Deconstructing the Data Lifecycle BoF

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Agenda - Context

Introduction

- Background regarding the genesis of this effort, work to date.
- Why Agile?

Presentations on Agile Curation Case Studies and Examples of the Technical Debt Model

- Provide a template for both documenting an A.C. case study and a T.D.M. example (the T.D.M example may contribute to an Agile Curation case study but not all T.D.M. examples will constitute a case study) - http://goo.gl/P7wuFY

Examples

- GSToRE and RDS at UNM
- Sea Ice as an Agile Curation example
- Others???

Agenda - Where from Here?

Discussion / Next Steps

- Identify more case studies
- Examples of agile curation
- Data reuse examples with an explicit consideration of investments required to facilitate data reuse
- How far can the agile model go when applied to data curation?

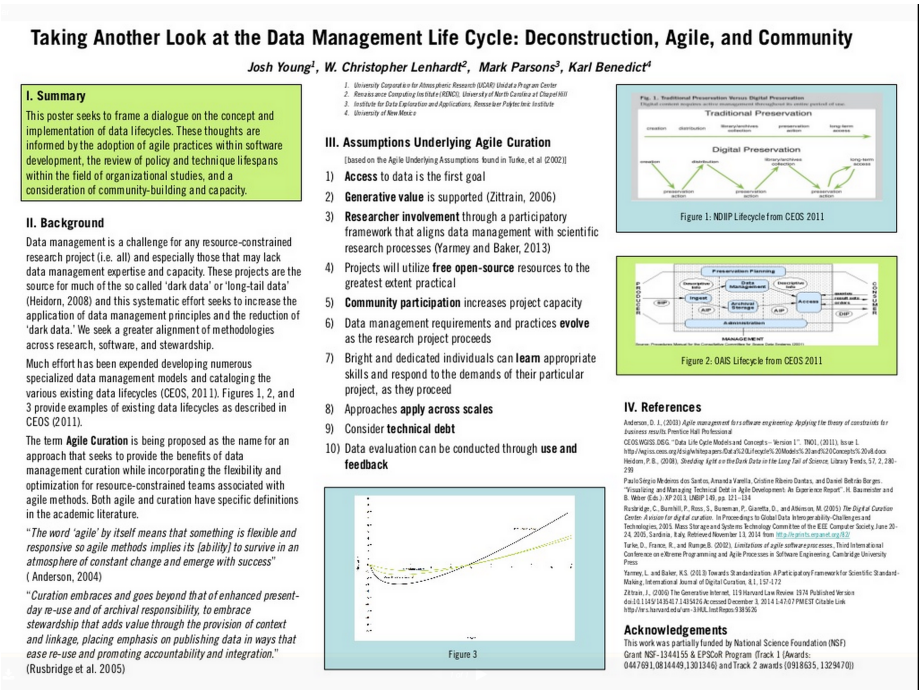
BoF Results

- Discuss the potential for a white paper or publication
- Outline paper / writing assignments / timetable
- Does the group want to continue as an RDA IG.

Background

- Conversations started at GeoData 2014 and continued at the ESIP Federation Summer 2014 meeting

- Poster presented at the 2014 AGU Fall meeting to broaden the dialog - http://www.slideshare.net/JoshYoung8/ag-cu-11



Taking Another Look at the Data Management Life Cycle: Deconstruction, Agile, and Community

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I. Summary

This poster seeks to frame a dialogue on the concept and implementation of data lifecycles. These thoughts are informed by the adoption of agile practices within software development, the review of policy and technique lifespans within the field of organizational studies, and a consideration of community-building and capacity.

II. Background

Data management is a challenge for any resource-constrained research project (i.e. all) and especially those that may lack data management expertise and capacity. These projects are the source for much of the so called 'dark data' or 'long-tail data' (Heidorn, 2008) and this systematic effort seeks to increase the application of data management principles and the reduction of 'dark data.' We seek a greater alignment of methodologies across research, software, and stewardship.

Much effort has been expended developing numerous specialized data management models and cataloging the various existing data lifecycles (CEOS, 2011). Figures 1, 2, and 3 provide examples of existing data lifecycles as described in CEOS (2011).

The term **Agile Curation** is being proposed as the name for an approach that seeks to provide the benefits of data management curation while incorporating the flexibility and optimization for resource-constrained teams associated with agile methods. Both agile and curation have specific definitions in the academic literature.

