Kanban Policy Game - Results

Introduction

The Kanban method refers to policies extensively. First in the service delivery principles we have "Your organization is an ecosystem of interdependent services steered by its policies, reflect regularly on their effectiveness and improve them." Instead of viewing our processes as a sequence of activities, workflow, roles and responsibilities, we want to view the existing processes as sets of policies and define those policies explicitly. Accordingly, the fourth practice of the Kanban Method asks us to "Make policies explicit." Making policies explicit makes them visible to everyone interested. As a result, the policies can be challenged and changed.

The Kanban Policy Game is a fun way to experience how policies affect productivity i.e. number of work items produced per unit time.
The game has rules and policies. Rules are fixed and cannot be changed. Policies are changeable and that's the main idea.

The game has three iterations.
1) In the first iteration we make our three policies explicit: "Collaboration Policy", "Pull Policy" and "WIP Policy".
2) In the second iteration we change only the "WIP Policy" by limiting the work in process.
3) In the third iteration we change only the "Collaboration Policy" by allowing people to help each other at any time.

In order to assure that the only changes between iterations are policy changes:
- The coin tosses from iteration 1 are reused in the next iterations. That is to assure us the chance has nothing to do with the changes in productivity.
- The amount of effort is the same 10 days per team member for all iterations.

The table below presents the results of playing the Kanban Policy Game with 14 different teams.
The blue column "Total (WIP + Collaboration) Impact %" contains the results from the 3rd iteration. Remember – the 3rd iteration has both WIP limited and no measuring individual productivity but the productivity of the team as a whole. Detailed results and how they were calculated are to be found in the appendix.

Team	2nd iteration WIP Policy impact over the 1st iteration %	3rd iteration (WIP + Collaboration) impact over the 2nd iteration %	3rd iteration (WIP + Collaboration) impact over the 1st iteration %
Game1-1	40.00%	28.57%	80.00%
Game1-2	-16.67%	40.00%	16.67%
Game1-3	-42.86%	0.00%	-42.86%
Game2-1	-22.22%	14.29%	-11.11%
Game2-2	-20.00%	75.00%	40.00%
Game2-3	-37.50%	100.00%	25.00%
Game3-2	-66.67%	200.00%	0.00%
Game3-3	-25.00%	100.00%	50.00%
Game3-4	50.00%	50.00%	125.00%
Game4-1	0.00%	25.00%	25.00%
Game4-2	0.00%	16.67%	16.67%
Game4-3	0.00%	100.00%	100.00%
Game4-4	100.00%	0.00%	100.00%
Game4-5	33.33%	25.00%	66.67%

Observations from the results:
- Policy changes have huge impact on productivity.
- After introducing the WIP limits 50% of the teams experienced decline in their productivity, 21% of the teams had their productivity improved.
- Limiting WIP when individual productivity matters has a negative effect on productivity i.e. number of work items delivered per unit time.
- Simultaneously limiting WIP and measuring productivity of the team as a whole has a very positive impact on productivity.

Possible implications on the way we implement the Kanban method:
- Don't introduce Kanban method in organizations where individual productivity matters.
- Don't implement Kanban method practices if the Kanban principles are not agreed to be followed.
- The second service delivery principle "Manage the work, let people self-organize around it" should be changed to emphasize on NOT measuring individual performance.

Actual games played

Overall results

Team name	Iteration	Started work items	Finished work items	Impact	Impact %
Game1-1	1	19	5	2	40.00%
	2	11	7	2	28.57%
	3	13	9	4	80.00%
Game1-2	1	21	6	-1	-16.67%
	2	10	5	2	40.00%
	3	10	7	1	16.67%
Game1-3	1	27	7	-3	-42.86%
	2	9	4	0	0.00%
	3	10	4	-3	-42.86%
Game2-1	1	20	9	-2	-22.22%
	2	12	7	1	14.29%
	3	10	8	-1	-11.11%
Game2-2	1	24	5	-1	-20.00%
	2	10	4	3	75.00%
	3	10	7	2	40.00%
Game2-3	1	20	8	-3	-37.50%
	2	11	5	5	100.00%
	3	14	10	2	25.00%
Game3-2	1	12	3	-2	-66.67%
	2	7	1	2	200.00%
	3	5	3	0	0.00%
Game3-3	1	19	4	-1	-25.00%
	2	8	3	3	100.00%
	3	10	6	2	50.00%
Game3-4	1	15	4	2	50.00%
	2	12	6	3	50.00%
	3	12	9	5	125.00%
Game4-1	1	19	8	0	0.00%
	2	11	8	2	25.00%
	3	13	10	2	25.00%
Game4-2	1	17	6	0	0.00%
	2	9	6	1	16.67%
	3	8	7	1	16.67%
Game4-3	1	16	1	0	0.00%

