The Road to Agile

PennDOT's Transformation to Iterative and Agile Methods

Chris de Leon and Philip Petrina
Pennsylvania Department of Transportation

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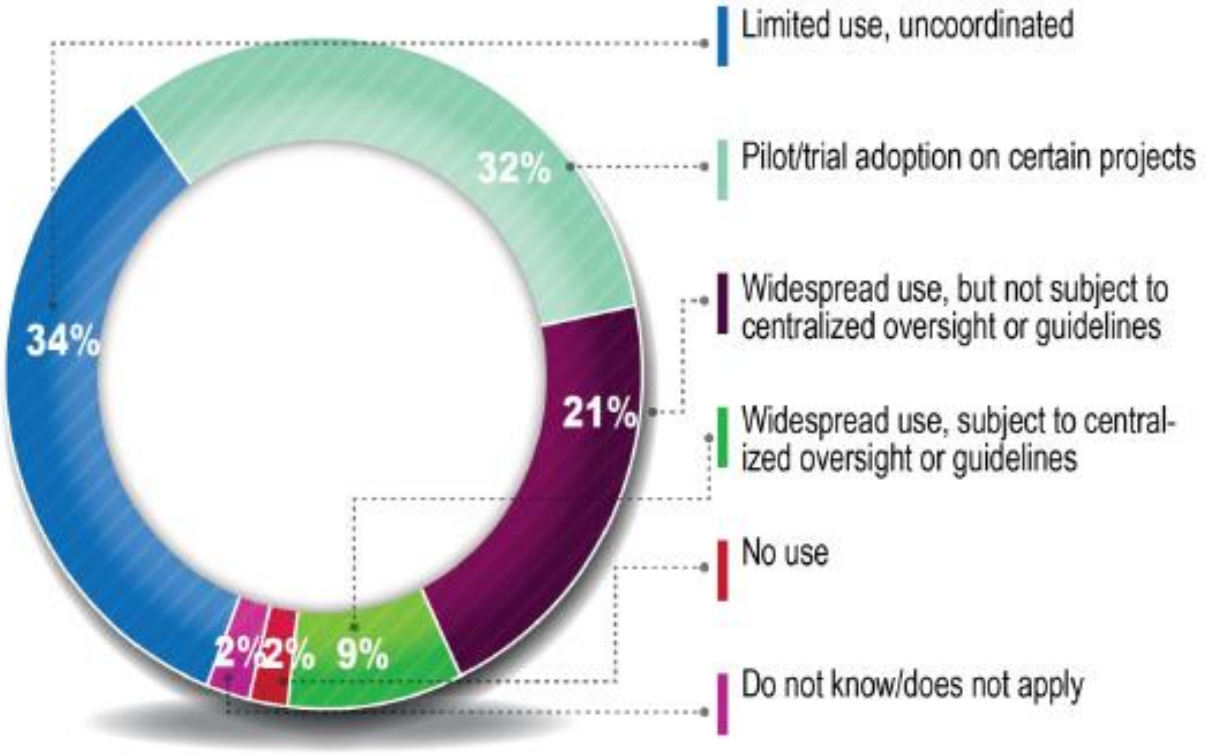
Agile Adoption

How would you characterize the use of agile or incremental software development approaches within your state?



Source: The Value Equation, 2015 State CIO Survey

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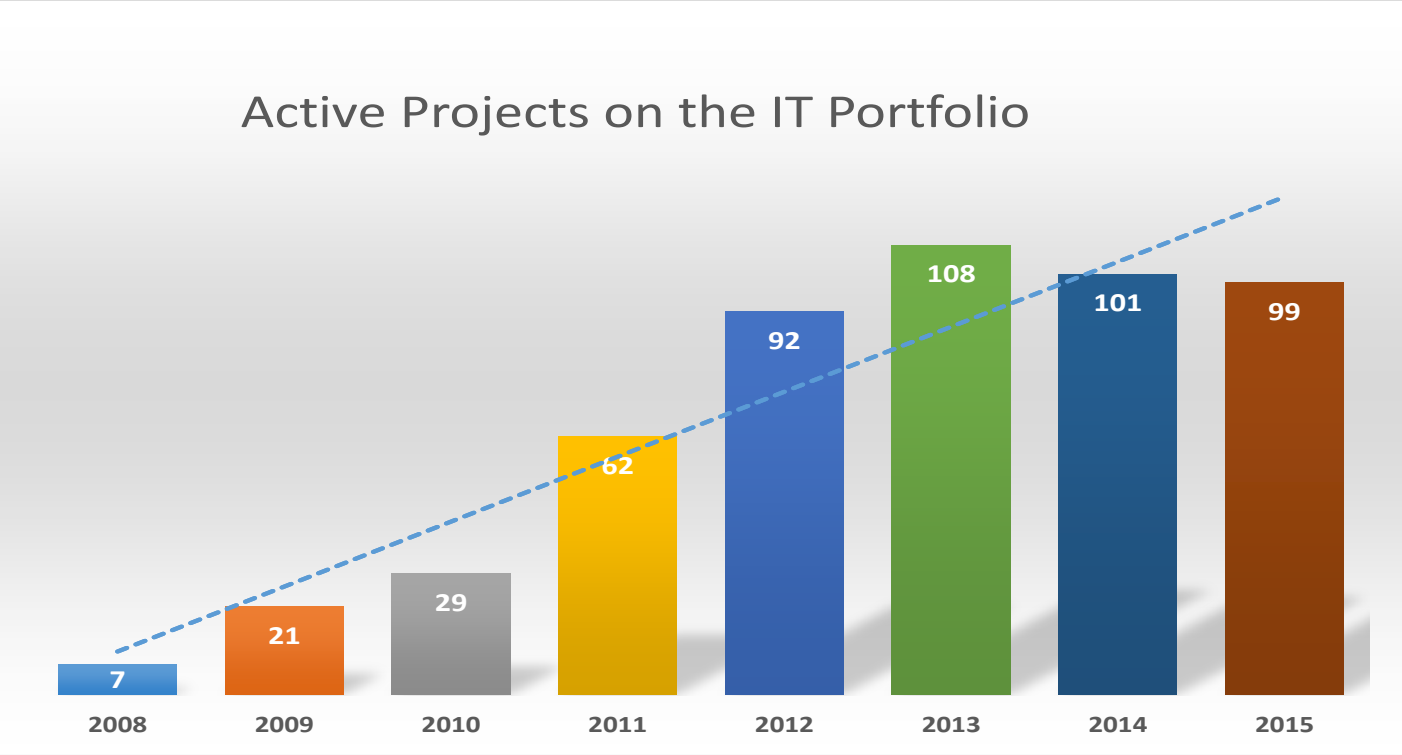
Why Go to Iterative and Agile?



