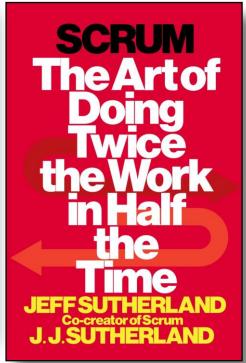


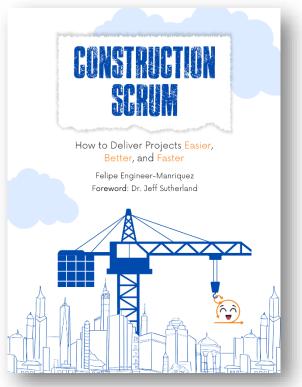






Agile





Adapted Agile Manifesto Construction Values

Agile Manifesto Values

Individuals and interactions over processes and tools

Working product* over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan



^{*}Scrum Guide uses phrase, "working software"

Adapted Agile Manifesto Construction Values

Agile Manifesto Values

Agile Design & Construction Values

Individuals and interactions over processes and tools



Project first thinking and working together across disciplines by focusing on a common goal for smooth project delivery

Working product* over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

*Scrum Guide uses phrase, "working software"



Adapted Agile Manifesto Construction Values

Agile Manifesto Values

Agile Design & Construction Values

Individuals and interactions over processes and tools



Project first thinking and working together across disciplines by focusing on a common goal for smooth project delivery

Working product* over comprehensive documentation



Deliver design services/work in place in increments to drive alignment and gather feedback between the various stakeholders over exchanging documentation

Customer collaboration over contract negotiation



Work with suppliers to owners to co-develop a solution based on mutually desired outcomes instead of just providing detailed requirements or status reports

Responding to change over following a plan



Acknowledge that plans will change with the realities on the ground and drive to create plans with the best level of detail accounting for the changing environment

^{*}Scrum Guide uses phrase, "working software"

Value-Added Work 2 Generate Value







*20% - 40%

of design and construction work is value-added from the perspective of the customer







What are the different types of waste in LEAN?

https://youtu.be/NJN-lsk_DLU

Non-Value Adding Activities

Defect

Effort involved in inspecting for and fixing defects such as data entry errors

Overproduction

Unnecessary efforts
producing work in excess
or ahead of customer
requirements like
processing items before
they're required for the next
process

Waiting

Waste through delays or stoppages such as waiting for instructions, waiting for the next production step, or simply running slow computers

Non Utilized Talent

Aspects such as ignoring improvement ideas from people on the floor or restricting employees' responsibilities to make routine decisions

Travel / Transportation

Unnecessary movement of work, for example sequential process steps are not co-located or files are being transported from one location to the other

Inventory

Holding information and material longer than required such as piles of unprocessed work, unread emails or overstocked marketing materials

Motion

Non-value-added movements of people such as unnecessary meetings or walking to the copier and printer

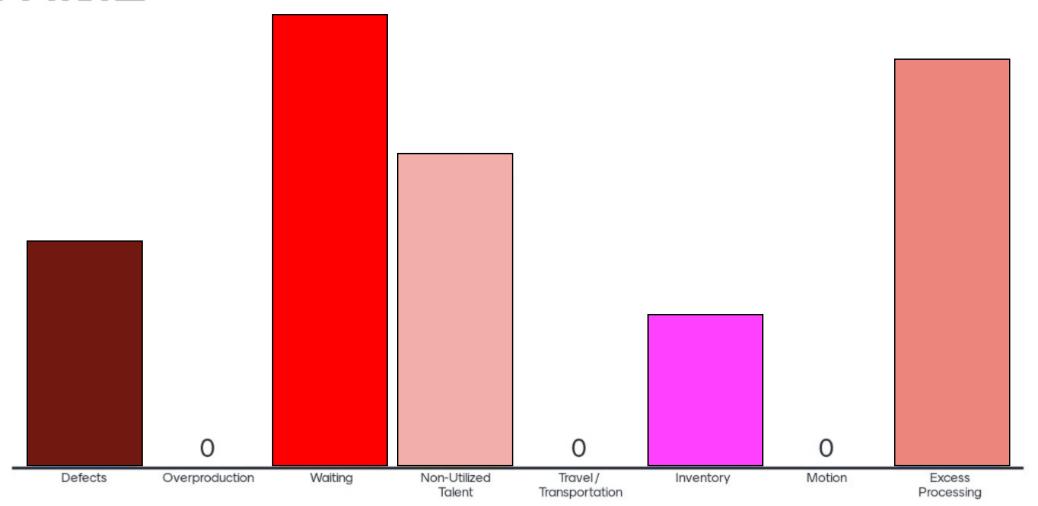
Excess Processing

Unnecessary activity due to complex processes and systems such as too many approvals or an application form where the same data is needed in different places

type of waste that impacted me last week.

Past LCI Survey Results

Which impacted you most this week? DOWNTIME



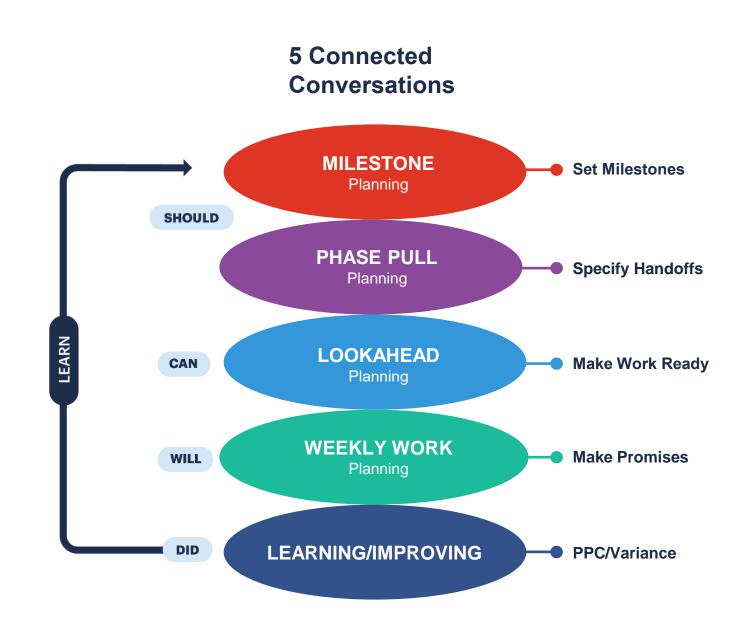
5 Connected Conversations Of LPS®



The LPS is a commitment-based system integrating 5 connected planning conversations at 5 levels:

- 1. Milestone Planning (Should)
- 2. Phase Pull Planning (Should)
- 3. Lookahead Planning (Can)
- 4. Weekly Work Planning (Will)
- 5. Learning & Improving (Did/Learn)

The Last Planner System® (LPS®) is a registered trademark of the Lean Construction Institute.



LPS® Modified For Design

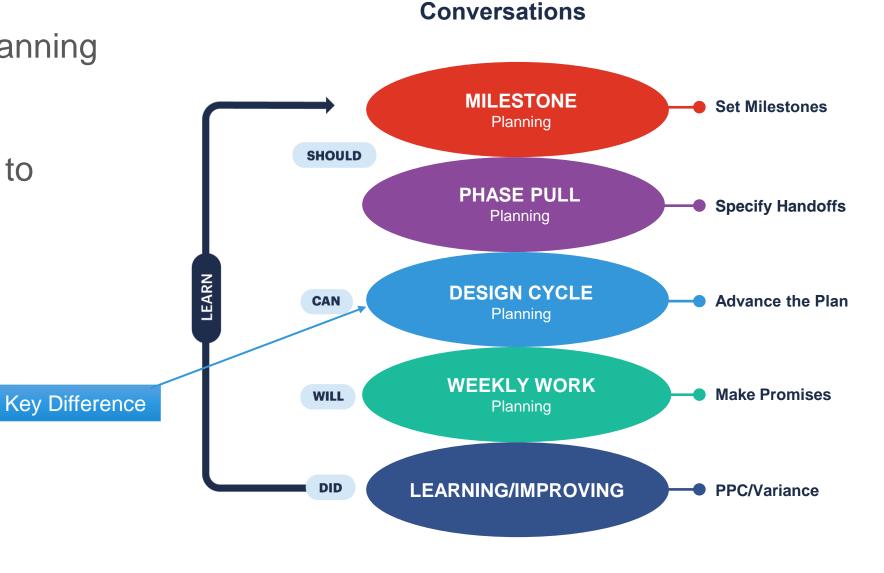


In modifying LPS for design, the 5 planning conversations remain the same.

The Lookahead Planning level shifts to Design Cycle Planning.



