

MAP *Pilot*

Machine Actionable Plans



Today's Speakers

- **Becky Grady**, California Digital Library
- **Shawna Taylor**, Association of Research Libraries

Other Project members:

- **Maria Praetzellis**, California Digital Library (presentation co-author)
- **Cynthia Hudson-Vitale**, Association of Research Libraries
- **Judy Ruttenberg**, Association of Research Libraries
- **John Chodacki**, California Digital Library
- **Clare Dean**, Consultant & Project Manager

Today's Presentation

- Pilot Project Overview
- Case Studies from 3 Partners
- Advocacy and Insights

Project Website



<https://bit.ly/mappilot>

Pilot Project Overview



MAP Project Objectives

- Showcase potential of machine-actionable DMPs
- Develop prototypes of machine-actionable DMP integrations
- Investigate role of libraries in research data management and data policies



Pilot Overview



Goal:

- Test machine-actionable DMP features and functionality in an institutional setting

Key Activities:

- Pilot integration of prototypes and workflows
- Implement new standards and functionalities for machine-actionable DMPs

Timeline:

- January - December 2024 active pilot phase
- January - June 2025 summary and dissemination



Participating Institutions and Project Leads

IMLS Funded Cohort

Arizona State University, Jim Taylor

Northwestern University Feinberg School of Medicine, Matt Carson

Pennsylvania State University, Briana Wham

University of California, Riverside, Katherine Koziar

University of Colorado, Boulder, Andrew Johnson

Extended Cohort

NYU Langone, Nicole Contaxis

University of California, Santa Barbara, Renata Curty

Stanford University, Zach Chandler

University of California, Berkeley, Anna Sackmann

University of California, San Diego, David Minor



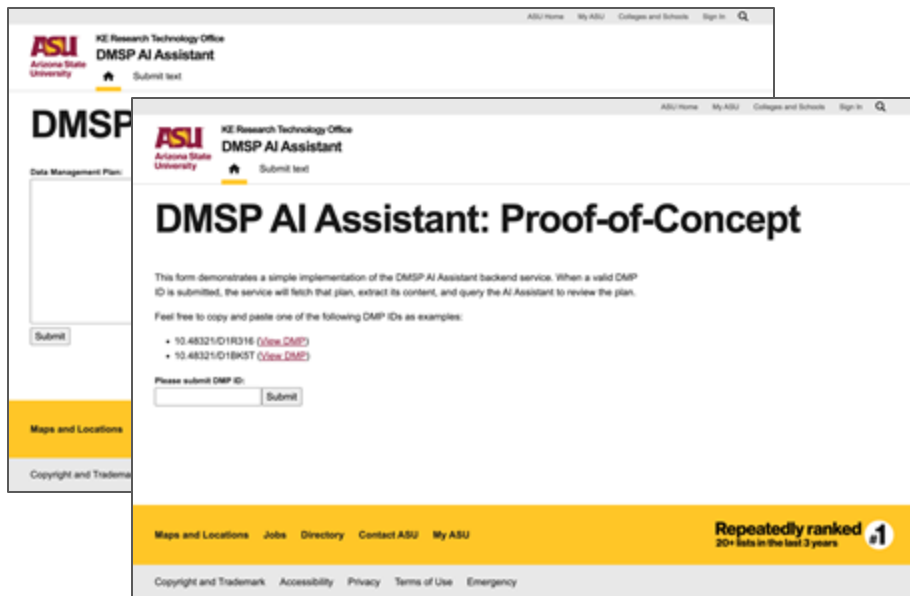
Goals and Milestones

- **Gather real-life case studies**
 - Collect case studies integrating machine-actionable DMP into their workflows
 - Demonstrate diverse applications machine-actionable DMPs in institutional settings
- **Develop new machine-actionable DMP features based on feedback**
 - Solicit feedback from users on existing features and potential future enhancements
 - Align machine-actionable DMP development with community needs and expectations
- **Produce and disseminate machine-actionable DMP resources**
 - Develop and disseminate reports, resources, and strategies based on the lessons learned
 - Share knowledge and experiences, fostering community and guiding future adopters

Case Studies from 3 Partners



Arizona State University: Generative AI to review DMPs



The screenshot displays the ASU DMS AI Assistant interface. At the top, it says "ASU Research Technology Office DMS AI Assistant" with a "Submit text" button. The main heading is "DMS AI Assistant: Proof-of-Concept". Below this, a paragraph explains the form's purpose: "This form demonstrates a simple implementation of the DMS AI Assistant backend service. When a valid DMP ID is submitted, the service will fetch that plan, extract its content, and query the AI Assistant to review the plan." It then provides two example DMP IDs: "10.48321/01R316 (View DMP)" and "10.48321/01BKST (View DMP)". A "Please submit DMP ID:" field with a "Submit" button is also visible. The footer includes navigation links like "Maps and Locations", "Jobs", "Directory", "Contact ASU", and "My ASU", along with a badge that says "Repeatedly ranked 20+ lists in the last 3 years" and a "1" in a circle.

