Innovate!

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Case Studies of Data Management: Many Players, Many Lessons

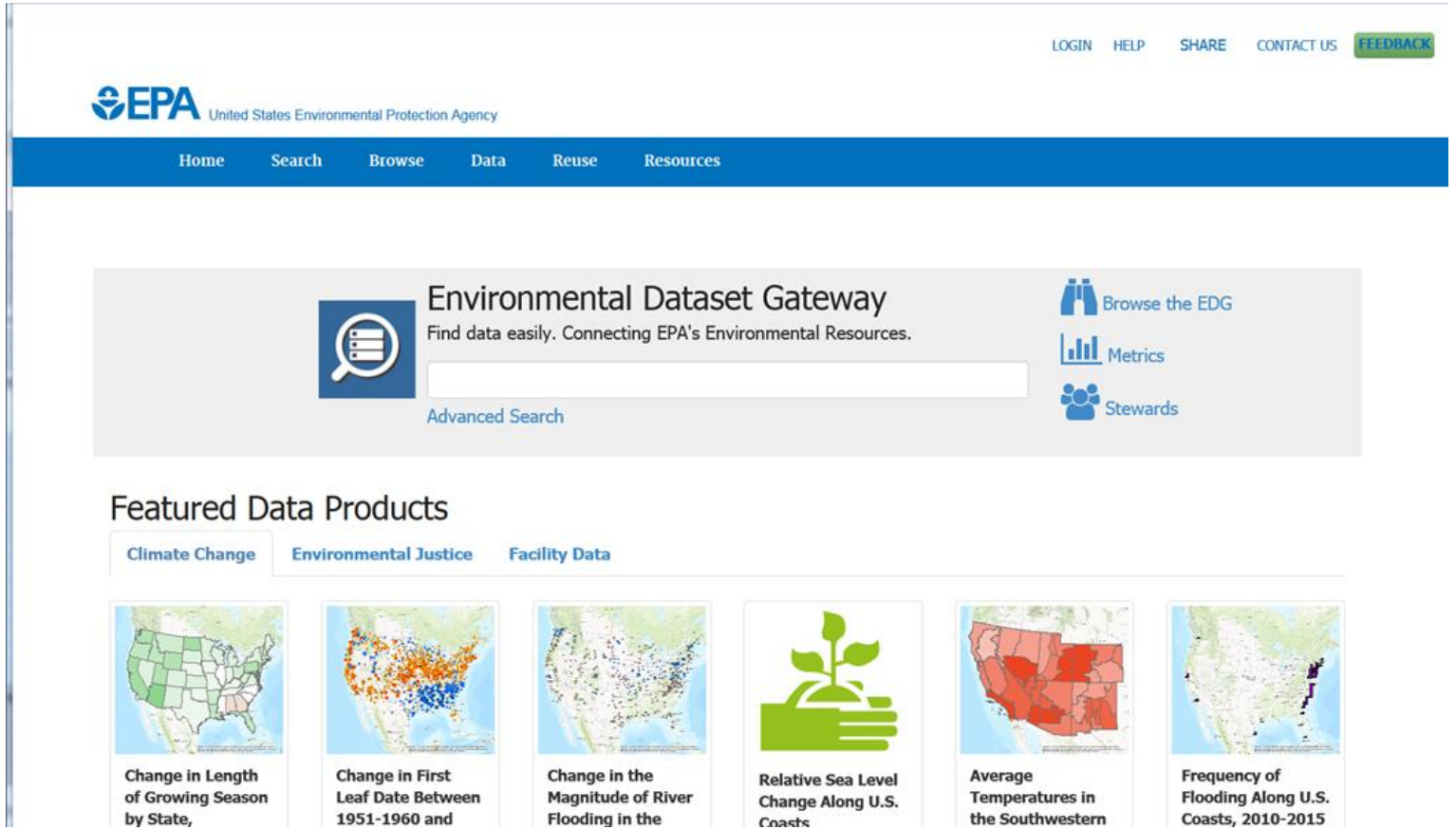
Goals

- Share lessons learned from working with many different data stakeholders to help you as you develop data management practices within your organizations.
- Discuss ways you can speak with your colleagues, management, and funding organizations to get them to understand **data is an asset which has significant value and must be prioritized**.
- We will use case studies to guide this discussion, and we want to hear from you too!