- Rapid Growth Driven by:
  - Disruptive IT Forces
  - IT Strategy
  - Business Needs for Transformation and Innovation

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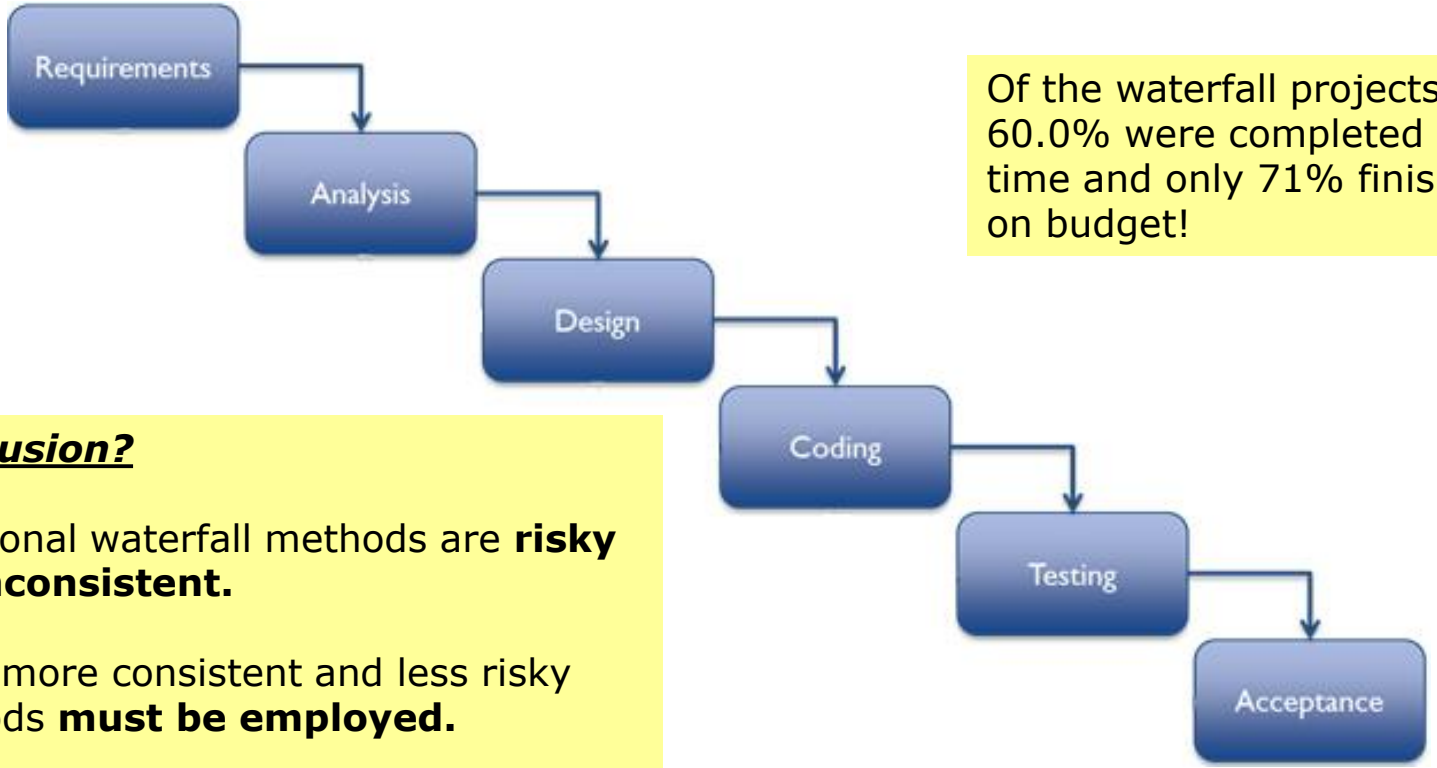
Where We Were: Waterfall Development

- Gartner: In 2015, ***Waterfall*** methods were used in approximately 56% of projects; 21% used ***Iterative*** and 23% use ***Agile*** [1].

[1] "The End of Waterfall as We Know It", Gartner Research; Analysts: Matthew Hotle, David Norton and Nathan Wilson; G00291841

Photo by dexchao. Published on 22 August 2013 www.freedigitalphotos.net

Waterfall Development Methodology



Of the waterfall projects, only 60.0% were completed on time and only 71% finished on budget!

Conclusion?

Traditional waterfall methods are **risky** and **inconsistent.**

Other more consistent and less risky methods **must be employed.**

Need to Deliver Business Value **Quicker** and with **Higher Quality**

➢***Iterative and Agile***

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Iterative Development Methodology