	2	6	1	1	100.00%
	3	6	2	1	100.00%
Game4-4	1	18	2	2	100.00%
	2	7	4	0	0.00%
	3	8	4	2	100.00%
Game4-5	1	16	3	1	33.33%
	2	6	4	1	25.00%
	3	5	5	2	66.67%

Game 1

Results

Team name	Iteration	Started work items	Finished work items	Remarks
1	1	19	5	
	2	11	7	
	3	13	9	
2	1	21	6	
	2	10	5	
	3	10	7	
3	1	27	7	
	2	9	4	
	3	10	4	

Game data
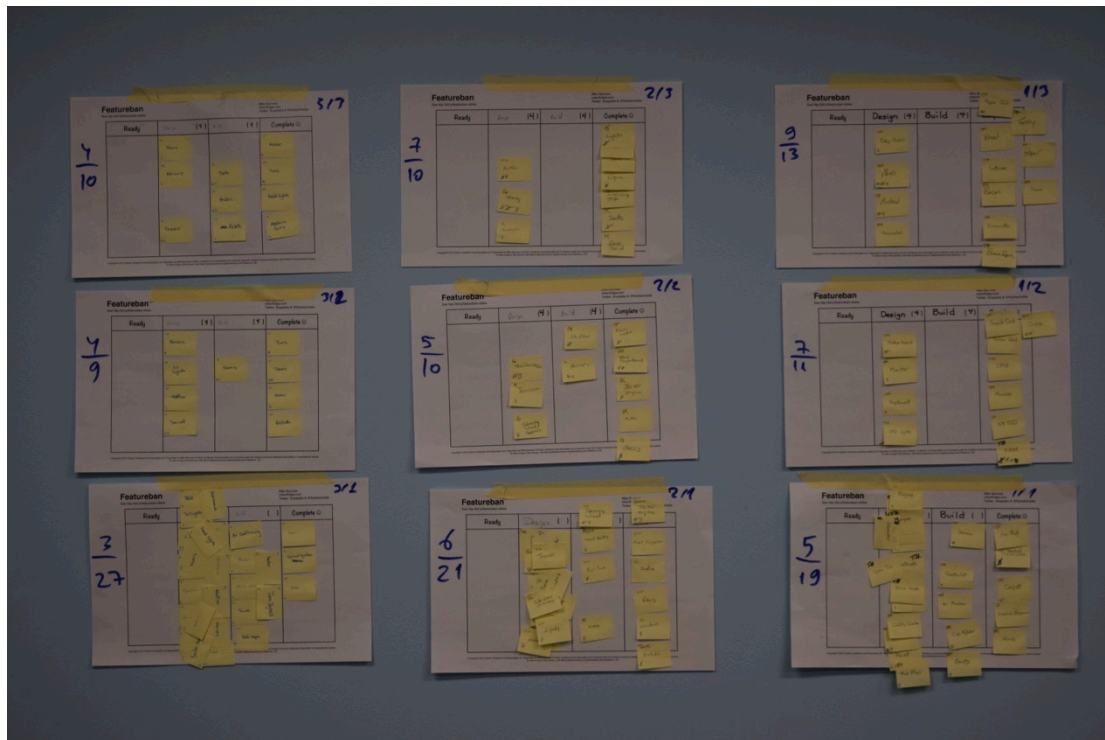
Day #	Team 3			
	MH	**JR**	**NS**	**JT**
1	H	H	T	H
2	T	T	T	T
3	T	T	H	T
4	T	T	T	H
5	T	H	T	H
6	H	T	H	H
7	T	T	H	T
8	H	T	H	T
9	H	T	T	H
10	H	T	H	T

Day #	Team 2			
	Kyle	**Gene**	**Michael**	**Jacki**
1	H	T	T	T
2	T	H	H	T
3	T	H	H	H
4	H	T	T	H
5	H	T	H	H
6	T	T	H	H
7	H	T	T	H
8	T	T	H	H
9	T	T	T	H
10	T	H	H	H