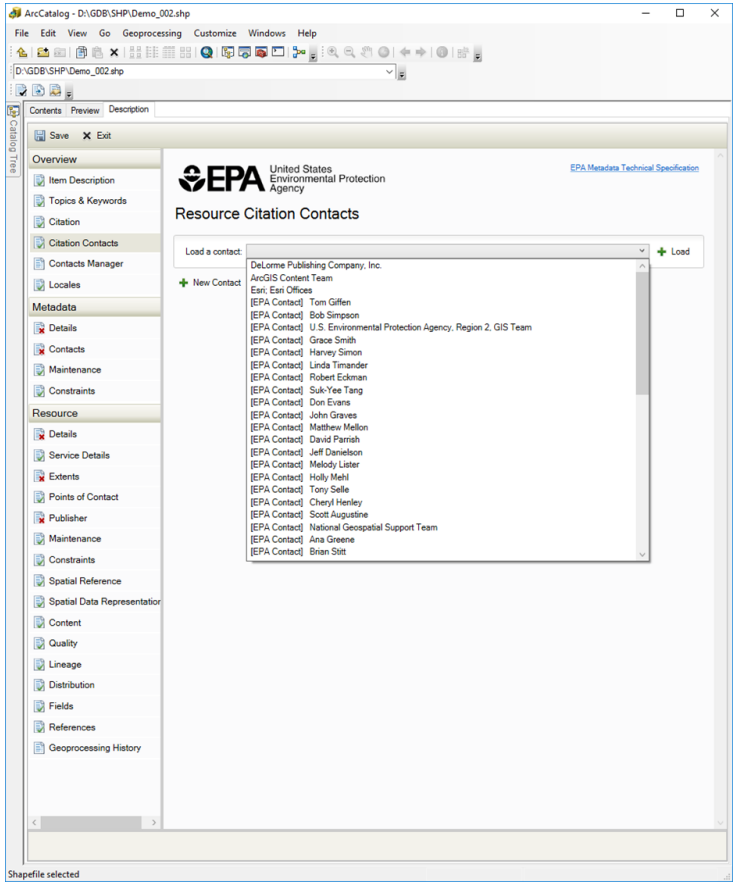
Case Study: US EPA Data Management

Reuse and customization of existing data management tools for organizational use – Innovate's Perspective

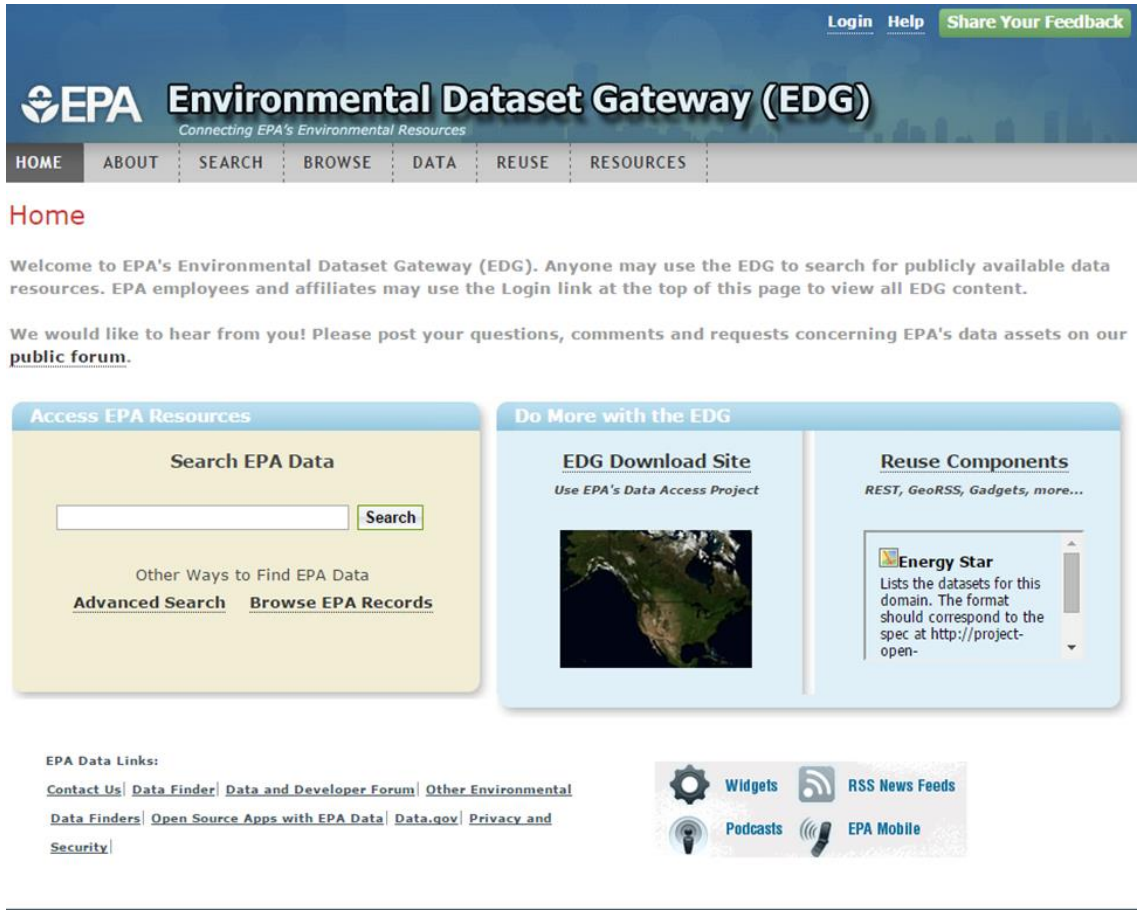
- US EPA has 1000's of staff that rely on data to make decisions supporting their mission to "protect human health and the environment"
- EPA is composed of 10 regions and multiple divisions (e.g, Office of Water); all these organizations are making and using data.
- Many times, similar processes are used to make decisions on similar topics
- US EPA had a need to be able to share and discover data across the organization and to its stake holders



