



# KANBAN EXPLAINED

## Seeing the Constraints

MAY 16 & 17, 2018

CLEVELAND PUBLIC AUDITORIUM, CLEVELAND, OHIO

[WWW.NEOOUG.ORG/GLOC](http://WWW.NEOOUG.ORG/GLOC)



**“THE KEARSARGE”**  
STEAMSHIP BUILT IN 1892

# LEANDOG

We help businesses compete and thrive through custom software development and end-to-end consulting.



CUSTOM SOFTWARE DEVELOPMENT



BUSINESS INNOVATION CONSULTING



AGILE COACHING & TRAINING





## Concepts

- Whole Team
- Open Workspace
- T-Shaped People
- Sustainable Pace
- Information Radiators
- Frequent Releases
- Story Card Wall
- Roadblocks
- Agile Triangle
- Cone of Uncertainty

## Process

- Scrum Framework
- Product Backlog
- Story Card Writing
- Estimation & Sizing
- Release Planning
- Sprints/Iterations
- Sprint/Iteration Planning
- Daily Scrum/Stand Up
- Show & Tell
- Retrospectives
- Velocity
- Customer Collaboration
- Kanban
- Acceptance Test Driven Development

## Craft Responsibilities

### Leadership

- Servant Leadership
- 6 Thinking Hats
- Collaboration 8
- Fist to 5

### Scrum Master Iteration Manager Team Facilitator

- Demand Management
- Product Backlog
- Release Planning
- Sprint/Iteration Planning
- Show & Tell
- Retrospectives
- Velocity
- Roadblocks

### Quality Assurance

- Exploratory Testing
- Automated Regression Testing
- Acceptance Test Driven Development

### Developer

- Collective Code Ownership
- Continuous Integration
- Simple & Evolutionary Design
- Paired Programming
- Test Driven Development
- Technical Debt
- Spikes

### Product Owner

- Story Card Writing
- Value Stream Mapping
- Acceptance Test Driven Development

### User Experience

- Personas
- Story Mapping
- Low-Fidelity Prototyping

# KANBAN

A woman in a white patterned sweater and blue jeans stands in a meeting room, looking at a large Kanban board. The board is a grid of columns and rows, with many small white cards (kanbans) attached. The cards are organized into columns, with some having numbers written on them. The room has a window in the background and a whiteboard with more notes on the right wall. The overall scene is dimly lit with a blue tint.

# Agile Audience

- Basic Understanding of
  - Whole / Standing Teams
  - Story Carding
  - Sprint/Iteration Planning
  - Card Estimation
  - Velocity
  - Stand Ups
  - Show & Tells

# Today's Backlog

- See The Whole
- More Queue Signals
- Team Signals
- Retrospective Board
- Process Changes
- More Info
- Q&A
- Kanban
- Create the WIP Queues
- Set Limits
- Pull Value
- MMF/MUF
- Cycle Time/Throughput
- Backlog Boards