Day #	Team 1			
	C	**T**	**D**	**B**
1	T	T	H	T
2	T	T	H	H
3	T	H	H	T
4	H	T	H	H
5	T	H	T	H
6	T	T	H	H
7	T	T	H	T
8	H	T	H	H
9	H	T	H	H
10	H	H	H	T
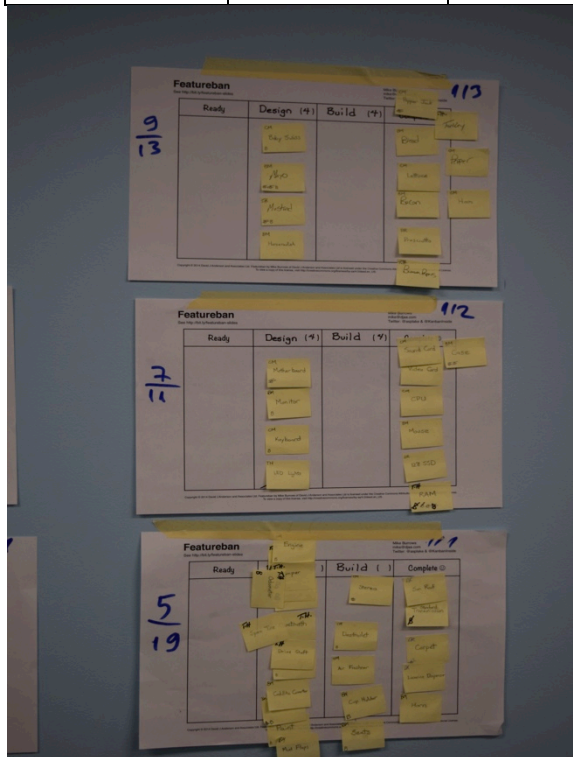
Game 2

Results

Team name	Iteration	Started work items	Finished work items	Remarks
1	1	20	9	
	2	12	7	
	3	10	8	

2	1	24	5	
	2	10	4	
	3	10	7	
3	1	20	8	
	2	11	5	
	3	14	10	

Game data
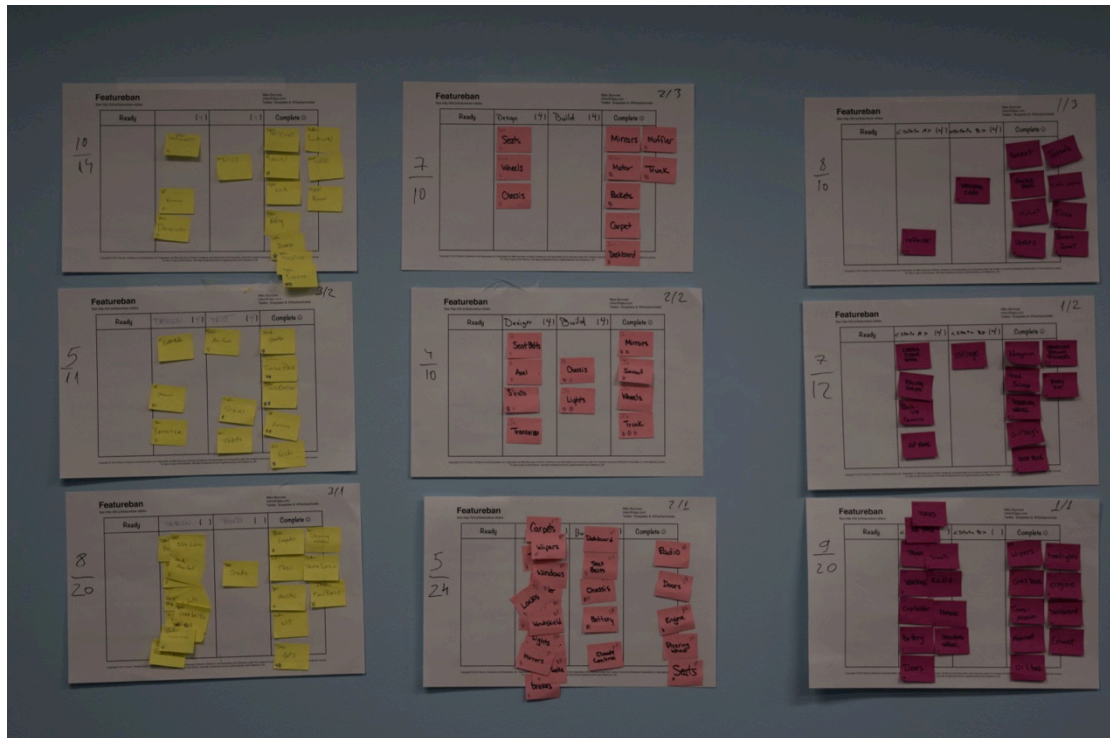
Day #	Team 1			
	Kim	Lori	Terry	Rick
1	H	T	T	T
2	H	H	T	T
3	H	T	H	T
4	H	H	H	T
5	T	H	T	H
6	H	H	T	H
7	H	H	T	H
8	T	T	T	H
9	H	H	T	H
10	H	H	H	H
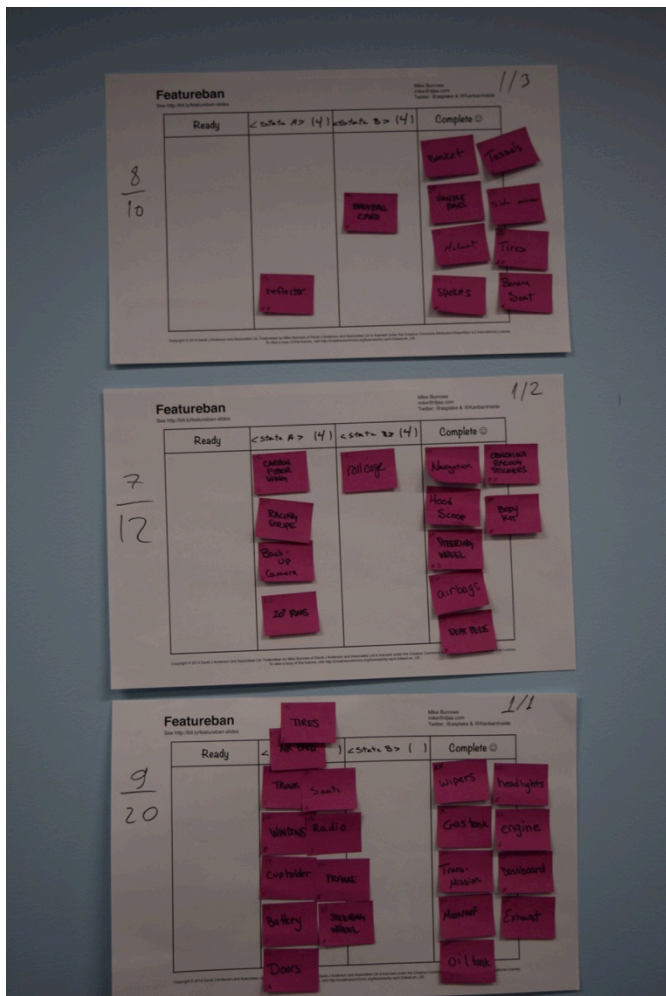
Day #	Team 2			
	Bob	**Gail**	**Joel**	**Jaime**
1	T	T	H	H
2	T	H	T	T
3	H	T	T	H
4	H	H	T	T
5	T	H	H	H
6	T	H	H	T
7	T	T	H	H
8	T	H	H	H
9	T	T	T	T
10	T	H	H	T

