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How work *really* gets done



Lean Kanban
India

How can DevOps be implemented with Lean and Agile?

Case Study: Lean Manufacturing plant level continuous improvement


LKNA2017 (Lean Kanban India 2017), September 16, 2017

Agile2016, Pecha Kucha Lightning Talk on July 27, 2016

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MINNEAPOLIS LAB VISION



"We will lead the industry by cultivating an environment of employee engagement and continuous improvement to deliver value, exceed customer expectations, and preserve lifelong memories."

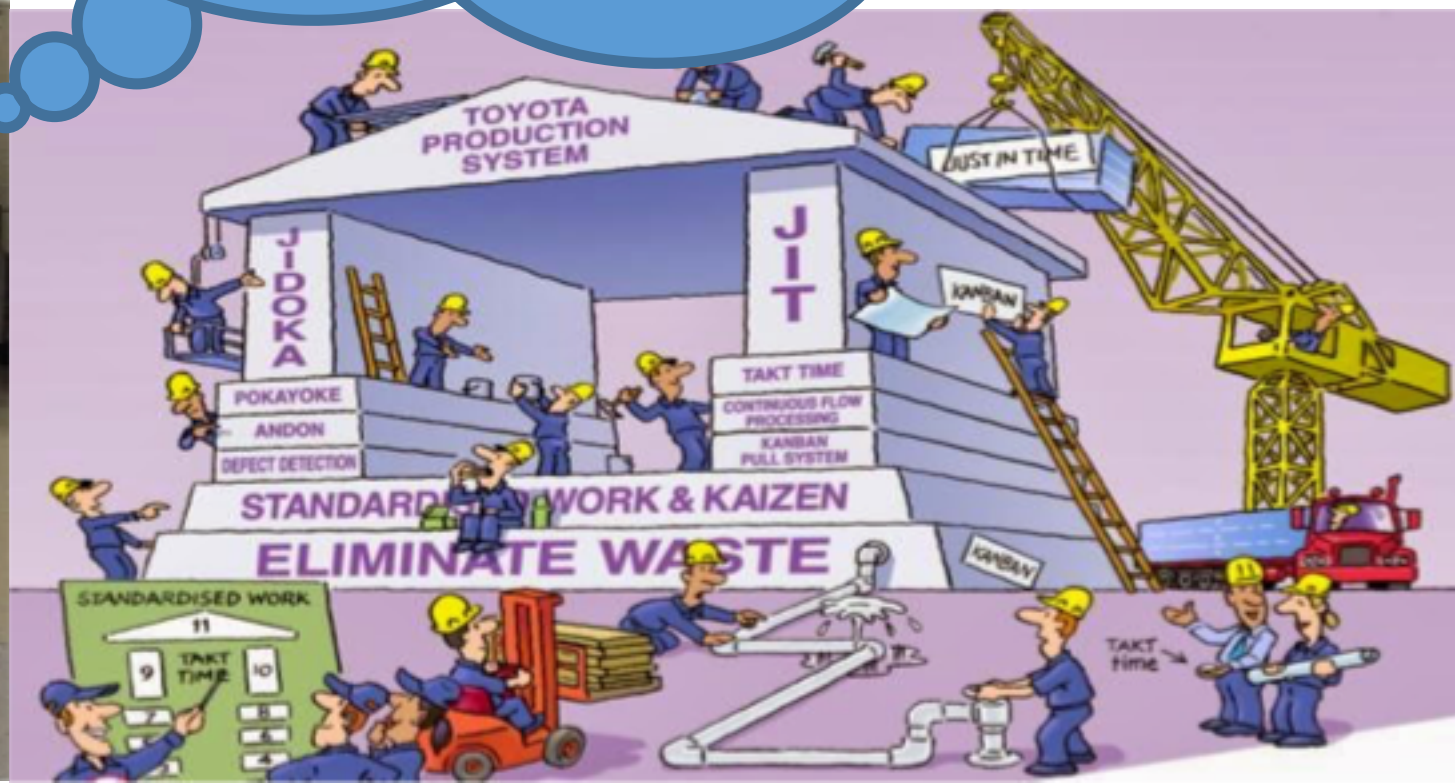
-Minneapolis Lab

This is a story of Lean Manufacturing Plant Manager Shari, seeking plant value stream level continuous improvement. Shari intends to improve overall plant level visibility on SLAs, batch sizes (volumes) and WIP. Here are some pictures from the Lean Manufacturing plant she manages.

MINNEAPOLIS LAB VISION



Plant Manager Shari is trained by Lean Enterprise Institute. She has read Taiichi Ohno's "TPS", Eli Goldratt's "Goal", Gene Kim's "Phoenix Project"! You can say that Shari is big on Lean, in just 10 pictures!



Shari implemented Lean manufacturing at this Plant she manages, influencing other 5 plants. She implemented Lean, starting with Lean House for tracking plant level continuous improvement on a daily and weekly basis! RED means "needs improvement"; GREEN means "sustaining it"!

DAILY MINNEAPOLIS		LAB 5 PILLARS						
		MON	TUE	WED	THU	FRI	WTD	GOAL
PRODUCTIVITY		162	149				153	131
DELIVERY								98%
SAFETY							205	259
ENGAGEMENT								
SUPPORT HOURS								