"*The word 'agile' by itself means that something is flexible and responsive so agile methods implies its (ability) to survive in an atmosphere of constant change and emerge with success*" (Anderson, 2004)

"*Curation embraces and goes beyond that of enhanced present-day re-use and of archival responsibility, to embrace stewardship that adds value through the provision of context and linkage, placing emphasis on publishing data in ways that ease re-use and promoting accountability and integration.*" (Rusbridge et al. 2005)

III. Assumptions Underlying Agile Curation

[based on the Agile Underlying Assumptions found in Turke, et al (2002)]

1) **Access** to data is the first goal
2) **Generative value** is supported (Zittrain, 2006)
3) **Researcher involvement** through a participatory framework that aligns data management with scientific research processes (Yarmey and Baker, 2013)
4) Projects will utilize **free open-source** resources to the greatest extent practical
5) **Community participation** increases project capacity
6) Data management requirements and practices **evolve** as the research project proceeds
7) Bright and dedicated individuals can **learn** appropriate skills and respond to the demands of their particular project, as they proceed
8) Approaches **apply across scales**
9) Consider **technical debt**
10) Data evaluation can be conducted through **use and feedback**

Figure 3

Figure 1: NDIIP Lifecycle from CEOS 2011

Figure 2: OAIS Lifecycle from CEOS 2011

IV. References

Anderson, D. J. (2003) *Agile management for software engineering: Applying the theory of constraints for business results.* Prentice Hall Professional

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Zittrain, J., (2006) The Generative Internet, 119 Harvard Law Review 1974 Published Version doi:10.1145/1435417.1435426 Accessed December 3, 2014 1.4.7.0.7 PMCID Citable Link http://nrs.harvard.edu/urn-3:HUL.InstRepos:9385626

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Why Agile?

Key Ideas Presented in the AGU Poster

Research data management and curation is

- resource constrained
- dynamic
- may require expertise/knowledge beyond the research team that is creating the data

While agile development includes methods and practices, it also embodies a fundamentally *different philosophical approach* as embodied in the *Manifesto for Agile Software Development*

Manifesto for Agile Software Development

> We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more. http://agilemanifesto.org/.

Assumptions for Agile Curation

1. Access to data is the first goal
2. Generative value is supported (Zittrain, 2006)
3. Researcher involvement through a participatory framework that aligns data management with scientific research processes (Yarmey and Baker, 2013)
4. Projects will utilize free open-source resources to the greatest extent practical
5. Community participation increases project capacity
6. Data management requirements and practices evolve as the research project proceeds
7. Bright and dedicated individuals can learn appropriate skills and respond to the demands of their particular project, as they proceed
8. Approaches apply across scales
9. Consider technical debt when making data management and curation decisions
10. Data evaluation can be conducted through use and feedback

- based on the Agile Underlying Assumptions found in Turke, et al (2002)

Technical Debt

The evolving technical debt conceptual model can be found at: https://github.com/karlbenedict/agilecuration