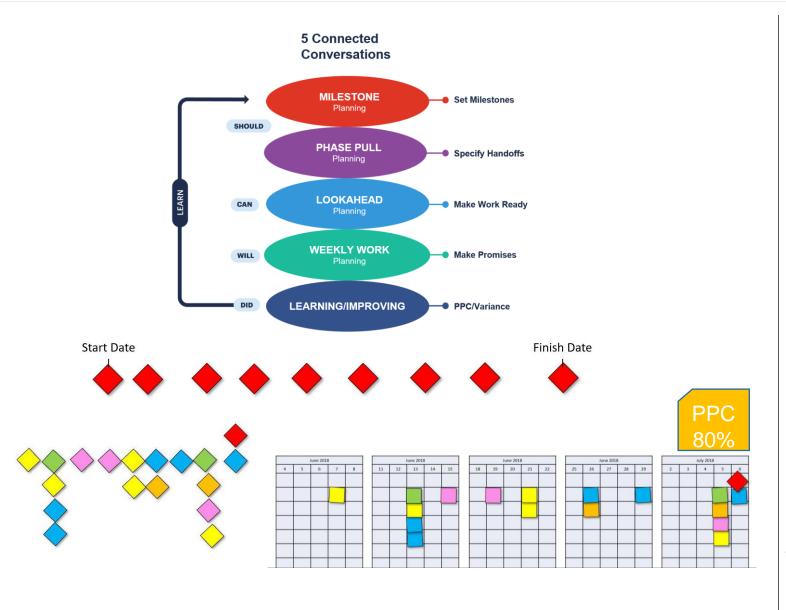


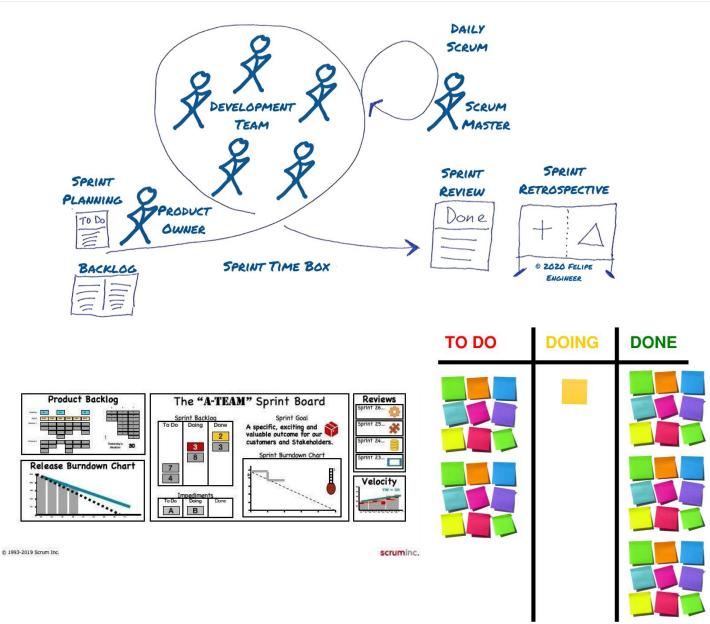


5 Connected

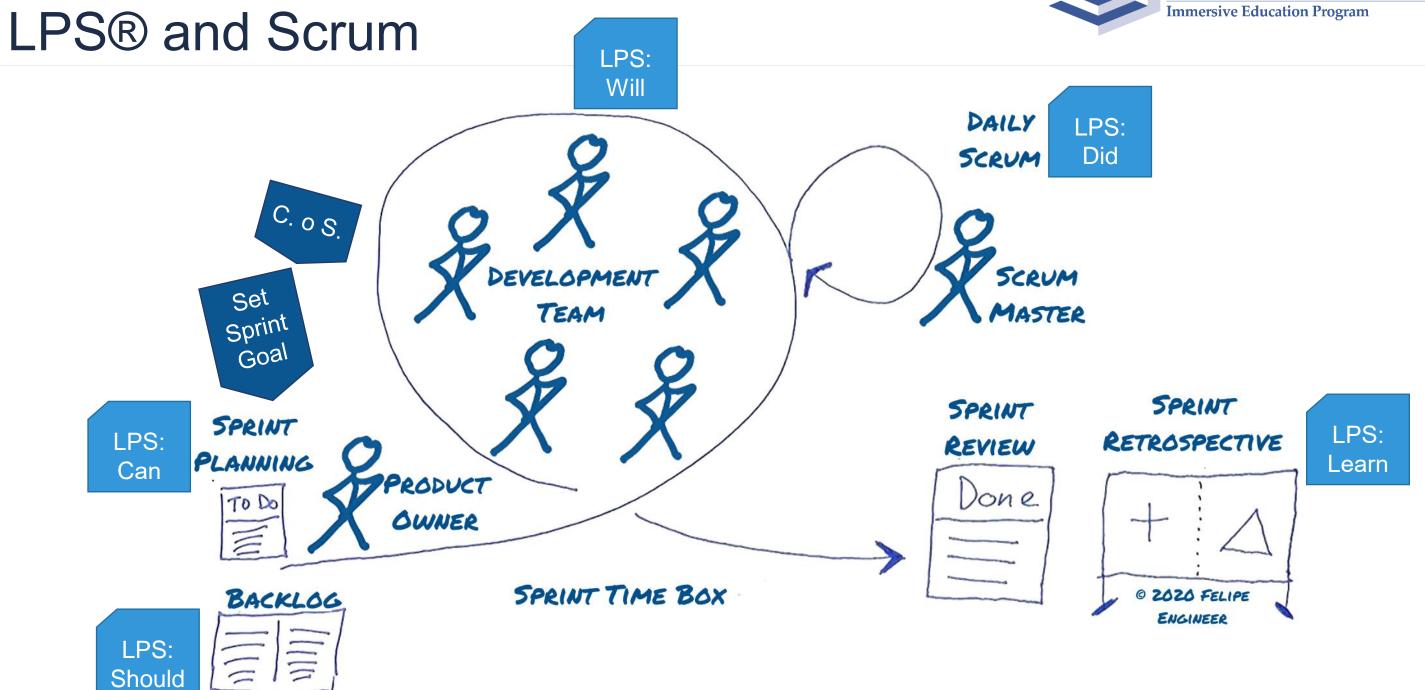
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LPS® and Scrum



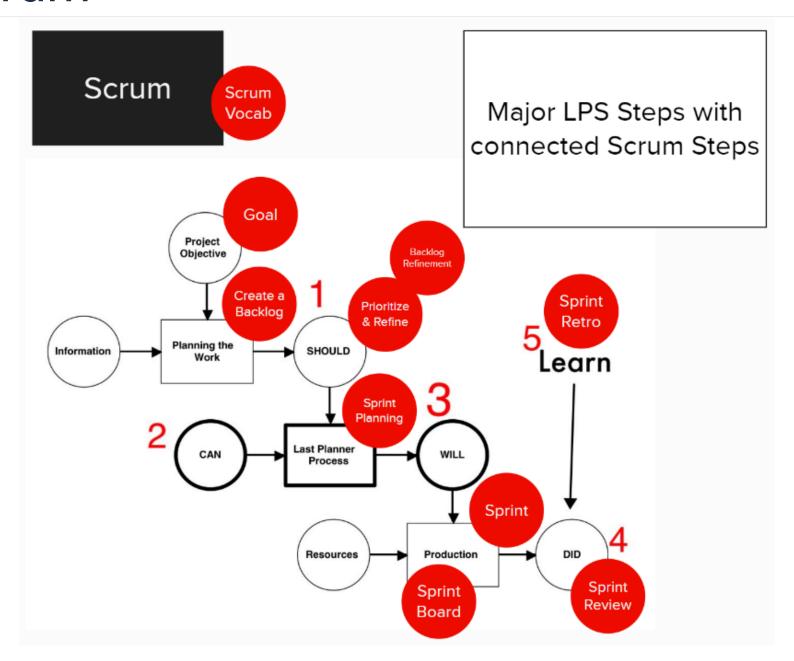








LPS® and Scrum



Lean Construction Institute Immersive Education Program

LPS® and Scrum

Milestones Production Strategy Why? To collaboratively Schedule Milestone develop an execution plan to Milestone Pull A significant event in the project meet or beat the milestones in schedule, such as an event the Master Schedule with the restraining future work or project managers and marking the completion of a superintendents who are phase/deliverable. responsible for overseeing performance of the work ("Last Planners") resulting in stable & predictable workflow. 2022 2023 Approved City Complete UG Coordination Complete Start Mass Excavation East East

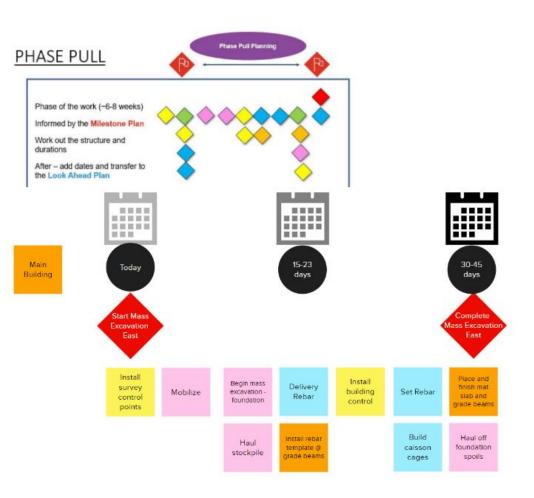
Phase

Schedule Phase

A collection of logically related project activities that culminates in the completion of one or more deliverables.

Production Strategies

- -Establish major phases of work between milestones with project team's input
- -Establish Flow (Takt) planning for repeatable areas identified
- -Develop pull plans
- -Align resources (supply chain, material handling) to plan and production rules
- -Identify crew/team sizes and develop labor plans

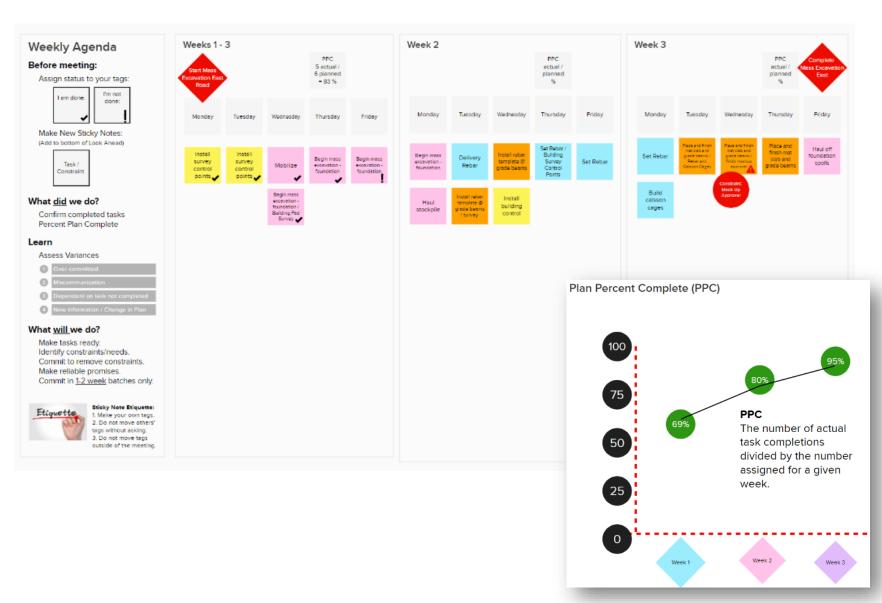




LPS® and Scrum

Look Ahead & Weekly Work Planning



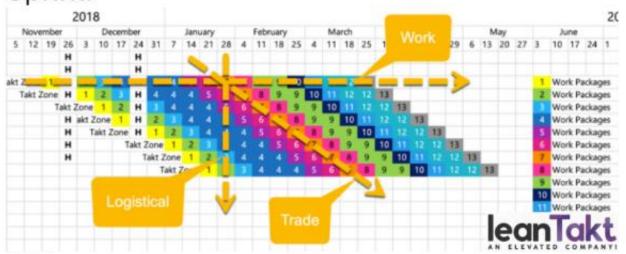




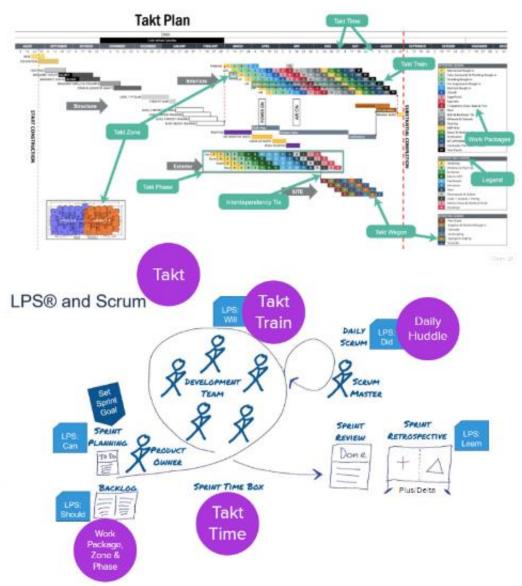
LPS® and Scrum (and Takt)

"Takt is Scrum." Jason Schroeder, President of Elevate Construction & leanTakt

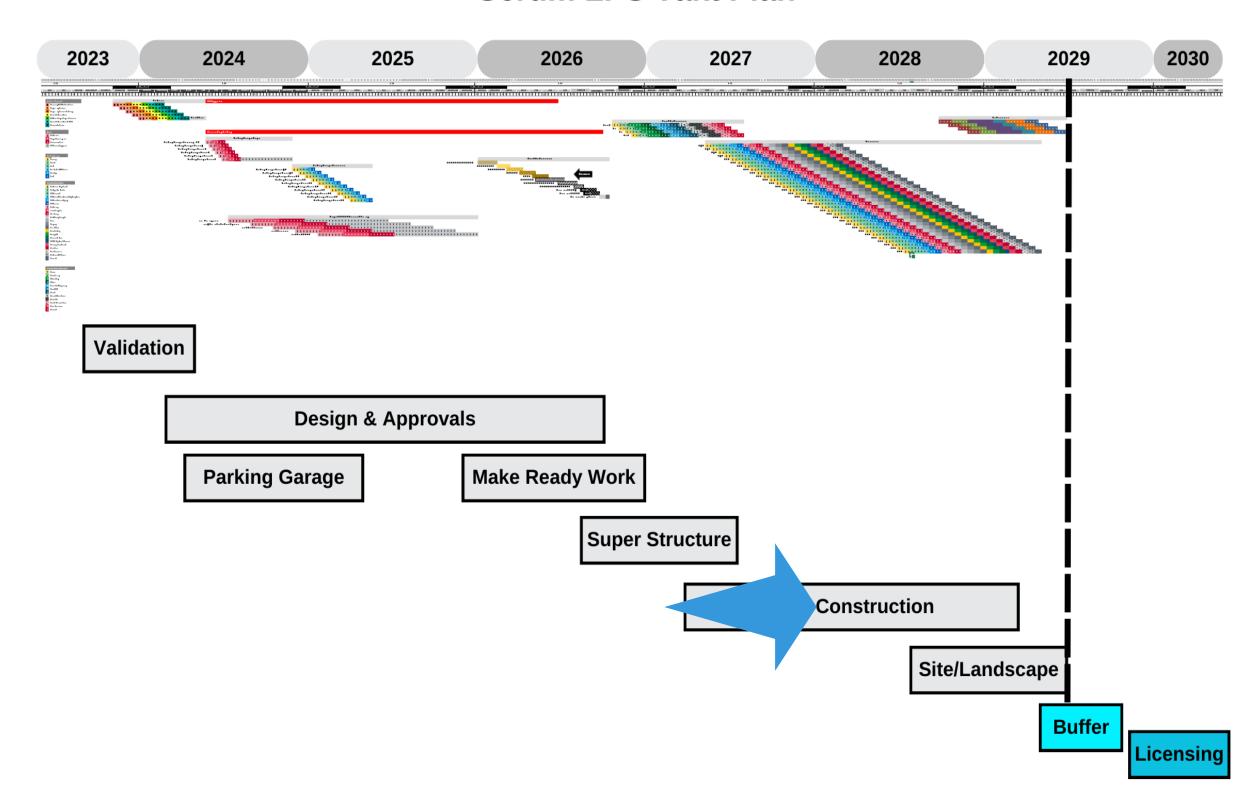
Takt planning makes work happen on a beat frequency or cycle. In Scrum we call this the Sprint.



These frameworks enable Critical Flow schedules that focuses on information and work throughput and bottlenecks (constraints), to enable flow (work, trades, logistics).



Scrum LPS Takt Plan



Questions?