RECOGNITION	

TOP ISSUES	
	Some time for plant to be
	GOT Issues
	STAFF below

PRODUCTIVITY	
DEPARTMENT	GOAL
SERVICES/LAB	
ENVELOPES/LAB	
SYNERGY CELL	

DELIVERY	
AVERAGE	% ON TIME
80 GOALS	ACTUAL
ED GOALS	TRANSFORMED
PACKAGE	3 DAYS
SYNERGY CELL	3 DAYS

QUALITY	
INTERNAL	EXTERNAL

VOLUME & PROFIT				
MON	TUE	WED	THU	FRI

LABOR	
NAME	STATUS
KEVIN	✓
MELISSA	✓
SUE	✓
TOM	✓
VICKI	✓
CHRIS	
LUANNE	X
MIKE	✓
RUSS	✓
SHARI	✓

COMMENTS	
	GRAD READY
	MEDIA READY
	FLYERS
	ORDERS

ORDERS	
STATUS	DATE
GO LIVE	3/25
FLYERS	3/25
PRE-PRODUCTION	3/25

A C C O U N T A B I L I T Y

R O A D

	MON	TUE	WED	THU	FRI	MON	TUE	WED	THU	FRI	MON	TUE	WED
June	30	31	1	2	3	6	7	8	9	10	13	14	15
Bette Brannan													
Chris Brooks													
Russ Castleman													
Shari Dugstad													
Sue Heinzen													
Kevin Hunnicutt													
Scott Galloway													
Don Jensen													
Mike Johanel													
Juanne Johnson													
Tom Koen													
Melissa Kohler													
Bob McGrath													
Vicki Pertl													
Cara Stagie													
Brad Vanneste													

Shari implemented accountability board to drive continuous improvement across all cells of the plant.

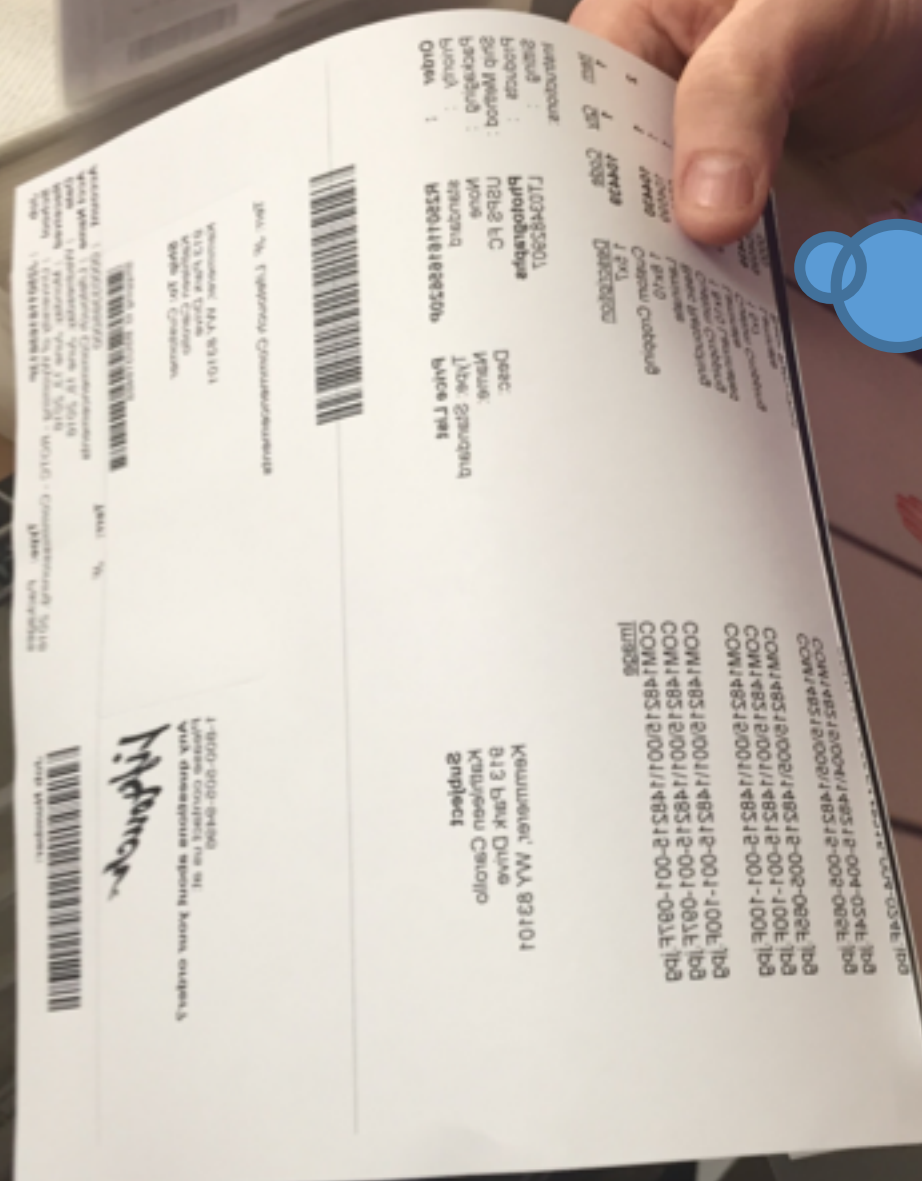




In all manufacturing cells, Shari implemented visual kanban boards to visualize work in progress. She even added kanban board for continuous improvement of the process for doing work!

LEAN CONTINUOUS IMPROVEMENT

IDEA	TO DO	DOING	DONE
<p>Yellow sticky note: [unclear]</p> <p>Pink sticky note: [unclear]</p> <p>Yellow sticky note: [unclear]</p>	<p>Yellow sticky note: [unclear]</p> <p>Blue sticky note: [unclear]</p> <p>Yellow sticky note: [unclear]</p>	<p>Blue sticky note: [unclear]</p> <p>Blue sticky note: [unclear]</p> <p>Blue sticky note: [unclear]</p>	<p>Yellow sticky note: [unclear]</p> <p>Blue sticky note: [unclear]</p> <p>Yellow sticky note: [unclear]</p> <p>Yellow sticky note: [unclear]</p> <p>Pink sticky note: [unclear]</p>



Here Shari shows an example of kanban card that is attached to a product across workstations in a cell. She says plant has JIT (Just-In-Time) inventory almost, with at most 2 days of raw materials in case of DVDs as end products!

