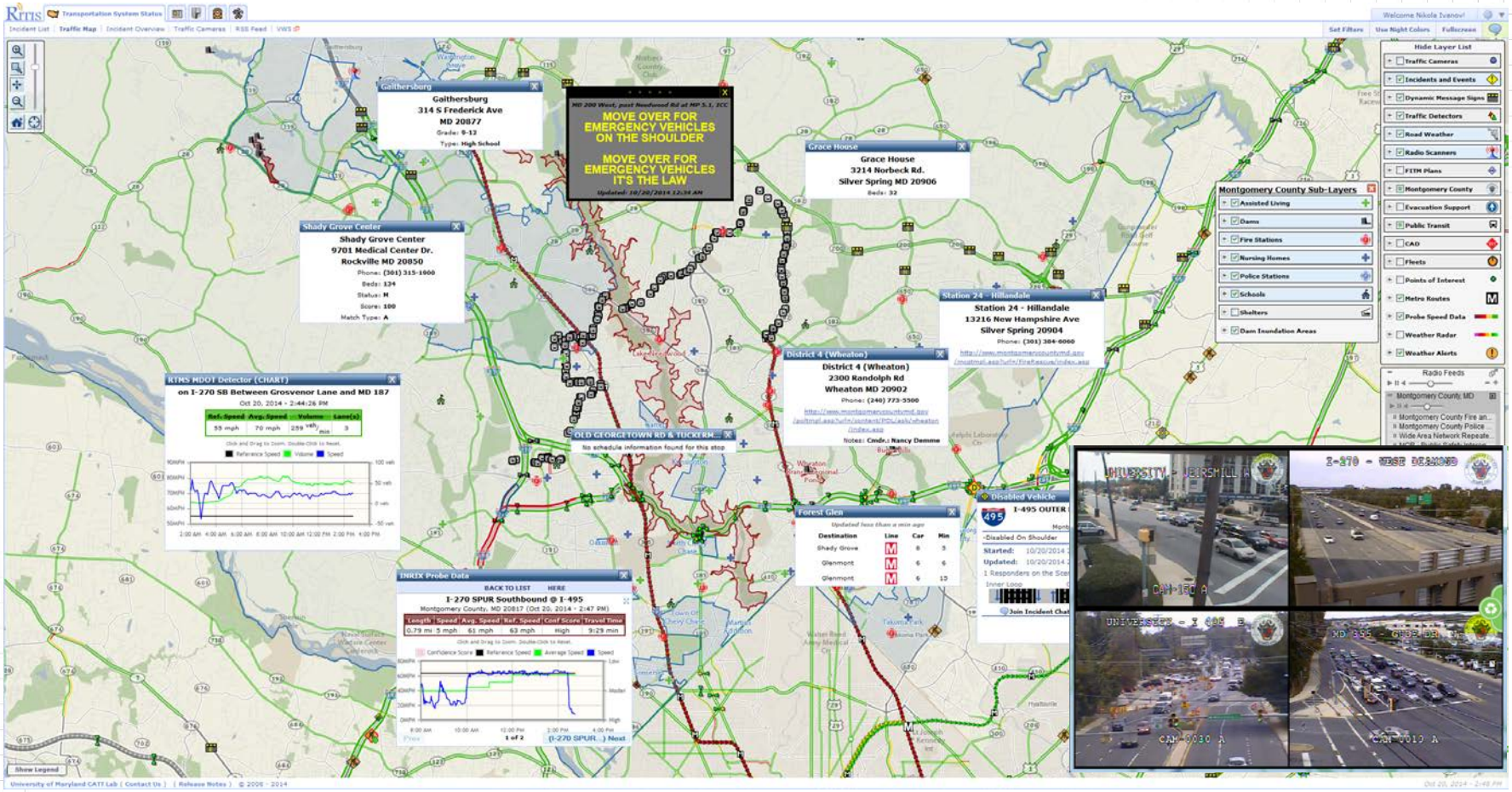
TRANSITIONING SOFTWARE DEVELOPMENT AND OPERATIONS LABORATORY TO AGILE

Nikola Ivanov, Michael Pack