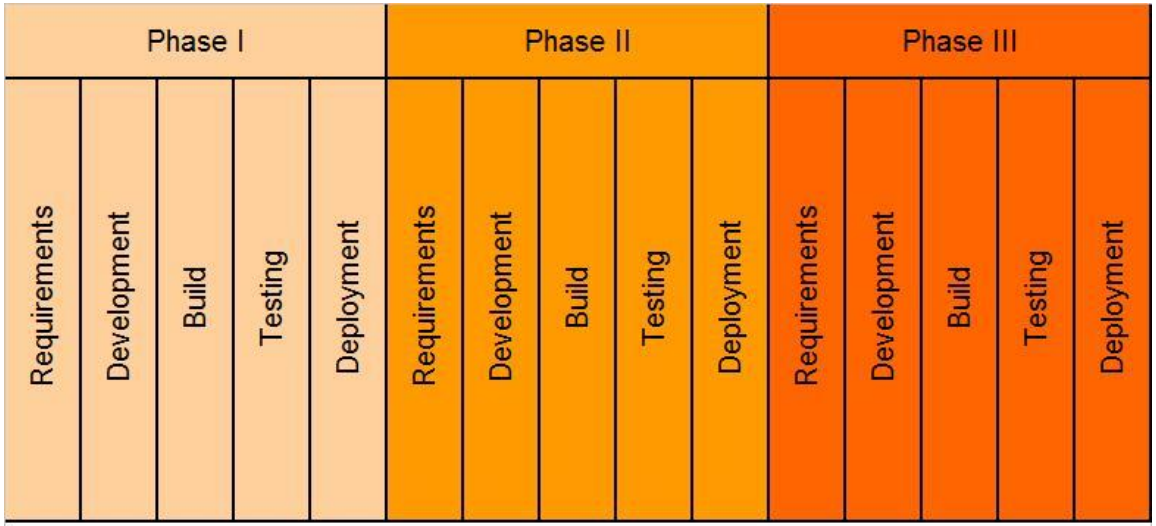


Figure 3: Iterative Development Model

- Breaks the project down into iterations or phases.
- Each iteration has its own lifecycle
- Reduces risk of changing requirements

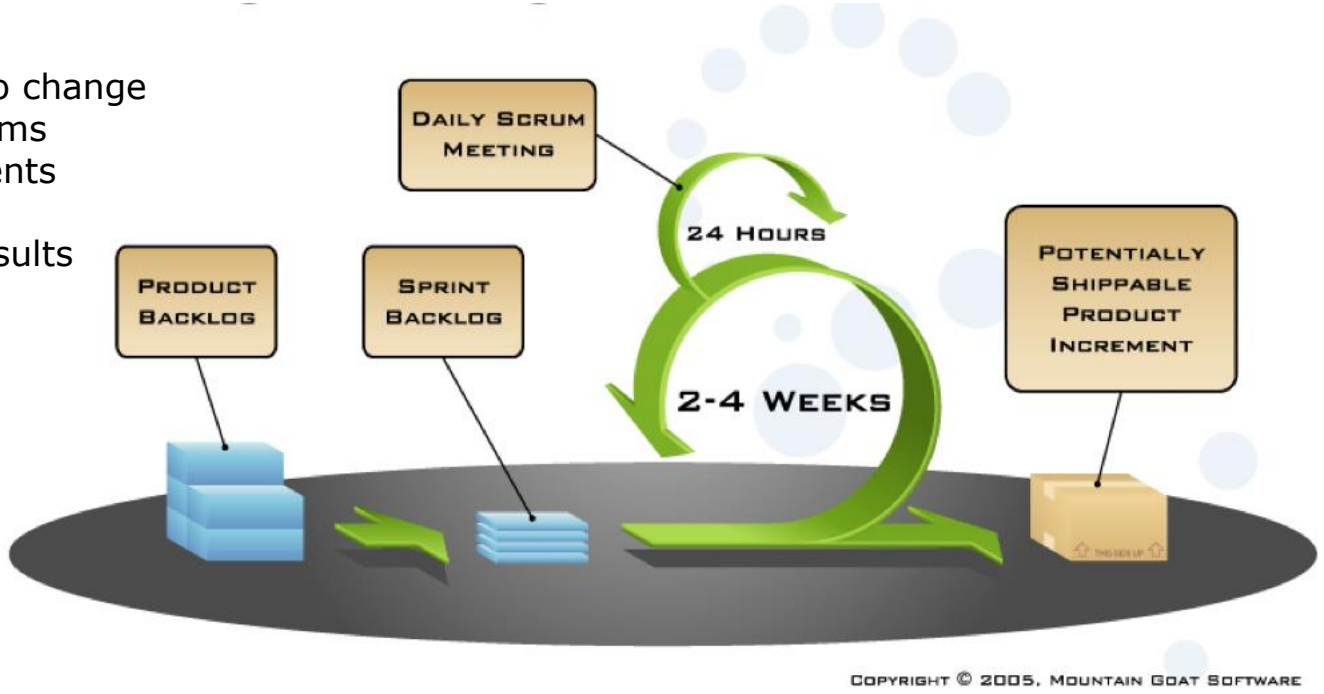
Caveats:

- The longer the iteration, the greater the risk.
- Iteration schedule may slip because all requirements within an iteration must be completed

Agile/SCRUM Project Methodology

Pros:

1. Faster Delivery
2. Easier to adapt to change
3. Builds strong teams
4. Avoids requirements surprises
5. Higher quality results



Cons:

1. Agile requires a significant culture shift
2. Agile does not always conform with traditional large org performance metrics; effort estimations can be difficult

Build a Solid Foundation

- Stakeholder Training/Education Plan
  - ✓ Introductory and Advanced training
  - ✓ Include developers, BAs, PMs, and **Business Areas**
  - ✓ Share Knowledge; Shadowing of Iterative and Agile Teams
  - ✓ Develop a presentation you can give quickly to internal or external stakeholders

How can the organization transition to iterative and agile?

- Good News – You're probably already doing it
  - ❑ Iterative is a common software development methodology in most organizations
  - ❑ Waterfall teams can easily adapt to iterative
  - ❑ First step to being more agile
- Look for easy victories to garner support within IT and the business areas
- Start adopting agile practices across the organization
  - ❑ Be More Agile
  - ❑ Shorter delivery cycles
  - ❑ Put software in the hands of the business more frequently to avoid the big up-front design and development trap.

How can the organization transition to iterative and agile?

