TRANSITIONING SOFTWARE DEVELOPMENT AND OPERATIONS LABORATORY TO AGILE

Nikola Ivanov, Michael Pack
2016 Project Management Symposium
CATT Lab
CATT Lab Growth
GROWTH CHALLENGES
## Functional Organization

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

TAILORED AGILE PROCESS
# Cross-functional teams and co-location

<table>
<thead>
<tr>
<th>Team 1</th>
<th>Team 2</th>
<th>Team 3</th>
<th>Team 4</th>
<th>IT</th>
<th>Art</th>
<th>Support</th>
<th>QA</th>
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<tbody>
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<td>Team Lead</td>
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<td>DBA</td>
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<td>Sys Admins</td>
<td>Students</td>
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<td>Front End Devs</td>
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<td>Network Admins</td>
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Two week sprints

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<th>TUE</th>
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<th>THU</th>
<th>FRI</th>
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<th>TUE</th>
<th>WED</th>
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Team 1 Sprint

Team 2 Sprint

Team 3 Sprint

Team 4 Sprint
Sprint planning
Retrospective meetings
LESSONS LEARNED
Living process

Tailored Agile Process

Implement

Improve

Evaluate
Work estimation

• Estimation Techniques:
  • Analogous
  • Proxy
  • Parametric
  • Three Point
  • Planning Poker
Changing priorities

• Proactive communication
• Reserve technical lead capacity
• Reduce team size
Diverse sprints

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