2016 Project Management Symposium

CATT Lab



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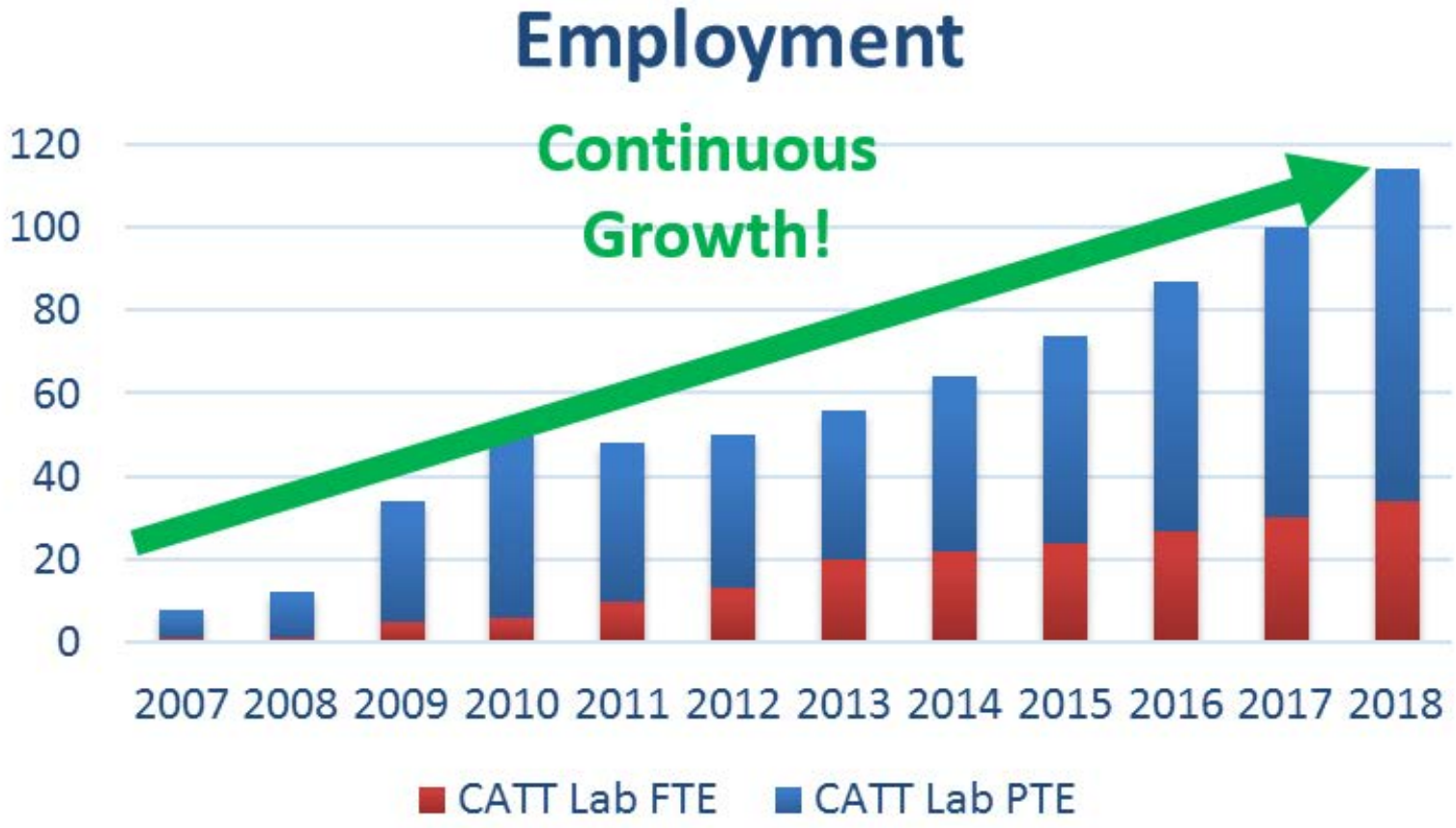
CATT Lab Growth