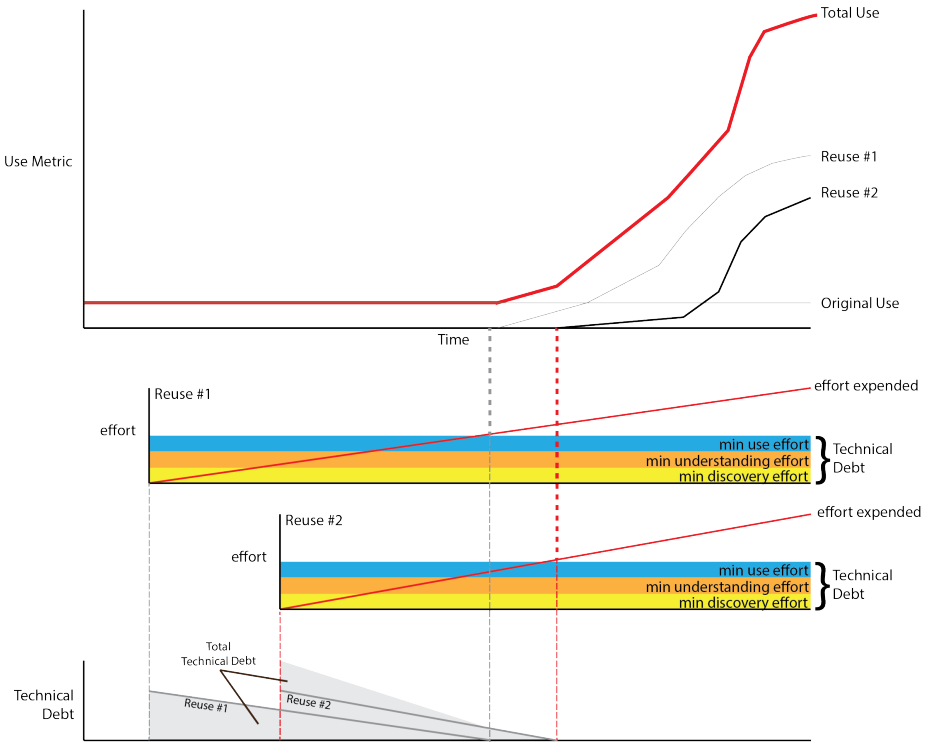

Figure 1: Technical Debt Illustration

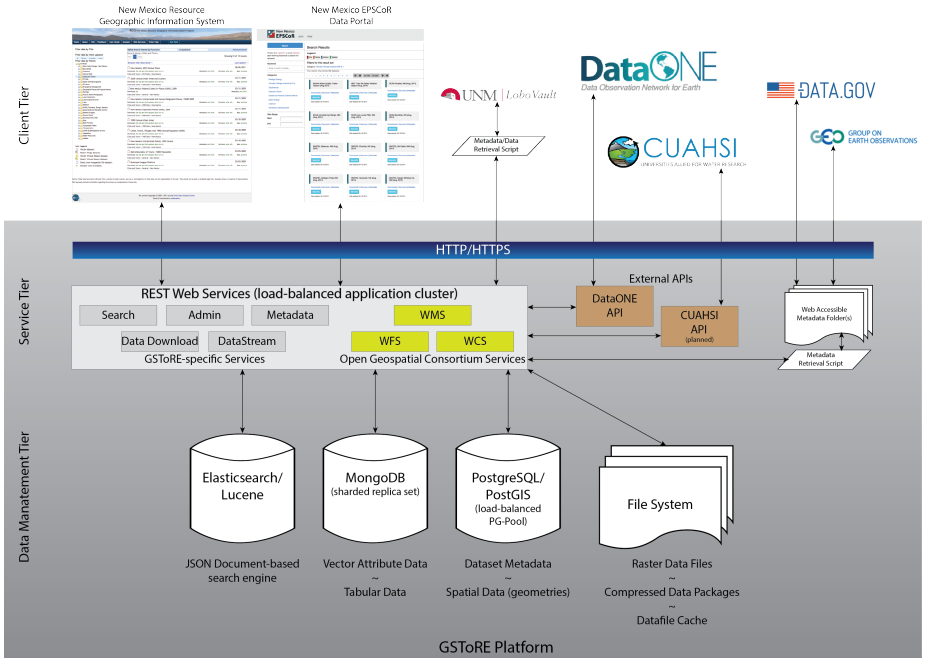

Figure 2: GSToRE Component Diagram - http://gstore.unm.edu

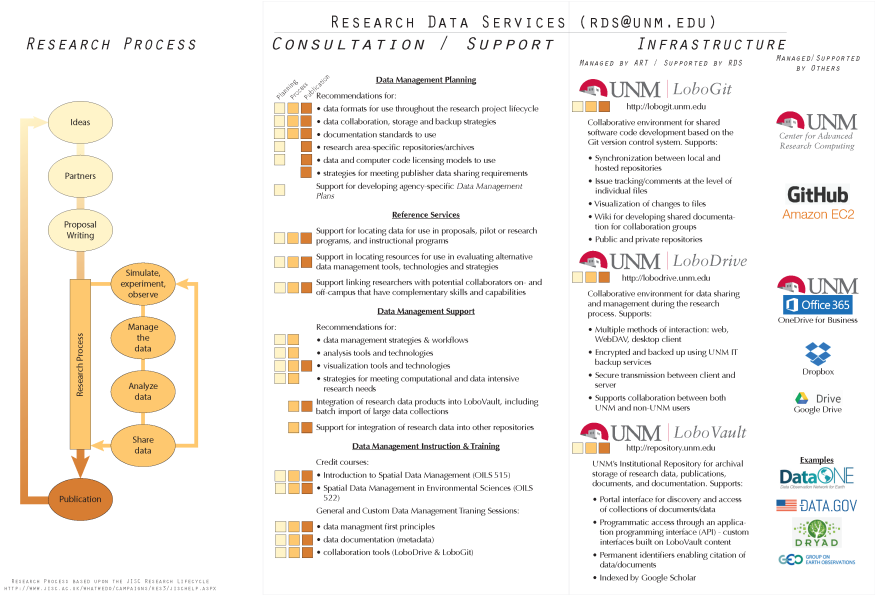

Figure 3: RDS Service Catalog - rds@unm.edu

Examples

Geographic Storage, Transformation and Retrieval Engine (GSToRE)

Research Data Services at UNM

NSIDC - Ruth Duerr

Where from Here?

Discussion / Next Steps

- Identify more case studies
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Key Links

- Case Study Submission Form - http://goo.gl/P7wuFY
- Git Repository for evolving collection of agile curation documents and other materials - https://github.com/karlbenedict/agilecuration
- Deconstructing the Data Life Cycle – Agile Curation BOF - https://www.rd-alliance.org/node/47138

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