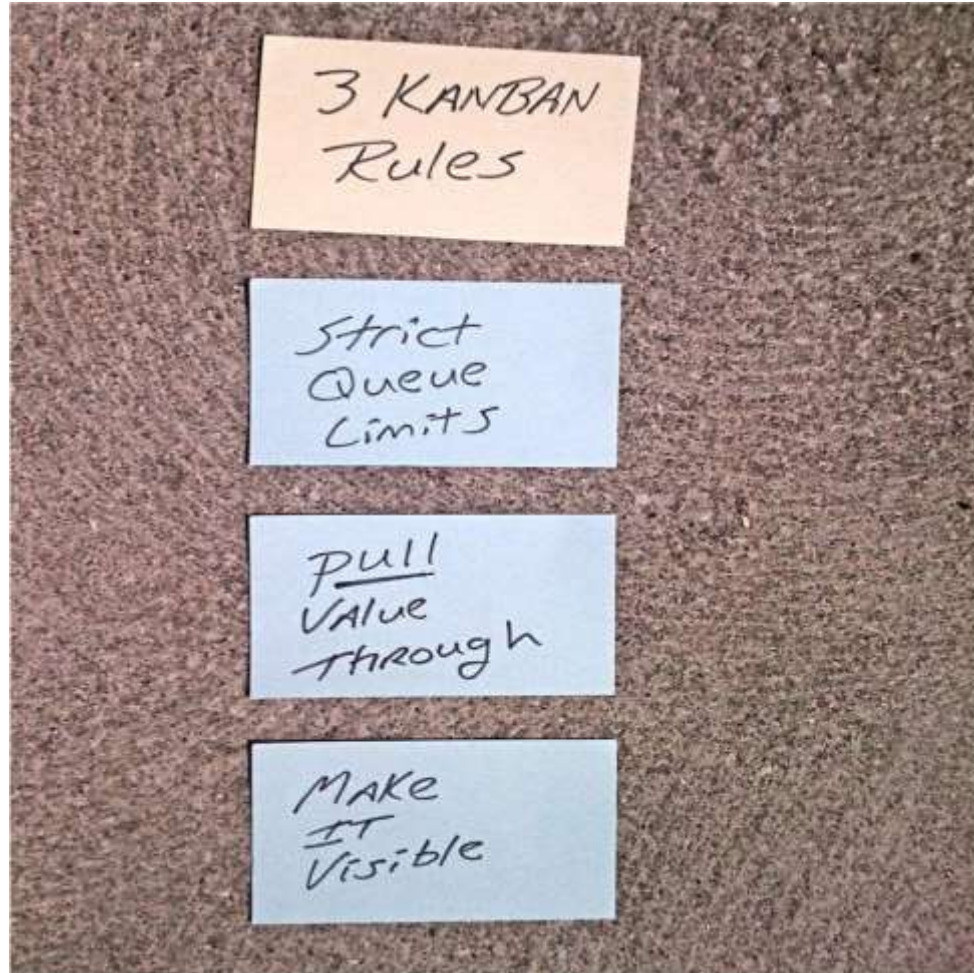
Stahl Warning: I talk fast so stop me if necessary!

# Kanban

- Signboard or Billboard
- Kan means "visual," and ban, means "card" or "board"
  - Is a signaling system to trigger action
  - Uses cards to signal the need for work to be done
  - Another Toyota Lean lesson focusing on Just in Time production
  - Example: 20 car doors, 5 left = “time to make more doors”
  - Doors are requirements, requirements are inventory



# Kanban



See your limits!





FEATURE PRIORITIES

FEATURE 8  
●

FEATURE X  
●

FEATURE A  
●

WIP

TEAM RULES

STANDARD TIME 9 AM  
LATE TO MEETING = \$2

GOAL WORK HOURS 9:30-5:30

TIME SHOTS END THE DAY 3 PM

KEEPING EVERY 2 WEEKS

RETROSPACTIVE FRI 2 PM

ANALYSIS

6

●
●
●
●
●
●
●

WAITING FOR DEV

3

●
●

DEVELOPMENT

5

●
●
●
●
●

IF dev with same priority for >1 day, = \$2

IF developer spend, trigger next dev cycle

WAITING FOR TEST

2

●
●

IF customer facing, trigger WXTOM

TEST

2

●
●

UPDATE CYCLE TIME + wait-time

DONE = AUTOMATED TEST COMPLETE

DEFECTS GO TO TOP OF WAITING STACK

SHOW + TELL

4

●
●
●

WHEN Q1 IS FULL, TEAM STARTS Q2

WHEN 3 CARDS FOR FEATURE X CALL MARY

11

YOUR WAIT TIME FROM HERE

14

DAYS For Small

# Work In Progress Board (WIP)

- Create Columns for Each Step in your process
- Pick Limits for “Active” Queues
- Set “Wait” Queues to 2 or 3, keep small, Eliminate waste, get feedback
- FIFO
- If a slot is full, can’t start more work (A.K.A. PULL)
- Team sets Queue sizes to be most efficient, experiment
- Designed to Limit WIP, More WIP means slower flow



# Work In Progress Board (WIP)

- Visible feature goals to minimize thrashing
  - MMF = minimal marketable feature
  - or MUF = minimal usable feature
- Can Only reorder in “Wait” Queue to move MUF forward
- Put Team Signals/Rules Above WIP
- Queue & Cross Team Signals On Bottom
- Could add a Queue for External Team

# Team Signals: Agreements that Impact Cycle Time

TEAM  
RULES

STANDUP  
TIME  
8 AM

GOAL  
WORK  
HOURS  
8:30 - 5:30

Time  
sheets  
DUE FRI  
By 3 pm.

