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WIP Limits: Lessons from the Trenches

How to limit WIP at the team and organizational levels

Stephen Franklin, CTO, LeanKit

May 28th, 2014

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Part III of Blog Series

Final installment of Stephen Franklin's blog series: **"WIP Limits - How to Journey (safely) Into the Unknown"**

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Today's Discussion

- How Kanban systems can help you manage your WIP and set limits
- Tips for implementing WIP at the team and organizational levels
- Lessons learned from the trenches at LeanKit

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STEPHEN FRANKLIN

CHIEF TECHNOLOGY OFFICER

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Is Your Organization Sub-Merged by a Tidal Wave of WIP?

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WIP Limits: Blog Post Recap

- Part I:
  - What is WIP?
  - Why does limiting WIP matter?
  - Why is limiting WIP so hard?

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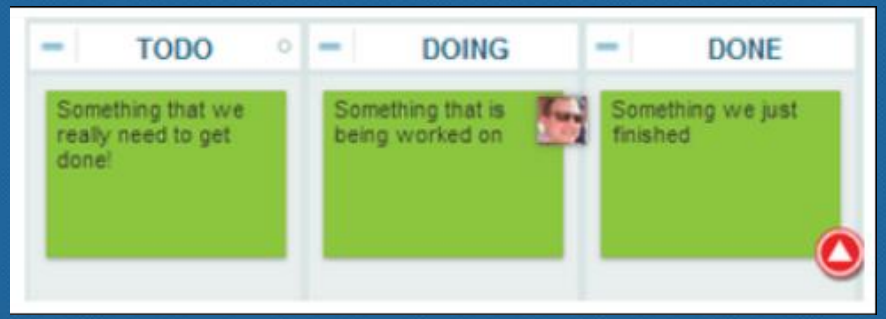
What is WIP?

- “Value demand that has been started but is not yet providing value to the customer.”



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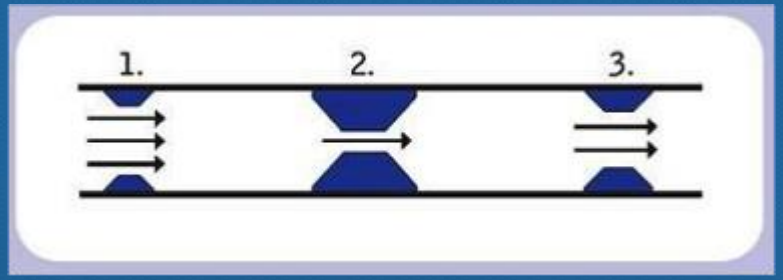
Why Manage WIP?

- All flow based systems have capacity limits
- Nearing or exceeding these limits results in bad things



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Why is Limiting WIP SO Hard?

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WIP Limits: Blog Post Recap

- Part II:
  - Personal WIP
  - Team (Execution) WIP
  - Organizational (Structural) WIP

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Managing Team (Execution) WIP

Limiting the team's WIP serves as the "lever" to implement a pull system so the amount of work to be executed matches the capacity of the team.

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Managing Organizational WIP

Limiting the strategic focus of the organization is less about flow and more about clear focus and direction.

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So, where do we go from here?

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We need a system!

"We need a better piling system."

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Kanban to the Rescue!

- Why we think the Kanban Method is such a valuable tool for limiting WIP?

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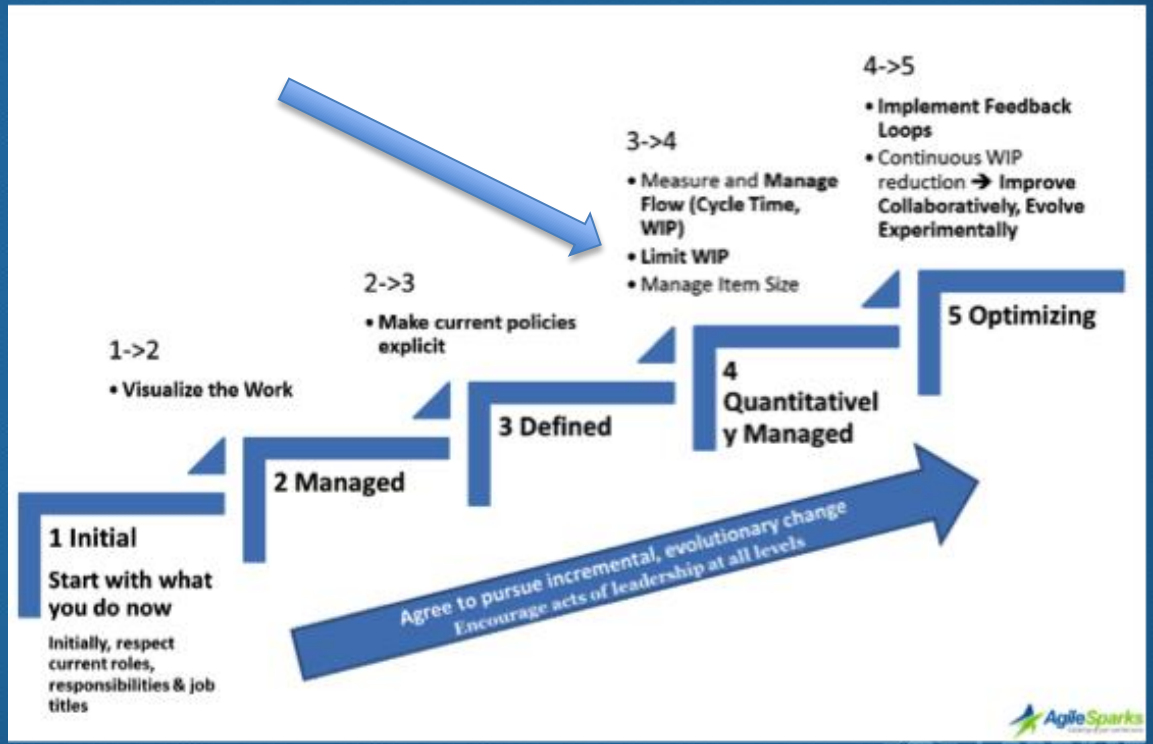
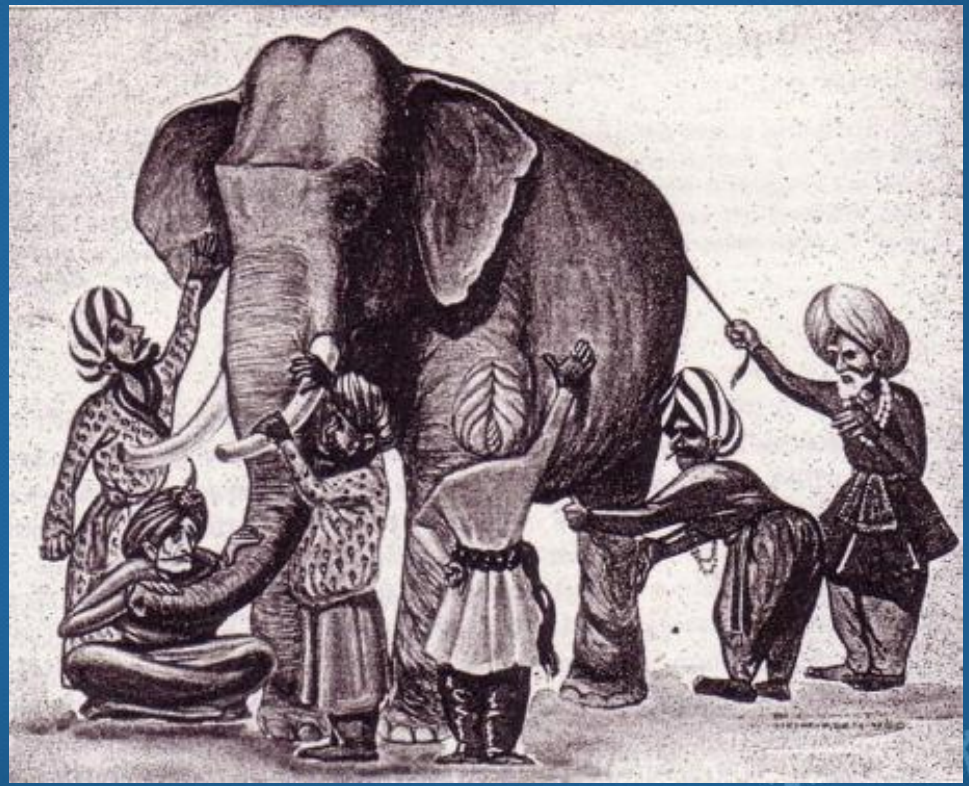
Kanban to the Rescue!