Featureban

2/3

Ready	Design (4)	Build (4)	Complete ☺
7/10	Seats, Wheels, Chassis		Mirrors, Muffler, Motor, Trunk, Buckets, Carpet, Dashboard

Featureban

2/2

Ready	Design (4)	Build (4)	Complete ☺
4/10	Seat Belts, Axel, S'eats, Transmsn	Chassis, Lights	Mirrors, Sunroof, Wheels, Trunk

Featureban

2/1

Ready	Build	Complete ☺
5/24	Carpets, Wipers, Windows, ...ler, Locks, Windshield, Lights, Mirrors, ...ks, brakes	Dashboard, Seat Belts, Chassis, Battery, Climate Control	Radio, Doors, Engine, Steering Wheel, Seats

Day #	Team 3			
	Larry	**Dan**	**Dean**	**Jacki**
1	T	H	T	T
2	H	T	T	T
3	T	H	H	H
4	H	T	T	H
5	H	T	H	H

6	H	H	H	T
7	H	H	H	H
8	T	H	H	T
9	H	T	T	H
10	H	H	T	H
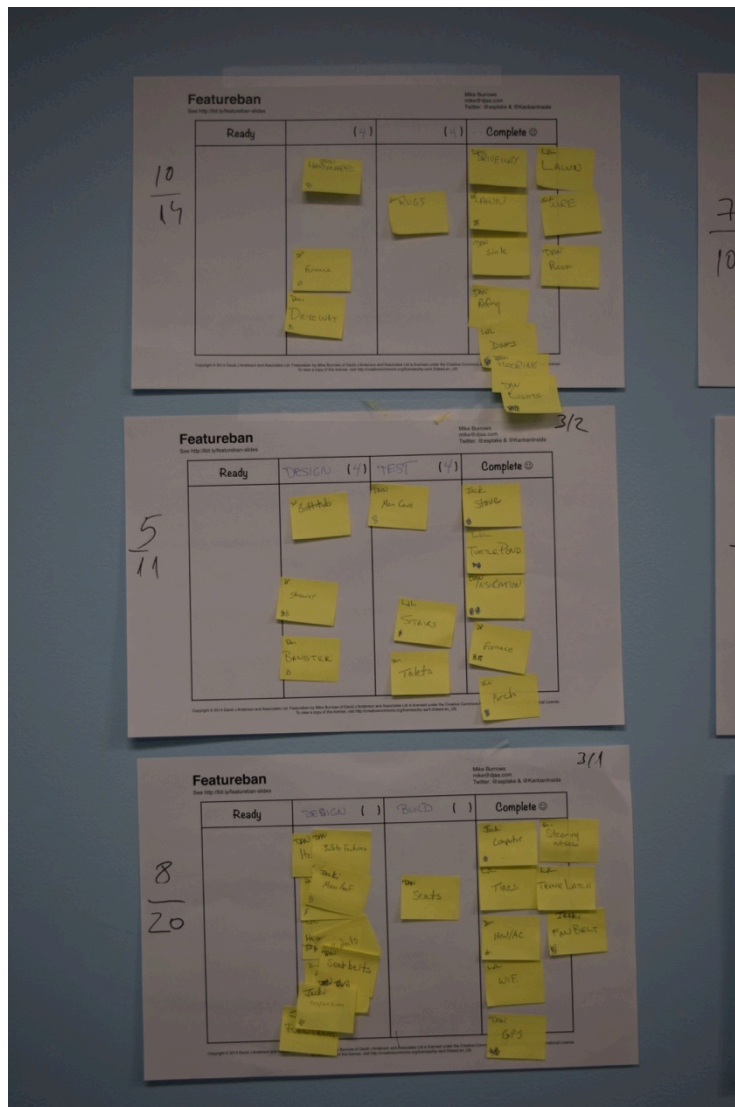
Game 3

Results

Team name	Iteration	Started work items	Finished work items	Remarks
2	1	12	3	
	2	7	1	
	3	5	3	
3	1	19	4	
	2	8	3	
	3	10	6	
4	1	15	4	
	2	12	6	
	3	12	9	

Game data

Day #	Team 1			
	Will	Tim	Jon	Logan
1	T	T	T	H
2	T	T	T	H
3	H	H	H	T
4	H	H	T	H
5	H	T	T	T
6	H	H	T	H
7	T	T	T	H
8	H	T	H	H
9	H	H	T	T
10	T	H	H	T

Day #	Team 2			
	Nick	Jay	Ginger	Ron
1	T	T	H	H
2	T	H	H	T
3	T	H	T	T
4	H	H	T	H
5	T	T	H	T
6	T	H	H	T
7	H	T	H	T
8	H	T	H	T
9	T	H	T	T
10	H	T	H	T
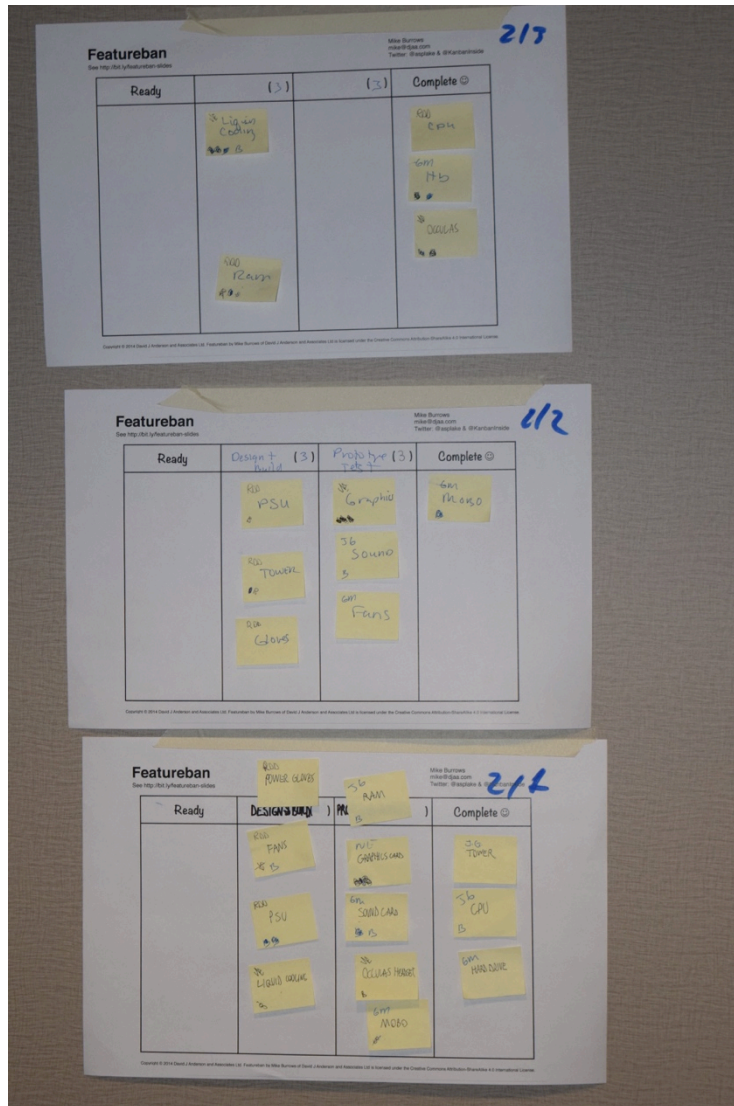
Day #	Team 3			
	ZP	SL	JK	NB
1	H	H	T	T
2	T	H	T	T
3	T	H	H	H
4	H	H	H	T
5	T	T	H	H
6	T	T	H	T
7	H	H	T	T
8	H	T	T	T
9	T	T	T	H
10	T	H	T	T