LATE  
TO STANDUP  
= \$2

RELEASE  
EVERY 2  
WEEKS

Retrospective  
FRI 2 PM

TEST

SHOW  
+ TELL

# Queue Signals

IF met with  
same person for  
> 1 DAY, = #2

IF Architecture  
= New, trigger  
Arch Review  
mtg.

IF consumer  
Facing, trigger  
UX TEAM

# Backlog Board

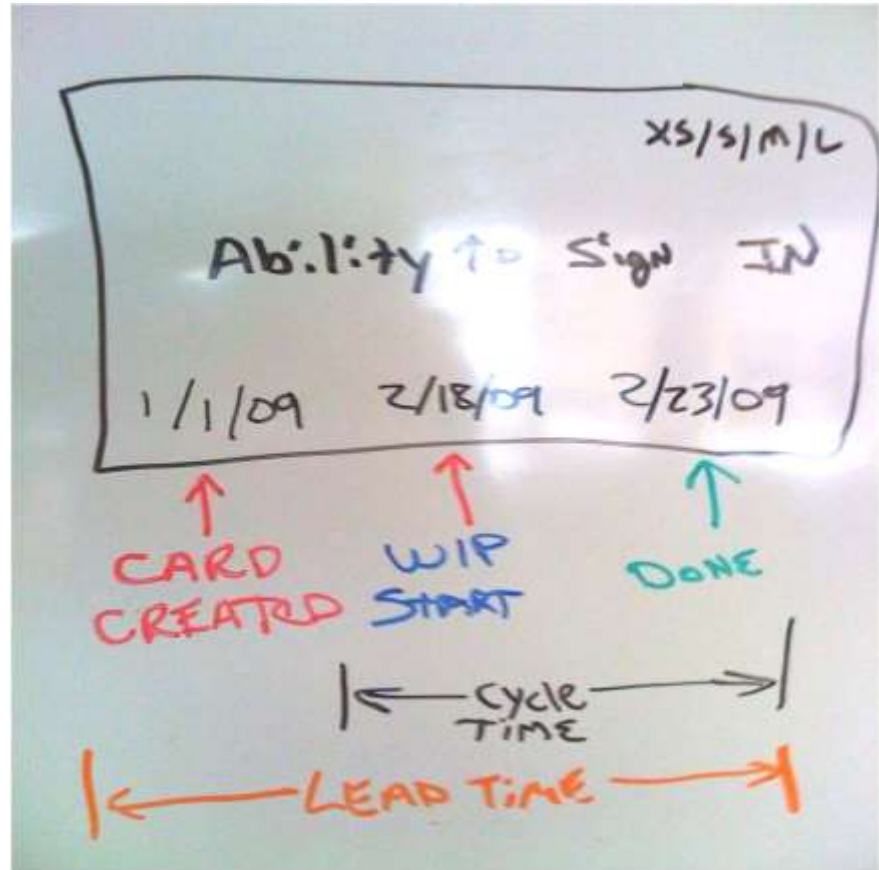
- 3 Queues to show priorities
- Set back log limit for each board to equal number of slots on WIP
- Make assumption relative sizes will be close
- Same number of items in WIP on each board (22 in this example)
- Add up the “units” to ensure they are close, move wait line if they are considerably (not marginally) off



# Backlog Board

- Can now forecast based on logical assumptions
- Schedule regular backlog honing meetings with customer, rules at top
- Trigger release planning meetings when necessary
- Card is a TOKEN, physical means real, avoid temptation to live by a tool

