

Subcommittee on Spatial Water Data

Meeting Details:

Date/Time: October 24, 2014, 1:00 - 3:00 PM Eastern Time

Location: Teleconference only (administered from USGS Headquarters, 12201 Sunrise Valley Drive, Reston, VA 20192)

Conference Line: (760) 569-6000 Code 1063271#

Webex:

<https://usgs.webex.com/usgs/j.php?ED=317889497&UID=2150740512&RT=MiM2>

Shared document space:

<https://drive.google.com/open?id=0B877MDsx9pIFTmpocGE1d0M4TVE&authuser=0>

Agenda

All Times Eastern Time Zone

11:00 - 1:15 More Lean Startup Principles

1:15 - 1:45 Brainstorming on Lean Startup applied to OWDI

 Identify customers

 who are they?

 what are their problems (related to OWDI)?

 Identify assumptions and hypotheses

 Design experiments

1:45 - 1:50 Introductions for new attendees

1:50 - 2:20 Report from Technology Work Group

2:20 - 2:35 Report from NFIE Work Group

2:35 - 2:55 Initial discussion on Spill Response Work Group

2:55 - 3:00 Membership roster; Adjourn

Attendees:

New (did not attend 8/28/14 or 9/26/14 meeting)

Marie Pepler, USGS, mpepler@usgs.gov

Andrew Burnes, USGS NGTOC Denver, CO, aburnes@usgs.gov

Vicki Lukas, USGS vlukas@usgs.gov

Kevin McNinch, USGS NGTOC, klmcninch@usgs.gov

Michael Tinker, USGS, NGTOC, mdtinker@usgs.gov

Bill Lukas, USGS/W&S Liaison, wlukas@usgs.gov
Jim Nagode, BOR, JBNagode@usbr.gov
Patrick Lambert, USGS/WestFAST Liaison, patlambert@swc.utah.gov, plambert@usgs.gov
Vince Allen, EPA allen.vince@epa.gov
Monty Porter, OK Water Resources Board, Monty.Porter@owrb.ok.gov
Brenna Mefford, WY State Engineers Office, brenna.mefford@wyo.gov

Returning (attended 8/28/14 or 9/26/14 meeting)

Alan Rea, Co-Chair, USGS, ahrea@usgs.gov
Ed Clark, Co-Chair, NOAA, edward.clark@noaa.gov
Bill Samuels, Leidos, samuelsw@leidos.com
Sara Larsen, WSWC, sarahlarsen@swc.utah.gov
Dave Briar, USGS, dbriar@usgs.gov
Kernell Ries, USGS, kries@usgs.gov
Nancy Blyler, COE, Nancy.J.Blyler@usace.army.mil
Camille Touton, DOI, camille_touton@ios.doi.gov
Jessica Lucido, USGS, jlucido@usgs.gov
Tad Slawecki, LimnoTech, tslawecki@limno.com
Jeff Simley, USGS, jdsimley@usgs.gov
David Blodgett, USGS, dblodgett@usgs.gov
Karen Hanson, USGS, khanson@usgs.gov
Tod Dabolt, EPA, dabolt.thomas@epa.gov
Dwane Young, EPA, young.dwane@epa.gov
Tommy Dewald, EPA, dewald.tommy@epa.gov
Wendy Blake-Coleman, EPA, blake-coleman.wendy@epa.gov
Meredith Warren, USGS, mwarren@usgs.gov
Kevin Gallagher, USGS, kgallagher@usgs.gov
Pete Steeves, USGS, psteeves@usgs.gov
Brydon Lidle, Susquehanna River Basin Commission blidle@srbc.net
Jeff Zimmerman, Susquehanna River Basin Commission, jzimmerman@srbc.net
Chris Mickle, Cardno, christopher.mickle@cardno.com
Wendy Norton, USGS, wenorton@usgs.gov

1:00 - 1:15 -- More Lean Startup Principles

- Al Rea continued the discussion begun at the last meeting of the principles of “lean startup” approaches to doing business.
- Slides are available here:
<https://drive.google.com/file/d/0B877MDsx9pIFVVoxR2NMSDV5TjQ/view?usp=sharing>
- Is OWDI a startup? Do these lean startup principles apply to our endeavor? Lean startup is essentially an institution designed to create a new product/service under conditions of extreme uncertainty. Most commercial efforts are not startups. What we’re

trying to do with the OWDI is pretty uncertain; we don't know what's required or even who comprises the entirety of our end-user community.