Even More Scrum In Construction





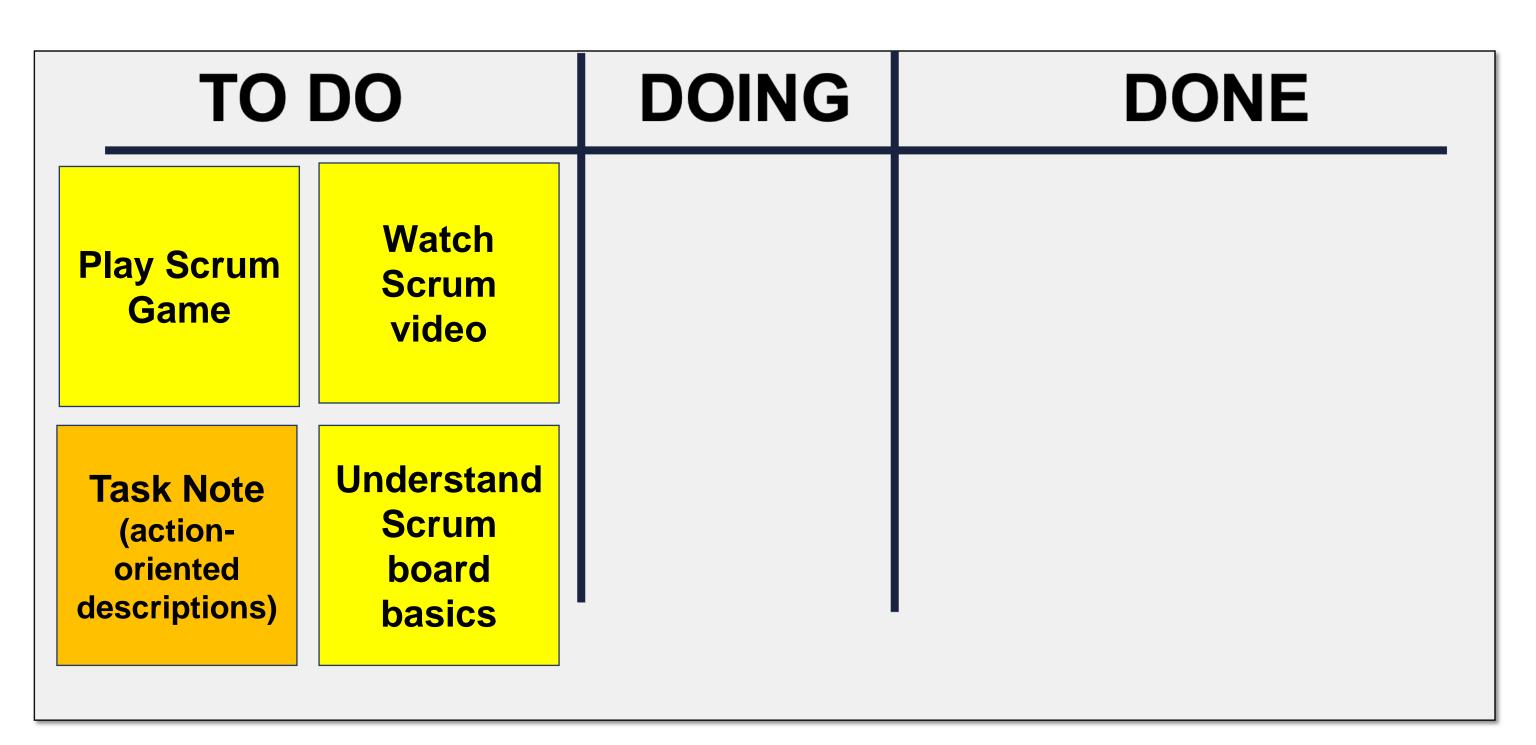


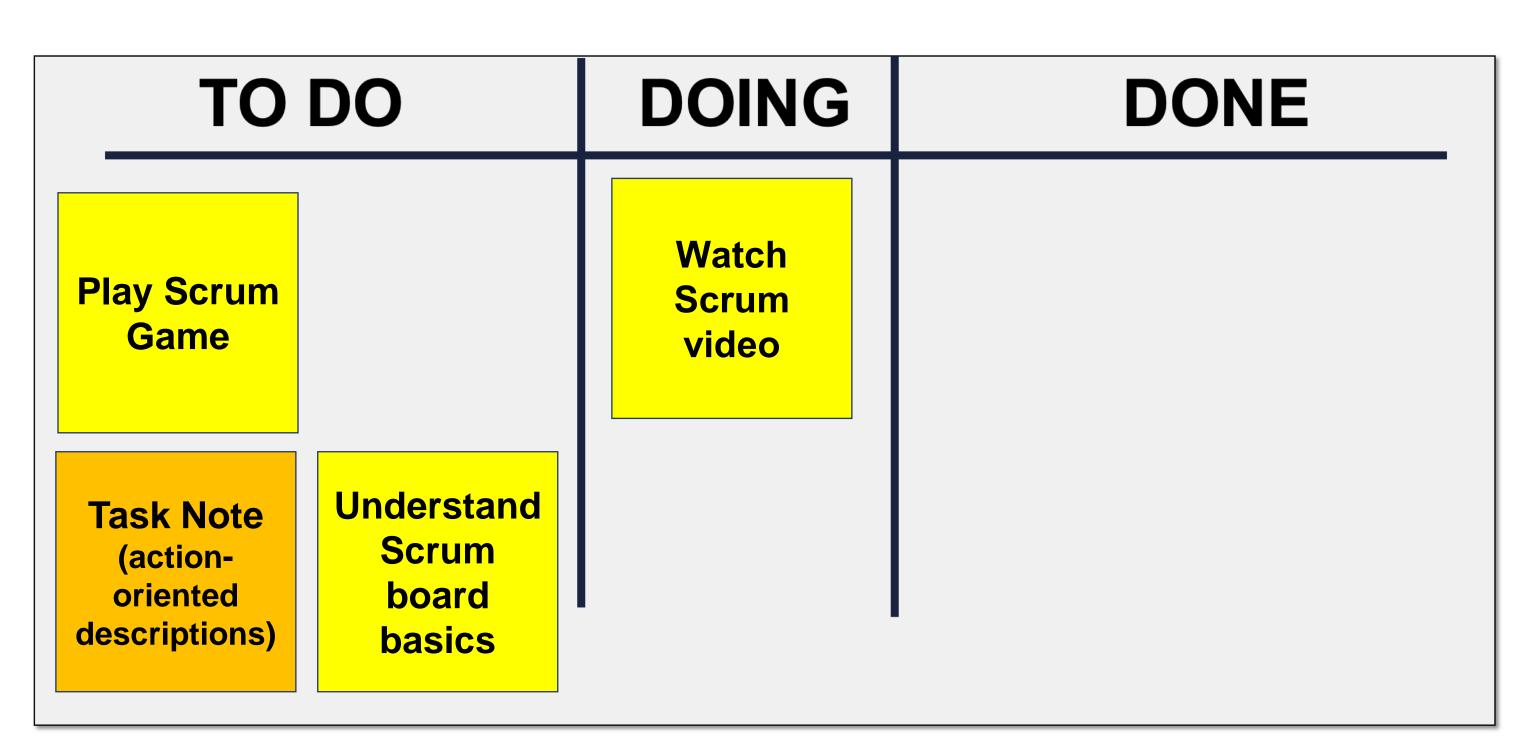


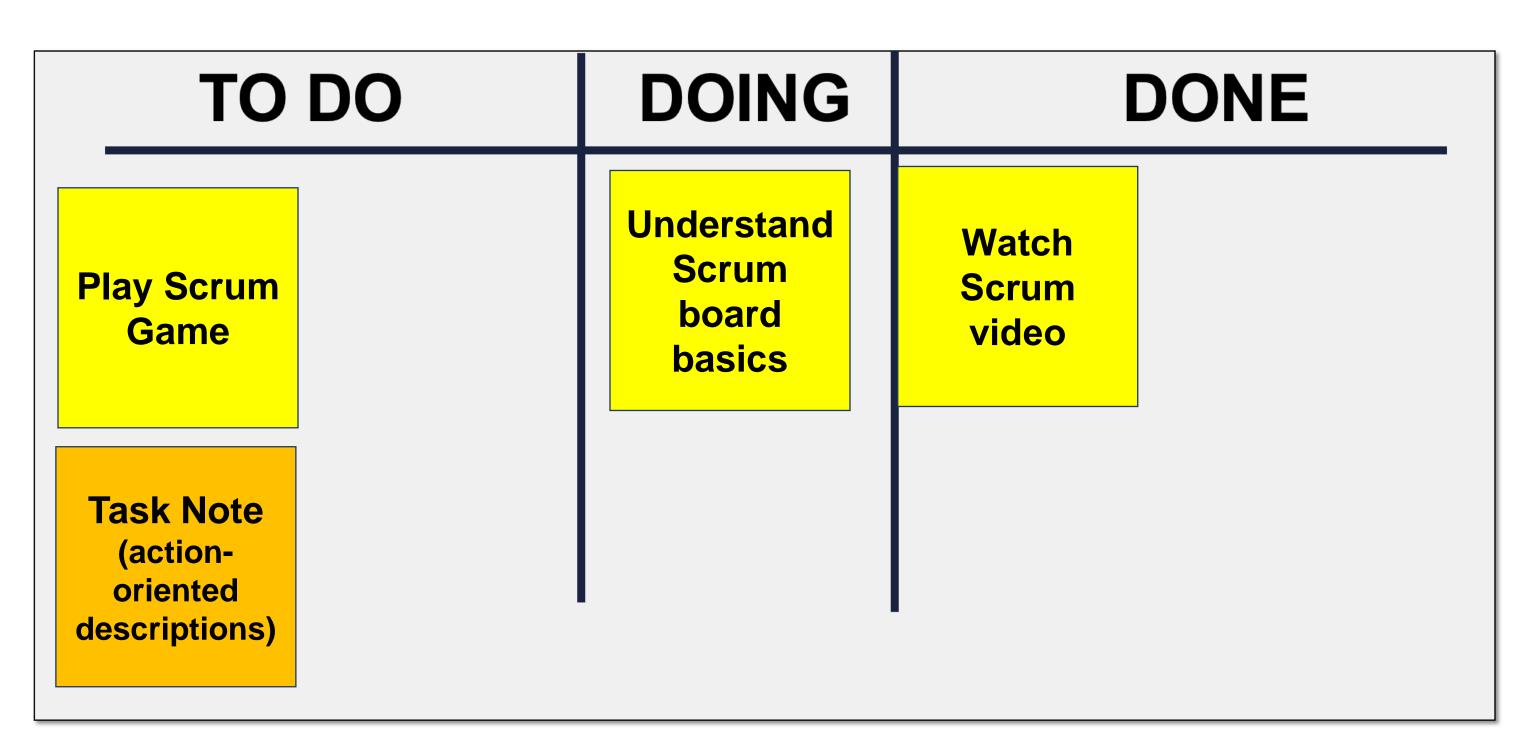
https://thefelipe.bio.link/



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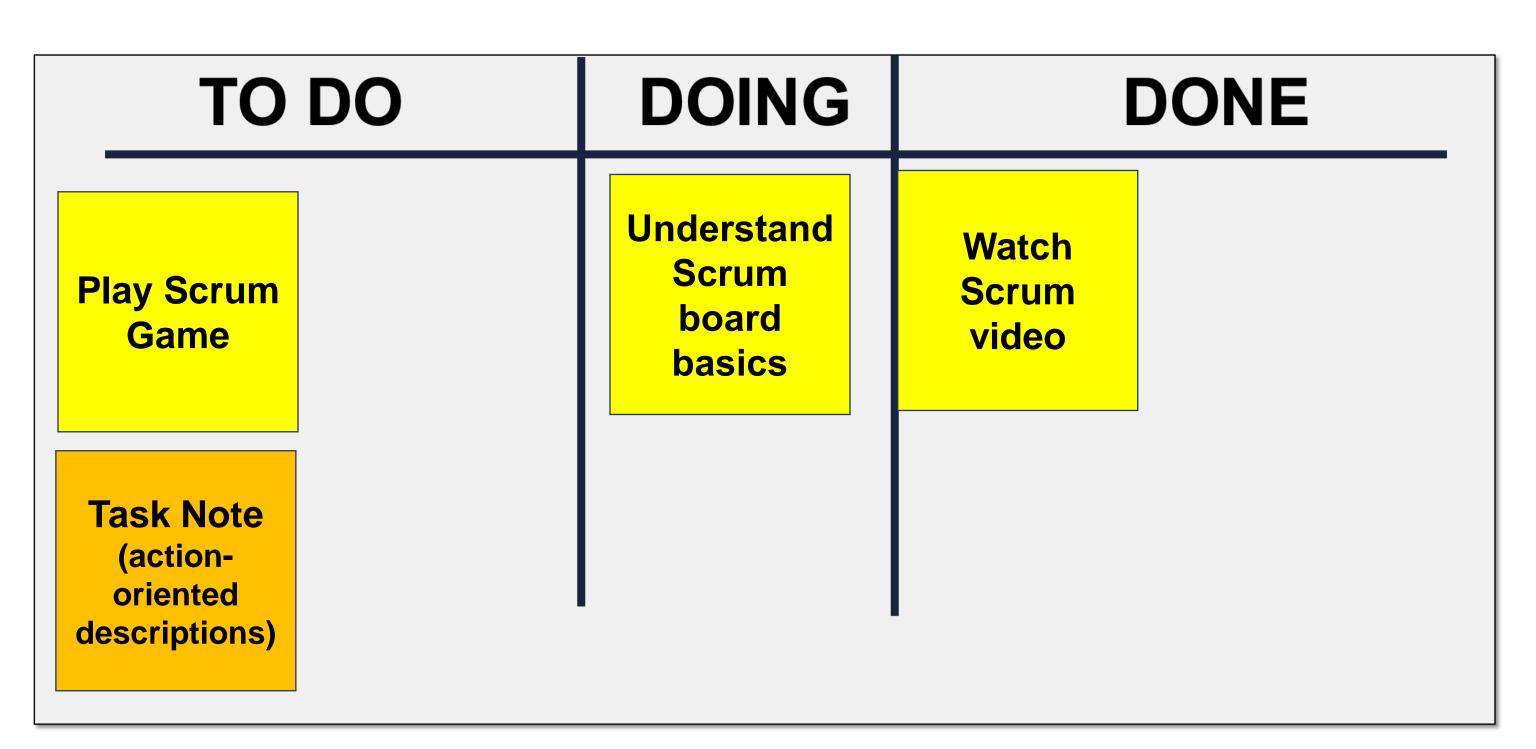


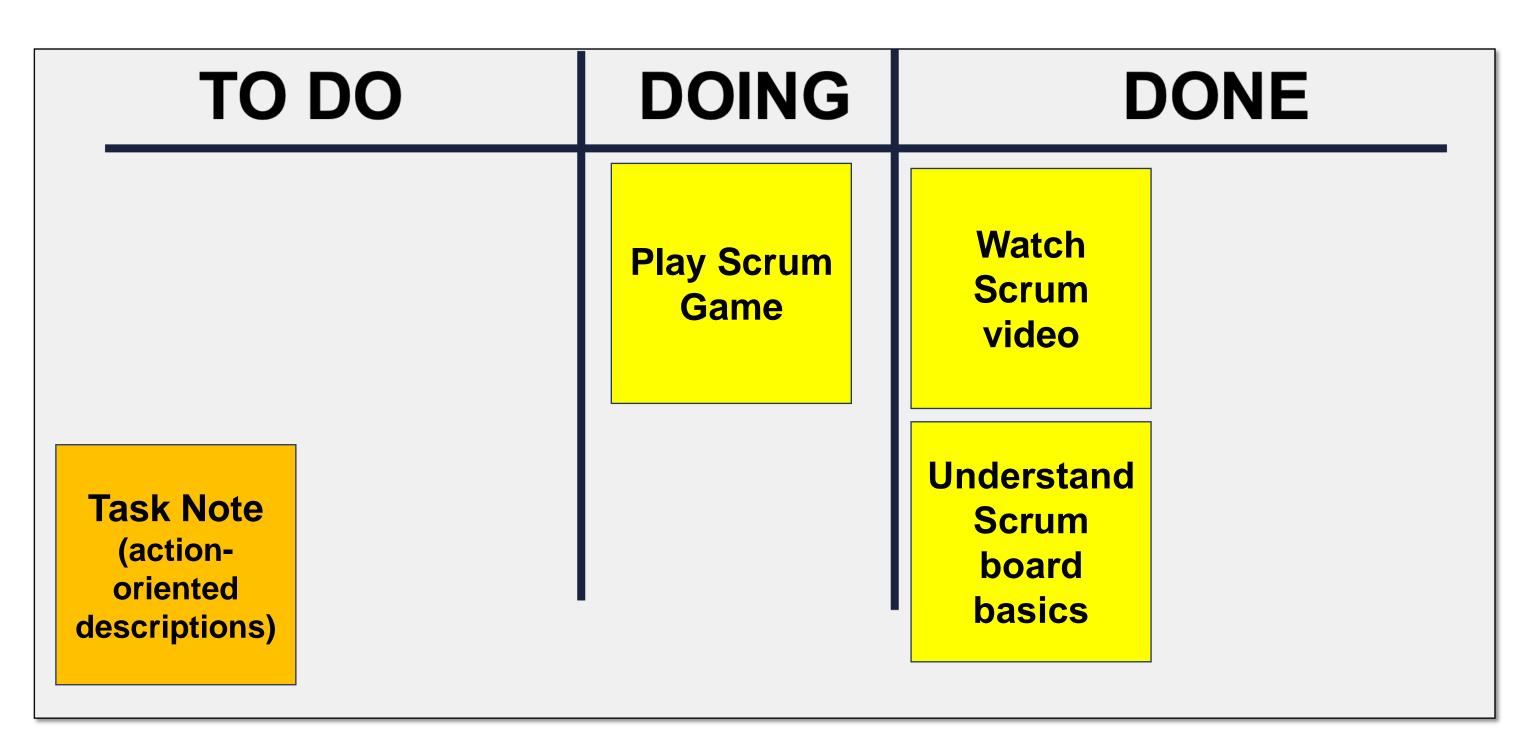




Another Fundamental Scrum Board Example







Sprint Goal "Learning Done Right"

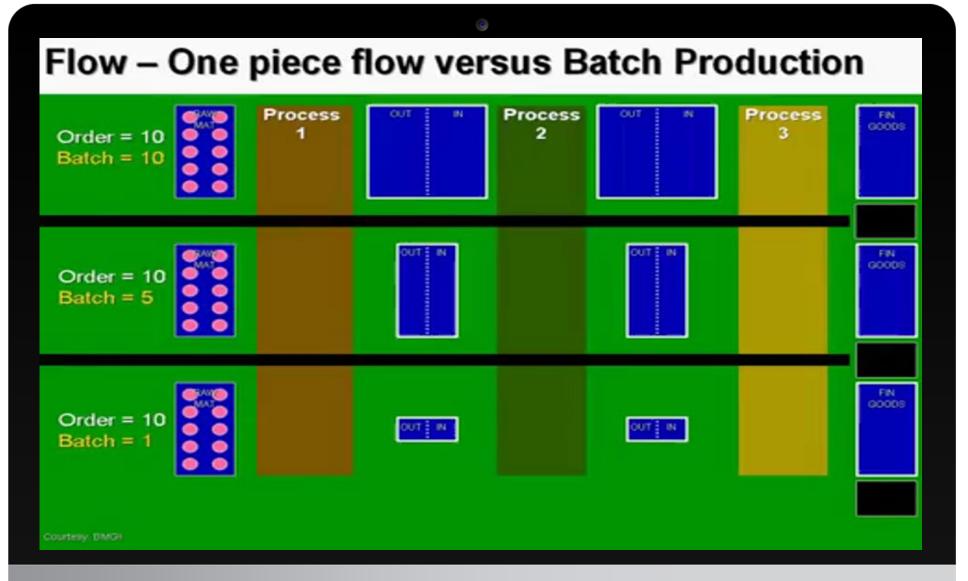