Day #	Team 4

	Larry	Dan	Dean	Jacki
1	T	T	T	H
2	H	T	T	T
3	H	H	T	H
4	H	H	T	H
5	T	H	H	T
6	H	H	H	H
7	H	H	T	T
8	H	H	H	T
9	T	H	T	T
10	T	T	T	T

Game 4

Results

Team name	Iteration	Started work items	Finished work items	Remarks
1	1	19	8	
	2	11	8	
	3	13	10	
2	1	17	6	
	2	9	6	
	3	8	7	
3	1	16	1	
	2	6	1	
	3	6	2	
4	1	18	2	
	2	7	4	
	3	8	4	
5	1	16	3	
	2	6	4	
	3	5	5	

Game data
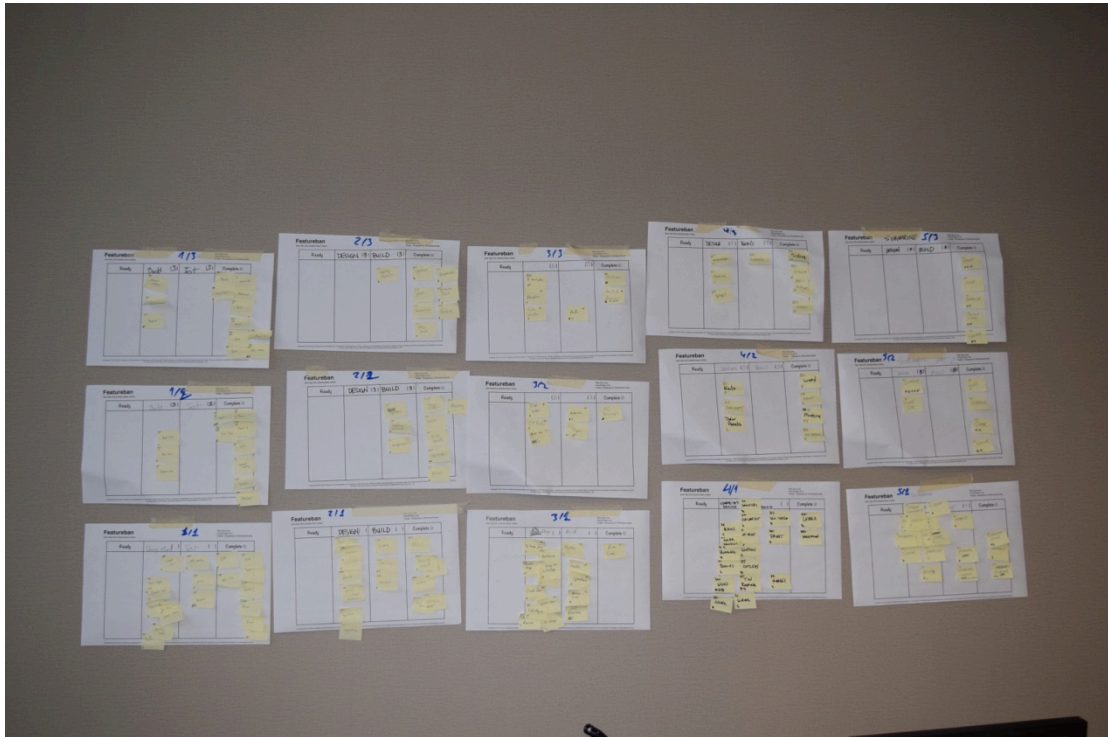