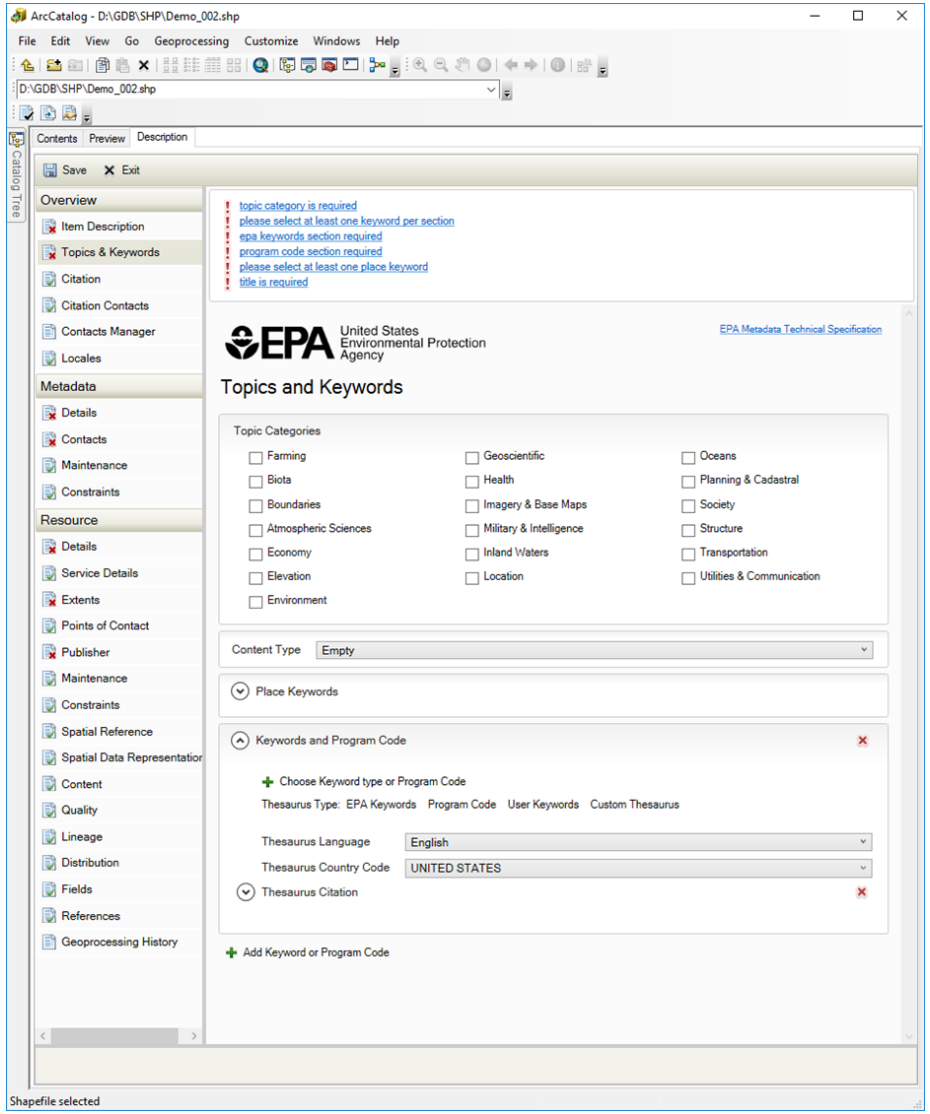
- Desktop Data Management Tool



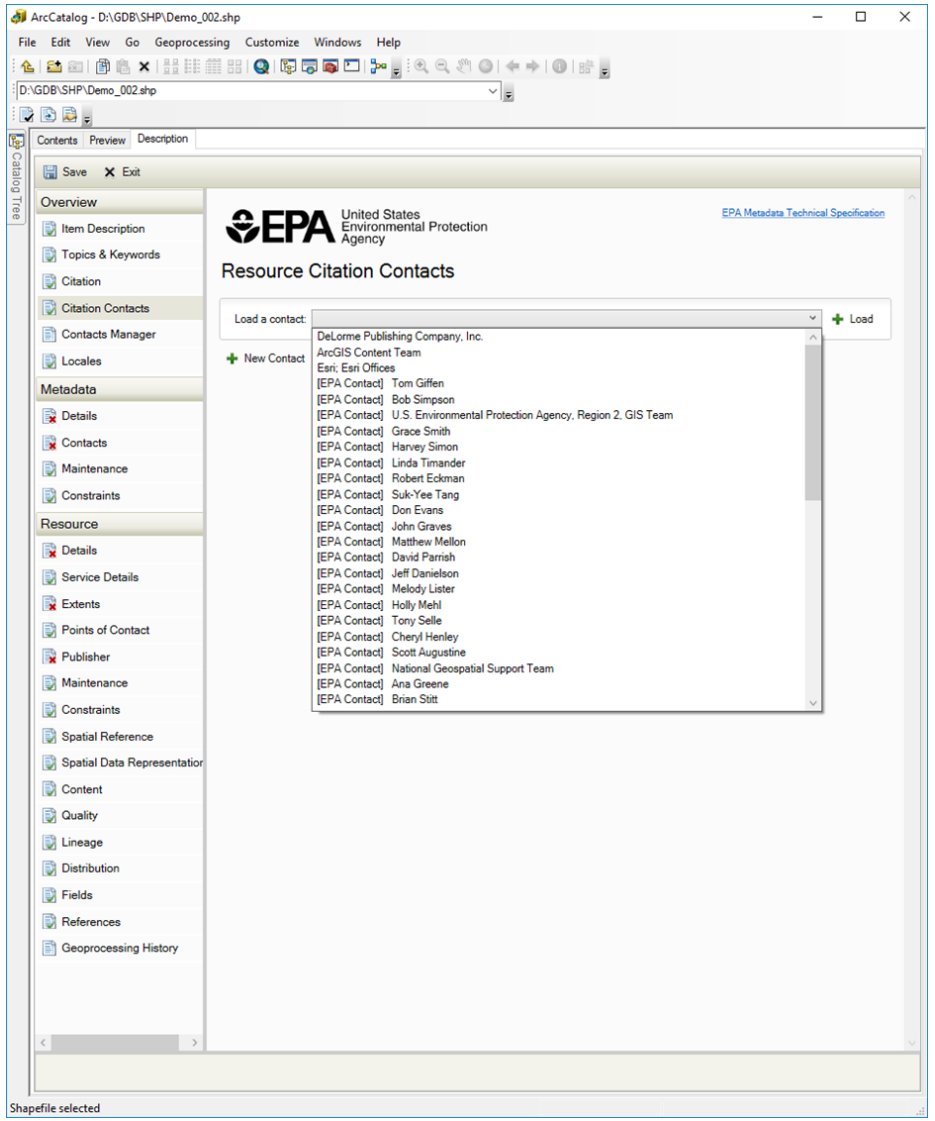
- Organization Web Based Data Discovery Tool