Section 1. Types of Data Produced

Criteria 1.1. Describe what types of data will be captured, created, or collected.

Addressed, but incomplete

"We use human subjects data including 1,048 telephone audio recordings (WAV), associated metadata (JSON) and patient demographics, clinical reported outcomes, and patient-reported outcomes (Microsoft EXCEL) from ~173 research participants engaging in Motivational Interviewing (MI) coaching from the previous Lifestyle Intervention for Ovarian cancer Enhanced Survival (LIVES), GOG 0225."

Recommended Improvements:

- **Clarity on data types:** The description lists file formats rather than clearly defining the actual data types. For example, instead of "telephone audio recordings (WAV)," specify "audio recordings of patient-provider interactions."
- **Data source:** While mentioning the LIVES study, the plan doesn't clarify if this data is being reused or newly collected. This should be explicitly stated.
- **Data modalities:** Include a more comprehensive overview of the different data modalities involved, beyond just audio recordings. For instance, "Survey data," "Clinical outcome data," "Demographic data" could be listed separately.
- **Level of aggregation:** Specify if the data will be individual-level or aggregated.

Criteria 1.2. Describe how data will be collected, captured, or created (whether new observations, results from models, reuse of other data, etc.)

Addressed, but incomplete

"The original data described above under "used data" is stored, shared, and managed by the LIVES study. We have obtained this data under the following terms: keep data secure, do not share data publicly. Our project will cease to use them after the project is finished in December 2022."

Recommended Improvements:

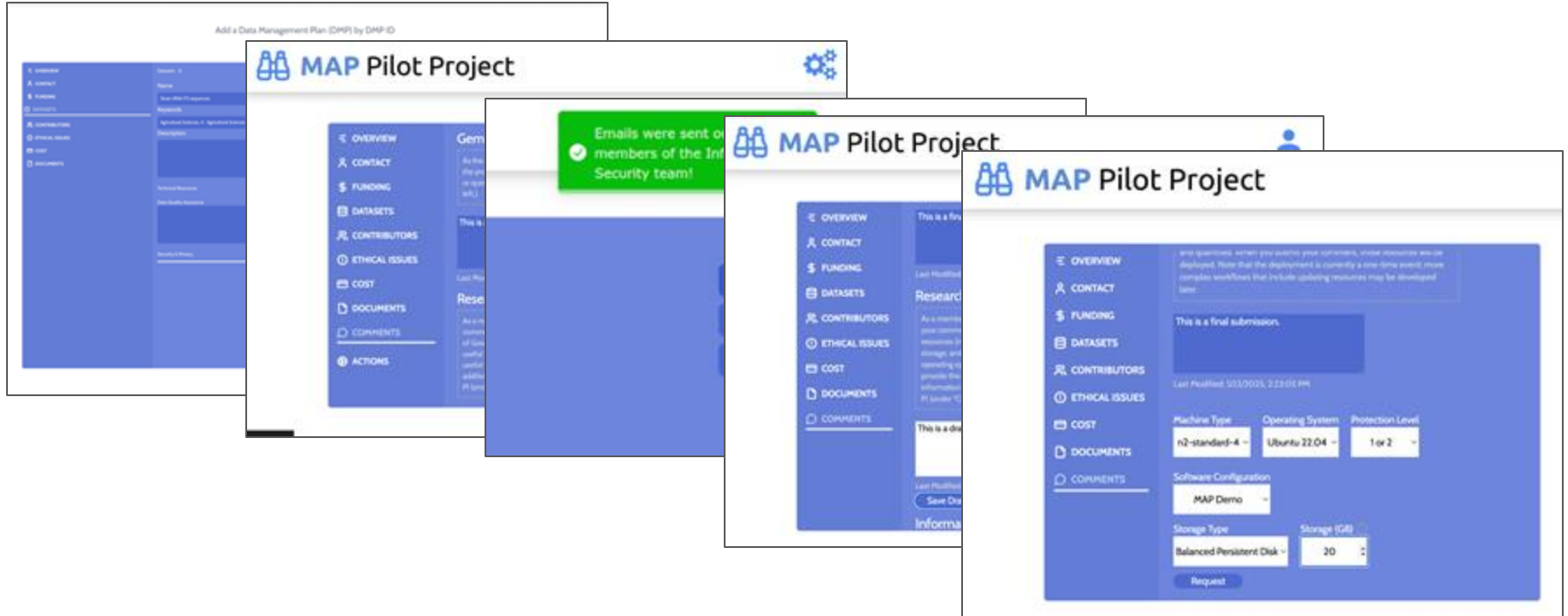
- **Clarity on data collection:** The plan should be more specific about how the data will be collected. For example, it mentions obtaining data from the LIVES study but doesn't explain the process or how the data will be transferred.
- **Details on audio recordings:** While stating that audio recordings will be used, the plan doesn't mention how they will be collected, how many participants will be involved, or the duration of each recording.