# What Goes On In a Card



# Your Wait Time From Here Is....



## Magic Kingdom

Astro Orbiter: 1 minute 30 seconds

Barnstormer: 1 minute 3 seconds

Big Thunder Mountain Railroad: 3 minutes 25 seconds

Buzz Lightyear's Space Ranger Spin: 4 minutes 3 seconds

Carousel of Progress: 20 minutes 45 seconds

Cinderella's Golden Carrousel: 2 minutes

Country Bear Jamboree: 15 minutes 55 seconds

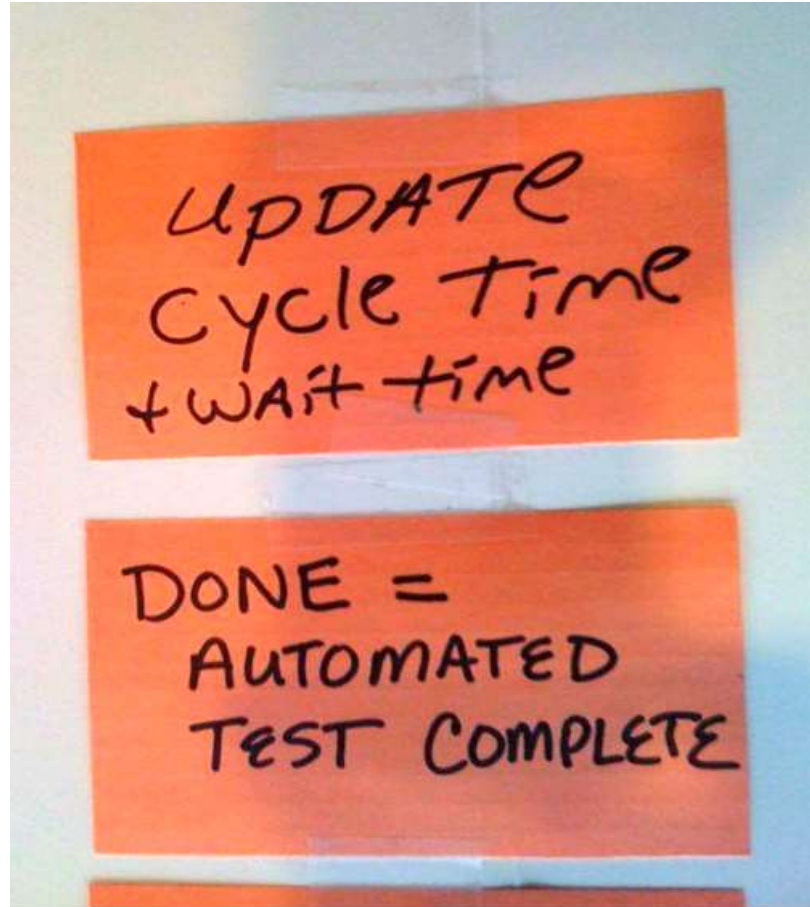
Dumbo the Flying Elephant: 1 minute 30 seconds

Enchanted Tiki Room - Under New Management: 10 minutes

Hall of Presidents: 22 minutes 48 seconds

Haunted Mansion: 7 minutes 30 seconds

Queue Signal:  
Update Cycle  
Time





YOUR WAIT  
TIME FROM  
HERE

14

DAYS  
For SMALL

# Card Sizing



# Cycle Time/Throughput

- Goal is to get optimum flow
- How many days does it take to flow through the team once it enters the WIP?
- Keep a chart: Wait/Cycle Time for each card size
- Good teams/systems: XS to Medium cards, Large = Bad
- If 22 ~same size cards in WIP, track 22 as well
- Sum up unit value on each board
- Velocity is a trailing indicator
- Throughput is a measure of demonstrated capacity