Let's move as ONE

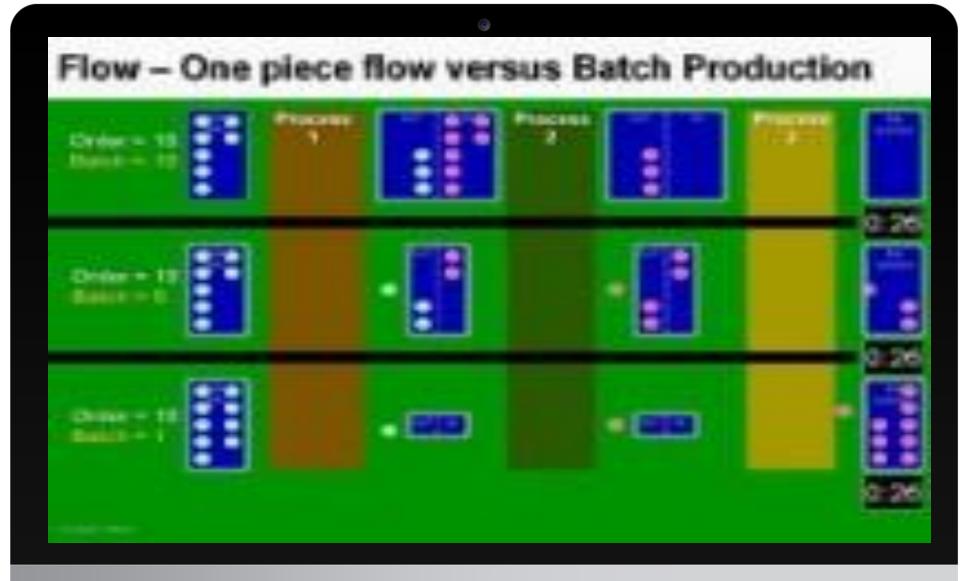


fast and furious 8 Dwayne Johnson entry | Haka dance by the rock | https://youtu.be/2BPvFnyWAG0

Play Scrum Game Warm-Up Question

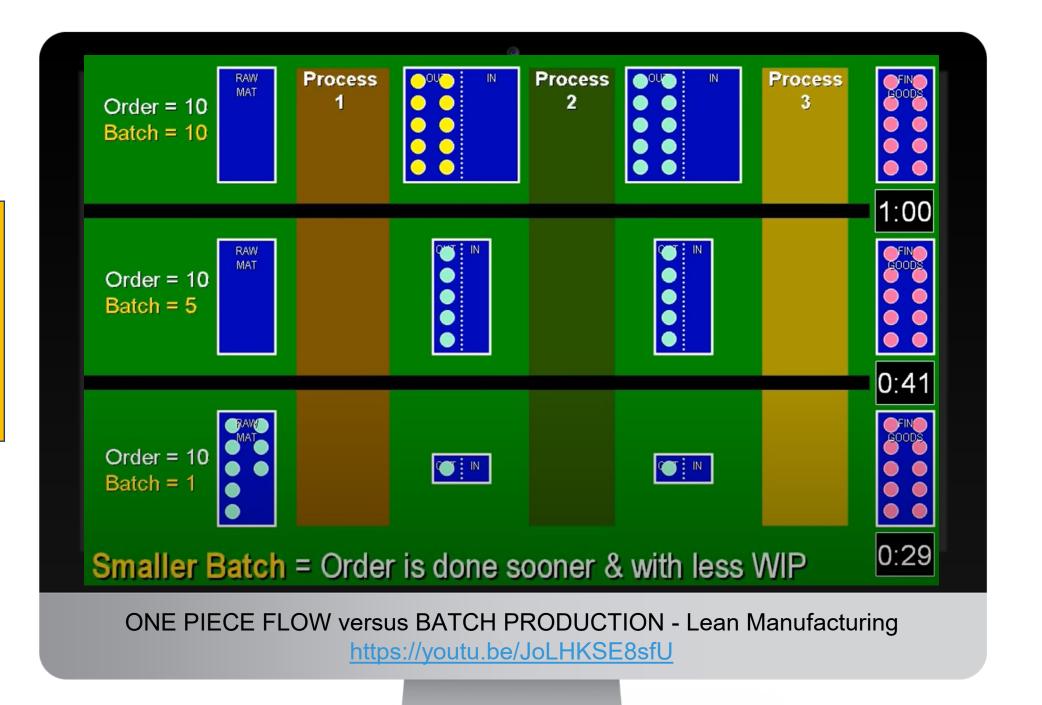


ONE PIECE FLOW versus BATCH PRODUCTION - Lean Manufacturing https://youtu.be/JoLHKSE8sfU



ONE PIECE FLOW versus BATCH PRODUCTION - Lean Manufacturing https://youtu.be/JoLHKSE8sfU

Batch size matters...,
What about Multi-tasking?