- Limiting WIP is a key tenet baked into the Kanban Method



Kanban to the Rescue!

- We cannot manage what we do not understand
- To manage the work, we need a shared understanding of it



Development

Test

Day 1

Ready (6)

(3)

In Process

Done

(3)

F1

F2

F3

F4

D1

F5

Yay! More Codez to

It's my job to replenish the ready queue –
I prioritize the top 6 items every 2-3 days

- Jon (Product Manager)

This queue replenishment process is a example of "Push"

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Development

Test

Day 2

Ready (6)

(3)

(3)

In Process

Done

In Pr

F1

F2

F3

F4

D1

F5

Finished One!

- Daniel and Stephen, Developers

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Development

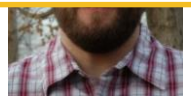
Test

Day 3

Ready (6)	In Process (3)	Done (3)	In Process	Done	Deploy	Done
F4	F2	F1				
D1	F3					
F6						
F7						
F8						
F9						

Better replenish the queue…

- Jon (Product Manager)



- Chris (Tester)

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Day 4

Ready (6)	Development (3)		Test (3)			
	In Process	Done	In Process	Done	Deploy	Done
D1	F2		F1			
F5	F3					
F6	F4					
F7						
F8						
F9						

This one is ready to deploy…

- Chris (Tester)

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Day 5

Ready (6)	Development (3)		Test (3)			
	In Process	Done	In Process	Done	Deploy	Done
D1	F3		F2	F1		
F5	F4					
F6						
F7						
F8						
F9						

I'm on it…

- Scott (DevOps)