- Will web services work well enough to do the types of things we envision?
- One school of thought is that OWDI is a unique endeavor spanning multiple agencies/organizations, so it could be considered a new startup. On the other hand, there are already foundational data services platforms that have been established, and that's something we can build on. What's new is our way of collaborating to develop new building blocks that we can assemble on top of the existing foundations.
- We also need to consider the question of what does NOT work.
- Minimum viable product (MVP) concept: start by developing the minimum product needed to test your hypothesis as quickly as possible ("if you're going to fail, fail quickly").
 - Drop box (cloud storage) -- instead of building the product up front (which would have been costly), they made a video explaining the concept, to introduce the idea and judge the interest of potential users
 - Zappos -- no inventory needed to start the business -- just a web page that allowed the business to initially judge interest in particular shoes
 - Groupon -- started with blog page and handmade coupons
 - Food on the Table -- started with a single customer -- "concierge MVP"
 - Consumer Financial Protection Bureau -- narrowly targeted hotline MVP
- Need to break out the big vision into its components and figure out what assumptions lie behind each of these parts. What problem does each component solve for the customer?
- In testing hypotheses, it's best to use real customers/users and to measure their actions rather than relying on what they say. Do they use the product? Do they tell other people about it?

1:15 - 1:45 -- Brainstorming on Lean Startup applied to OWDI

Identify customers

who are they?

what are their problems (related to OWDI)?

Identify assumptions and hypotheses

Design experiments

- Who are the customers? What are their problems?
 - Developers working on NFIE -- a goal of NFIE is to expose grad students to operational hydrology; water agencies traditionally work well (but maybe not efficiently) with academia
 - Academic researchers--problem is it's a lot of work to get data and figure out what it means, how it relates to other data
 - Water application developer--same problems
 - Program managers at Federal agencies -- same problems again
 - Water managers at fed, state, county, private levels -- same problems again
 - Recreational users (kayakers, rafters, fishers) -- one of the problems is the need to expand data to include estimates of conditions (and forecasts) at ungaged

- locations; must include some quantification of uncertainty when giving forecasts or extrapolating to estimate conditions at ungaged locations
 - Emergency responders -- highly reliable, available any time, anywhere, analyses pre-computed
 - Habitat/biological resource managers? if not subsumed in “program managers”? Thinking here of streambank blowouts, etc., also hydroperiod?
 - Question: are we talking about providing just data, or also about providing tools to allow estimation in time/space at locations where data are not currently available?
 - Question: Can we partner with customers who are willing to try our MVPs within development timeframes that are more commercially oriented? [Cardno, WSWC, and other member organizations on SSWD may offer a way to find beta testers].
 - Question: Can we find a more modern way (other than email) to reach the right audience?
 - Is there a tangible way to use social media, and actually have the public respond?
- Identify assumptions and hypotheses
 - We need open web services that actually work.
 - If we build a web service, will people actually use it?
 - First, will people find the service?
 - Then, if they find it, is the service useful?
 - There’s a right way and a wrong way to do web services -- we can’t assume that all web services are equally robust and equally useful.
 - OWDI isn’t new; it’s already here, and we’re just expanding it and giving it better tools and more data sources. We need to think in terms of marginal gains, rather than in complex new tools that our customer base is not yet knowledgeable enough to use. We’re building on tools and platforms that already exist and that customers are already familiar with, and we should take advantage of that.
 - Concept: Add functionality to existing tools/services. They already have a customer base.
 - Balance between evolutionary and revolutionary.
 - WQ Portal exemplar
- Design experiments
 - Manual updates for interim (short-term) products
 - Use of external hosting resources to get started -- if an agency doesn’t have the capability to serve data, we can find options to fill that gap
 - Examples of each data type that can be applied to other data sets of a similar type -- can we open-source the way we share our data? SSWD should serve as a clearinghouse for best practices. By this we’re not saying that we can only use open-source tools. We might, for example, provide a set of best practices or even a “this is an approach that works” using proprietary tools, such as ArcGIS Server, Oracle Spatial, etc. The “open source” label applies to the solution, not necessarily every tool the solution uses. We’ll likely need multiple approaches for