- Avoid waterfall if at all possible!
  - ❑ Waterfall (the old way)– Gather **all** requirements up front, IT go to the IT cave and build it; return in 12-14 months with 100% finished product !!!
  - ❑ If waterfall must be used, duration should be limited to 90-120 days.
  - ❑ May need to use iterative waterfall for larger projects

- Assess new projects for iterative or agile approaches.
  - ❑ Use iterative or agile whenever possible
  - ❑ Project Team Agrees on method
  - ❑ Set Expectations Accordingly
  - ❑ Remember, not all projects or project teams are suited to agile methodology

Agile Manifesto

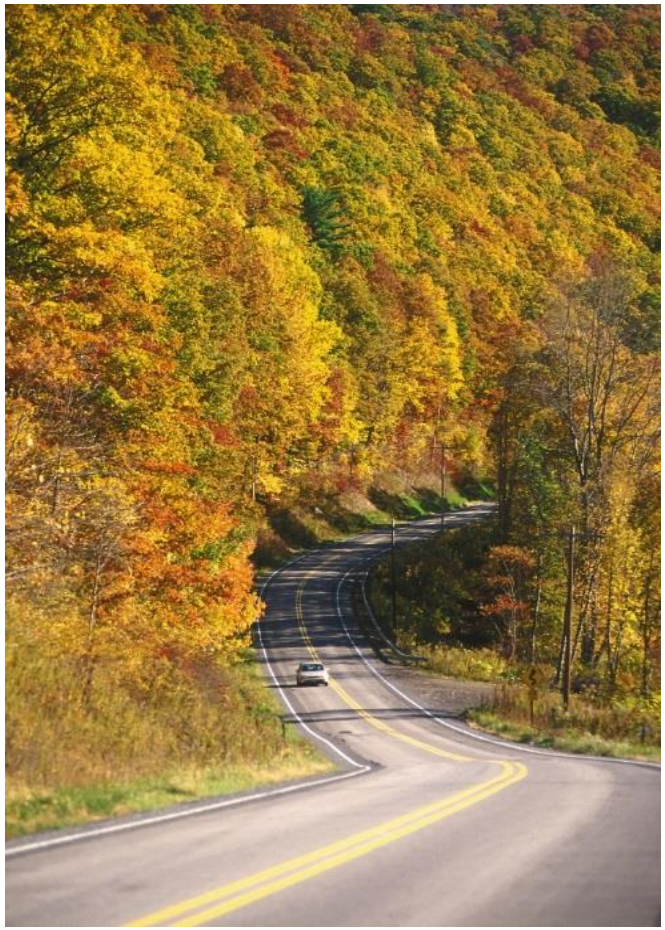
Main Focus

- ***Individuals and interactions*** over processes and tools
- ***Working software*** over comprehensive documentation
- ***Customer collaboration*** over contract negotiation
- ***Responding to change*** over following a rigid plan

While there is value in the items on
the right, we value the items on the **left** more!!

How can the organization transition to iterative and agile?

- It won't happen overnight
  - Moving to agile is more about **cultural change and people**, not process and technology
  - "Walk" into an agile transition with eyes wide open
  - Use a pilot project, don't go "Big Bang Theory" here
- Continue to use Iterative and Agile or Hybrid methods that work for your organization
  (remember, it's a journey)
- Success breeds Success



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"Open the Road" to Agile

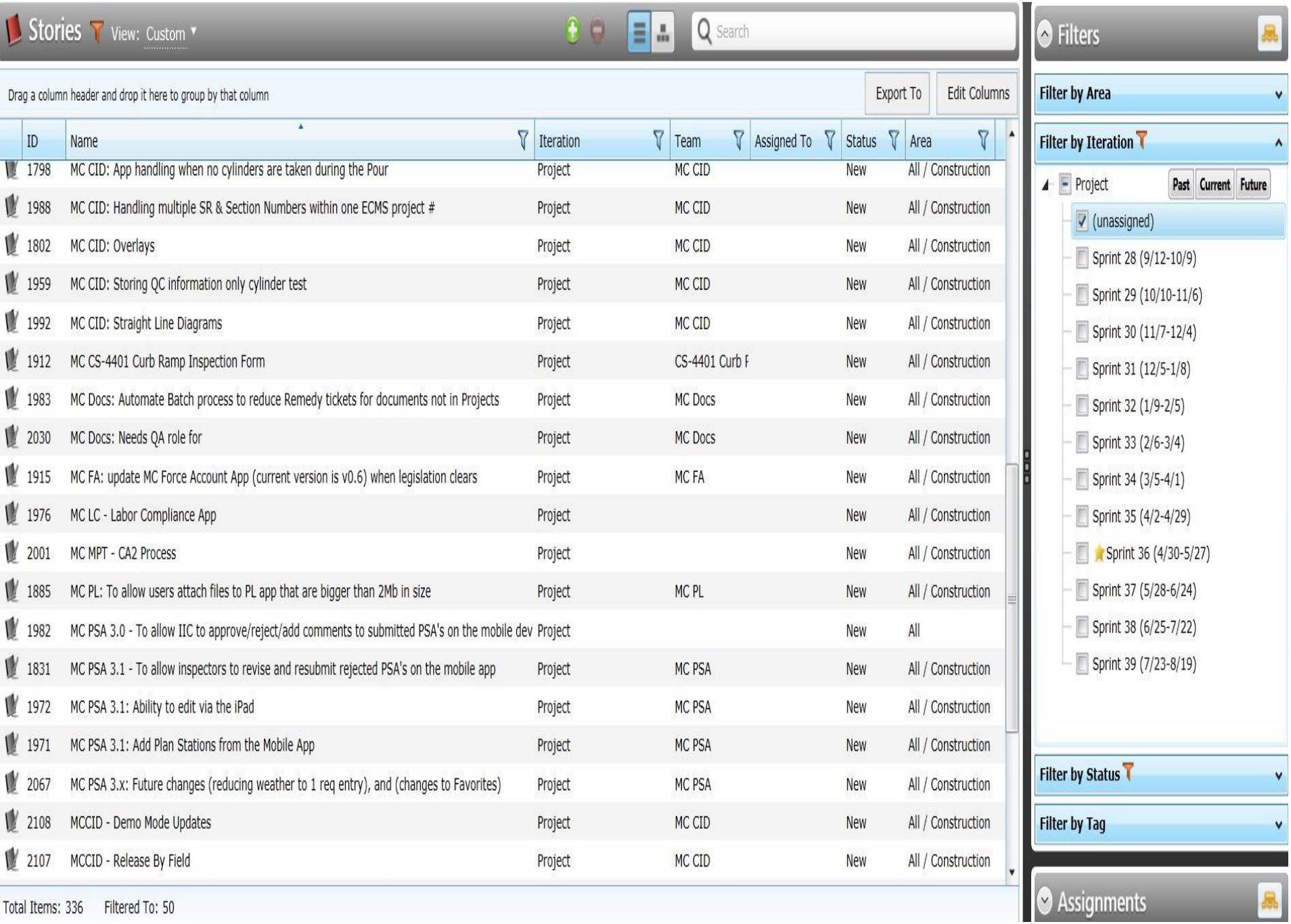
- Have a Champion (Senior Management)
- Identify, recruit, train and cultivate your agile team