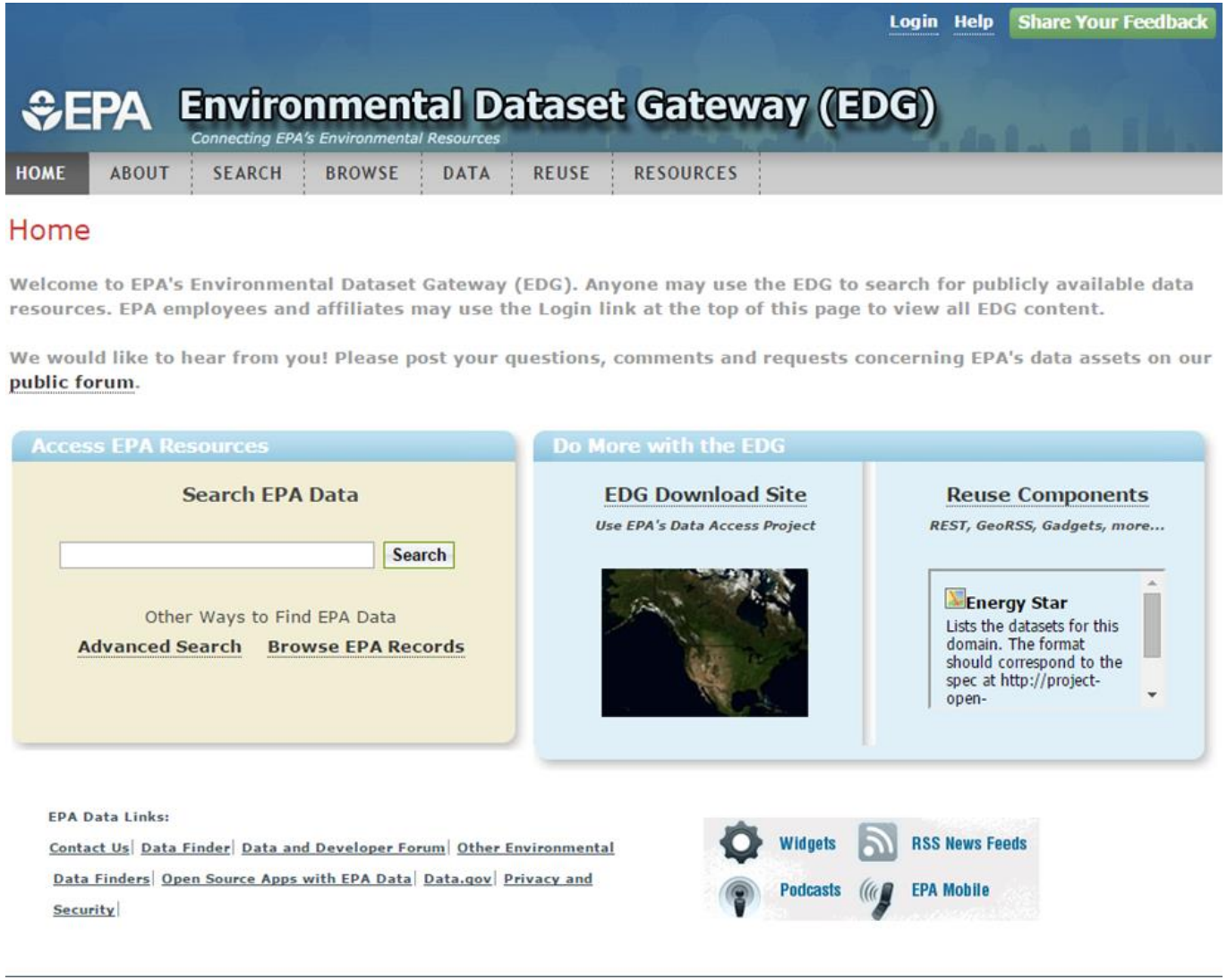
- EPA did a review of off the shelf software and found the existing tools not to meet their needs. Existing tools were too complicated, and success would be driven by making the documentation simple for end users
- EPA broadened their solution and found a tool developed by the Coeur d'Alene Tribe and adopted that tools (Three Tab Metadata Editor)
- For the past 15 years EPA has been maintaining this tool via its contractor (Innovate)
- This tools is free for all to download at https://www.epa.gov/geospatial/epa-metadata-editor



- Streamline data entry
- Organization defaults and common values are stored in pick list to make data entry quick.
- The organization contact list is updated automatically to make the selection of contact information fast.
- The is a validation routine that can be run to validate documentation to ensure the minimum requirements are collected
- The tool builds the needed back-end data collection to integrate with the organizations data discovery portal.