GROWTH CHALLENGES

Functional Organization

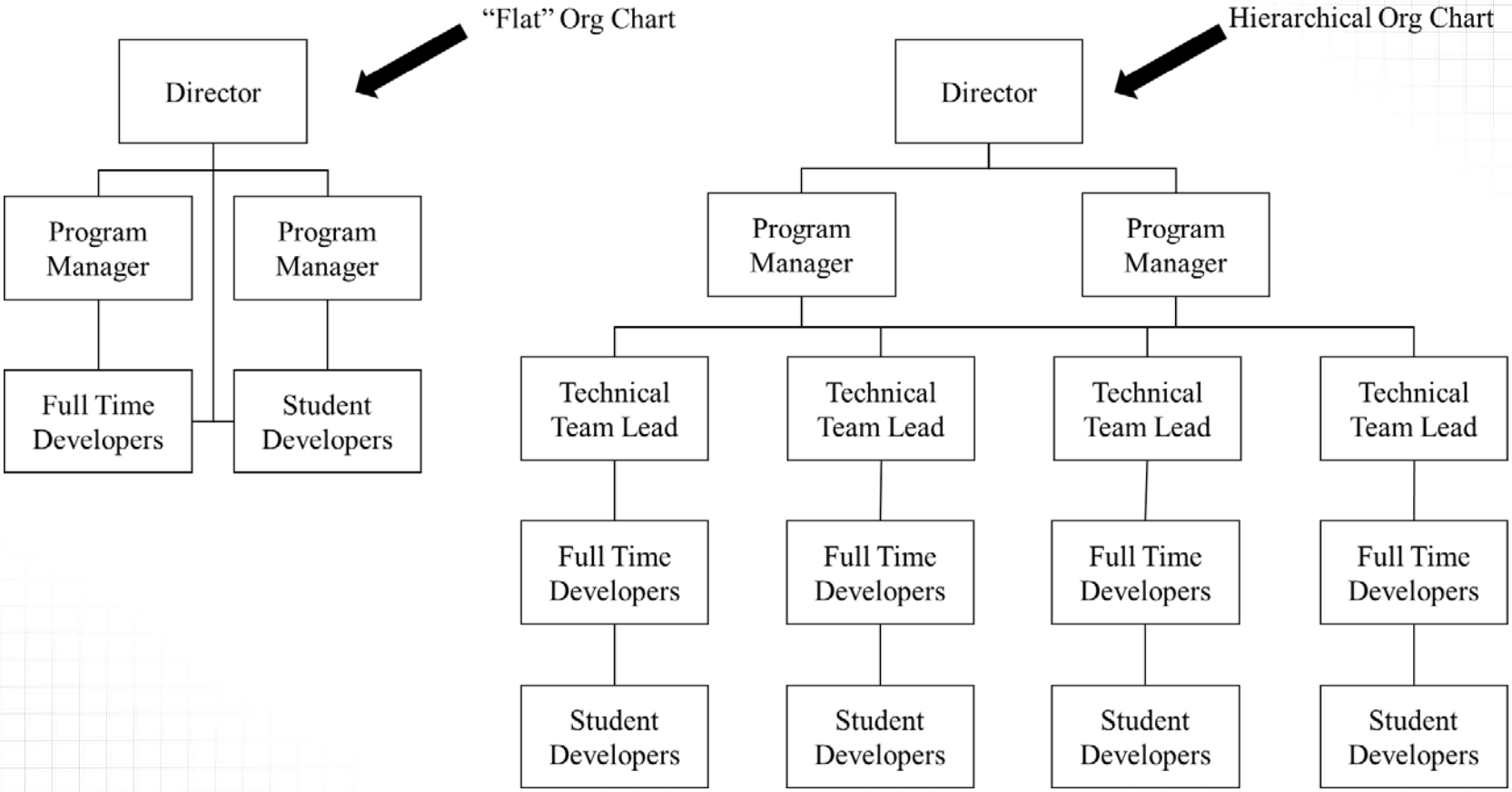
Team	Responsibility
DBA Team	Design, implementation, and maintenance of numerous relational databases.
Java Team	Extract, transform, load (ETL) tasks required to integrate new data sources into various CATT Lab databases.
Web Team	Development of front-end components showing real-time transportation data.
Analytics Team	Development of visual analytics using archived data sets using the Flex application framework.
IT Team	Hardware infrastructure to support development and operations.
GIS Team	Geographic Information Systems (GIS) related support services.