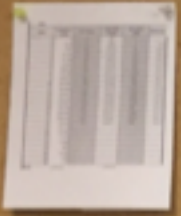
Front End Cell: Visual Controls

Date: 6/13	M	T	W	TH	F
IC Goal (1,000)	—	—	—	—	—
Actual IMAGES (Day)	Q	624			
IMAGES Cell Complete	D-Actual		N-Actual		
6-7-8				4-5-6	
9-10				7-8	
11-12				9-10	
1-2				11-12	
3				1 Q	2563 ^{9/28} 1,747 ^{9/4} 1,023 ^{4/11} 6/11

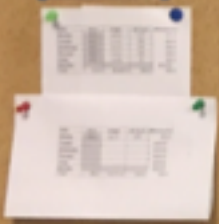
Shari implemented visual controls to visualize front-end work for products.

Groups
Pick-Up

Weekly Efficiency



Daily Update



Wall of Appreciation

THANK YOU

THANKS

Clu

Thank You

thank you



Shari implemented "Wall of Appreciation" in cells. Jurgen Apello talks about it in Management 3.0!



The 8 Wastes

DOWNTIME
 D: Defects
 O: Overproduction
 W: Waiting
 N: Non-used Employee Talent
 T: Transportation
 I: Inventory
 M: Motion
 E: Excessive (Over) Processing

5S

- Sort
- Set in Order
- Shine
- Standardize
- Sustain



Cropping Guideline Reference

396

382 / 383
Without Caption

SYNERGY - GROUP

YESTERDAY BIN 6598

DATE	MON	TUE	WED	THU	FRI	SAT	PRODUCTIVITY	GOAL	ACTUAL
12/31							5.9	5.9	5.9
1/1	KGD # = NEED IMPROVEMENT								
1/2							DELIVERY	67 Days	98%
1/3							SWAPPED	ROOMS	JOBBS (6m-40)
1/4									PRINTS
1/5							DATE	INCOMING	PNL
1/6							M		
1/7							T		
1/8							W		
1/9							TH		
1/10							F		

TOP ISSUES


- IMPORTING
- RISK OF DOUBLE
- AP/FINIS
- MAKING
- ALBUMS
- TAPE. LAMINATING

RECOGNITION GROUPS SYNERGY

CONTINUOUS IMPROVEMENT

IDEA	TO DO	DOING	DONE
Yellow sticky notes	Blue sticky notes	Blue sticky notes	Yellow sticky notes

There is the "synergy" cell Shari proudly shows during a plant tour. Here she pilots ways to improve visibility of plant level value stream specific to monitoring SLAs, batch sizes and WIP.



"We will lead the industry by cultivating an environment of employee engagement and continuous improvement to deliver value, exceed customer expectations, and preserve lifelong memories."

-Minneapolis Lab

We saw some pictures from this Lean Manufacturing plant. We will see how DevOps can be implemented to seek plant level continuous improvements with Lean and Agile.