- Environmental Data Gateway (EDG)
  - Has both public side and internal side, since not all data is publicly available
  - Has the ability to upload data or just provide a documentation record for discover
  - Based on customized piece of open source software (Esri GeoPortal Tool Kit)



Key Takeaways

- Management applications:
  - When management sees savings in staff time and money and understand **those resources can spend time delivering other valuable products**, they'll listen.
- Think big picture when building a data management solution:
  - More stakeholders = more value and easier to make your case
    - Many people in your organization likely have the same needs.
  - Your organization isn't the only one that has these issues.
  - If you add up the time an efficiency over multiple projects, it often time adds up to a big savings for the organization
- Look outside of your bubble:
  - In this case a smaller organization (CDA Tribe), had developed a tool that a big organization could use. Maybe someone else has already solved the problem.

Case Study: Data Management by Committee Gone Bad

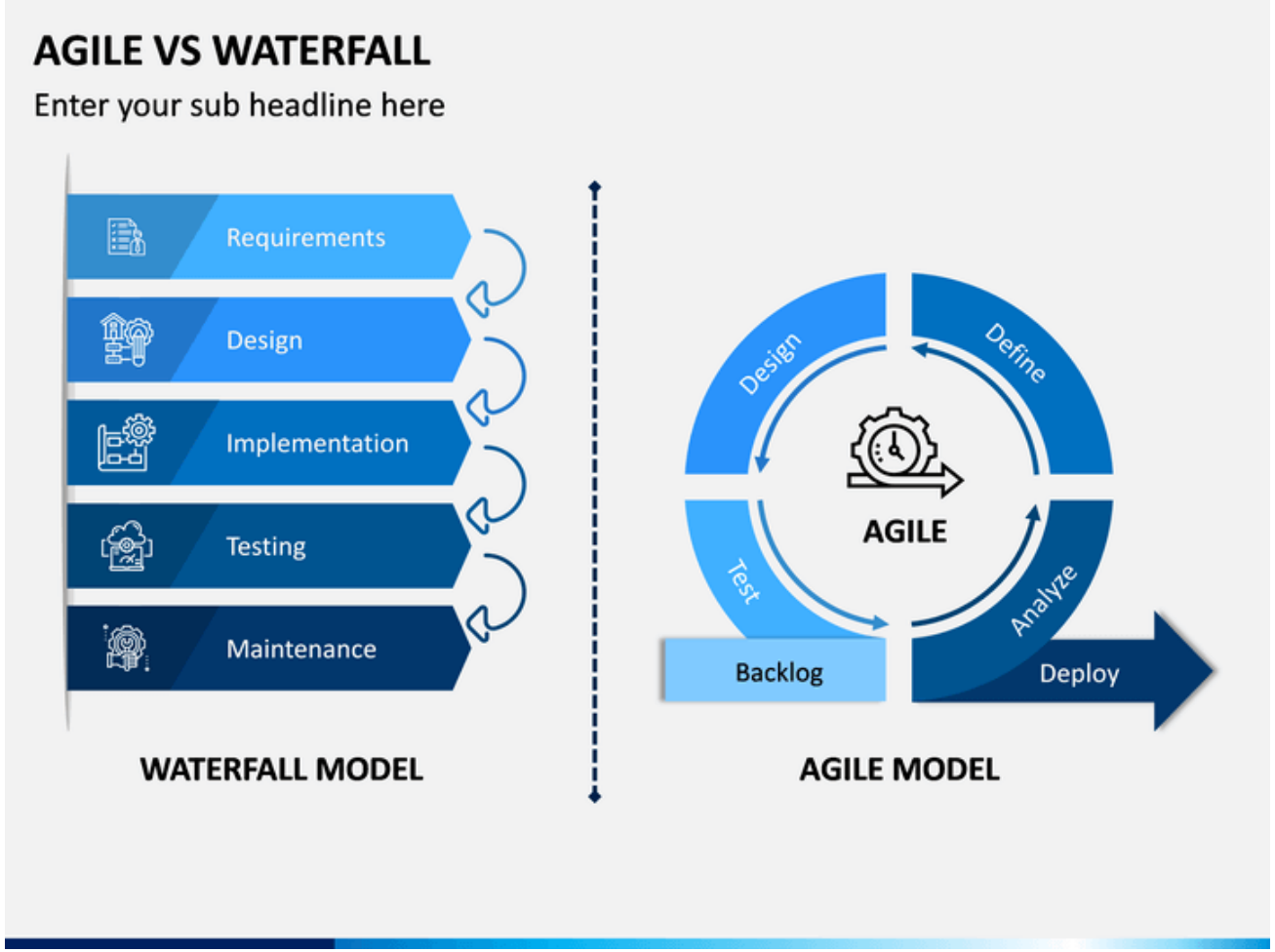
Do we all have the same priorities, funding and interest in the project? - Innovate perspective