Challenges

- Diversity of process
- Ad-hoc leadership
- Work-flow management
- Staffing distribution
- Management focus-shift
- Unified direction

STAFFING SOLUTIONS

Hierarchy and structure



Staff diversity

Photo by: Matylda Czarnecka

Photo by: Masa Israel Journey

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Staff empowerment

Photo by: Harsh Patel

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Work-Flow Solution

TAILORED AGILE PROCESS

Cross-functional teams and co-location

Team 1	Team 2	Team 3	Team 4	IT	Art	Support	QA
Team Lead	Team Lead	Team Lead	Team Lead	Team Lead	Team Lead	Team Lead	Team Lead
DBA	DBA	DBA	DBA	Sys Admins	Students	Students	Students
Front End Devs	Front End Devs	Front End Devs	Front End Devs	Network Admins			
Back End Devs	Back End Devs	Back End Devs	Back End Devs	Students			
Student Devs	Student Devs	Student Devs	Student Devs				

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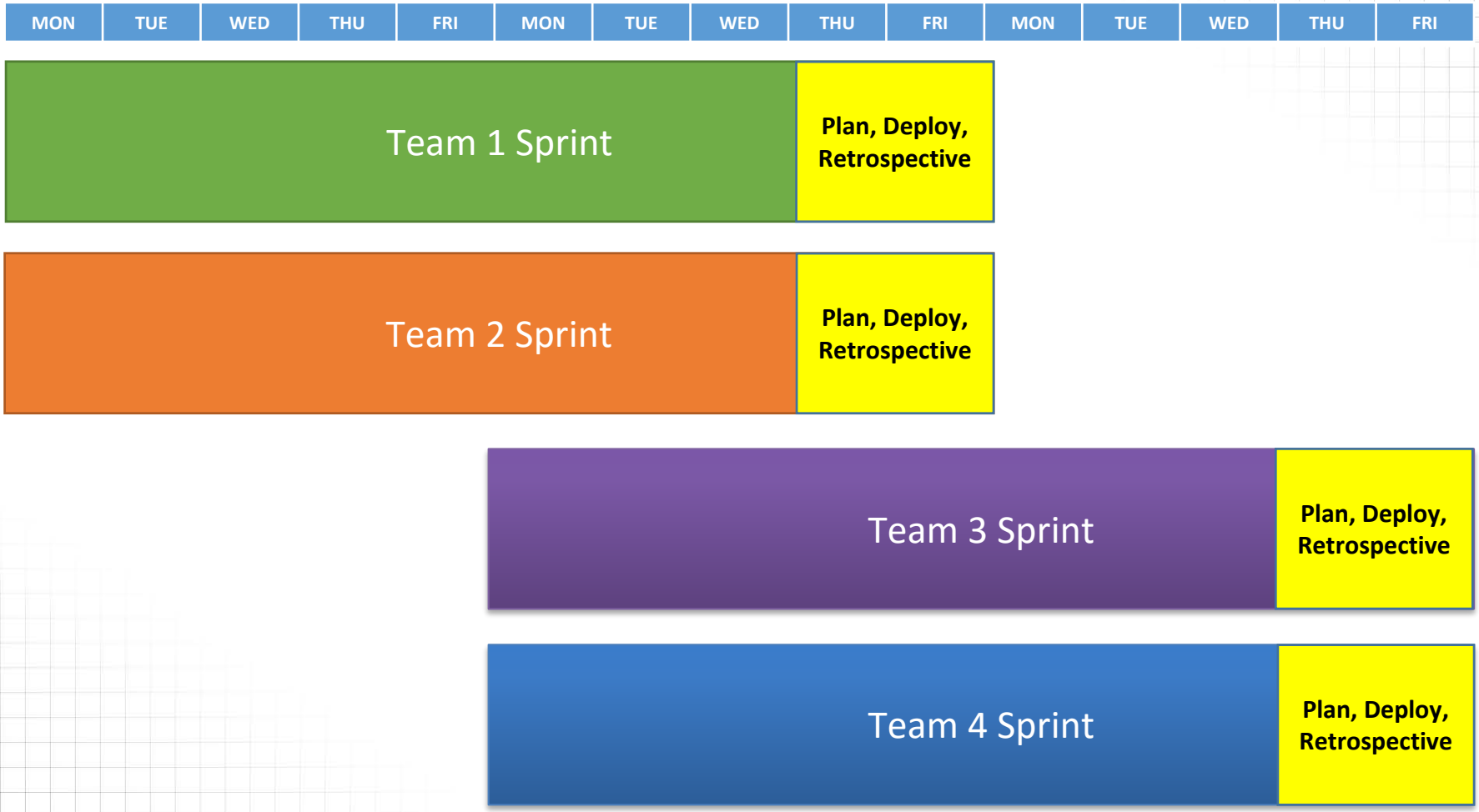
Slide 13