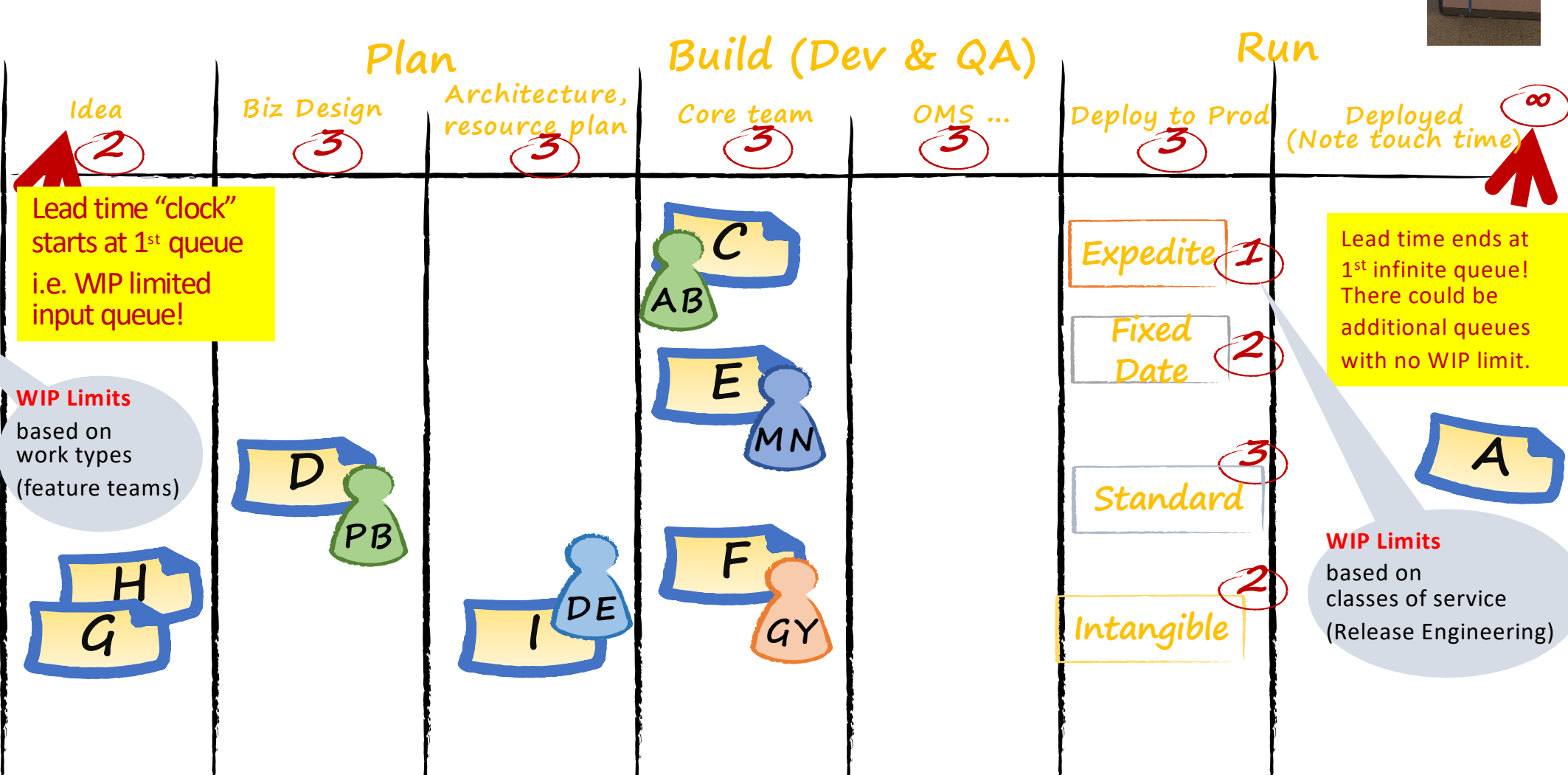
MINNEAPOLIS LAB VISION

Lean Portfolio Management and Release Engineering

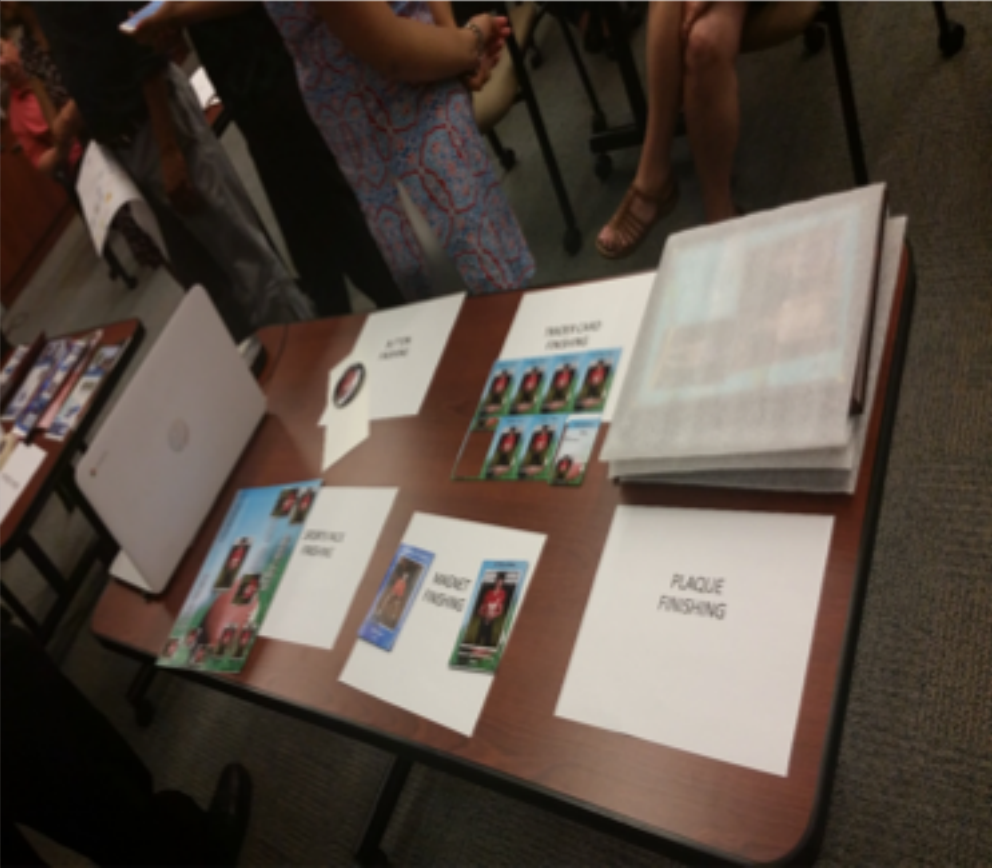
- Begin with the end in mind!
- Use Portfolio Kanban board across Org Design (Team of Teams)
- Use a simple Kanban board with "ToDo->Doing->Done", "Plan->Build->Run" or similar workflow
- Visualize portfolio feature level bottlenecks to "Stop Starting, Start Finishing"!
- Supplement Portfolio Kanban system ("Upstream") with Release Engineering Kanban system ("Downstream Kanban")