Background

- A large federal agency had a mandate to work with a tribe to facilitate environmental cleanup
- The geographic extent of the project was very large, because of that data was gathered by multiple contractors that was funded by the federal government.
- Due to the lack of staffing, data was often submitted to the government with lack of adequate documentation/oversight and review. This could then lead to lack of understanding of the data collected.
- A central repository for data holding/discovery did not exist
    - Multiple attempts were made at creating a repository but at this point have failed. Two are outlined in the next slides.
- *Disclaimer: this is one contractor's perspective*

Attempt 1 -

- Waterfall Methodology for Portal Creation
  - Waterfall vs Agile
    - Waterfall – gather requirements and build and deliverer
    - Agile – Deliver increments of workable software on a regular cycle such as every two weeks
- A very large effort was done to collect what appeared to be an exhaustive list of requirements.
- Poor technology was selected, so software solution was already long in the tooth at delivery
- Software solution was then delivered at the end of the contract, so no funding was left for testing and maintenance.
- Innovate arrived on the scene for a code review to make recommendations on next steps and found the delivered software too expensive to modify given lack of functionality and age of technology used.



- Agile software methodology used, so two weeks sprints with delivery every sprint
- Joint product owners (Fed/Tribe)
  - Seems good in theory….but..
  - Tribe didn’t show up at two weeks sprint review/planning meetings
  - This lead to disconnect in priorities and leadership
- Politics
  - Tribe didn’t trust feds
  - Issues with management of dollars from feds was an issue to fund tribe which likely led to other issues
- Development Team Whiplash
  - Due to lack of continuity the priorities would change at every sprint
  - Resulting product was very Frankenstein
- Time Ran Out
  - Significant time passed not enough goals were reached and the project was shut down

Key Takeaways

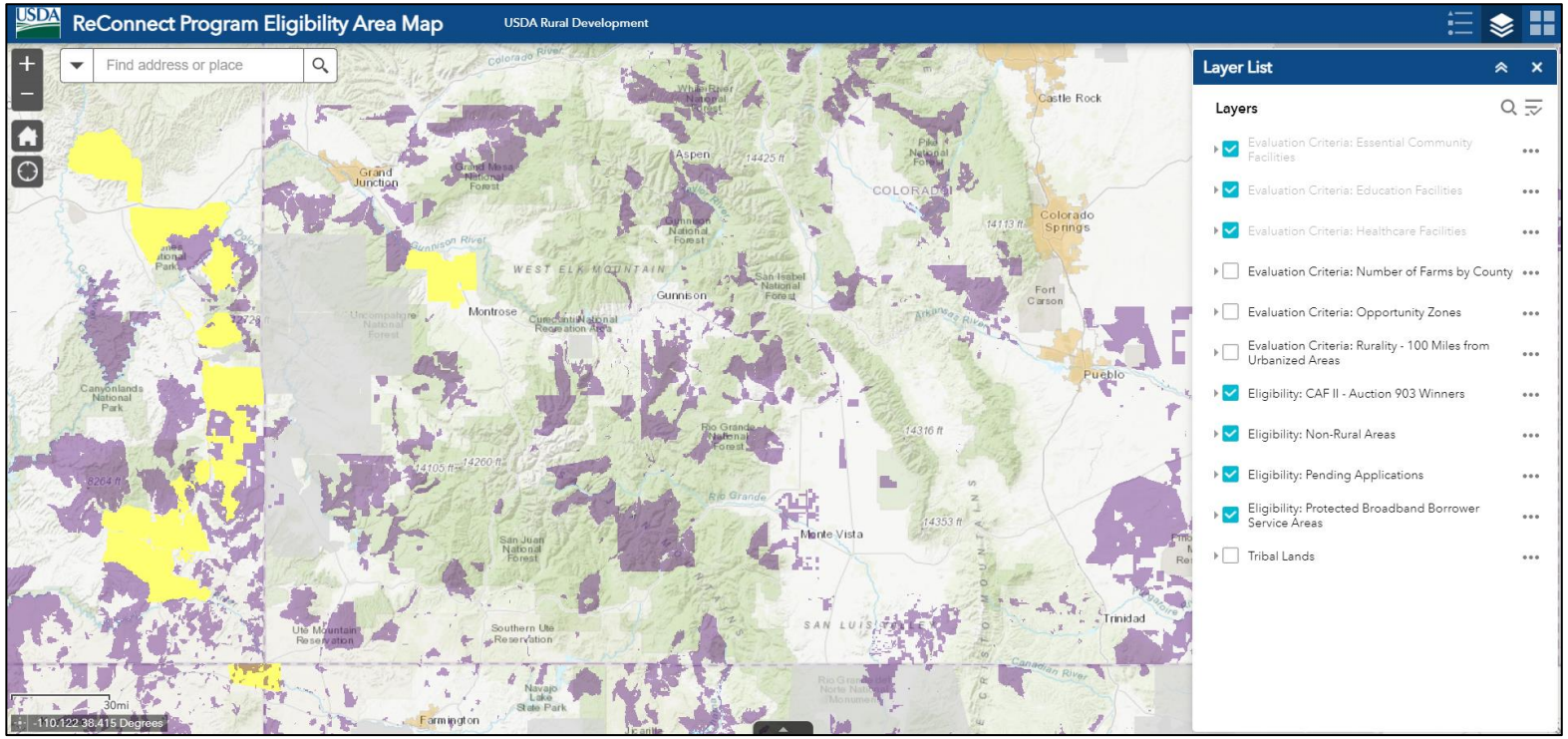
- Management applications:
  - Management likely should check in on progress of project to ensure adequate participation and milestones are being achieved.
  - Data management systems are complex, custom systems can be higher risk then off the shelf solutions. So more dollars at higher risk in complex custom solutions.
- Two Many Cooks in the Kitchen:
  - Agile requires a strong (singular) product owner
- Product Owner
  - Product owner likely should have training in being a product owner and not just thrust into glory for a large project.
  - The product owner needs to be able to provide clear direction to the development team and be able to successfully manage needs of users
  - Should be plugged into the business side of the organization