TO DO

DOING

DONE

1

2

3

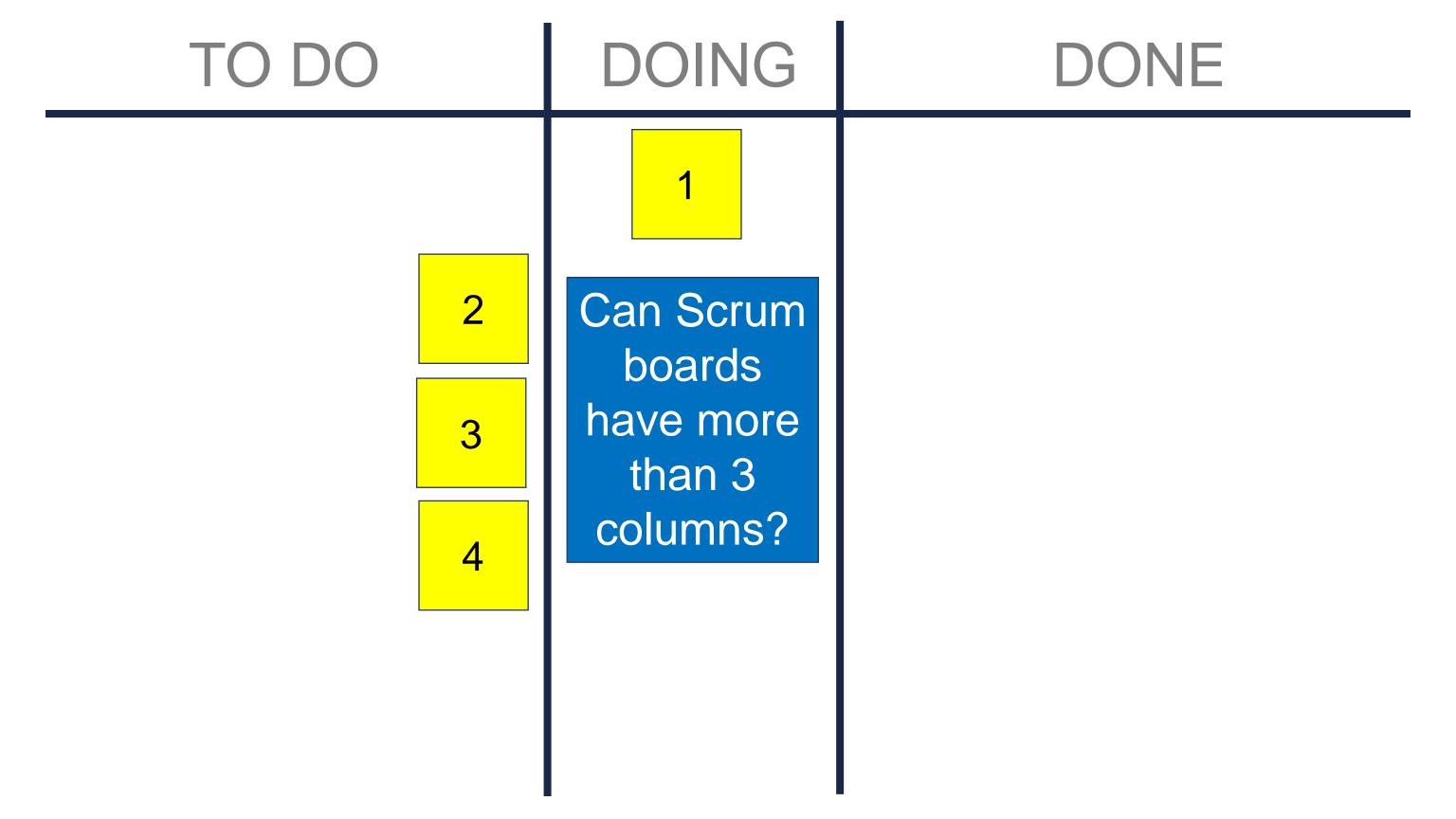
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Read the Scrum Guide

https://scrumguides.org/

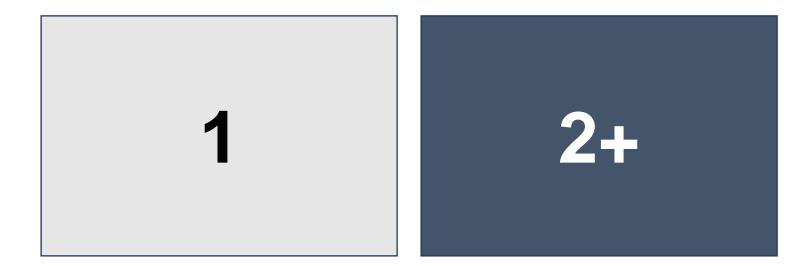


DOING TO DO DONE Make this Scrum Board

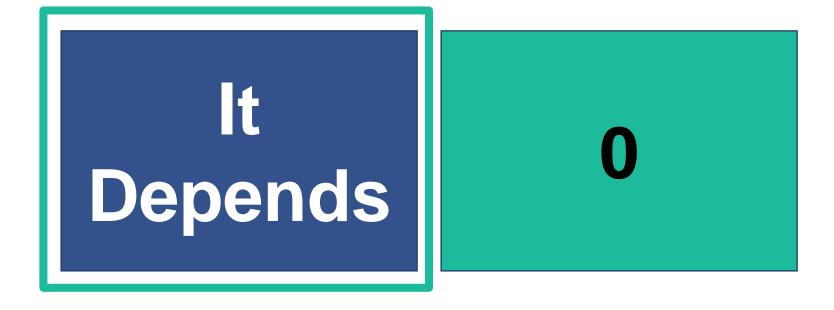


TO DO		DOING	DONE
	3		1

TO DO		DOING	DONE
	3	2	1
	4		



In Scrum, how many tasks can be in the "Doing" Column?



TO DO	DOING	DONE
	2	1
3		
4		

TO DO	DOING	DONE
4	3	2

Tasks that take longer than a week to complete

Tasks I can't complete this Sprint

What tasks are on my Backlog?

Value-added tasks

What's a Backlog?

TO DO	DOING	DONE
4	3	2

TO DO	DOING	DONE
	4	1 2 3

Any Assigned Work by Your Boss

All Items From My Email

What kind of tasks belong on my board?

Any Work Task
That Takes More
Than 15 Minutes

Everything
Known To Be
Needed For This
Work Increment

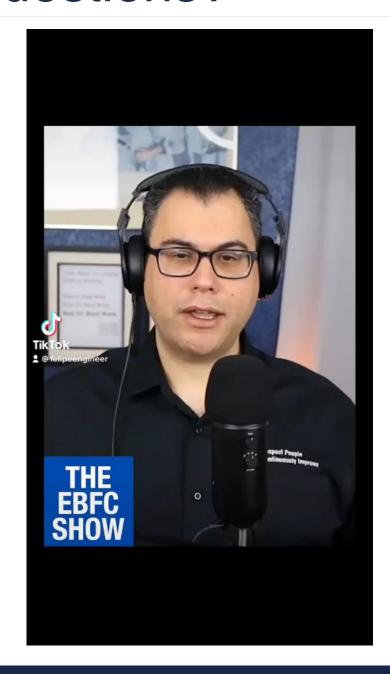
Share some examples

TO DO	DOING	DONE
	4	1 2 3

TO DO	DOING	DONE
		1
		2
		3
		4

Questions?







JJ Sutherland CEO SCruminc.





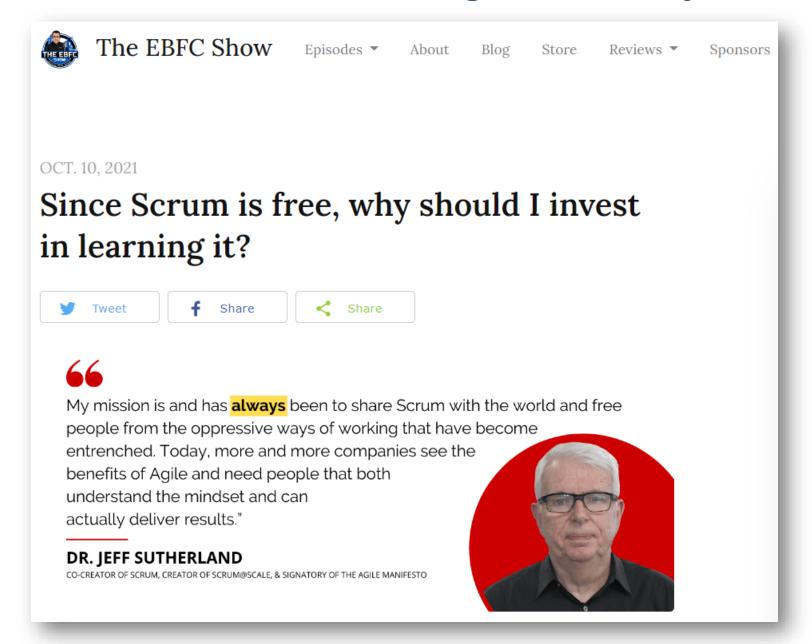


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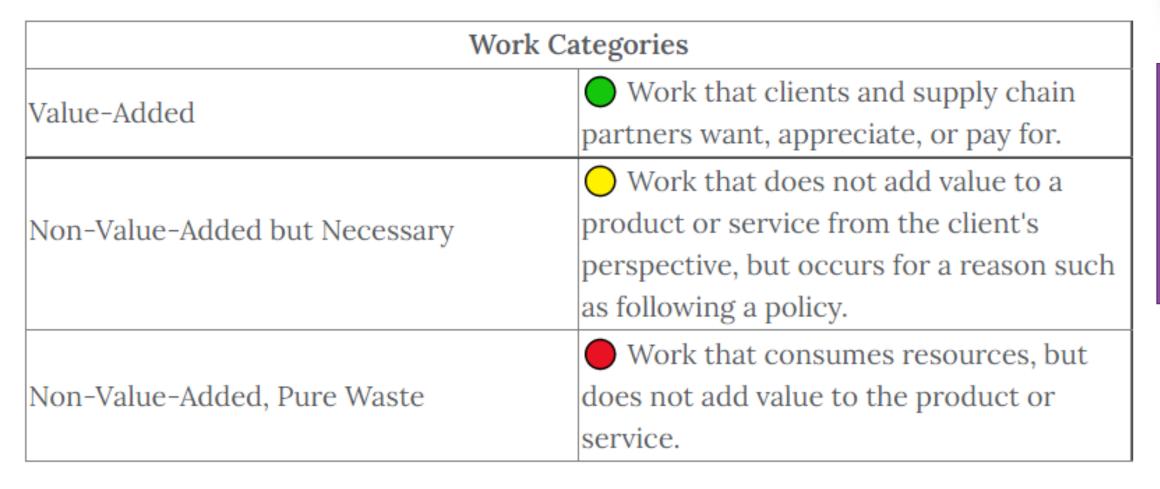
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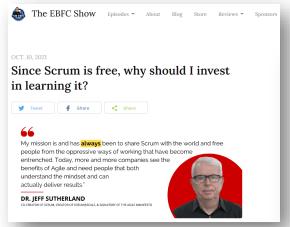
The adventure begins with you!



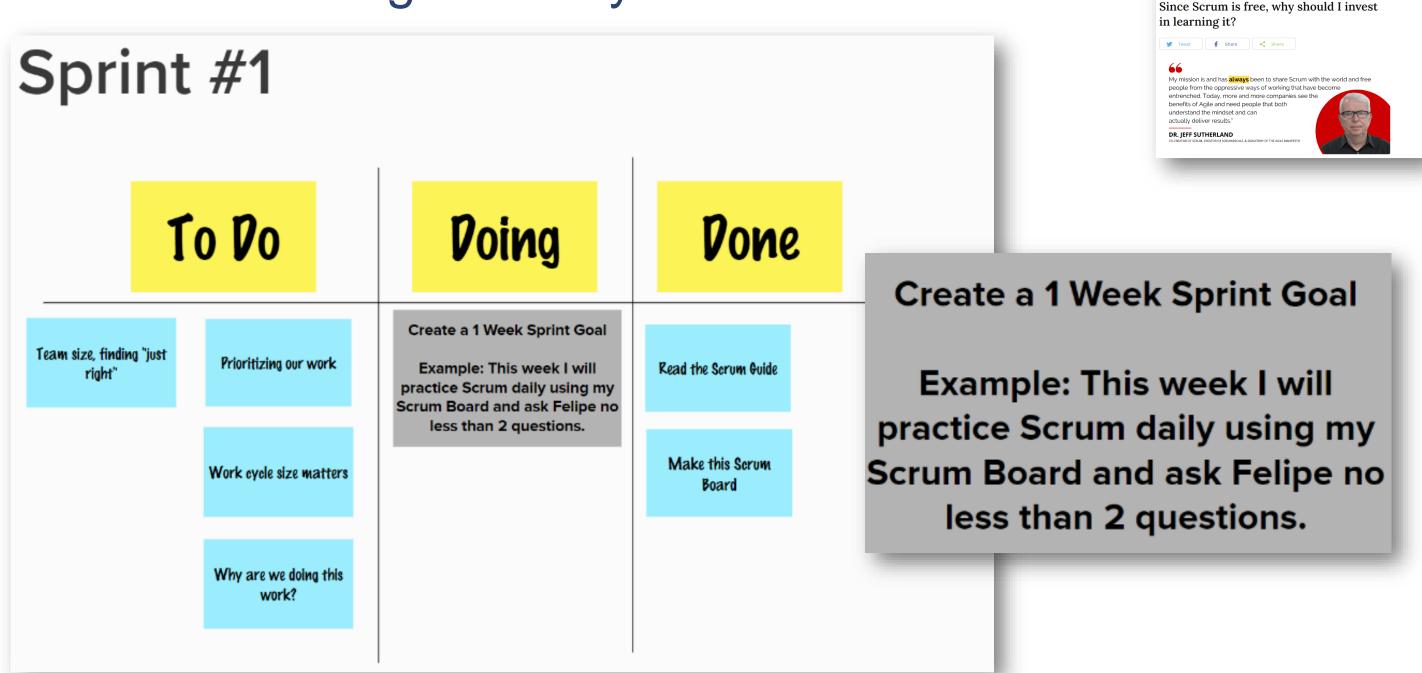


The adventure begins with you!