FEATURE PRIORITIES

Feature Y  
- Jul

Feature 8  
- OPS

Feature X  
- Jul

Feature A  
- Dec

BACKLOG #1  
22 Total

TEAM RWES

Blocked with  
waiting team  
left to verify  
can launch

With Feature Set  
Study  
Other Year Done

BACKLOG  
10


PRIORITY 3  
5


PRIORITY 2  
4


PRIORITY 1  
3


YOUR WAIT TIME FROM HERE

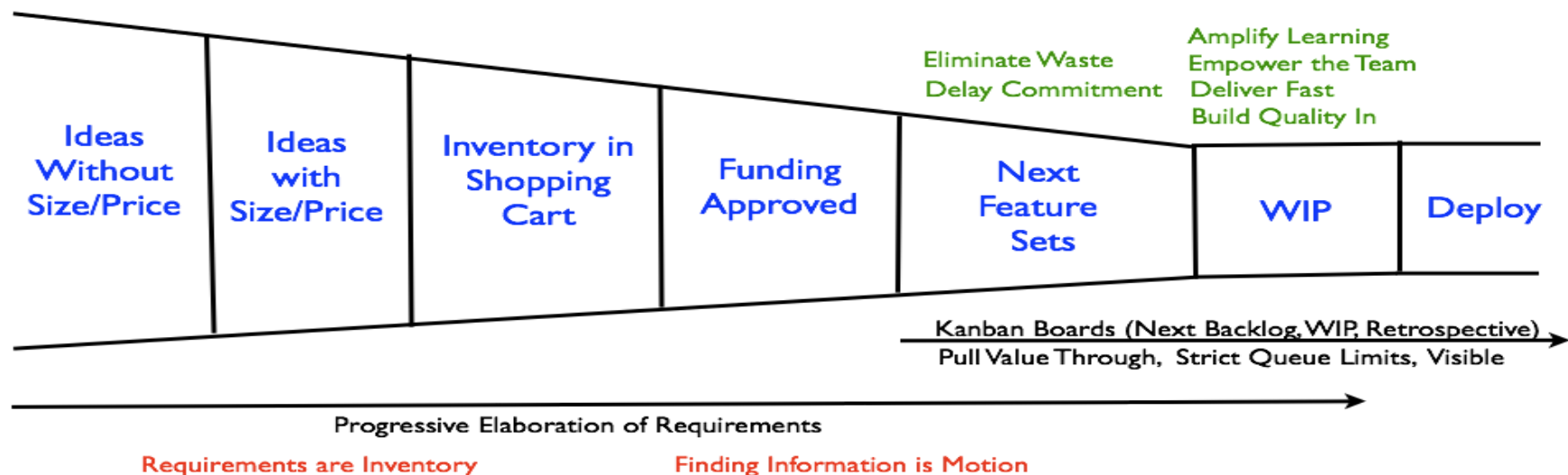
28

DAYS



# See the Whole - Lean Software Development

Standard Workflow from Idea to Production



Legend: Lean Principles, Types of Waste, Techniques Applied

- If WIP takes all the demand, no room for continuous improvement
- Continuous Improvement, Retrospective Board
- A congested highway does not flow efficiently.
- Must allow room for improvement

# Retrospective

ISSUE number  
Created on Date Due Date

NEW

3

- 
- 
- 

BACKLOG

5

- 
- 
- 
- 
- 

NEXT

2

- 
- 

IN PROGRESS

2

- 
- 

WIP STARTS ←

SHOW + TELL

1

- 

DONE

- 
- 
- 

CALL ME if any when necessary

WHEN LIMIT REACHED, MEET

When limit reached, MEET

# Retrospective Board

- Retro's Scheduled Bi-Weekly
- Courage comes easier when together, so we recommend scheduled retro's
- Take New items and rework board to limit of 12
- AND have a retro when New limit is reached
- Columns: New, Backlog, Next, In Progress, Show & Tell, Done
- Developer could have worked on Retro Wall
- Requires strong team to have courage to post new items



# Agile/Scrum Cadence

- Sprint/Iteration Close
  - Show & Tell
  - Review Velocity
  - Retrospective
- Sprint/Iteration Open
  - Target Velocity
  - Review Cards
  - Sign Up for Work

# Flow is Continuous

- Sprint/Iteration Close
  - Show & Tell ← Triggered or Scheduled
  - Review Velocity
  - Retrospective ← Triggered & Scheduled
- Sprint/Iteration Open
  - Target Velocity
  - Review Cards
  - Sign Up for Work

# What's Changed: Optimize Continuous Flow

- No iteration planning meetings
- FIFO work order, don't sign up
- Cycle Time replaces velocity, always updated
- Signal Event: Show & Tell; RPM
- Scheduled Events: Retrospectives; Releases per MMF/MUF or Cadence

# Scrum vs. Kanban

- Why do we really care?
- Agile Manifesto is about uncovering better ways of doing software – not about one practice vs. another
- Principles
  - Frequent Delivery does not mean you must do iterations
  - Maintain a constant pace indefinitely (sustainable pace AND consistent pace?)