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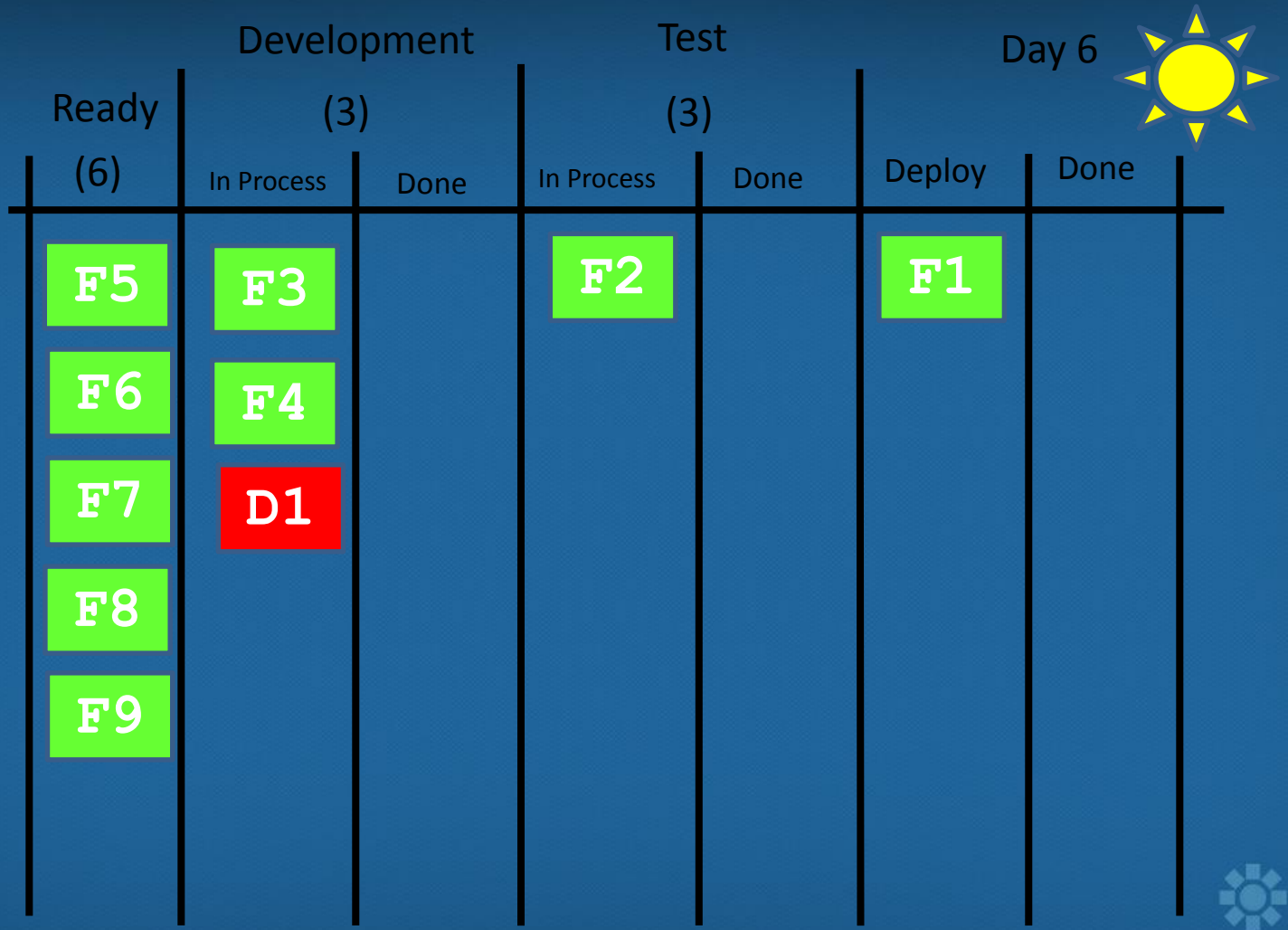
Development
Test
Day 6
Ready
(6)
(3)
In Process
Done
(3)
In Process
Done
Deploy
Done
F5
F6
F7
F8
F9
F3
F4
D1
F2
F1
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Development

Test

Day 7

Ready (6)	In Process (3)	Done (3)	In Process	Done	Deploy	Done
F5	D1	F3	F2			F1
F6		F4				
F7						
F8						
F9						

This one isn't working… I'll go ahead and pull some more to test…

- Chris (Tester)

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Day 8

Ready (6)	Development (3)		Test (3)		Deploy	Done
	In Process	Done	In Process	Done		
F7	F5	D1	F2			F1
F8	F6		F3			
F9			F4			
D2						
F10						
F11						

Rock and Roll…
We've been very productive these last couple of days

- Daniel and Stephen, Developers

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Development
Test
Day 9
Ready
(6)
(3)
(3)
In Process
Done
In Process
F7
F8
F9
D1
F2
F3
F1
F1
1
F2 is broken…
What can we do to help?
Oops…can't do that…it ould break the WIP
Ok, we're on it
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Day 10

Ready (6)	Development (3)		Test (3)			
	In Process	Done	In Process	Done	Deploy	Done
F8	F7	F5	F4		F3	F1
F9		F6	D1		F2	
D2						
F10						
F11						
F12						

Work is flowing nicely now…

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Day 11

Ready (6)	Development (3)		Test (3)			
	In Process	Done	In Process	Done	Deploy	Done
D2	F7		F5		F4	F1
F10	F8		F6		D1	F3
F11	F9					F2
F12						

Now we're really getting some stuff done!

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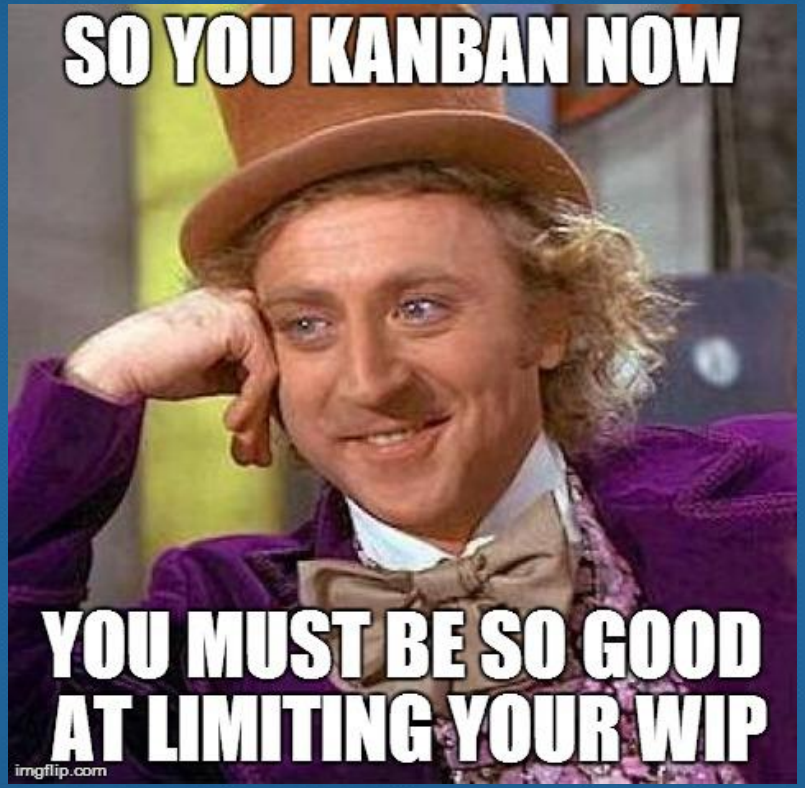
Smooth sailing from here on out, right?



