Implementing eResearch Projects using Agile Development

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Overview

Quick Agile Refresher
Implementing Agile
Researchers and Agile

Our Experience

When to use agile?
How to start?
What worked?
Can researchers be agile?
RMIT eResearch Office

Screen Media Research Archive (SMRA) integrates various existing research collections (infrastructure and content) into a responsive, sustainable, user-friendly application for the deposit, description, searching and retrieval of screen media research of various types. *Chief Investigators*: Prof. Heinrich W. Schmidt and Prof. Deb Verhoeven.

Data Curation in High Performance Computing (DC-HPC) harvests research data from HPC facilities, stores data in an institutional repository and publishes metadata at ANDS metadata registry. *Chief Investigators*: Prof. Heinrich W. Schmidt and Prof. Salvy Russo.

Development Team
Approx. 6 people working across both projects.
A mixture of experienced software developers, early career researchers and research students.

And other projects, see:
http://www.rmit.edu.au/research/eres/projects

SMRA and DC-HPC Projects

These projects are supported by the Australian National Data Service (ANDS)

ANDS is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy Program and the Education Investment Fund (EIF) Super Science Initiative
Agile Principles


Example Agile Practices

- Iterations (Lean, XP, Scrum)
- Refactoring (Lean, XP)
- Planning Meetings (XP, Scrum)
- Measure Workflow (Scrum, Kanban)
When to use Agile?

Increasing:
- Uncertainty
- Risk
- Value

Requires:
- Small Development Teams
- Regular Feedback from Users

Implementing Agile

Initial set of Practices.

Scrum prescribes Roles.

Interaction through Meetings.

What did (& didn't) Work?
Implementing Agile - Practices

**Initially**
- Sprints (Scrum / XP)
- Defined Roles (Scrum)
- Managed Backlogs (Scrum)
- Common Ownership (XP)
- Pair Programming (XP)
- Metaphor (XP)

**Added**
- Product Reviews (Scrum)
- Retrospectives (Scrum)
- Planning Poker (Scrum / XP)
- Sprint Themes

Implementing Agile - Roles

**Product Owner**
- Communicates a clear vision of the product.
- Dictates the order of Product Backlog.
- Accepts the product at the end of the sprint.

**ScrumMaster**
- Facilitates meetings.
- Protects the Team from external disturbances.

**End User**
- Provides feedback about what is expected from the product.

**Team**
- Delivers the product.
Implementing Agile - Meetings

Regularly During Sprint

Estimation
Team estimates tasks and selects sprint backlog

Planning
Product Owner describes and prioritizes the product backlog

Scrum
Team reports progress, plans work, and discusses impediments

Review
Team demonstrates the product and collects feedback from product owner and end users

Implementing Agile - Evolution

What worked?
Sprint Themes (Scrum)
Retrospectives (Scrum)
Planning Poker (Scrum)

What didn't?
Metaphor (XP)
Pair Programming (XP)
Daily Scrums (Scrum)
Common Ownership (XP)

Sort of...
Measuring Velocity (Scrum)
Agile Tools – Task Management

Agile Tools – Estimation

Planning Cards
Researchers and Agile

Researchers:

- Are the Customers in Software Development Projects.
- Are usually novices with respect to Software Engineering Methodologies.
- Understand the Agile principles:
  - Interaction
  - Working Product
  - Collaboration
  - Adapting to Change
Researchers and Agile

Agile Roles and Practices

- Product Owner
- Iterations
- Product Backlog
- Reviews

Research

- Chief Investigators
- Edit Cycles
- Assigning Tasks
- Reviewers Comments

Conclusion

- eResearch is a relative new field so there is plenty of scope to develop new processes as software.

- Agile is a good example with which to introduce software engineering methodologies to researchers in any project.

- There are a wide range of practices from which to choose.

- But must assess whether the agile requirements are met.

- But, again, only when the project fits agile and the project benefits.

- But start small and be willing to adapt.
Final Words

From SMRA Product Owner

“The Product came from the Conversation.”

Thankyou for Listening

Questions?