Early Adopters from IT and Business will Open the Road

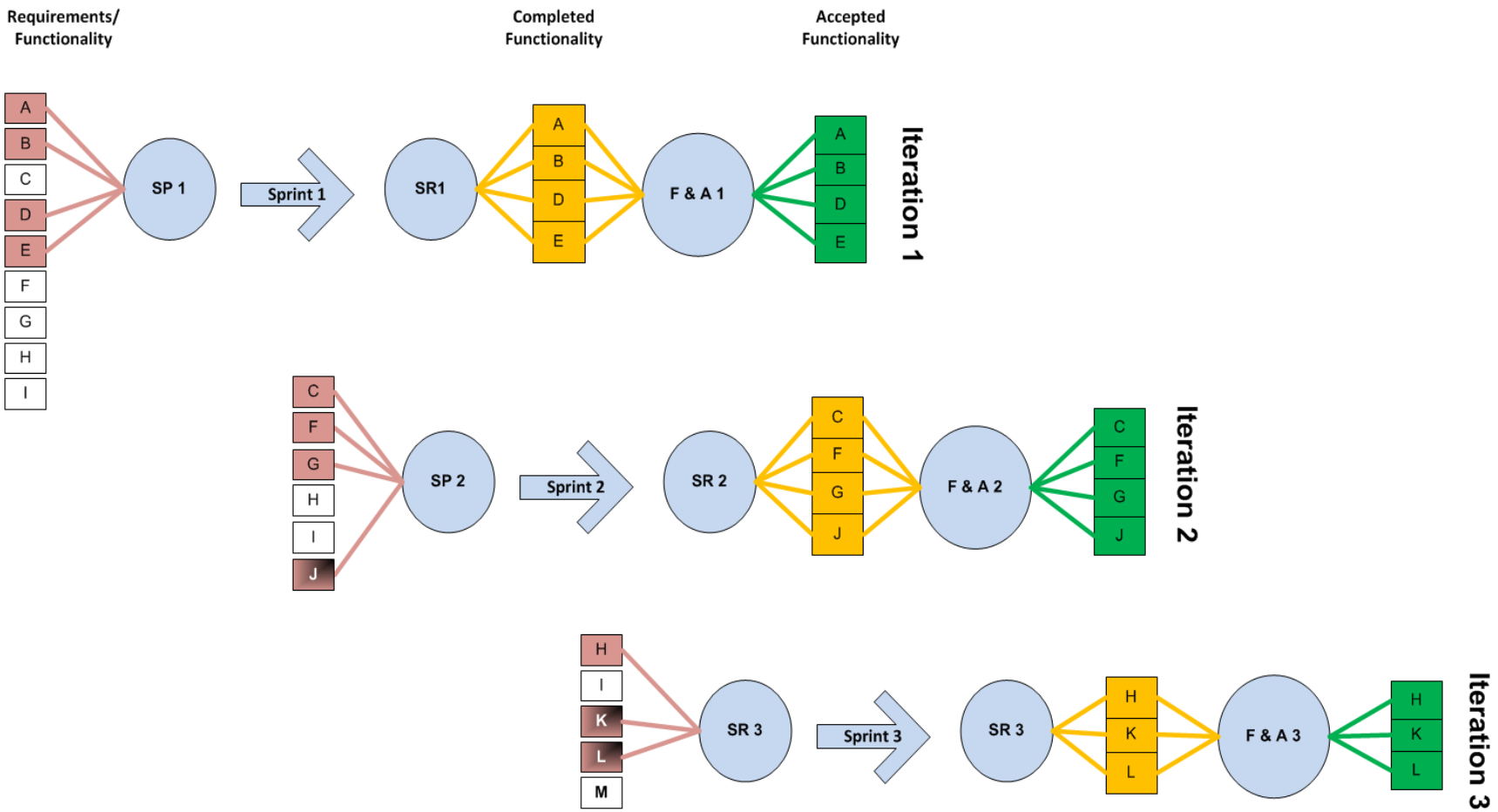
First Pilot Agile Product

- Pick a small non-critical project, and learn from the results. The experience gained from the pilot project can be used to adjust processes
- Collocate the team if possible
- Gather major features or functionality (formally requirements)
  - BA's/Dev team go to the field to observe operations
- Prioritize Backlog – This is a Business not IT function !!!!
  - What are most important features that will offer the most value in short order to the business. (MVP)
  - Plan Sprints
- Deliver working software/features by the end of every sprint
- Sprint Retrospective
- RINSE and REPEAT