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Tips and Dragons

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3 Classifications of WIP

- Personal WIP
- Team WIP / Execution WIP
- Organization WIP / Structural WIP

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Managing Team (Execution) WIP

- Why: To Improve Flow

- Challenges:
  - Variability
  - Constraints
  - Interpersonal Dynamics

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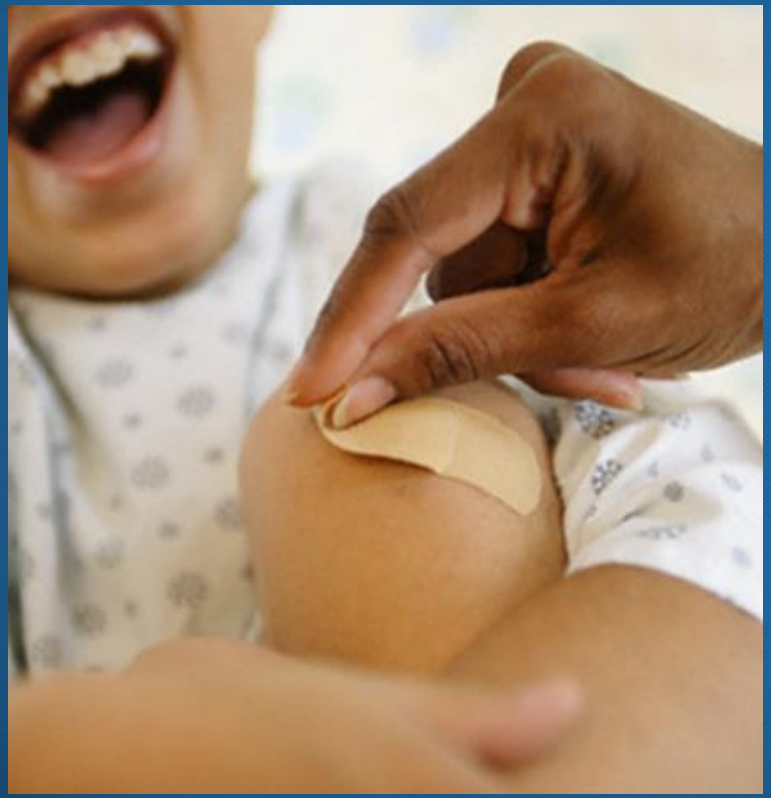
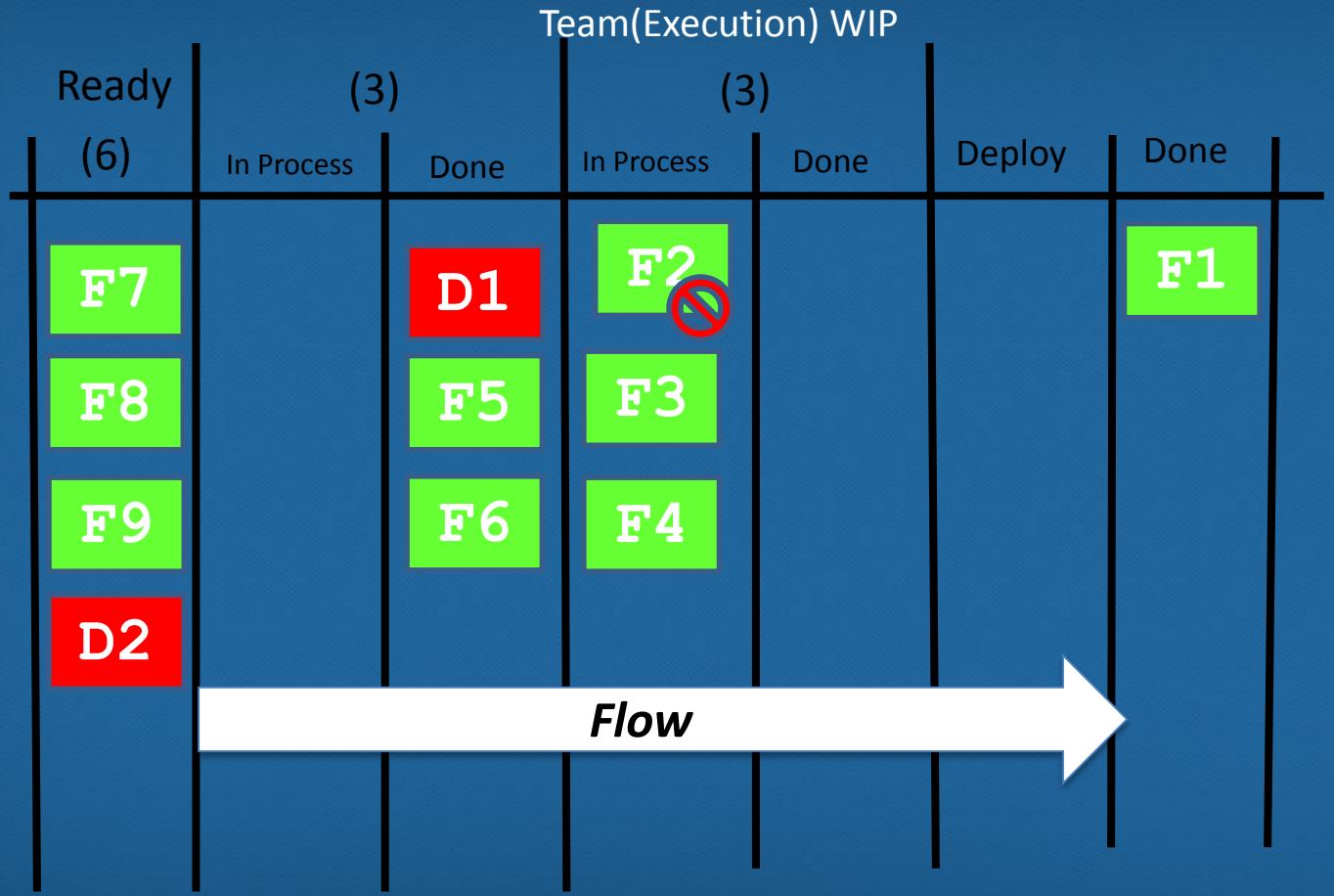
Introducing Limits

Team(Execution) WIP



Vs.

Handling Variability and Constraint Mobility



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Handling Variability and Constraint Mobility

Team(Execution) WIP

Work regression was a major issue that introduced large variability in our flow

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Ensuring Adoption

Team(Execution) WIP

- The secret formula for ensuring WIP management is:

$$P_r = P_t \int \frac{\lambda^2 g_t g_r}{(4\pi)^2 r_1^{\,2} r_2^{\,2}} \sigma \, dV$$

- Actually, there isn't a single formula

THE PROTECTOR OF THE CHEESE
Don't even try to move this guy's cheese.