# Daily Scrum Standup

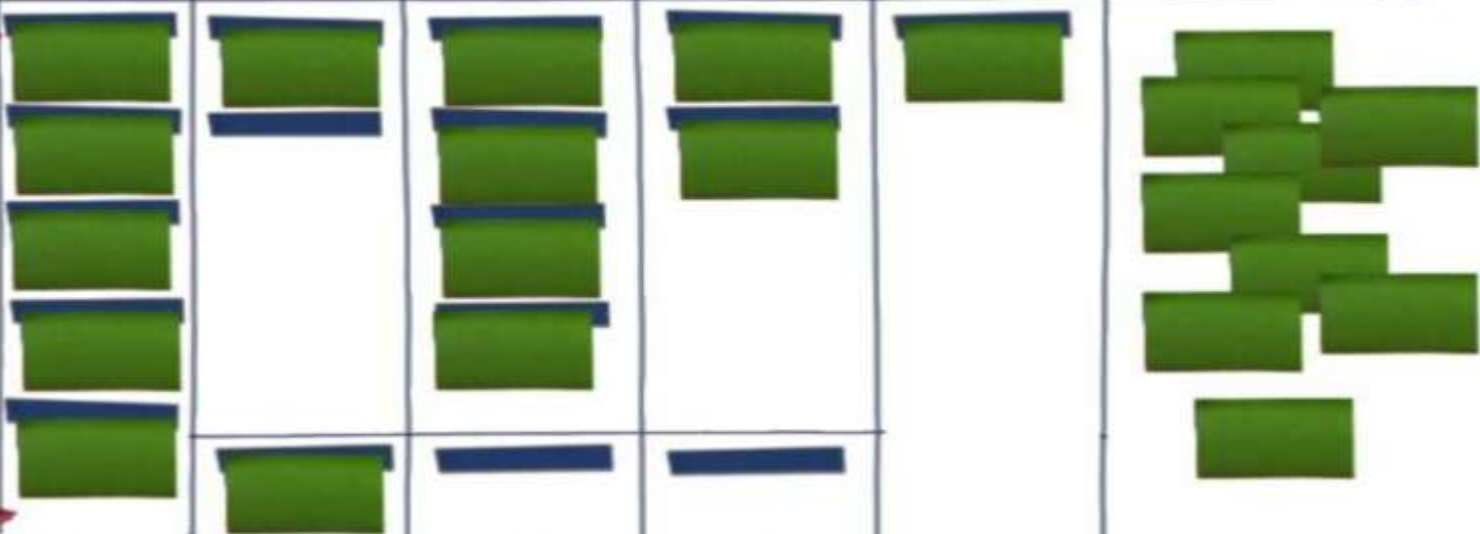
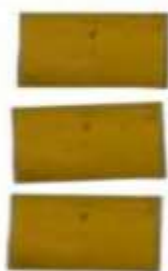
- Could Now Be
  - How are things flowing?
  - Team stands and reviews the WIP
  - Talk about blocks & constraints
  - Downstream work is most important
  - Take Turns with each person “reading” the flow

EXPEDITE →



GOALS | STORY QUEUE | ELABORATION & ACCEPTANCE | DEVELOPMENT | TEST | DEPLOYMENT | DONE!