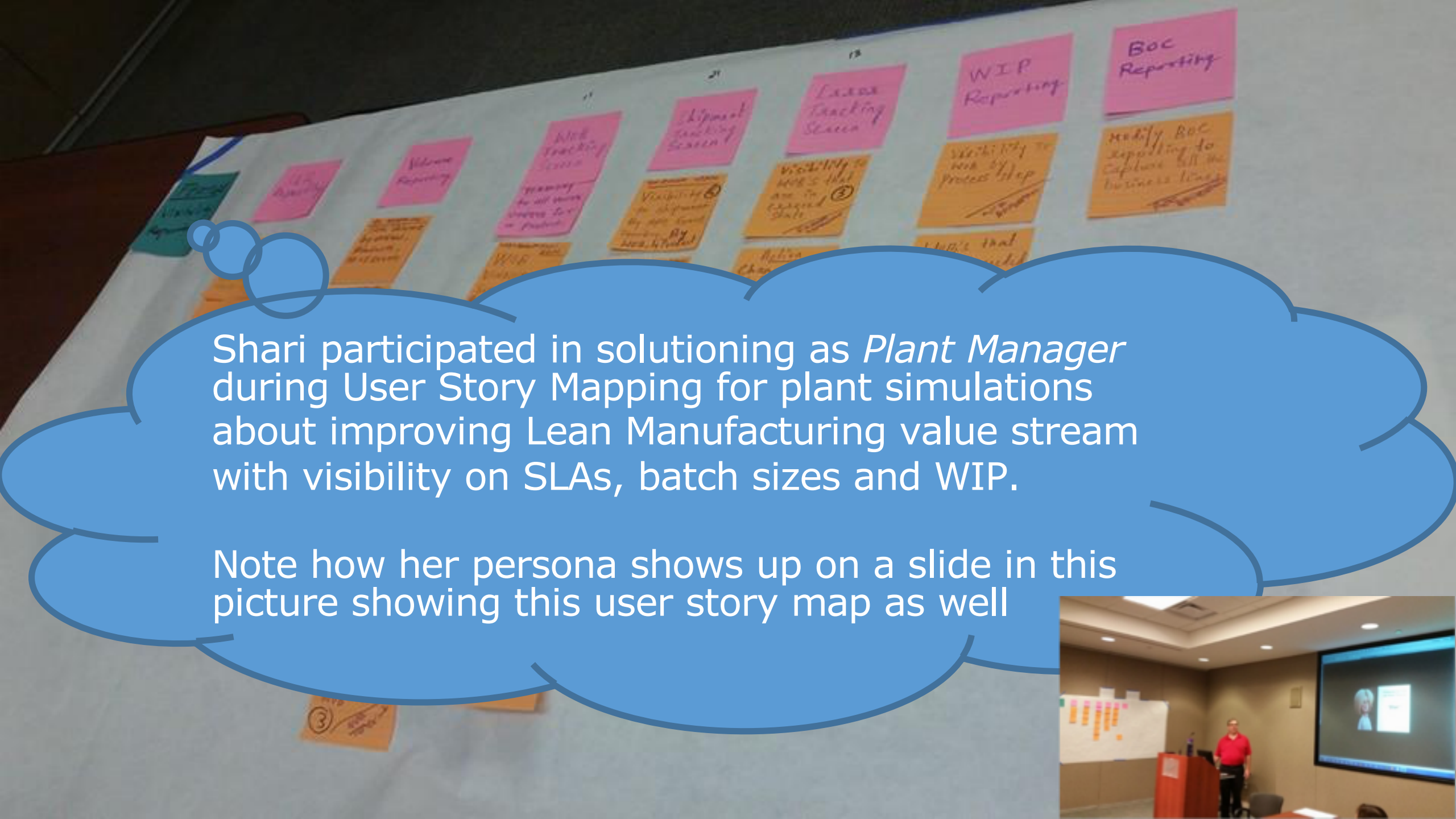


Explicit policy:
Feature is "done" only when last team working on it has completed "Deploy to Prod"



Solutioning started with Shari organizing process simulation of scenarios for plant level process improvements.





Shari participated in solutioning as *Plant Manager* during User Story Mapping for plant simulations about improving Lean Manufacturing value stream with visibility on SLAs, batch sizes and WIP.

Note how her persona shows up on a slide in this picture showing this user story map as well



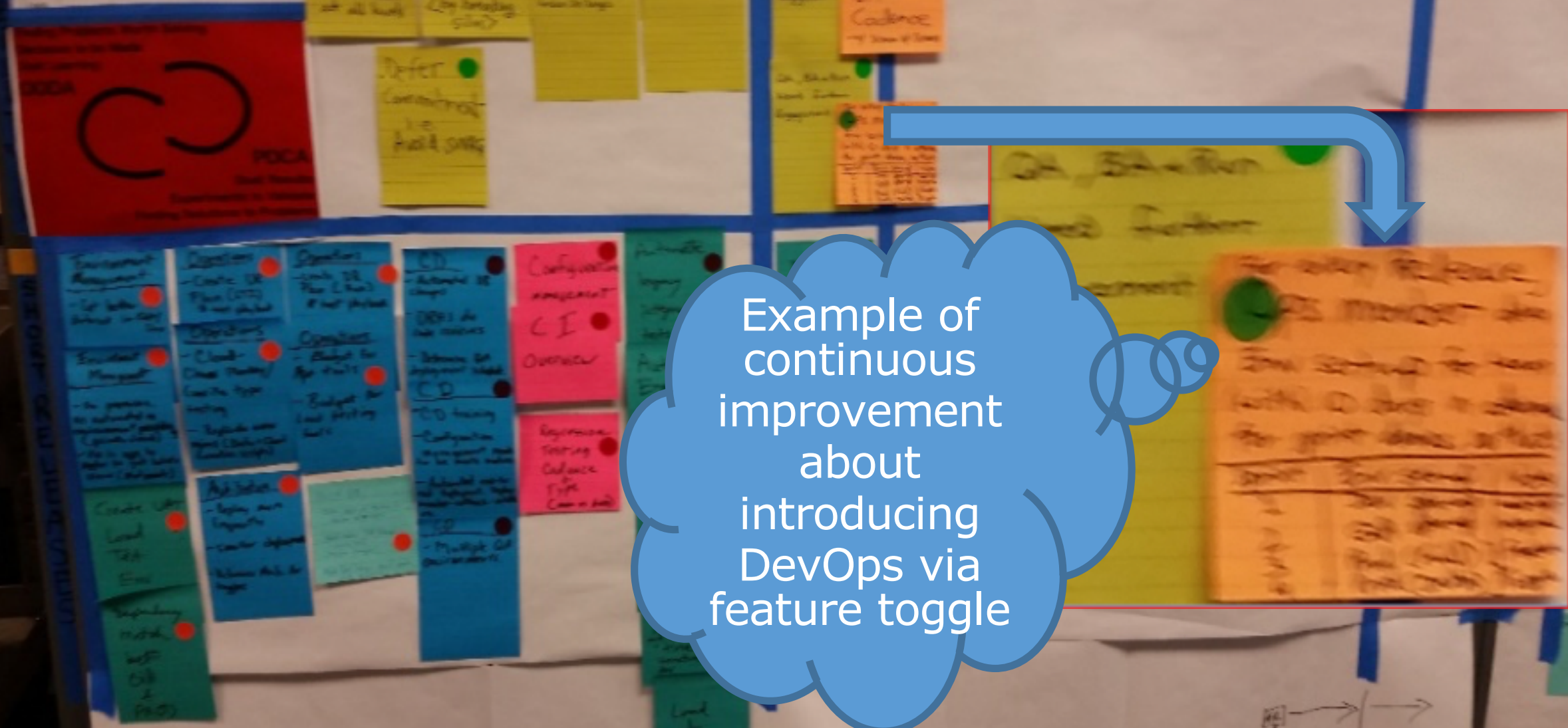
Compare & Contrast: Lean Manufacturing & IT