THE SCOPE CREEPER
This one's motto is "While I'm in here doing this, I might as well do these things, too."

THE HOARDER
Latches onto and owns as much WIP as possible. Spreads themselves very thin trying to have their hand in too many things.

THE "TADA"
Reluctant to report on anything that they're working on until their great reveal: "TaDa!"

THE SPEED LISTER
Thinks they're the exception to the rule for multi-tasking. Constant motion through a list of ToDos. Everything is in process.

THE LONE WOLF
Never needs or accepts help from others. Similar to The Hoarder but tends to want to control a few things very tightly.

Scaling WIP Limits

Team(Execution) WIP

- What are things to look out for?
- Horizontal Scaling across a value stream
- Vertical Scaling across higher levels of abstraction

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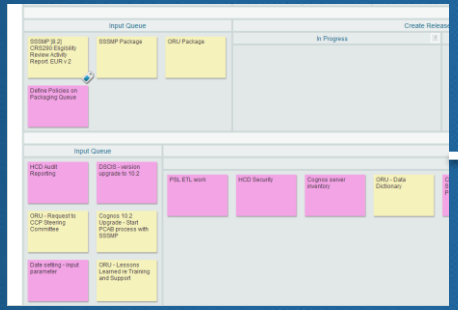
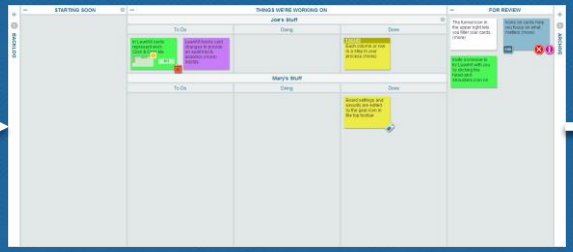
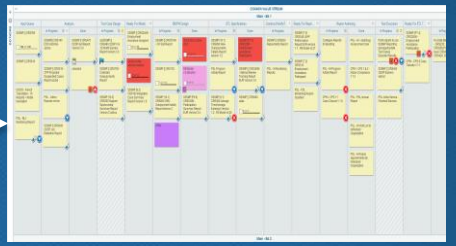
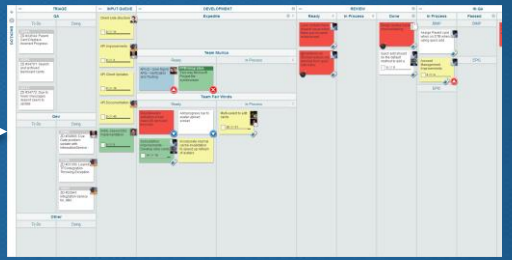
Across the value stream…

Team(Execution) WIP









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WIP Dispersion (aka WIP Sprawl)

Team(Execution) WIP

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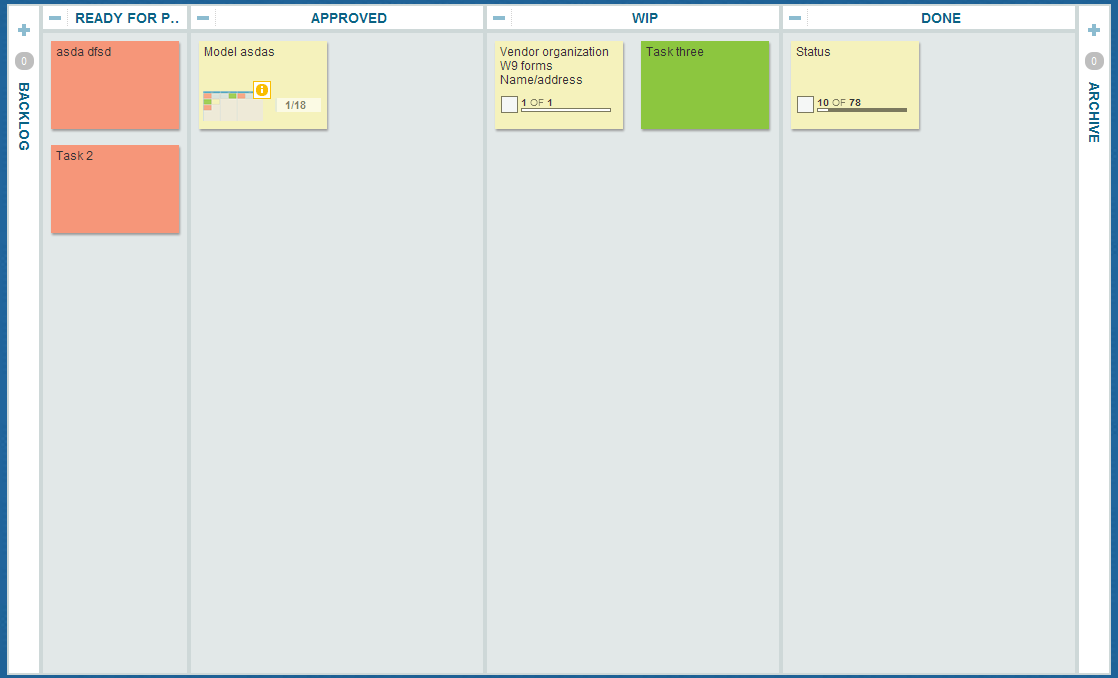
WIP Dispersion Examples