Day #	Team 1			
	BM	DB	JJ	WD
1	H	T	H	H
T	H	T	T	H
3	H	T	T	H
4	H	H	T	H
5	T	H	H	H
6	T	H	H	H
7	H	T	T	H
8	T	H	H	H
9	T	H	H	H
10	H	H	T	T
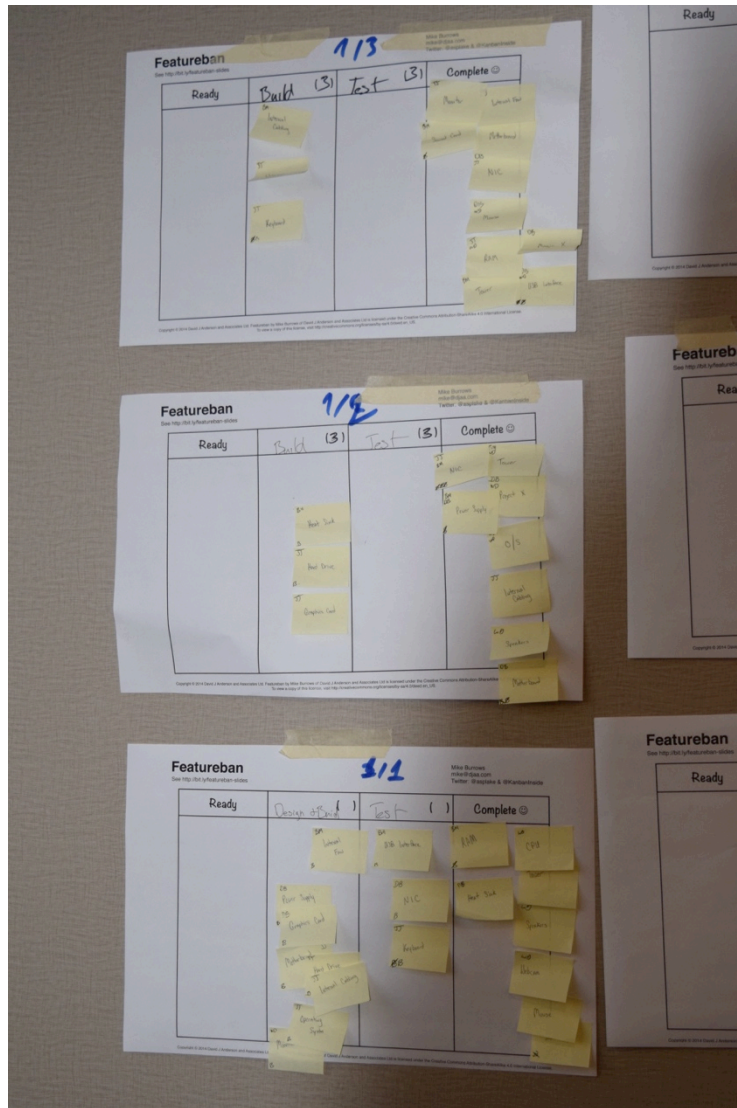
Day #	Team 2			
	A	**C**	**M**	**J**
1	H	T	H	H
2	T	H	H	H
3	H	H	T	H
4	T	H	H	T
5	H	T	T	H
6	H	T	T	H
7	T	T	T	T
8	H	T	T	H
9	H	H	H	H
10	H	H	H	H
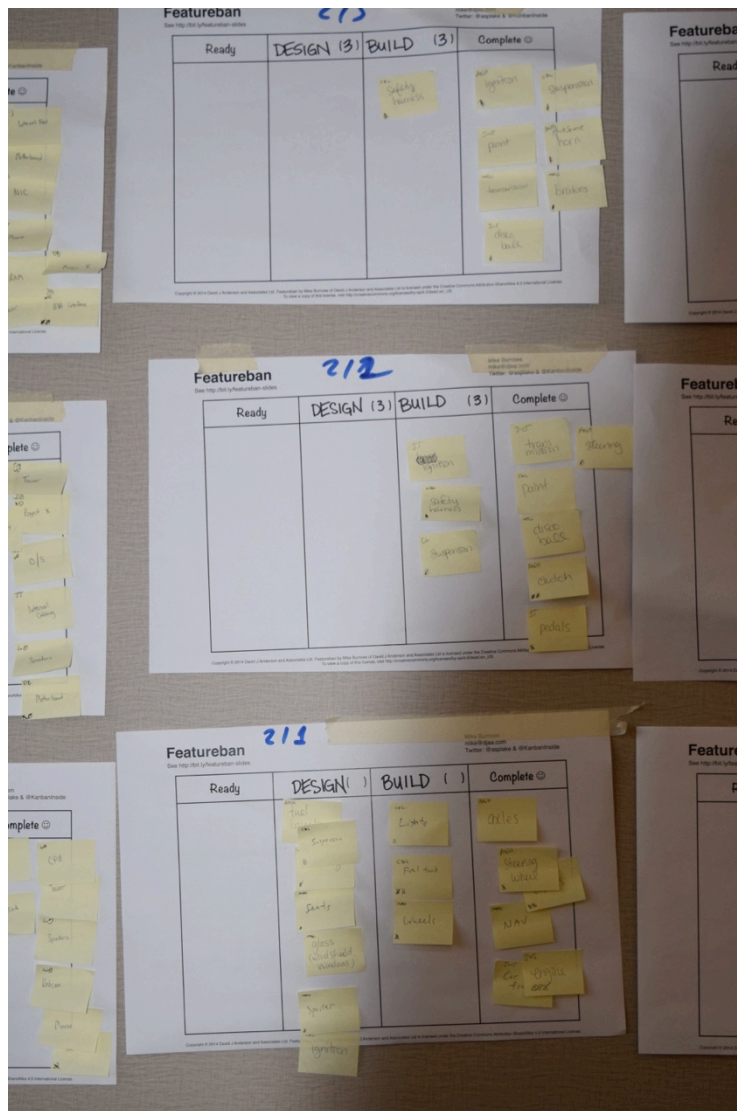
Day #	Team 3			
	GC	**DK**	**PS**	
1	T	T	H	