Two week sprints



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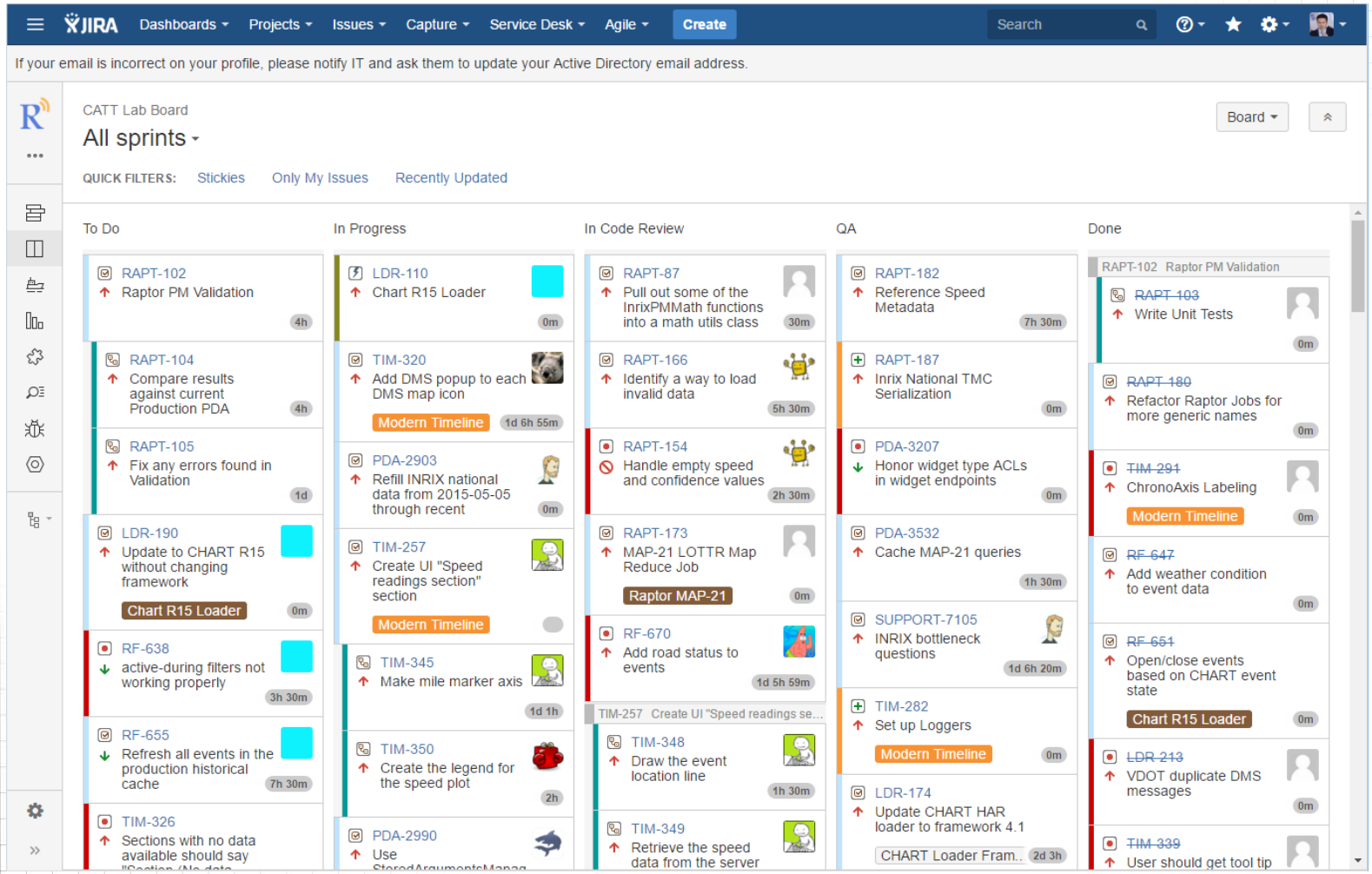
Sprint planning



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