a given data type, since organizations have different tools available to them The SSWD can provide a clearinghouse of “recipes” for getting it done.

- Measuring results will be tricky. We need to figure out how to determine which of our ideas/products is most useful to customers and is working most efficiently.

1:45 - 1:50 -- Introductions for new attendees

Those who had not previously attended an SSWD meeting introduced themselves.

1:50 - 2:20 -- Report from Technology Work Group

- Slides are available here: <https://drive.google.com/open?id=162JWVIJN6T-WF4ERHzPVWRlyQFG9ljaUfrJA2Y7yyx8&authuser=0>
- What technologies qualify for use in OWDI? We haven't answered that question yet.
- We are evaluating and trying to understand the various use cases -- need to understand the information and computing needs of each use case.
- What are the basic scientific and technology “domain” data types? Organization of information versus organization of computing concepts.
- Information flow and network layout -- diagram the data flows and transformations.
- We are building a glossary of terms to ensure everyone is speaking the same language.
- SSWD Tech Ideals:
 - Info owner is responsible for and maintains control of data. Respect ownership.
 - Data are available in common formats -- no license or fee for access.
 - Machine interfaces are generalized where possible, according to a common standard.
 - Data use machine-interpretable documentation. We need to be able to automate some of the simple interpretation and processing tasks.
- We focused initially on NFIE. NIFE information types include landscape characteristics, stream characteristics, and hydrofabric (hydrofabric is essentially NHD+ minus the landscape characteristics and includes elevation, catchments, flowlines, events [links to the network]).
- Discussion item: Does the model match reality?
- documentation → data → links → hydrofabric
- What's left for the Technology Working Group to tackle? Need a little info from Ed, then we'll do a more detailed version of the diagrams in our presentation. Tech group is laying out a template which can be used by the use case groups.

2:20 - 2:35 -- Report from NFIE Work Group

- Using the Tech Group to help validate the requirements of the Use Case groups is a great idea, and the Tech Group is doing a great job so far.
- Needs to be stakeholder-driven.
- We will soon assemble a group of academics (Nov 5 & 7) who will work on NFIE. After that, we need to engage with the group.
- WRF-HYDRO from UCAR -- will be run across the continental U.S.
- Will have a more detailed report at the November meeting.

2:35 - 2:55 -- Initial discussion on Spill Response Work Group

- ICWater was a model developed with funding from FEMA and EPA and USFS. Now maintained through DOD. Uses NHD+ version 2. Links into USGS real-time streamgages so that travel times and dispersion calculations represent actual conditions.
- Riverspill is the hydrologic modeling tool.
- ArcGIS Desktop application. Point-and-click interface to pinpoint spill origin; tools to represent the type of material spilled; tracing spill progress.
- Used for the West Virginia chemical spill
- On-the-landscape measurements help with ground-truthing predictions.
- Should add Cameo to this use case because emergency responders already use it.
- Volunteers: Bill Samuels (lead), Chris Mickle, Someone from EPA Drinking Water (Tod Dabolt will ID), Wendy Blake-Coleman is volunteering Lorri Peltz-Lewis

2:55 - 3:00 -- Membership roster; Adjourn

Next meeting, Nov 21, 1-3 Eastern