Leading the Implementation of Agile in Government

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Implementing Agile at USGS’s NGTOC

USGS Center Focused on Mapping the Nation
The NGTOC provides essential support for the acquisition and management of trusted geospatial data, products, and services through world-class geospatial technical expertise and customer service for the U.S. Geological Survey and the Nation.
Result of NGTOC going Agile

- Improved Communication
- Improved Quality of Code
- Improvements in Workforce and Teams
- Improvements in Project Planning
- Overall: Better control in an uncertain environment
What is Agile?

- Product Backlog
- Sprint Planning
- Sprint Backlog
- Sprint
- Potentially Shippable Software

Cycle Time:
- 24h
- 1-4 weeks
Our Starting Point in Systems Development...

- **How Work was Managed...**
  - Supervisors acting as “Super” Project Managers
  - Developers working alone on tasks
  - Lack of resources to effectively manage work
  - Infrequent vehicles for communication
  - No (common) PM methodology

- **Results...**
  - No commitment from developers
  - Stakeholders changing requirements (continuously)
  - Overly dependent upon any single developer (risk!)
  - No unified understanding of direction OR status
  - *Notions* of control (...but organizationally chaotic)
Organizational Paradigm Shift

**Production Organization**
- Pyramid shaped
  - Lots of people at the bottom
  - Few at the top
- Hierarchy is important
- Most common with commodity production
- Product hasn’t changed in decades/centuries
- Ideas less important than repetition
- Employees creativity, etc, not critical
- Chain of Command involved in every aspect of problem solving
- Leaders: “Command and Control”
- Waterfall: effective planning tool

**Services Organization**
- Diamond shaped
  - Big in the middle
- “Flat” teaming more important
- Product line constantly changing/evolving
- Ideas critical
- Communication critical
- Employees creativity critical to organizational success
- Self Organizing Teams facilitate problem solving
- Leaders: “Facilitate and Enable”
- Agile: effective planning tool
Implementation at NGTOC

- Theory is all well and good...
- What we did:
  - Mass Training ("Tipping Point")
  - Facilitate Follow up Discussions (and Decisions)
  - Provided direction and leeway to "vanguard" teams
    - "Operationally Experimented"
  - Spread best practices and encouraged others
  - Hired PMs to focus on development areas
Implementation: Changing how Requirements are Managed

- **Scheduling vs. Prioritization**
  - Scheduling is only realistic in repetitive tasks
  - Prioritization focuses team and stakeholders
    - Enables “weak” commitment on long range tasks
    - Enables “strong” commitment on specific, short range tasks

- **Organization of Stakeholders (one voice)**
  - SDB & IWGs
  - Opportunity for theme leads to organize/prioritize

- **Organization of Tasks**
  - Use of system to expose tasks (Jira)
    - Facilitates Stakeholder interaction
Implementation: Focus on Teaming
Implementation: Changing How we Managed Expectations

- Focus on Communication Platforms to improve “situational awareness” for Themes
- Technical methods:
  - Project & Collaboration (Google) Site (high level)
  - Jira Projects (detailed)
- Collaborative methods:
  - Governance Boards
  - Innovation Working Groups (IWGs)
  - Team driven Sprint Planning and Review sessions
  - Hierarchical arrangement of Non-Hierarchical meetings
Implementation: Changing How we Managed Expectations (cont.)

- **Review Gates:**
  - FY Planning timeline (1x year)
  - Quarterlies (4x year)
  - Monthly Updates (12x year)
  - Sprint to Sprint (~2 wks)

- **Opportunities to re-engage**
  - Deal with uncertainty/reality
  - Opportunity for theme leads to understand & engage
  - Re-prioritize based upon latest opportunities (or not)
Implementation: What was Learned.... What it Took

● **Positive Environment**
  ○ Open to Learning & Improving
    ■ Avoid an aversion to risk
    ■ ...and change is “scary”...and try to keep it fun (Fish Philosophy)
  ○ Solutions were teamed (Toyota Kata)
    ■ Employee driven solutions create buy-in AND a solution that’s more likely to be successful

● **Sought support from above, below, and left and right**
  ○ Financial support from Senior Leadership
  ○ Key leaders were terrifically supportive
  ○ Presentations, desk side chats, etc to build understanding

● **Understanding and Flexibility**
  ○ Know methodologies, industry best practices
  ○ ...but be able to apply them in your organization
  ○ Kata: internal organizational learning...not just copying from others
Results (and Challenges)

● Improved Communication
  ○ (Expense of Communication)
  ○ Sprint Reviews, IWGs, Jira, Project Pages, SDB Reviews

● Improved Quality of Code
  ○ (Really on Developers, now)
  ○ Creativity, enterprise solutions

● Improvements in workforce/teams
  ○ (Dealing with low performers)
  ○ Teams allow for learning...and reducing risk
  ○ Slower “churn” of contracted developers

● Improvements in Project Planning
  ○ (Directing Self Organizing Teams)
  ○ Increased commitment from developers
  ○ Reduced change from Stakeholders

● Overall: Better control in an uncertain environment