Team(Execution) WIP



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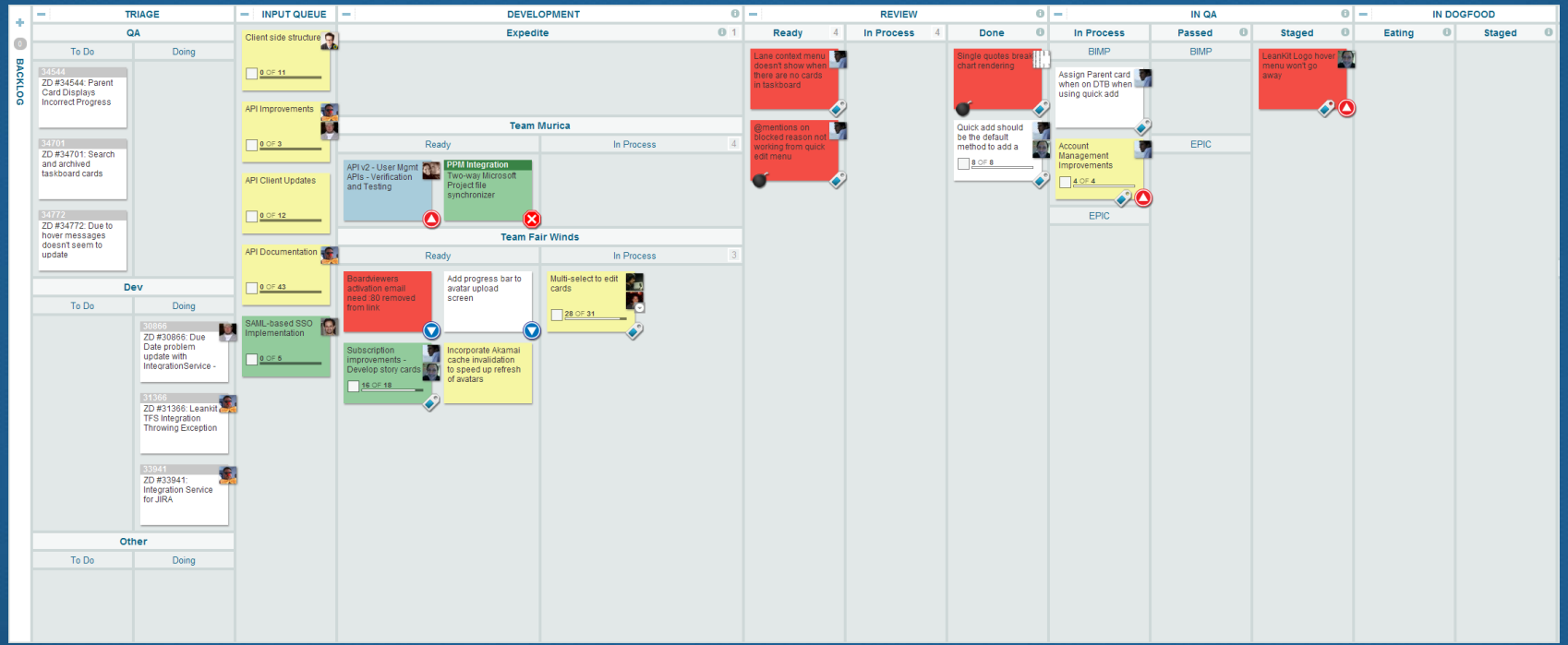
WIP Dispersion Examples

Team(Execution) WIP



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WIP Dispersion Examples

Team(Execution) WIP

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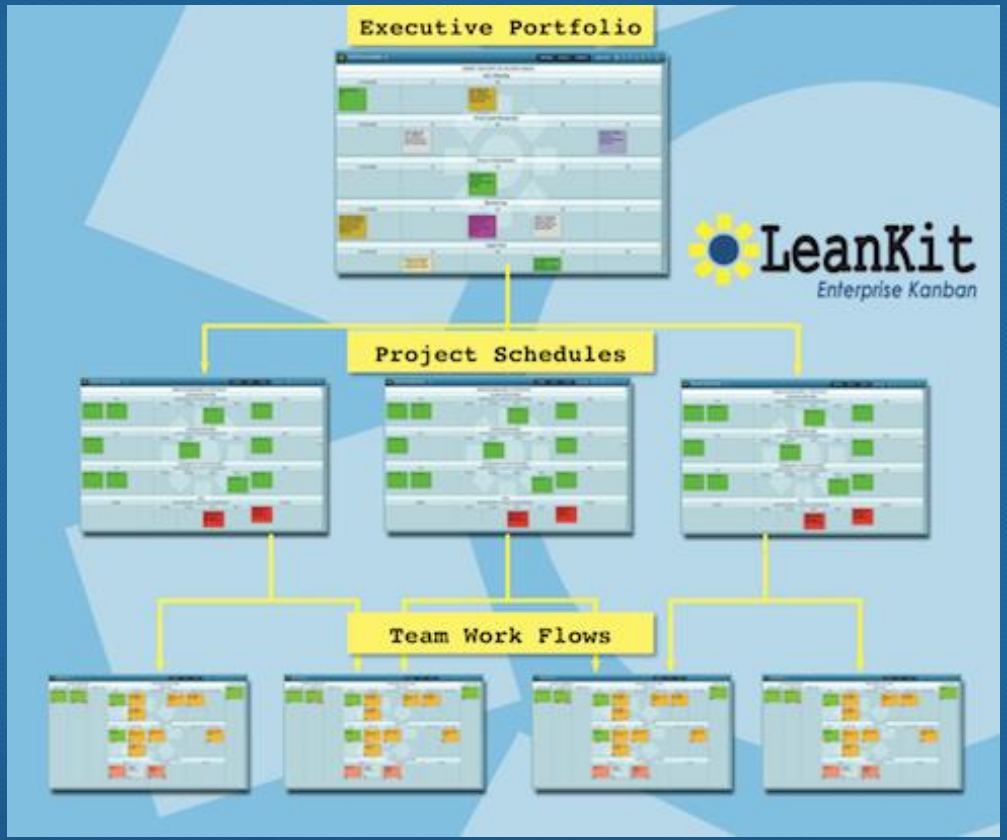
What to do?