Retrospective meetings

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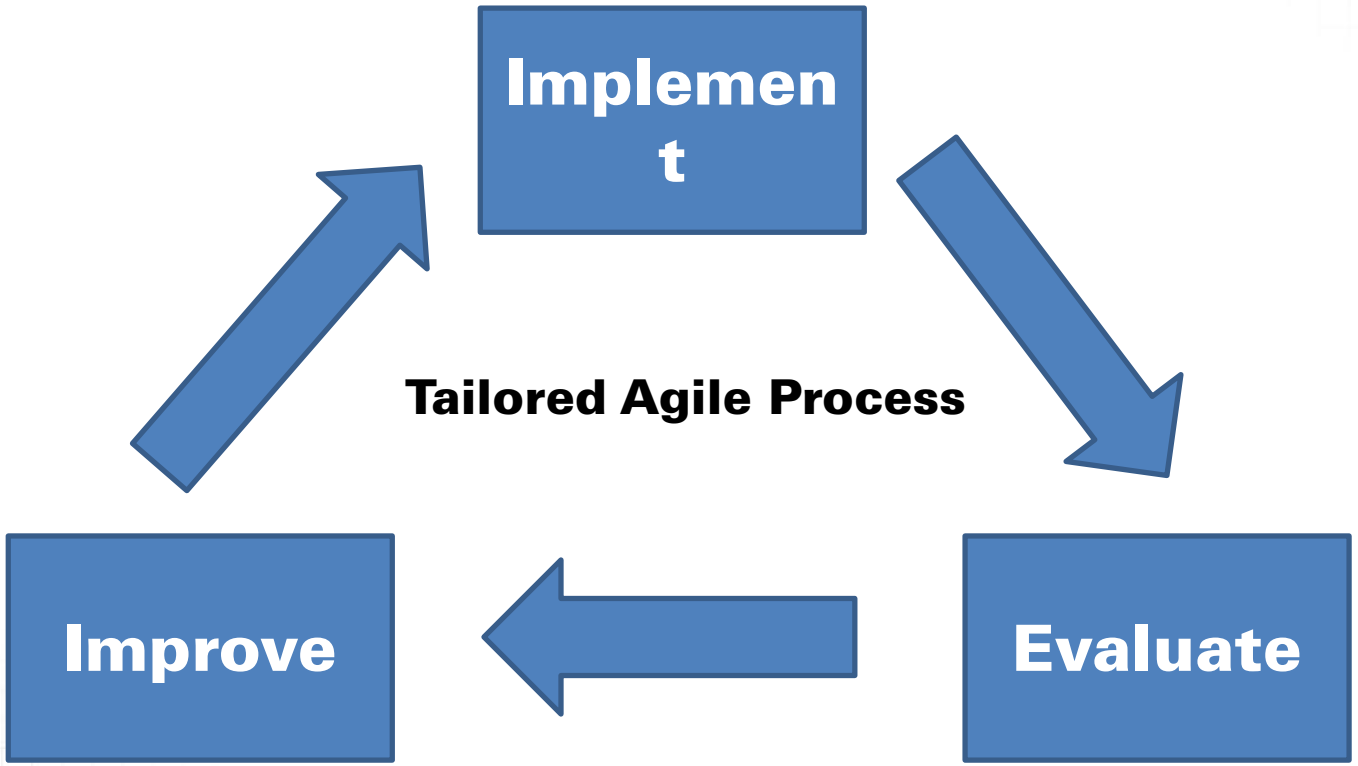
LESSONS LEARNED