Agile team visits the work site


Stories
View: Custom
Search
Drag a column header and drop it here to group by that column
Export To
Edit Columns
ID
Name
Iteration
Team
Assigned To
Status
Area
1798 MC CID: App handling when no cylinders are taken during the Pour Project MC CID New All / Construction
1988 MC CID: Handling multiple SR & Section Numbers within one ECMS project # Project MC CID New All / Construction
1802 MC CID: Overlays Project MC CID New All / Construction
1959 MC CID: Storing QC information only cylinder test Project MC CID New All / Construction
1992 MC CID: Straight Line Diagrams Project MC CID New All / Construction
1912 MC CS-4401 Curb Ramp Inspection Form Project CS-4401 Curb F New All / Construction
1983 MC Docs: Automate Batch process to reduce Remedy tickets for documents not in Projects Project MC Docs New All / Construction
2030 MC Docs: Needs QA role for Project MC Docs New All / Construction
1915 MC FA: update MC Force Account App (current version is v0.6) when legislation clears Project MC FA New All / Construction
1976 MC LC - Labor Compliance App Project New All / Construction
2001 MC MPT - CA2 Process Project New All / Construction
1885 MC PL: To allow users attach files to PL app that are bigger than 2Mb in size Project MC PL New All / Construction
1982 MC PSA 3.0 - To allow IIC to approve/reject/add comments to submitted PSA's on the mobile dev Project New All
1831 MC PSA 3.1 - To allow inspectors to revise and resubmit rejected PSA's on the mobile app Project MC PSA New All / Construction
1972 MC PSA 3.1: Ability to edit via the iPad Project MC PSA New All / Construction
1971 MC PSA 3.1: Add Plan Stations from the Mobile App Project MC PSA New All / Construction
2067 MC PSA 3.x: Future changes (reducing weather to 1 req entry), and (changes to Favorites) Project MC PSA New All / Construction
2108 MCCID - Demo Mode Updates Project MC CID New All / Construction
2107 MCCID - Release By Field Project MC CID New All / Construction
Total Items: 336 Filtered To: 50
Filters
Filter by Area
Filter by Iteration
Project
Past
Current
Future
(unassigned)
Sprint 28 (9/12-10/9)
Sprint 29 (10/10-11/6)
Sprint 30 (11/7-12/4)
Sprint 31 (12/5-1/8)
Sprint 32 (1/9-2/5)
Sprint 33 (2/6-3/4)
Sprint 34 (3/5-4/1)
Sprint 35 (4/2-4/29)
Sprint 36 (4/30-5/27)
Sprint 37 (5/28-6/24)
Sprint 38 (6/25-7/22)
Sprint 39 (7/23-8/19)
Filter by Status
Filter by Tag
Assignments

RELEASE 1



RELEASE 1

Requirements for Sprint

Additional Requirements

Req. not selected For this sprint

SP=Sprint Planning : SR= Sprint Review : F&A= Fix and Accept

Process

Completed Functionality

Requirements

	Date	DEV	SYST	PROD
SPRINT 36 **END DATE 5/27/16**	**5/4/16**			**GeoSnap 1.0**
	5/6/16	BOMO M609 Roadside Activity Report – Finalized requirements	CMH Mobile 1.1	
	5/9/16		CDL 2.0.4	
	5/10/16	ePayroll Meeting w/ OA	MC-CID 1.2 (QC Plan)	
	5/12/16	BOMO M609 Roadside Activity Report – Arch Design		
	5/13/16	DEP OG0114 SAIR – Finalized requirements	NCDL 0.5	
	5/16/16	ePayroll To-Be Process & High-Level Arch		**CMH Mobile 1.1**
	5/17/16		MC-PSA 3.0 (Calcs update, Perf updates, help overlays)	
	5/19/16			**MC-CID 1.2 (QC Plan)**
	5/23/16		CDL 2.0.5 NCDL 0.6	
	5/25/16	BOMO M609 Roadside Activity Report – UX Design/Server Design	BPT-RCR 1.2 (iOS 9.2.1)	
	5/26/16	ePayroll Dev Environment AEM		
	5/27/16	DEP OG0114 SAIR – Arch/UX/Server Design		

Other Factors to Consider

- Agile development methods require committed business involvement
  - Business participates in Daily SCRUM meetings
  - Use of Business Pilot Groups
    - Continuous Testing throughout each Sprint
    - Reduces User training significantly

- Be ready to accept and embrace **CHANGE**
- We don’t always have **ALL** the requirements up front

Business Pilot Group

Wimer, Cheryl
White, Autumn
Murnyack, Eric
Maney, Marc
Faulkner, Larry
Johnson, Inez
Medura, Carla
Althouse, Barbara
Moyer, Joe
Wetterau, Lew
Rescorla , Robert
McCready, Michael
Stutzman, Timothy
Gattorno, Justin
Smeal, Mike
Hentz, Brent
Berg, Scott
Fox, Joseph
Gemmell, Allen
Shilling, Steve
Uderman, Terry
Knopp, Barry
Warner, Nick
Brett, Dale
Cutia, Rick
McSweeney, Matt

Project Execution Management - Mix of Business and IT

Burnett, John H
Butler, William
DeStefano, Ralph J
Fisher, Christina
Foringer, James A
Henry, Herbert
Jones, Jarrod
Lentz, Michael
Malinoski, Amy
Malovic, Frank
Miles, Lori
Myler, John B
Petrina, Philip
Pikitus, Francis
Pletzer, Randy
Poretta, Kim M.
Schopman, Gerry
Setliff, Scott
Tararakin, Alexey
Trivelpiece, Brent L.
Wallen, Doreen M.
Warner, Nicholas R
Wetterau, Lewis C

Development & BA

Ella; Srikanth
Fessler; Devin
Fisher, Christina
Hawbecker; Jonathan
Jadala; Shyam
Jones; Jarrod
Kandula; Rajesh
Luckenbaugh; Travis
Malovic, Frank
Peddi; Priyanka
Peters; Toby
Reynolds; Joel
Salyuk, Vadym
Goli, Naga
Tumuganti; Shashank