Team(Execution) WIP



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So you got your execution WIP under control, time to relax

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Managing Organizational (Structural) WIP Limits

- Why: Clear Focus, Align Strategy with Execution

- To Make It Work
  - Maintain focus by limiting your options
  - Systems Thinking (top to bottom, bottom to top)
  - Diligently monitor for hidden WIP and WIP capacity violations

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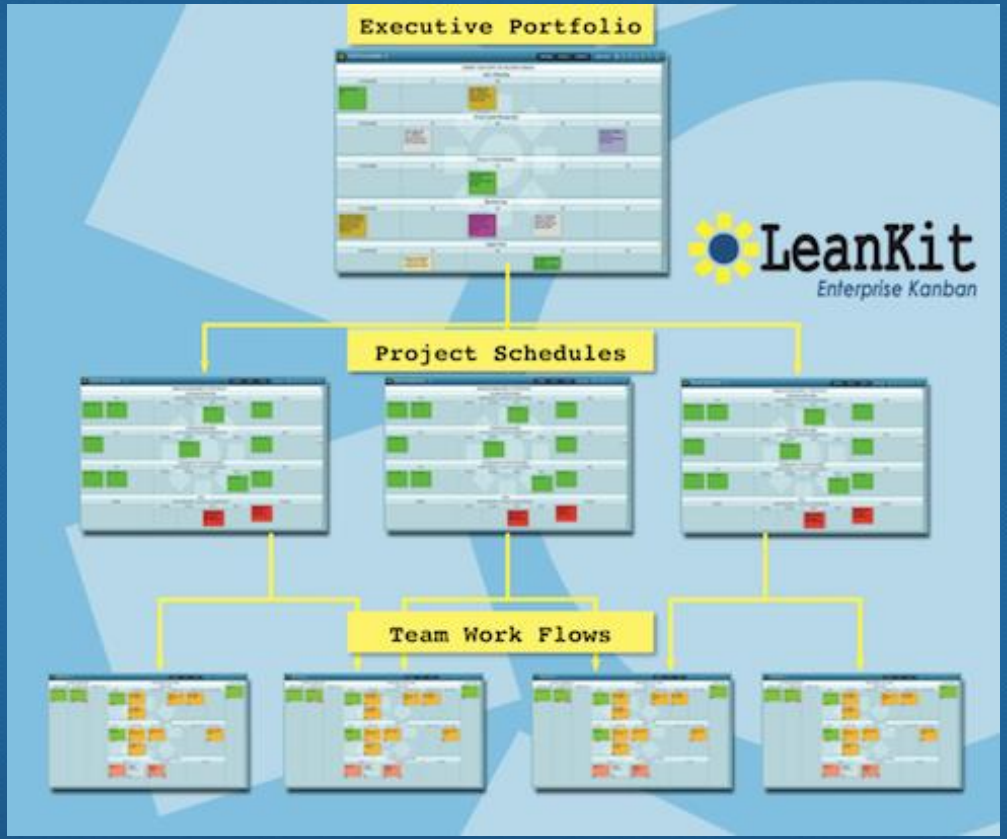
So what does this really mean?

Let’s look at an example



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Strategic Goals
Strategic Initiatives
Executive Deliverables
Portfolio Management
Program/Project Delivery
Operations Deliverables
Executive Team Execution
Team Execution

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A change of perspective?

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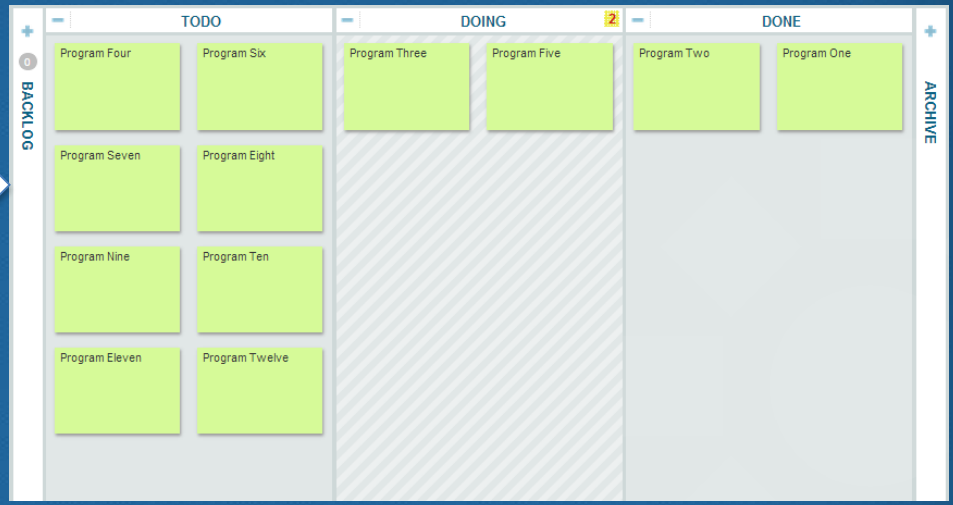
Look out: Strategic Bloat



Cycle Time = 6 weeks

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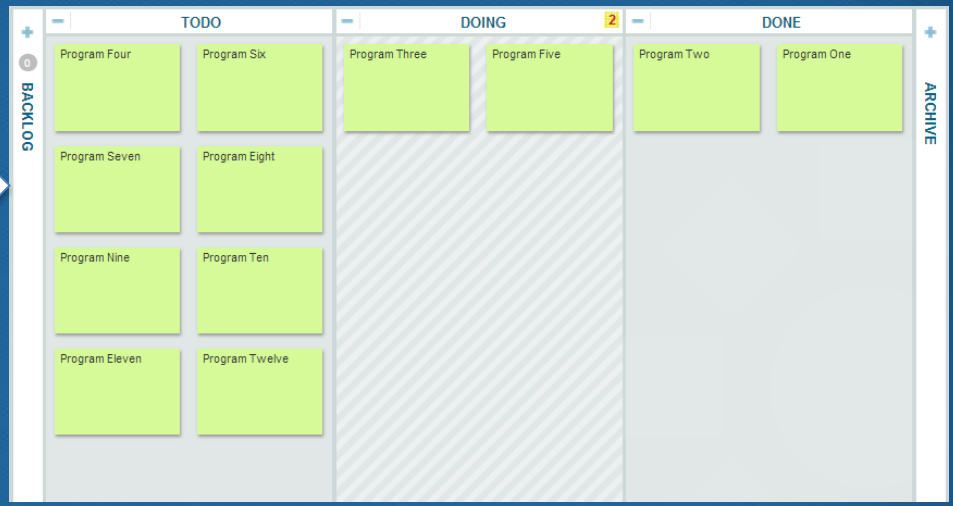
Look out: Internal Distractions