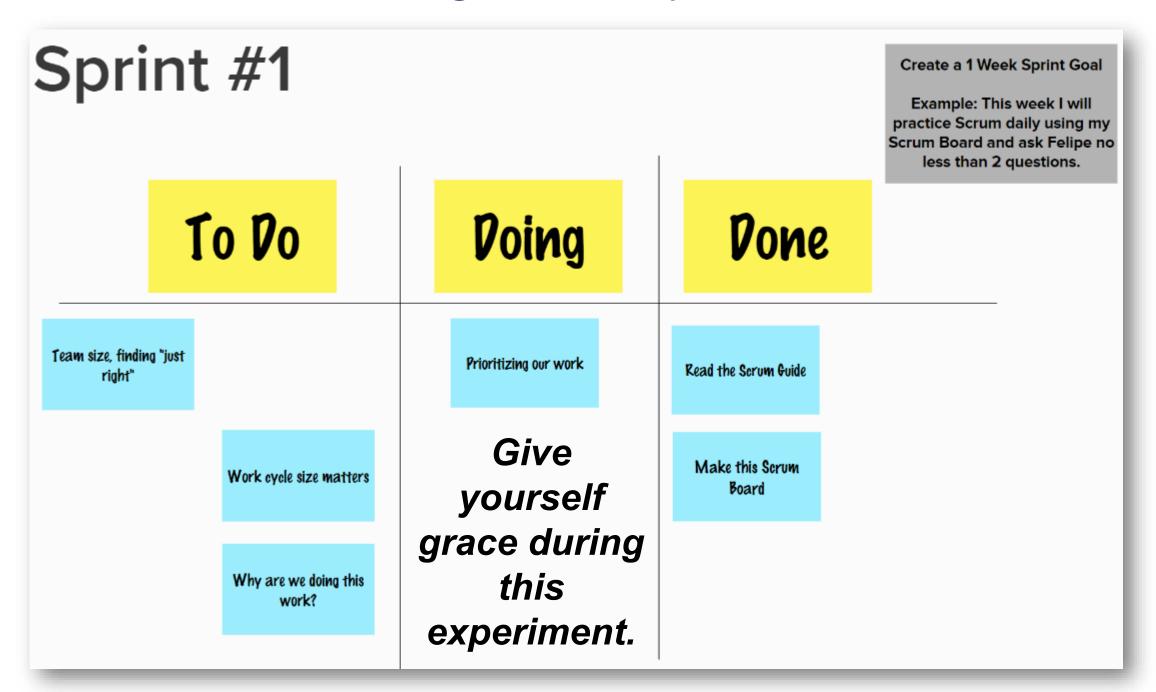




1. categorize your work

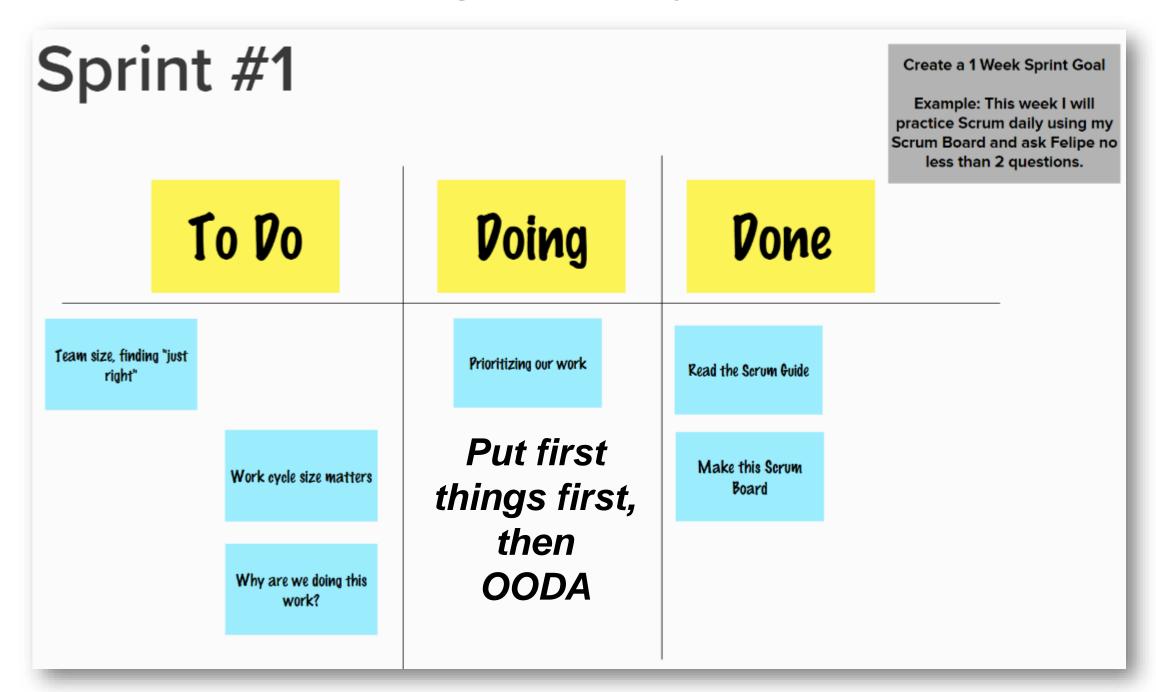


The EBFC Show Episodes - About Blog Store Reviews



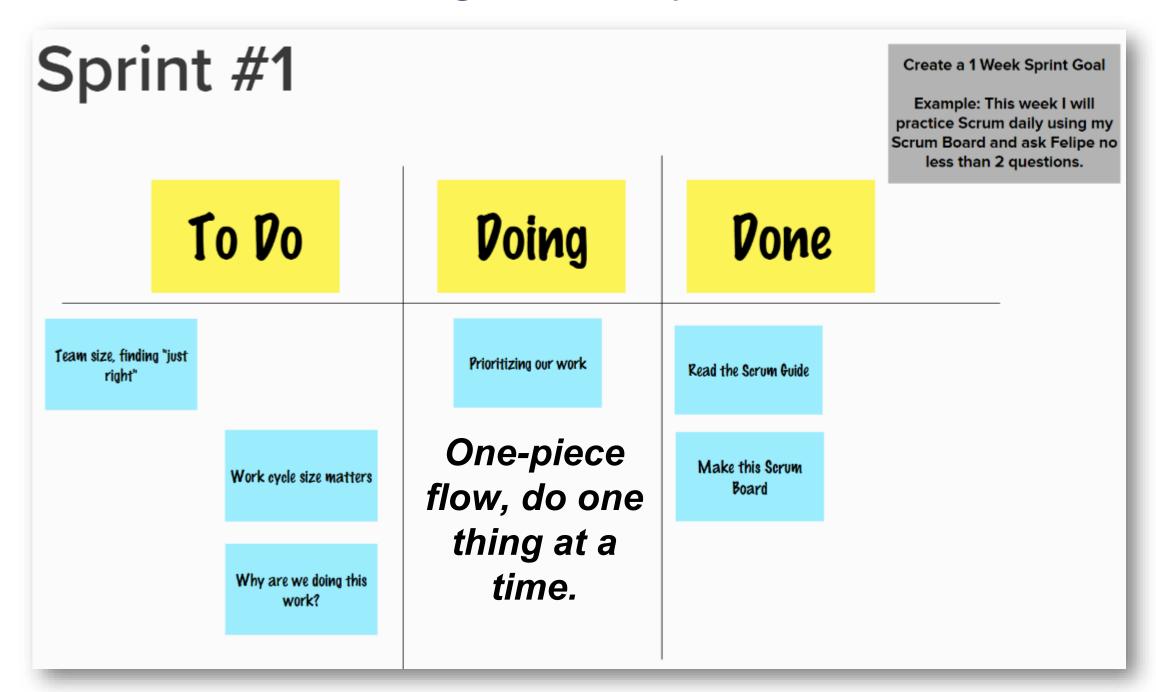


2. List 5 or less tasks that will help you achieve your goal.



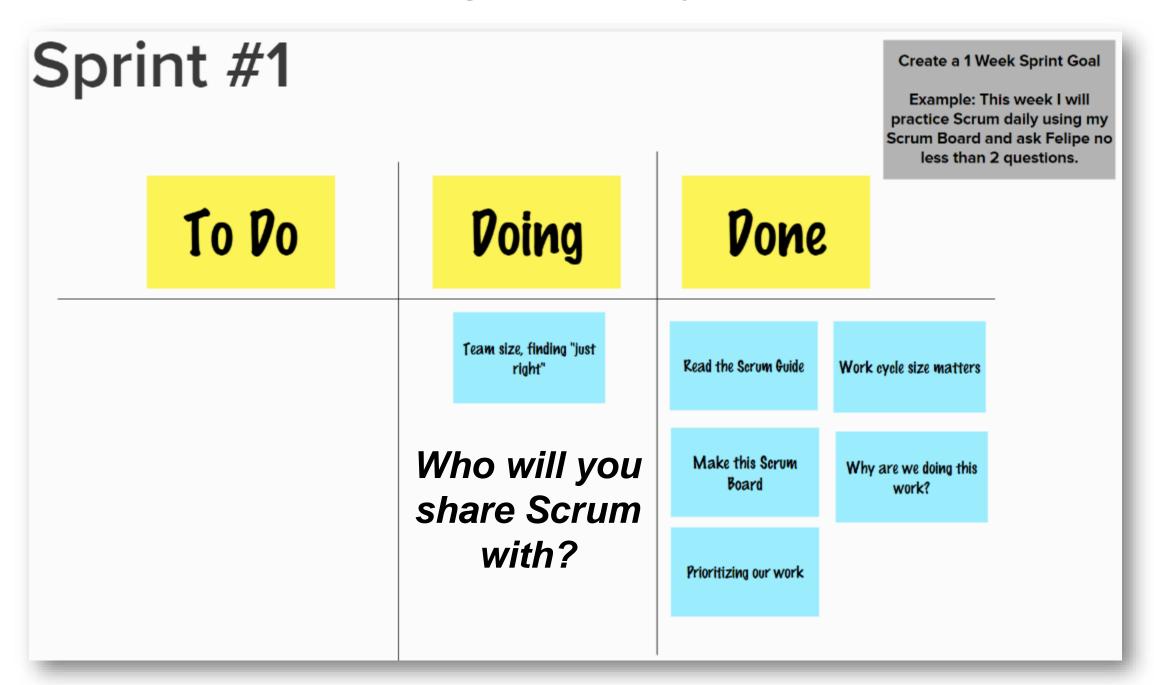


3. Prioritize & Check-In using your board daily





4. Learn by doing and sharing with others.





5. Repeat and bring along others to join you.

What could stop you from trying Scrum?