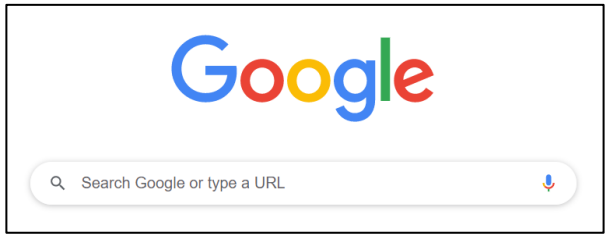
Case Study: Promoting Data Sharing and Getting Buy-In

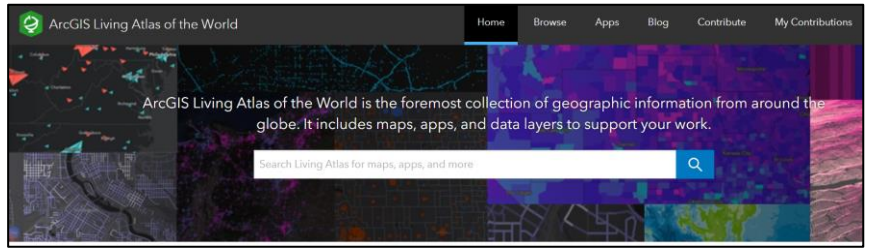
The sum is greater than the parts. Leveraging another organization's data with your own can be a win for all. - Innovate perspective

Background

- USDA's ReConnect fund requires applicates to meet multiple eligibility criteria, including:
  - Lack sufficient access to broadband
  - Be in a rural area
  - The proposed service area can't overlap another area that has or will be receiving funds
- Information is collected from multiple sources (Google, Esri's Living Atlas, etc.) and agencies (FCC, NTIA, Census, etc.) in order to determine if a proposal is eligible to receiving funding







Solution

- Through partnering with NTIA, USDA was able to bring their data into the national broadband mapping platform along with the other disparate datasets into a single repository in order to conduct their analysis reducing the amount of time needed to evaluate eligibility.

Key Takeaways

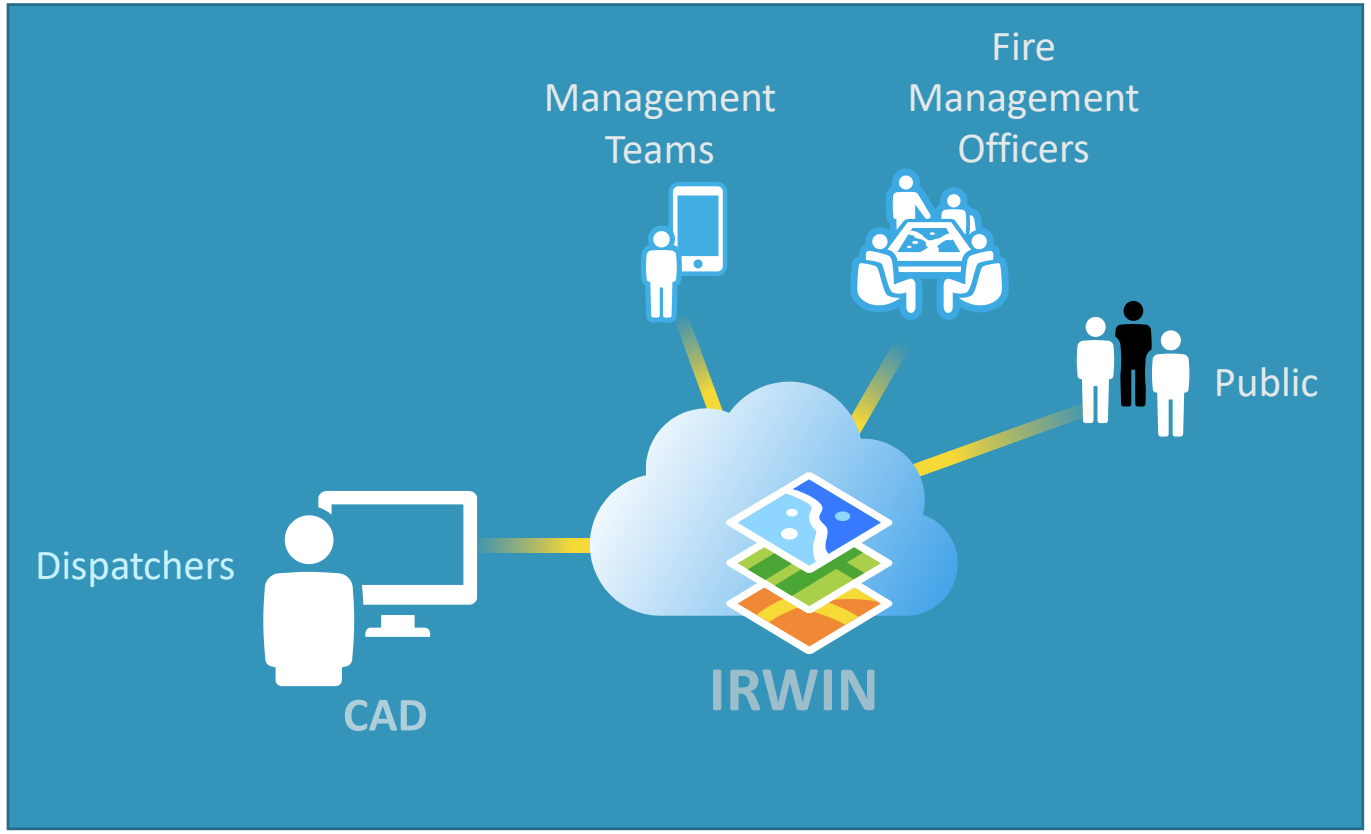
- Recognize staff pain points and be willing and open to partnering with another department, agency or organization that could help overcome some of the problems through data sharing.
- Through data sharing, the problems of today can be put in the past and solutions can be realized.