Business Leads

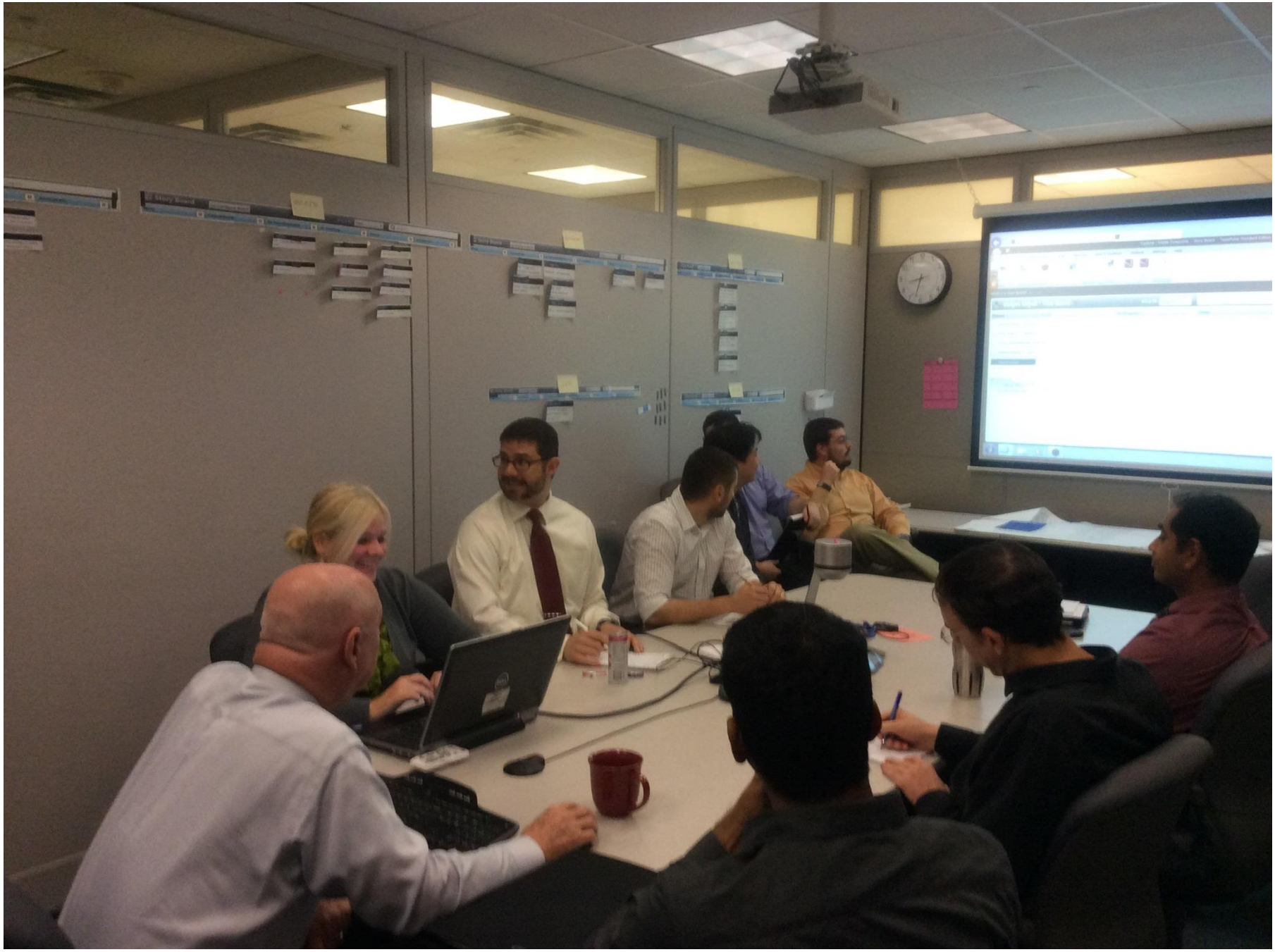
Foringer, Jim
Myler, John
Lentz, Mike
Burnett, John
Pikitus, Frank