Habits

noun | acquired modes ofbehavior that become nearlyor completely involuntary



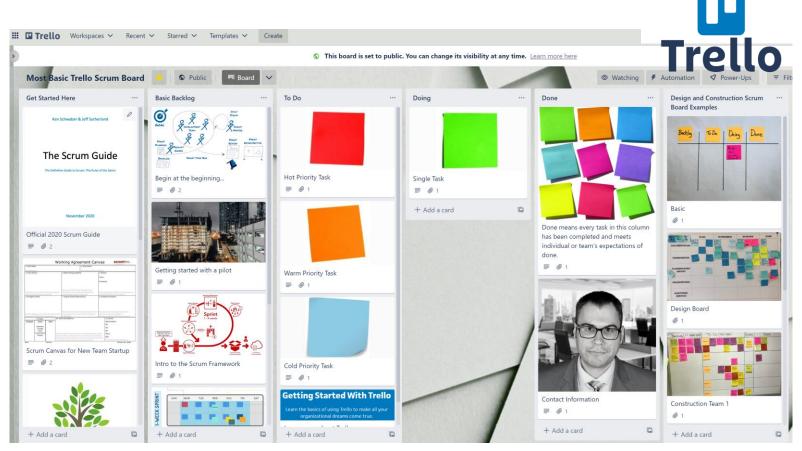


THE CHOICE (Short Animated Movie)

https://youtu.be/ HEnohs6yYw

Project Scrum Board Examples





Analog (Whiteboard + Sticky Notes)

Digital (Whiteboard + Multi-Media Cards)

Construction Scrum Case Studies

Scrum for New and Existing Construction

- Eliminated weekend and night work
- Completed hospital project while simultaneously managing up to six on-campus million-dollar projects



Scrum is a team framework that allows complex projects to be delivered with adaptation yet supports people to productively and creatively produce work at the highest possible value for customers. It is perfectly suited to meet the demands of the design and construction industry -- no matter the project, the challenge, or the situation.

Construction Scrum Case Studies

Scrum for New and Existing Construction

- Eliminated weekend and night work
- Completed hospital project while simultaneously managing up to six on-campus million-dollar projects

Scrum for Preconstruction (PreCon)

- Eliminated weekend work
- Team productivity tripled



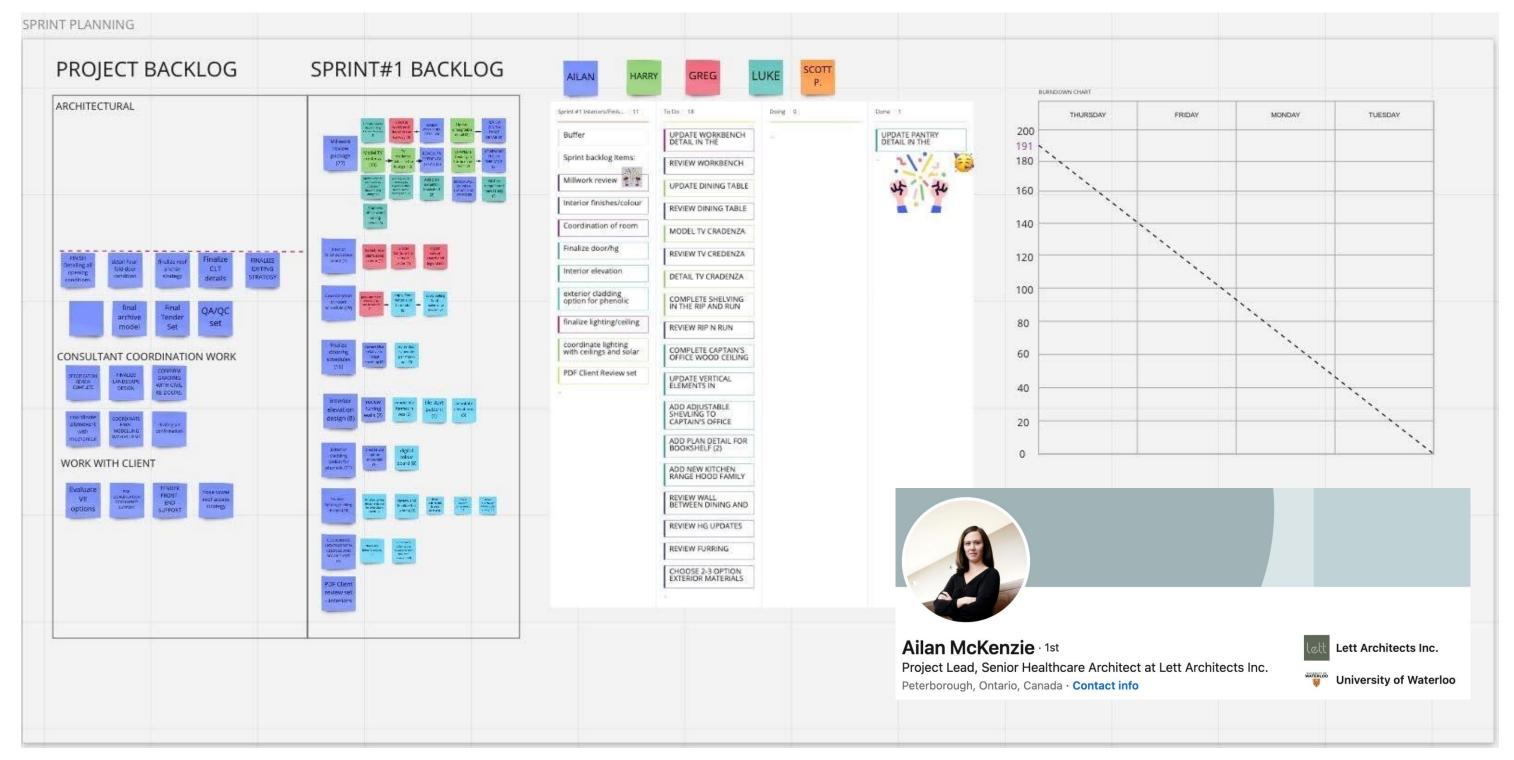
Scrum is a team framework that allows complex projects to be delivered with adaptation yet supports people to productively and creatively produce work at the highest possible value for customers. It is perfectly suited to meet the demands of the design and construction industry -- no matter the project, the challenge, or the situation.

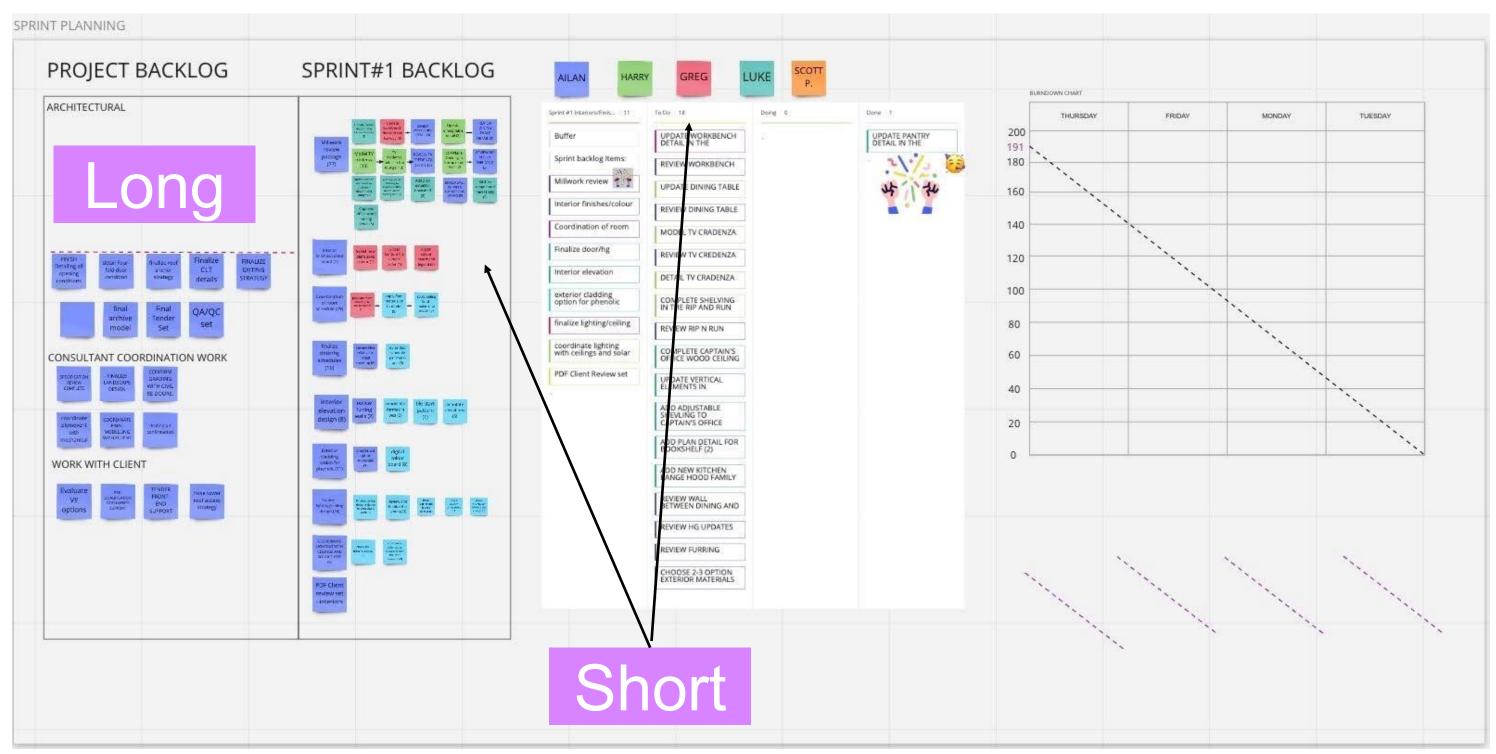
Case Study: Boosting Productivity in PreCon