Case Study: Being an Effective Data Management Owner

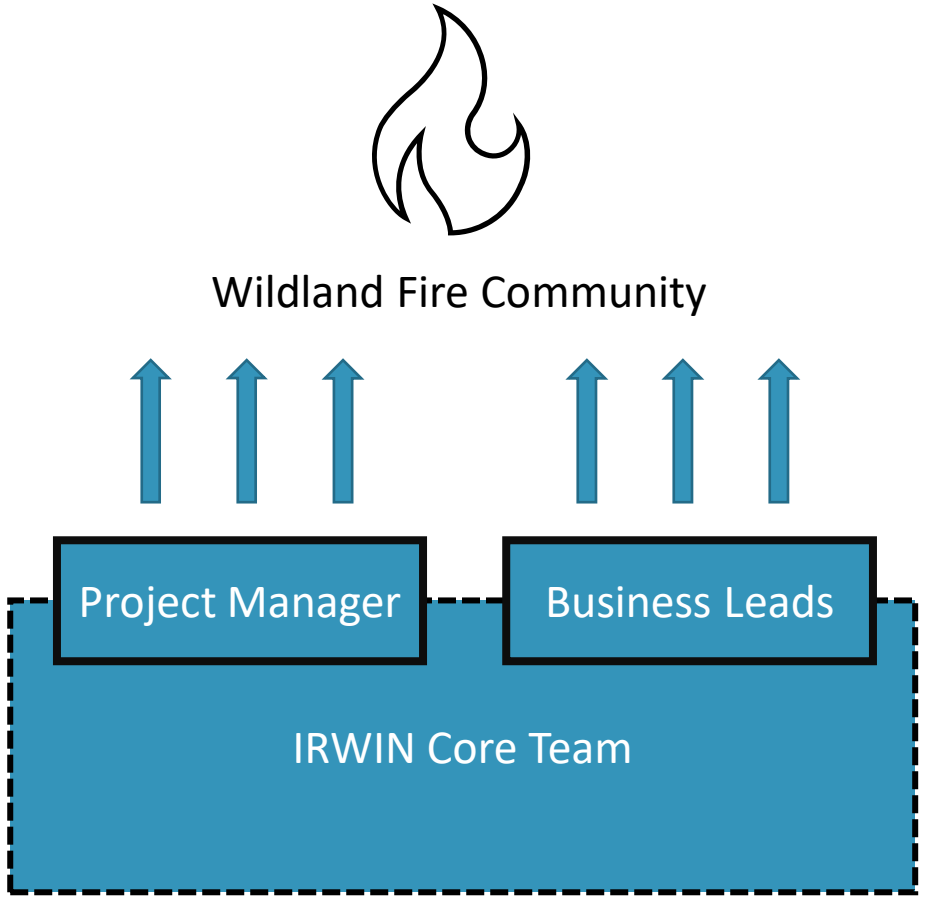
Common Goal and Strong Product Ownership

Background

- Integrated Reporting of Wildland-Fire Information (IRWIN) is a data exchange utility for passing data between applications used for managing wildland fire incidents.
- Many stakeholders are involved in the wildland fire community that use IRWIN to exchange data including private, state and federal agencies.
- Communication and buy-in from all stakeholders is critical to support the exchange of data within the IRWIN system.



- Success of IRWIN has widely been accomplished by successful communication between the many different stakeholders, the IRWIN team and agencies involved the wildfire community.
- The IRWIN core team was led by a project manager and two business leads that acted as evangelists for IRWIN within the wildfire community to provide context to the benefits, needs and goals of IRWIN to the community.



Key Takeaways

- Business Stakeholders are Important
  - Identify key roles of experts within the project community that can promote the project goals and communicate the value of the project to the community at large.
- Competing Interests, Common Goal
  - It is easy to get bogged down in the details, but keeping the overall business goal in mind should help guide all conflicting priorities

Data as an Asset: Additional Strategies to Consider

- Shameless Self-Marketing
  - Make them aware of what you're doing
  - Celebrate "toe holds" within your organization and build off them
- Protect Your Territory
- Create an Initiative
  - Western Area Power Administration is making 2021 their "Year of Data Management"
    - Determine what data has the greatest business value to the organization
    - Define strategic business goals or outcomes to achieve through data and analytics
    - Bring data together for meaningful purposes
    - Create a culture of sharing information and trust
- Data Management Value Proposition

Please reach out with any questions or feedback! Thank you!

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