Like Lean manufacturing plant, for continuous improvements, IT uses Kaizen events e.g. open spaces in corporate setting:



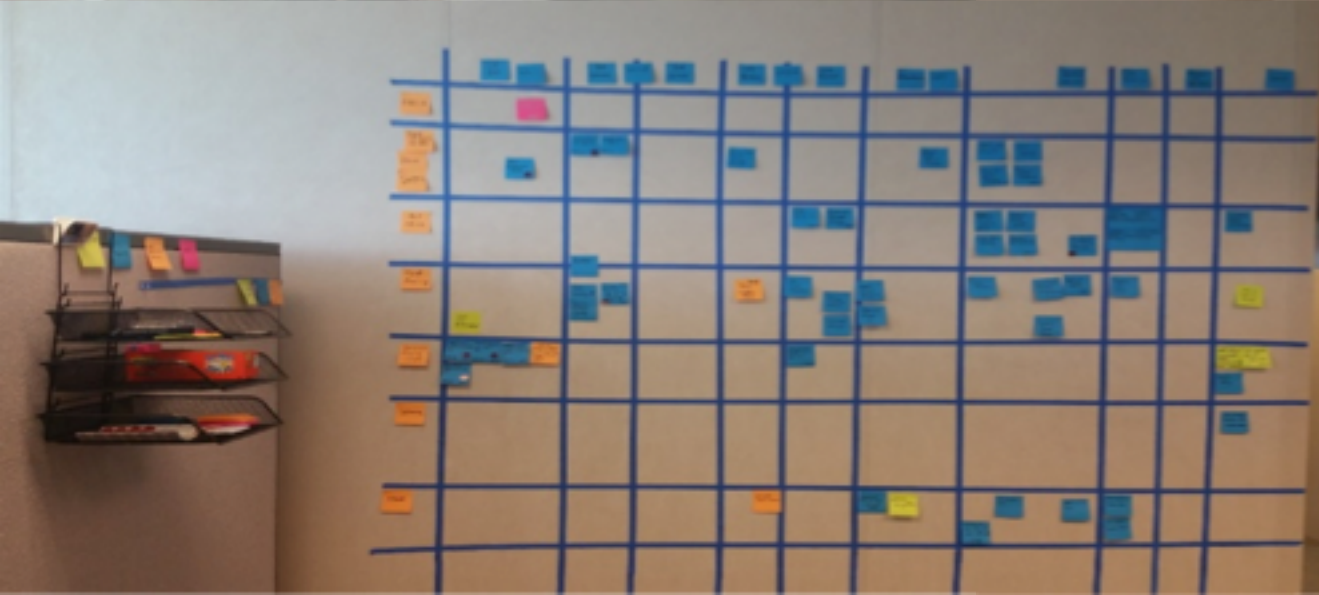
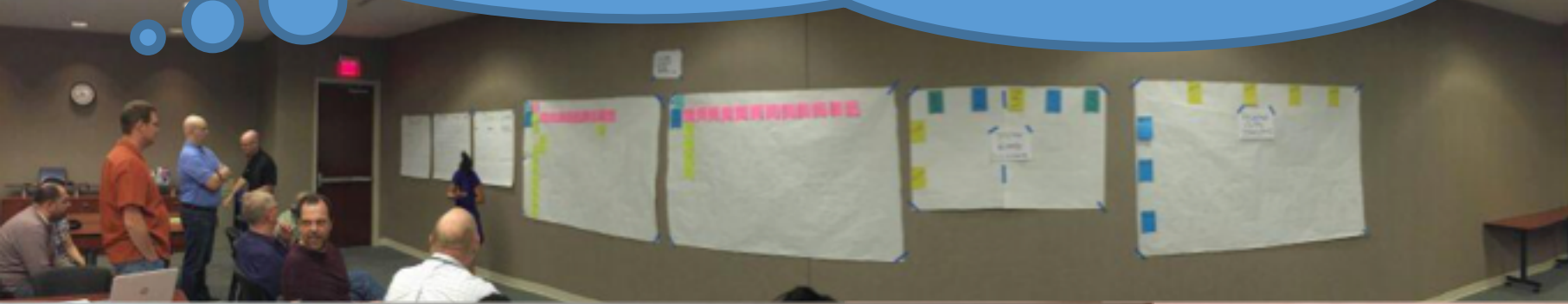
Compare & Contrast: Lean Manufacturing & IT

Like Lean manufacturing plant, for continuous improvements, IT uses Deming's PDCA loop on a Kanban board like this:



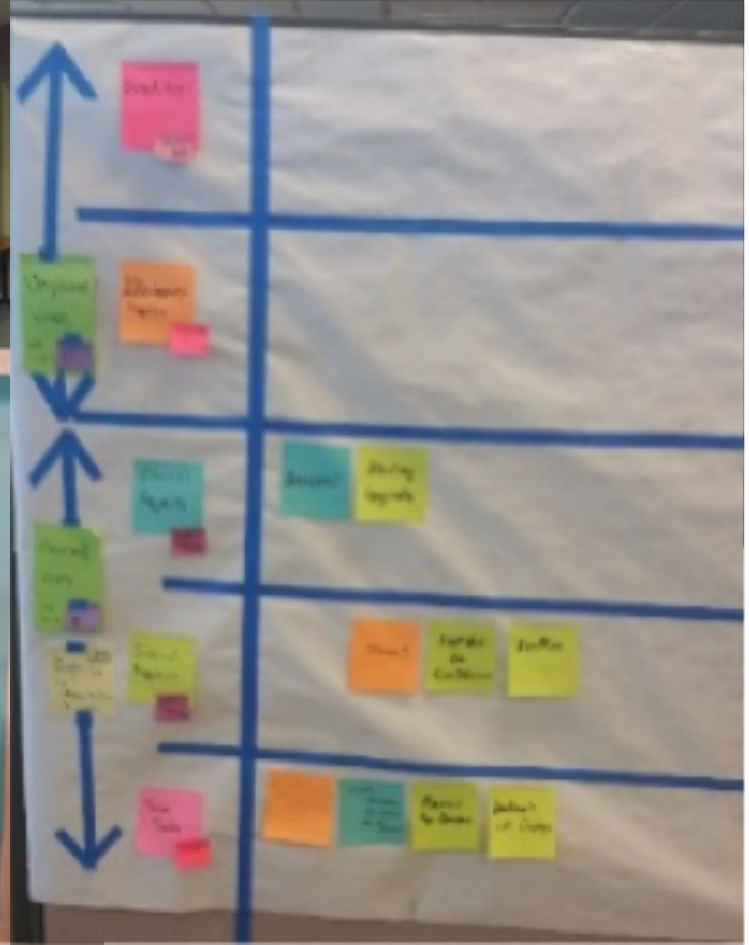
Example of continuous improvement about introducing DevOps via feature toggle

In summary: Solutioning is an end-to-end process, starting with process simulation & story mapping, to visualize epics on Portfolio Kanban, to big room planning, to open space "kaizen" events, to implementation based on DoD, and to visualize deployable artifacts on DevOps Kanban!



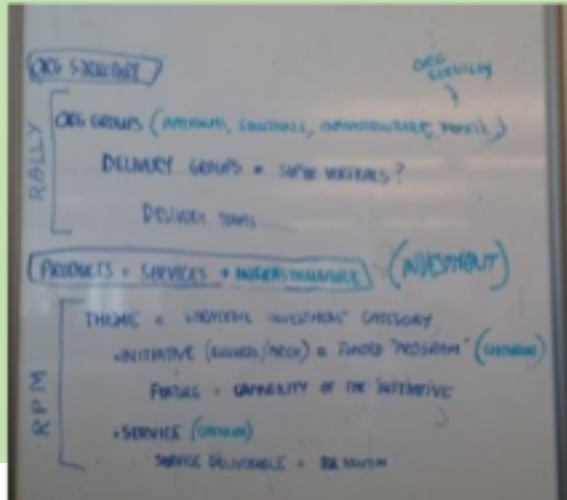
Definition of Done [DoD]

1. All AC's met
2. Consideration for:
 - * test coverage
 - + NFRs
 - + Tech Debt
 - + Defect Debt

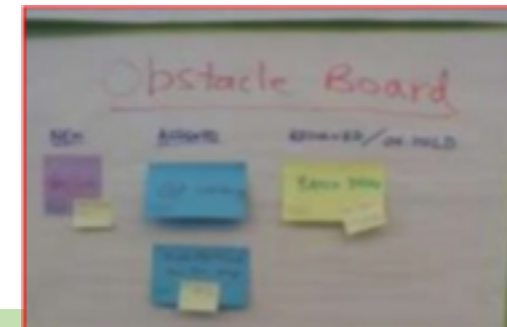


Lean Governance Model- Applying 3 ways of DevOps

During planning, create org alignment to improve flow (1st way of DevOps), using Portfolio Kanban system.

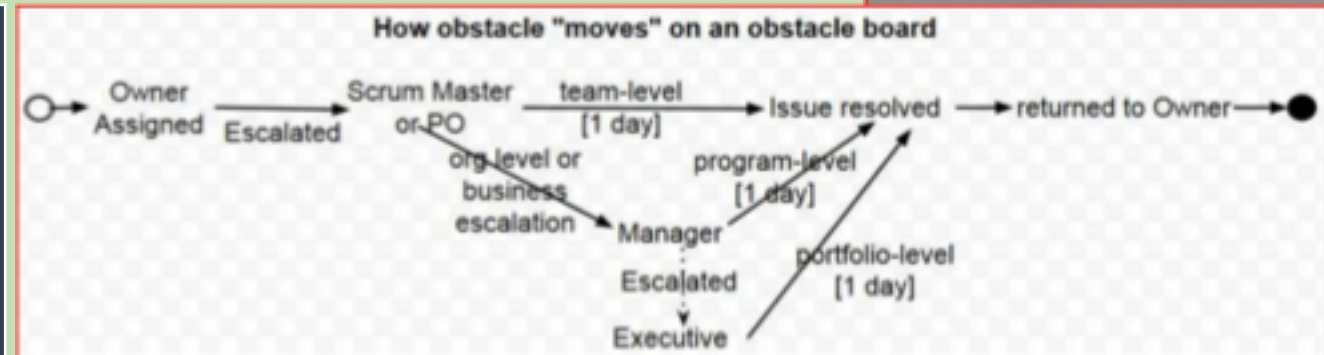


- Begin with succinctly defined portfolio hierarchy or swim lanes that consist of strategic (CAPEX) and tactical (OPEX) investments:
 - Themes
 - Initiatives
 - Features
- Create single-piece flow of portfolio items with Portfolio Kanban board. Apply lean metrics for continuous improvement.
- Apply first way of DevOps: emphasize on performance of entire system by analyzing value streams, WIP, lead times & due date performance.



During execution, enable continuous feedback loops (2nd way of DevOps) with obstacle boards to act on impediments & dysfunctions.

- This requires low-fidelity obstacle escalation process. This can be a 2-level (team->management) process, or a 3-level (team->program>portfolio) process.
- Example of obstacle board and related workflow:



Enable managers in shaping various communities of practice: create culture of continual experimentation & learning (3^d way of DevOps).