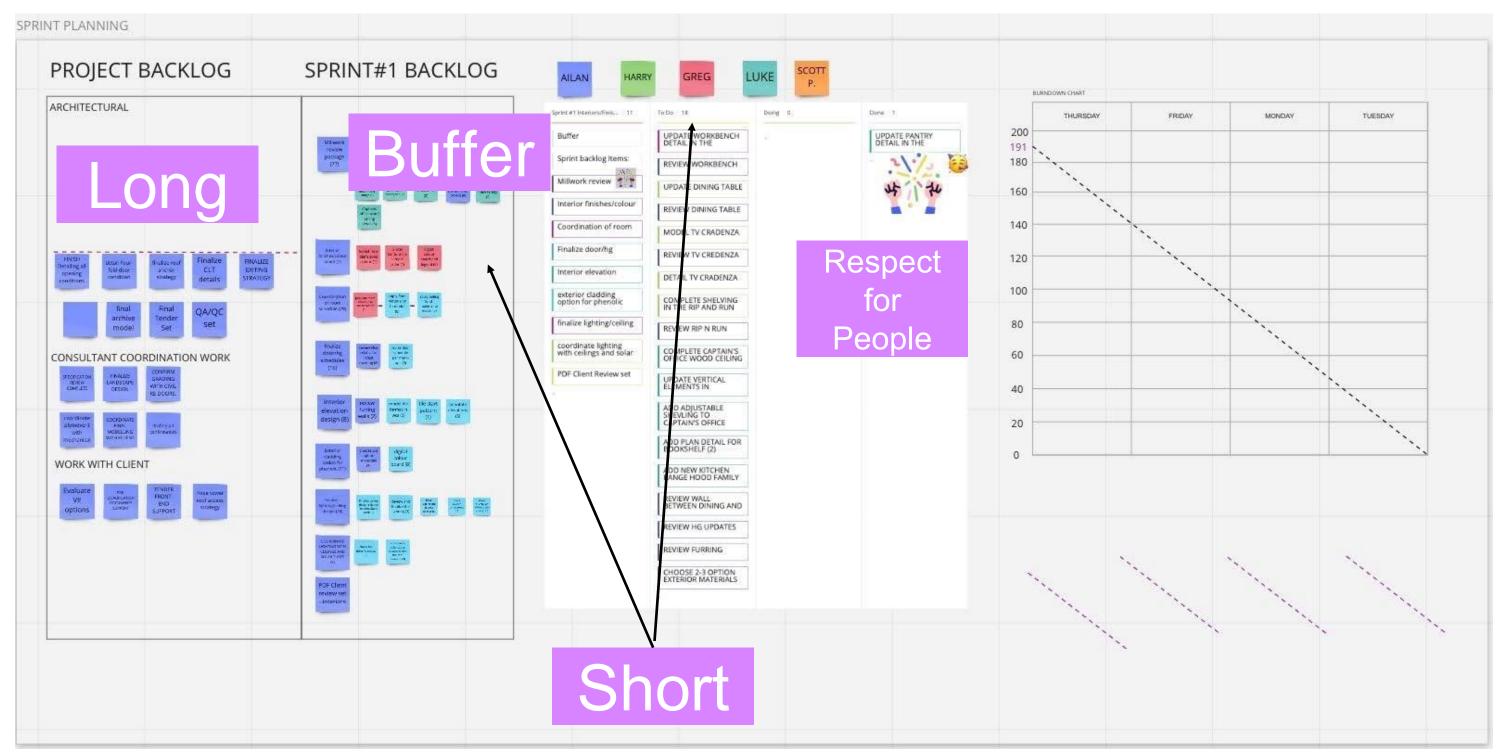


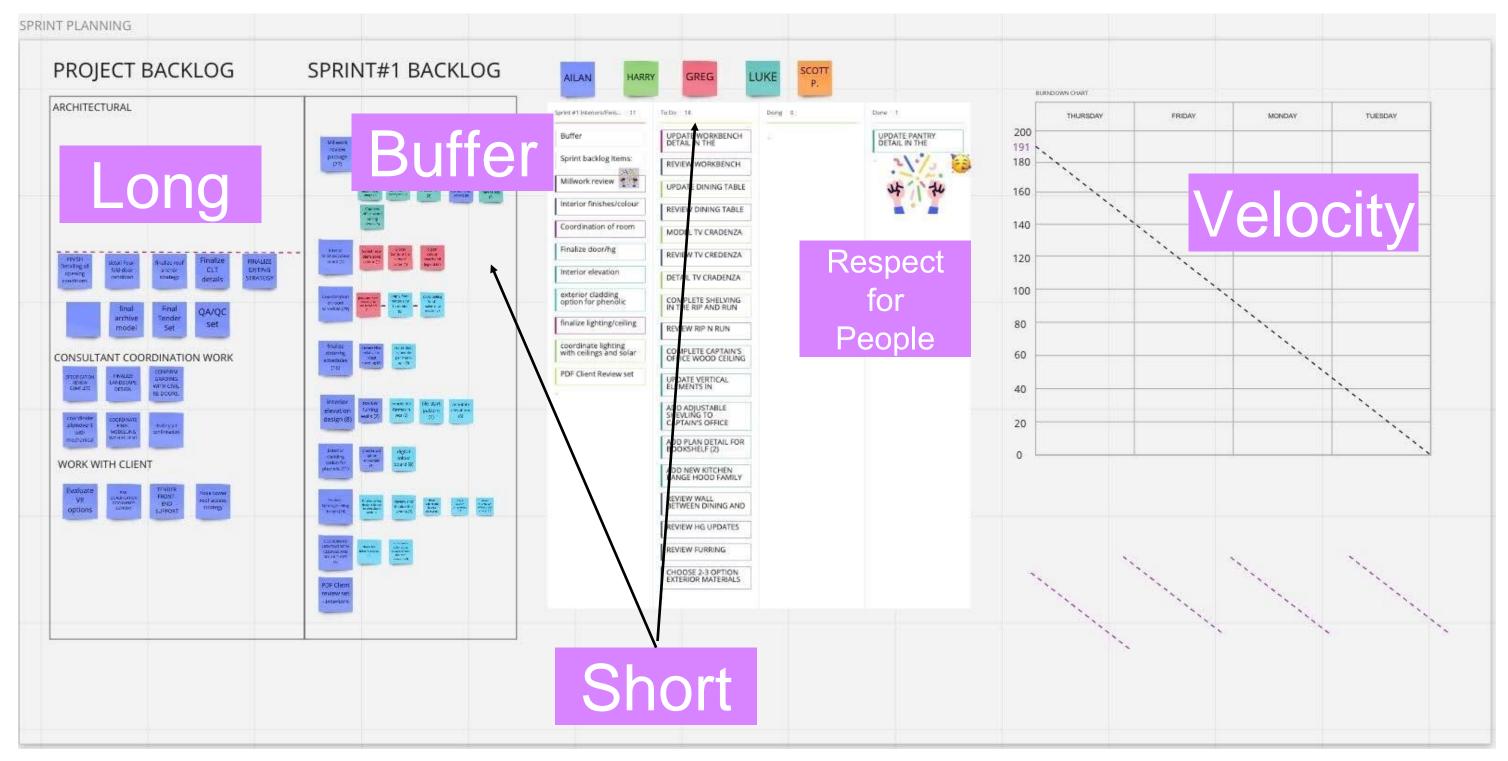


https://www.theebfcshow.com/blog/construction-scrum-case-studies/







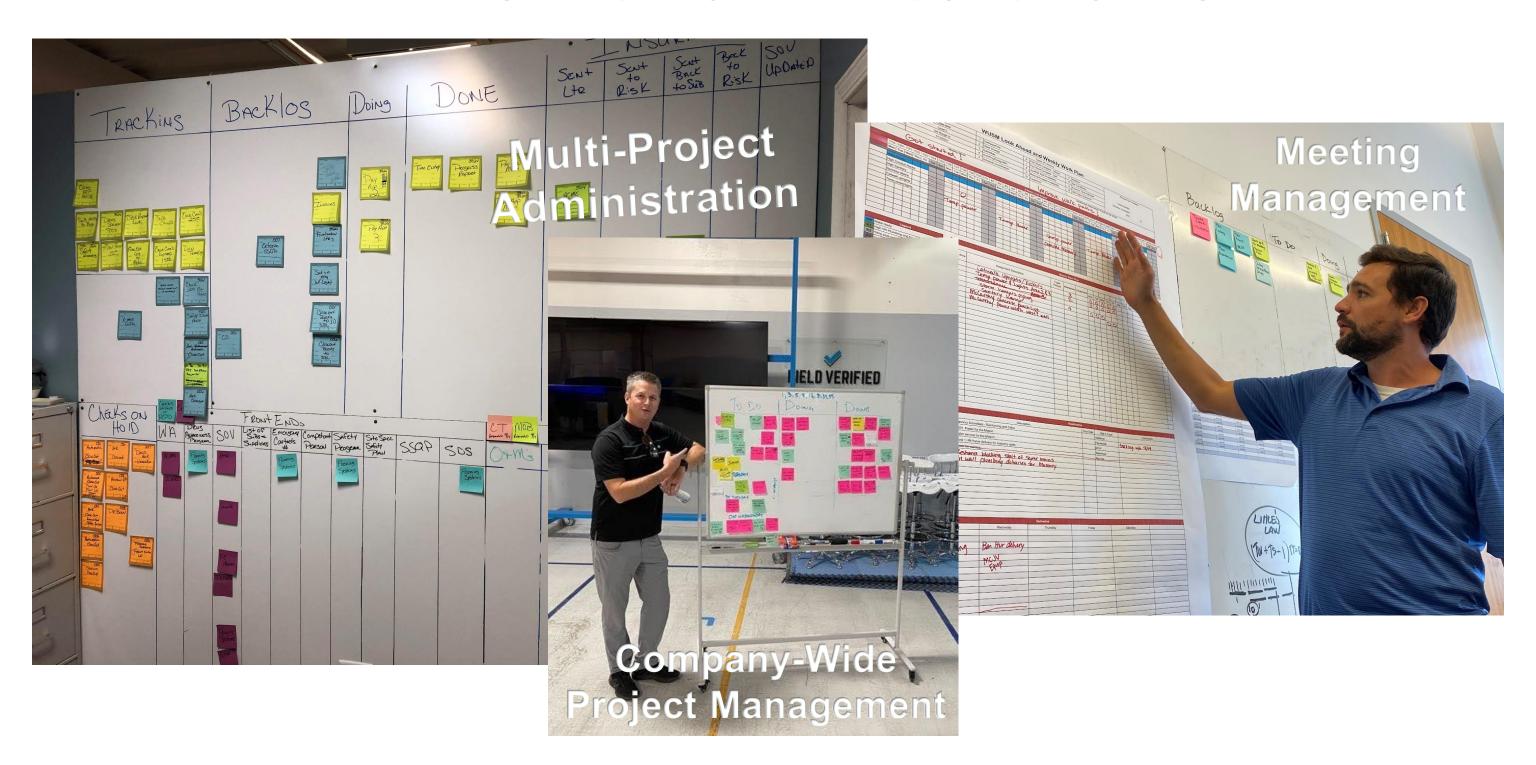


Scrum In Construction for Pursuits & More





Even More Scrum In Construction





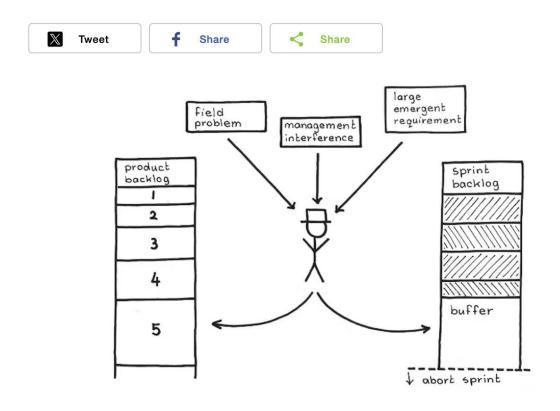
Learn More at The EBFC Show Blog



Building Project Success: How Scrum and the Happiness Metric Revolutionize **Project Management**



The Interrupt Pattern for Design and **Construction Teams**



Learning Objectives Review





Gain an overview understanding of the Scrum framework and terminology.



Understand the relationship between Scrum and Lean.



Experience hands-on application of Scrum.



Be ready to use the Scrum framework individually or with your teammates.

Lean Journey to Mastery



Mastery Competency Competency **Building Loop** How will you reach Understanding the next level on your Continuous journey? Learning **Awareness** Unaware

LCI Certification





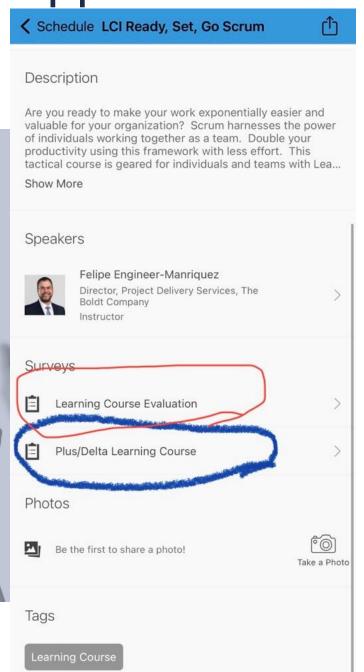




https://leanconstruction.org/lean-certification/

Plus/Delta via the Congress App







Conduct Plus/Delta

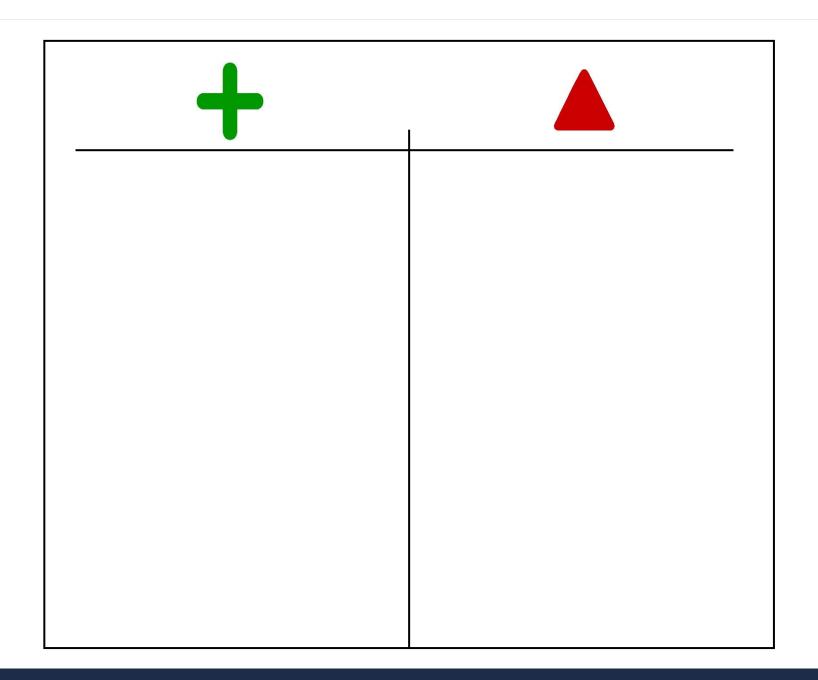




Plus: What produced value during the session?



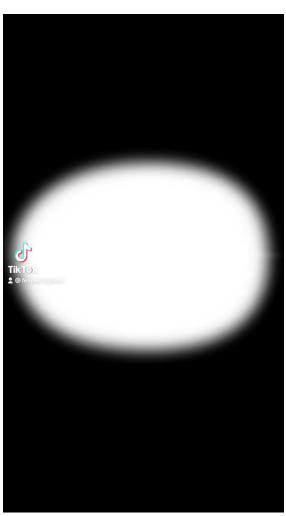
Delta: What could we change to improve the process or outcome?



Thank You

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https://thefelipe.bio.link/





Lean Construction Institute Immersive Education Program

LCI Website Information





www.LeanConstruction.org