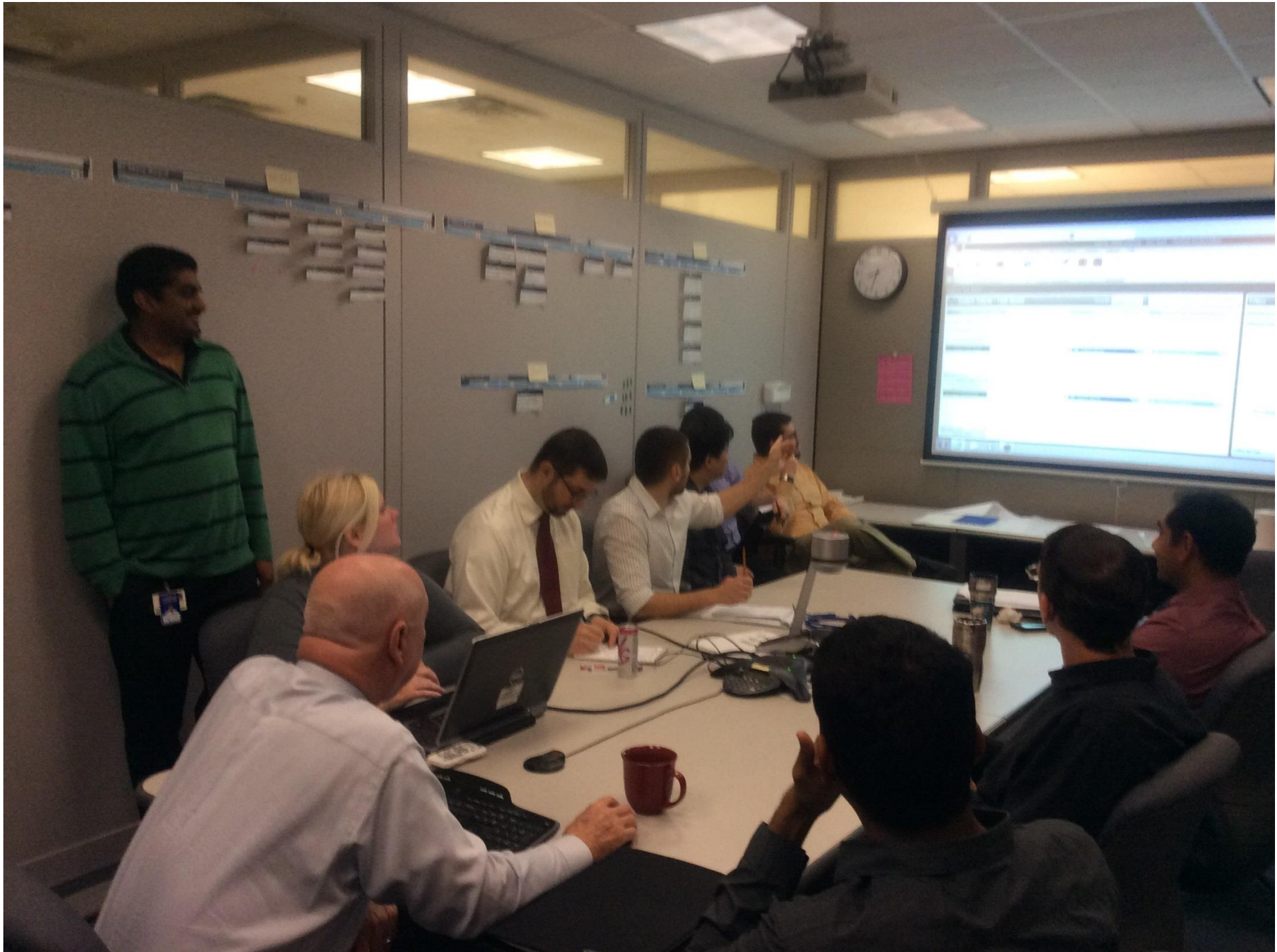
Governance Team Business & IT

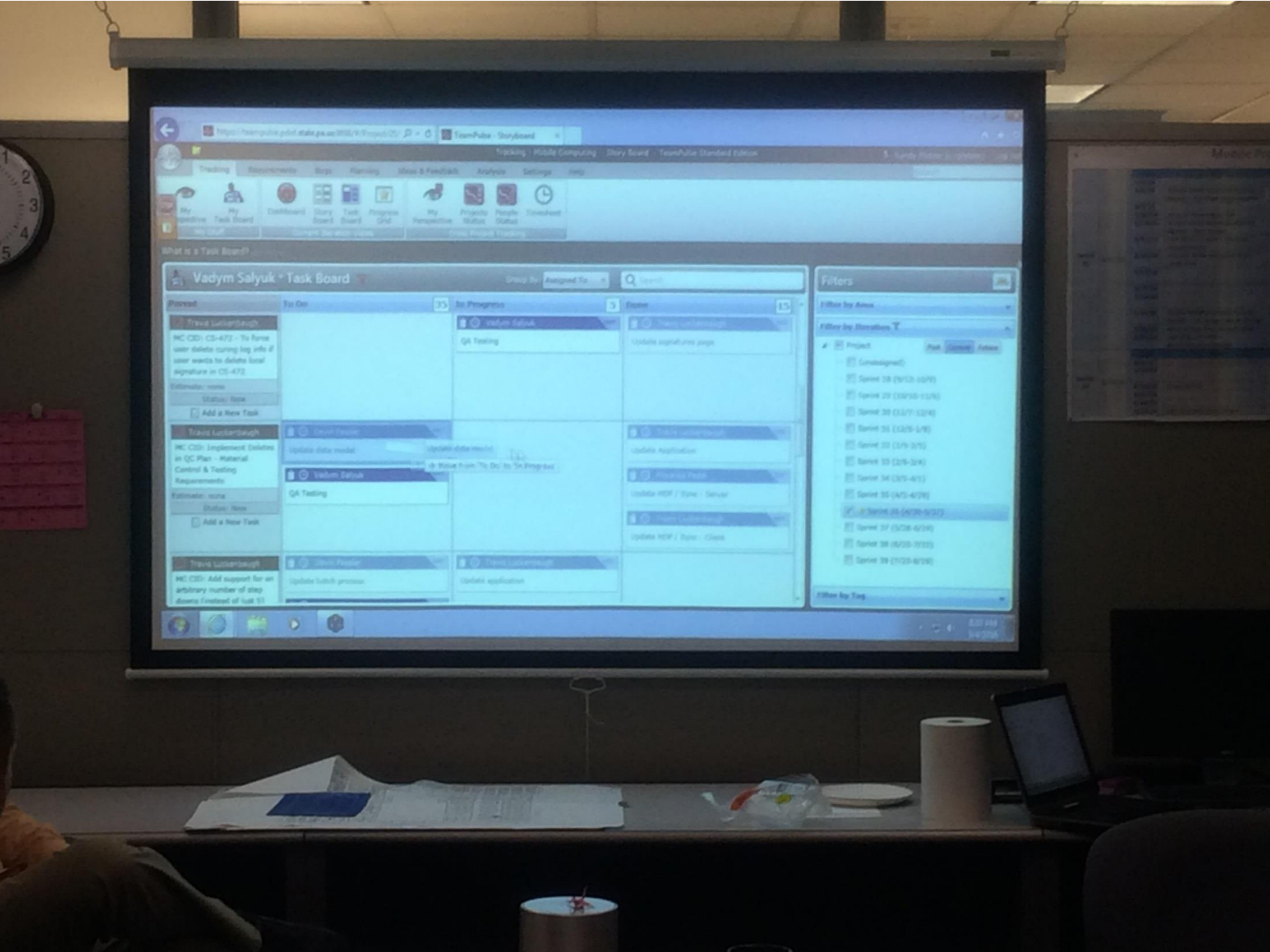
Bickley, Rebecca L
Black, Joyce
Burns, Rebecca S.
DeLeon, Chris
DeMatt, Michael
Foringer, James A
Gray, Gavin
Jones, Jarrod
Myler, John
Petrina, Phil
Pletzer, Randy
Poretta, Kim
Reihart, Deborah
Riley, Roger
Tomassini, Philip H
Wallen, Doreen

Server Farm team

Periyannan, Karup
Setliff, Scott
Taylor, Ty






TeamPulse - Storyboard
Vadym Salyuk - Task Board
To Do
In Progress
Done
Filters
QA Testing