2	T	T	T	
3	H	T	T	
4	H	T	T	
5	H	H	H	
6	T	T	T	
7	T	T	T	
8	T	T	H	
9	T	H	T	
10	T	T	T	
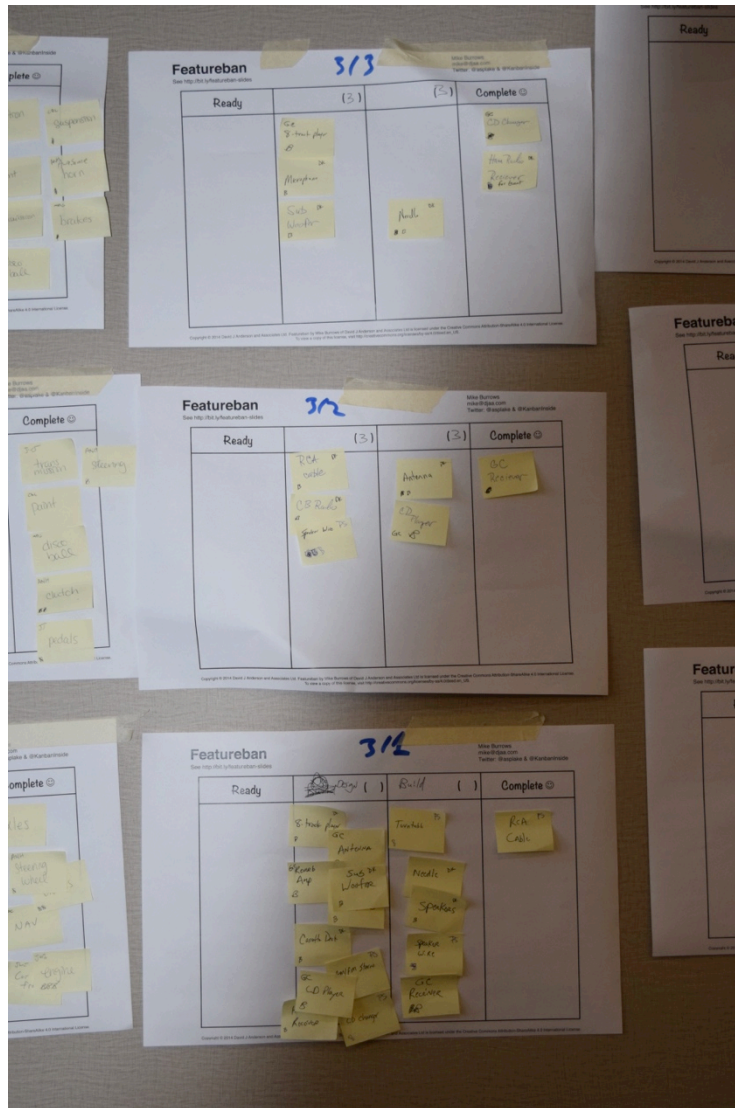
Day #	Team 4			
	REC	**RC**	**BK**	**RJ**
1	T	T	T	H
2	H	T	T	T
3	T	H	T	T
4	H	T	T	T
5	H	T	H	T
6	H	T	T	T
7	T	T	T	T
8	T	H	T	H
9	H	T	T	T
10	H	H	H	T

Day #	Team 5			
	MW	TB	JK	JM
1	T	T	T	H
2	T	T	T	T
3	H	T	T	T
4	H	H	T	H
5	T	T	H	H
6	T	T	H	H
7	H	T	T	H
8	H	H	T	T
9	H	H	H	T
10	H	H	H	T