Living process



Work estimation

- Estimation Techniques:
  - Analogous
  - Proxy
  - Parametric
  - Three Point
- Planning Poker

Photo by: Adam Binslev

Changing priorities

- Proactive communication
- Reserve technical lead capacity
- Reduce team size

Photo by: Joan M. Mas

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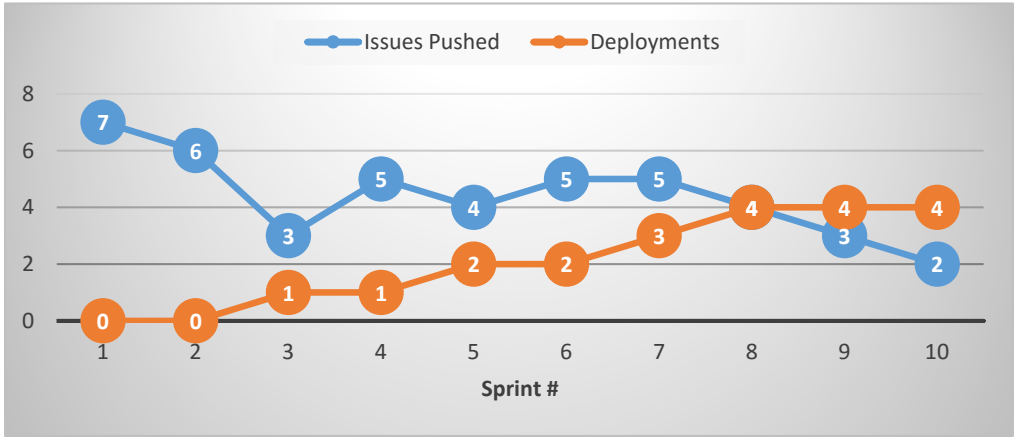
Diverse sprints

- Balance versatility and productivity
- Move towards product based cross-functional teams
- Introduce team rotations

Photo by: Chris Potter

Performance measures

- # of issues pushed to next sprint
- # of deployments
- # of issues resolved per developer per sprint
- # of issues resolved per Team Lead per sprint
- Estimate accuracy



Questions?

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