Criteria 1.3. Identify how much data (volume) will be produced

Complete/detailed

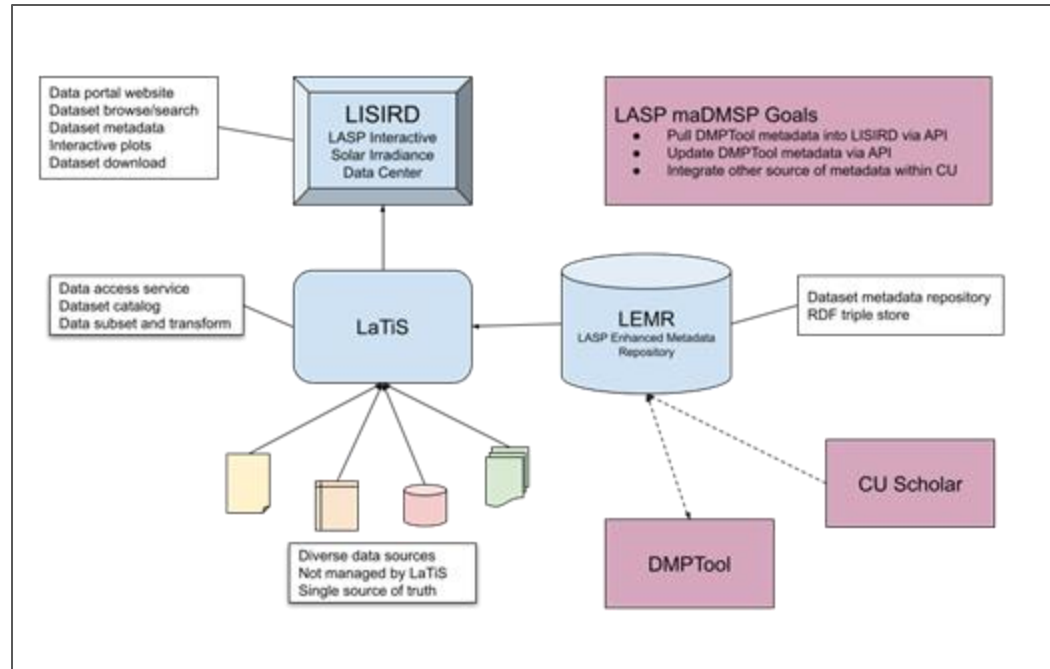
The plan clearly indicates the volume of data in "Generated data (research outputs)" section, with details for each type of data.

University of California Riverside: Provision Resources



University of Colorado Boulder: Connect DMPs to local systems

Laboratory for
Atmospheric
and Space
Physics - Data
Services



Advocacy and Insights

The Potential Value of machine-actionable DMPs: Interviewee Perspectives

Onsite interviews and conversations with administrators, operations staff, and researchers:

- Enhance research impact
 - Open outputs improve citations; coordinated efforts boost efficiency and long-term open science benefits positively impact researchers
- Transform workflows
 - Use machine-actionable DMPs not as static documents, but as tools to enable dynamic workflows
- Integrate across departments (and sometimes campuses and schools)
- Automate and improve administrative processes



Institutional Challenges and Needs

- Varying data storage systems, including lack of robust metadata for interoperability
- May lack institution-wide security and compliance strategies
 - No consensus for best practices across the university, including siloed policy development
- Research data governance and ownership is unclear
- Integrations may be complex and difficult to scale

Strategies for Effective Implementation

- Collaboration is key
- Clear, adaptive leadership is need
 - Particularly to enable mechanisms to ensure collaborative relationships extend beyond individual relationships
- Systems integration
 - Connect IRB, grant management, repositories, etc.
 - Storage and security
- Think Agile
 - Iterative improvements locally (pilot, test, repeat)
 - Pilot feedback (and beyond) drives DMP Tool enhancements

Advocacy & Institutional Adoption

- Champion institutional policy alignment
 - Position libraries as essential partners in supporting researcher or institutional compliance, and leaders in research support
- Drive institutional adoption
 - Align machine-actionable DMPs with strategic priorities & federal mandates
- Make the business case
 - Effective implementation of machine-actionable DMPs can drive efficiency and cost savings, despite upfront expenses
- Strengthen research resiliency
 - Machine-actionable DMPs help institutions adapt to evolving policies



Thank You!

MAP project webinars,
reports, and project
discussions coming this year!



Project webpage:

<https://bit.ly/mappilot>