In Summary:

We looked at Lean Manufacturing workflow related continuous improvement case study. Implementing DevOps means creating DevOps mindset & culture. That requires lots of Lean, Six Sigma, TQM, Lean Startup, and yes, Bit of Agile with Lots of “Respect for People”:



Top down approach:

30-60-90 strategic plan for continuous improvement with baseline assessment of DevOps capability maturity



Bottom up approach:

Crowd sourcing tactical plan for continuous improvement with assessment based open space events



Inside out approach:

PDCA Kanban board for feedback driven visibility with Lean Startup method (build-measure-learn loop) and TQM (PDCA loop)

Implementing DevOps requires mindset & culture open to all approaches

Appendix slide: Integrated ALM & Atlassian Tool Chains for DevOps



How work *really* gets done



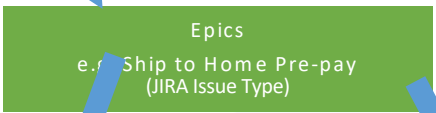
e.g. Sports on Spectrum (JIRA Issue Type)

Visualize Portfolio Timeline by Releases



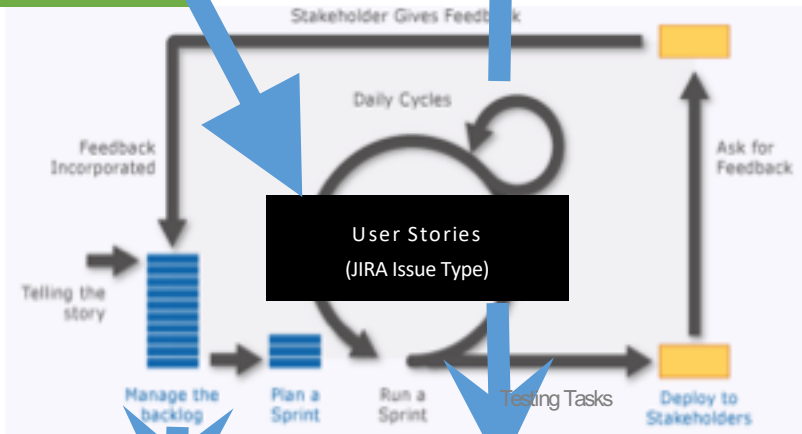
Themes
(Strategic Goals)

Visualize Investment by Themes



PMO-level Status Reporting

Swift-Kanban Metrics and/or EasyBI plugin (Reporting & Charting) On top of existing JQL queries



Kanplan: backlog for Kanban and Scrum teams



- ✓ prevent defects related to Requirements problems
- ✓ Test Planning
- ✓ Test Execution
- ✓ Traceability & Reporting
- ✓ Defect Creation in JIRA
- ✓ Track Coverage & Quality Metrics



Development Tools

- ✓ Microsoft Visual Studio (For .NET)
- ✓ Eclipse (For JAVA)

Developer writes code and check-in
Associate JIRA Issue Types (Tasks / Bugs)



Atlassian BitBucket (GIT)

DEVELOPMENT Branch
QA Branch
MASTER Branch
FEATURE Branch

Build gets triggered

- Continuous Integration
- Scheduled Build



Atlassian BAMBOO for CI

- Build Definitions for:**
- ✓ Database
 - ✓ .NET
 - ✓ Java

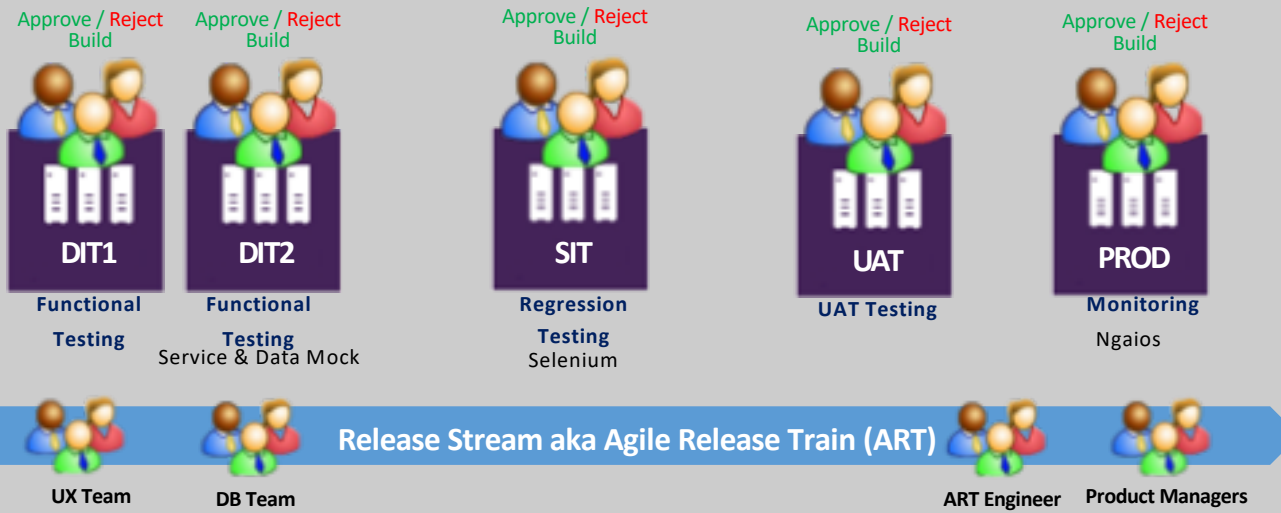
Build from FEATURE Branch—UX Team

Build from DEV Branch—DB Team

Build from QA Branch

Build from MASTER Branch

Atlassian BAMBOO for Continuous Deployment (CD)



Note: Integrate Atlassian Bamboo with "Chef" for non-windows deployments