YOUR WAIT TIME FROM HERE IS ABOUT  
14 DAYS



YOUR WAIT TIME FROM HERE IS ABOUT  
18 DAYS



(5) (3) (5) (3) (1)

See Constraints



<http://crazytubes.b>

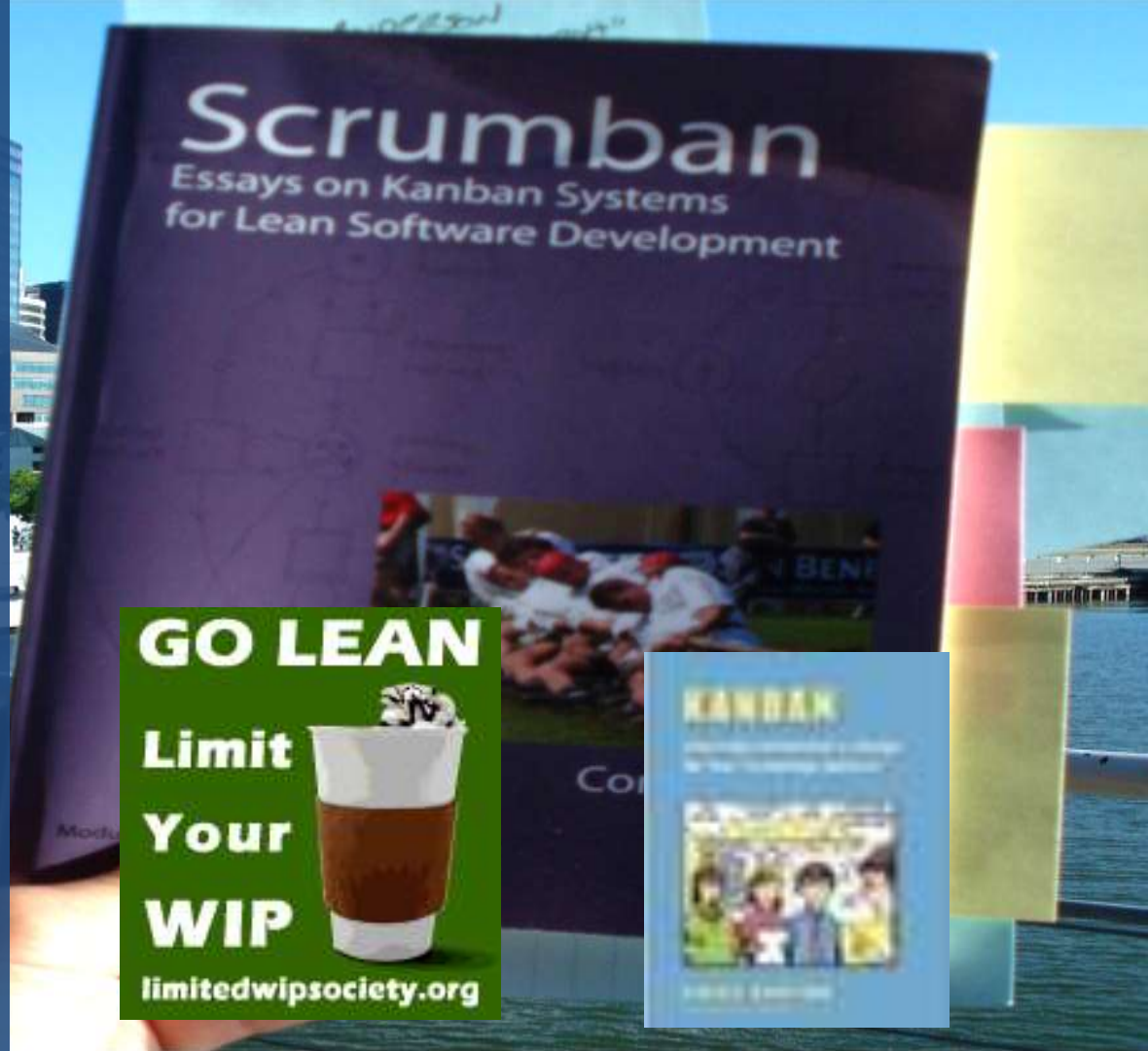
# Stikki Clips & Bingo





# Practice, Adapt, Practice

- David Anderson
- Henrik Kniberg
- Mary & Tom Poppendieck
- Dave Larabee
- Karl Scotla
- Jeff Patton



“The pessimist complains about the wind; the optimist expects it to change; the realist adjusts the sails.”

- William Arthur Ward



3 KANBAN  
Rules

Strict  
Queue  
Limits

Pull  
Value  
Through

Make  
It  
Visible





Questions...?