Cycle Time = 6 weeks

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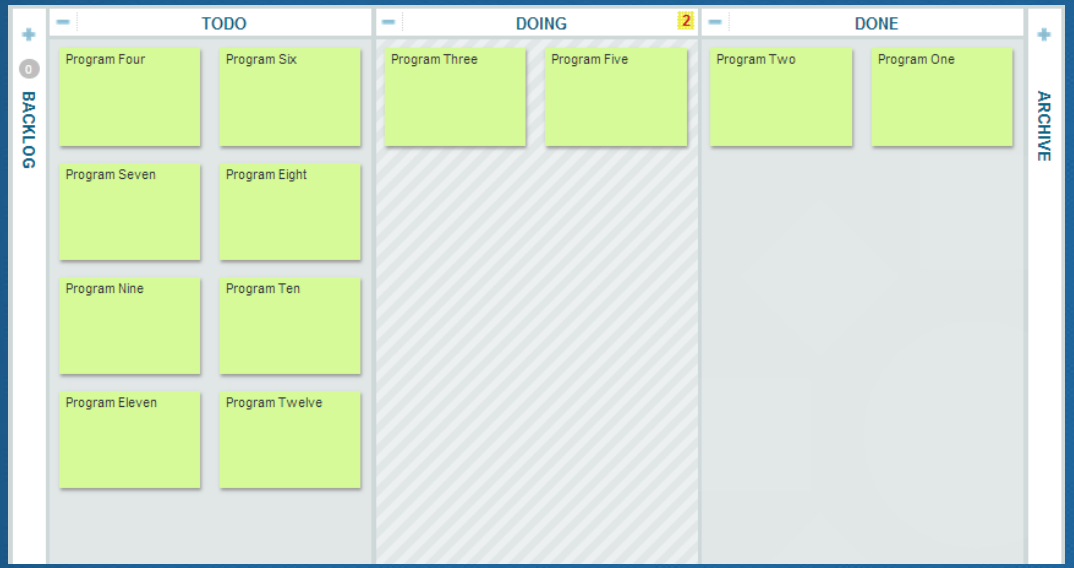
Look out: Internal Distractions



Cycle Time = 6 weeks

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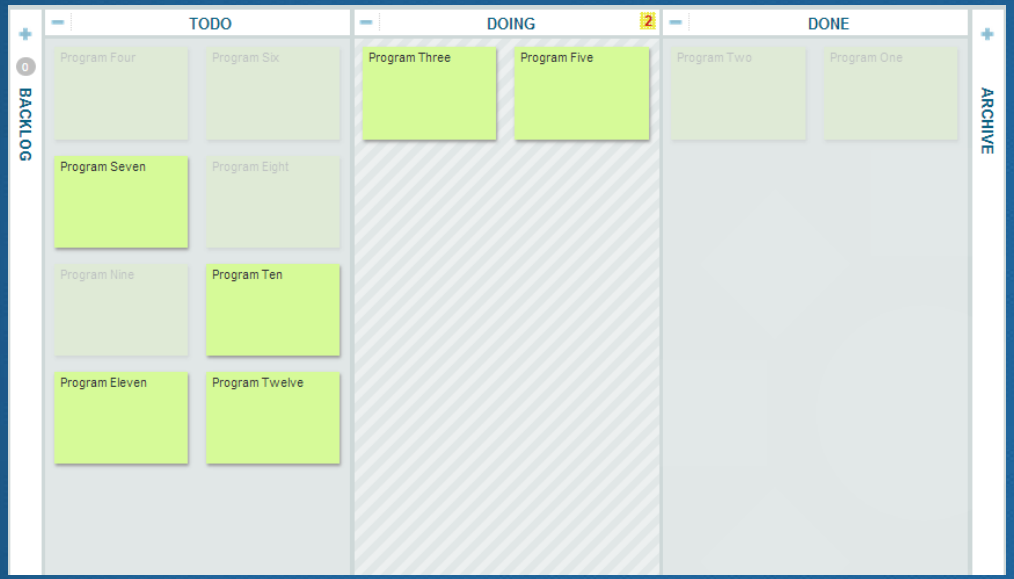
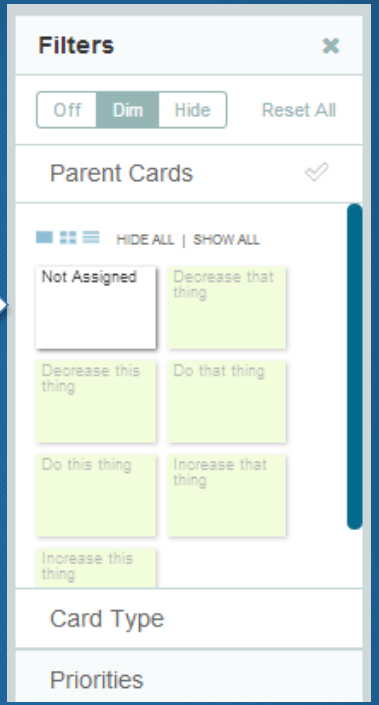
Look out: Internal Distractions





Cycle Time = 6 weeks

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Closing Points

- Managing WIP is difficult
- It takes a lot of dedication and commitment
- Perfection is the enemy of progress
- Organizations that stick to it become hyper-productive

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YOUR QUESTIONS ANSWERED

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Operational Topics

- Should only "in progress" lanes count towards your WIP Limit?
- How do you limit WIP when there are lots of dependencies between teams?

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Situational Topics

- If developers have WIP limits, what will they do while they wait for QA to finish testing?
- How useful are WIP limits when you follow a Scrum model?

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Communication Topics

- How to convey WIP limits to executive management to prevent overscheduling?
- What to do when managers are the biggest WIP offenders, causing bottlenecks and delays?

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Next Steps

- Keep Persevering!
  - Managing your WIP IS hard, but the benefits are worth it.
- Learning Resources
  - Link to the complete WIP limits blog series
  - Kanban Roadmap

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Thank you!

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