



Digital Libraries at Stanford:

infrastructure, services, & projects for accessible content

Mark A. Matienzo / **@anarchivist**
Stanford University Libraries

My background



<https://matienzo.org/>

Stanford Digital Libraries as infrastructure and services

Stanford Libraries by the numbers

- **12 million** volumes
- **75,000** current serials
- **500,000** cartographic resources (maps, images)
- **59 million** manuscript pages across Special Collections
- **120** countries from which we acquire
- **400** languages represented
- **110,000** new volumes acquired each year

Stanford University Libraries (SUL)

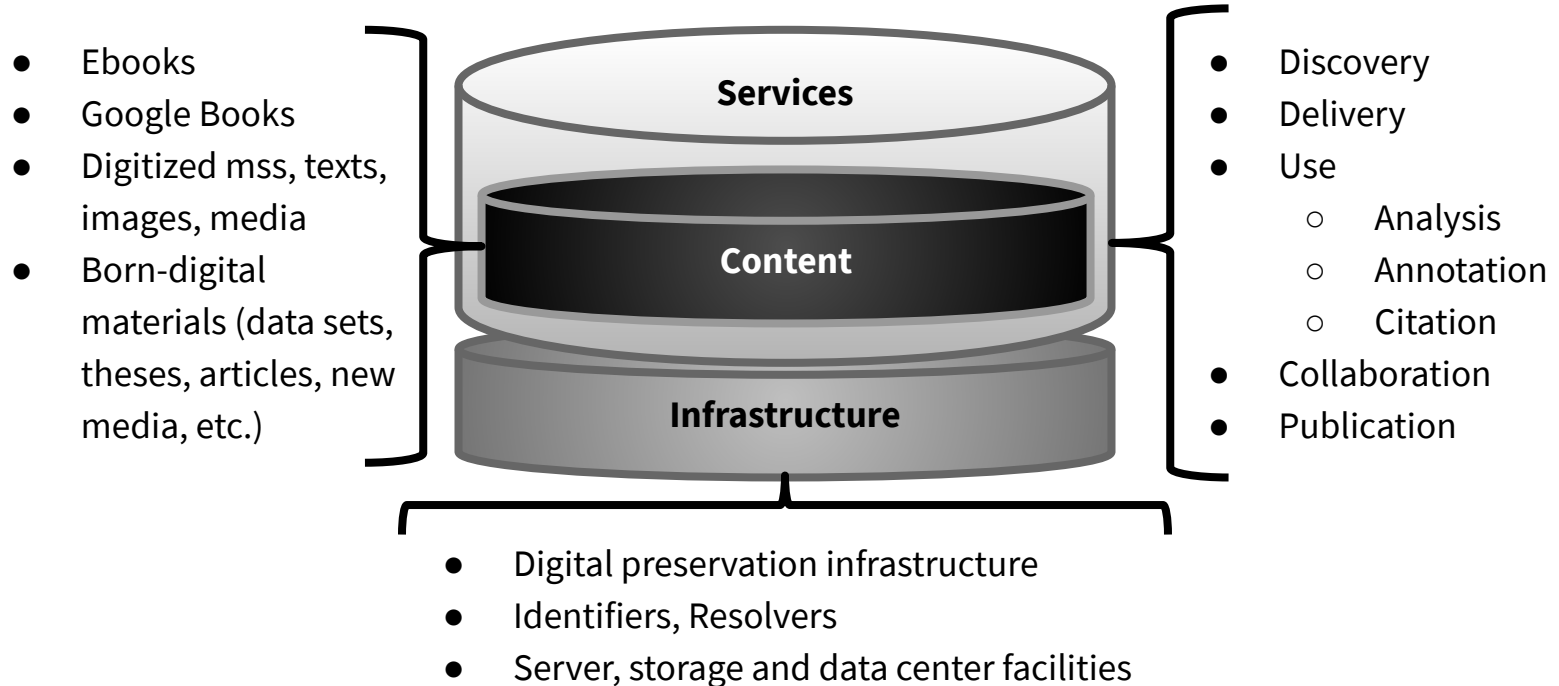
— — —

- **16** Libraries
- **~450** staff
- **68** subject / information specialists
- 8th largest academic unit at Stanford (by budget)
- Plus...
 - Stanford University Press
 - LOCKSS
- Art & Architecture (Bowes)
- Archive of Recorded Sound
- David Rumsey Map Center
- Earth Sciences (Branner)
- East Asia
- Education (Cubberley)
- Engineering (Terman)
- Green
- Lathrop
- Marine Biology (Miller)
- Music
- Stanford Auxiliary Library 1&2 (SAL)
- SAL 3
- Science (Li and Ma)
- Special Collections
- Stanford Digital Repository

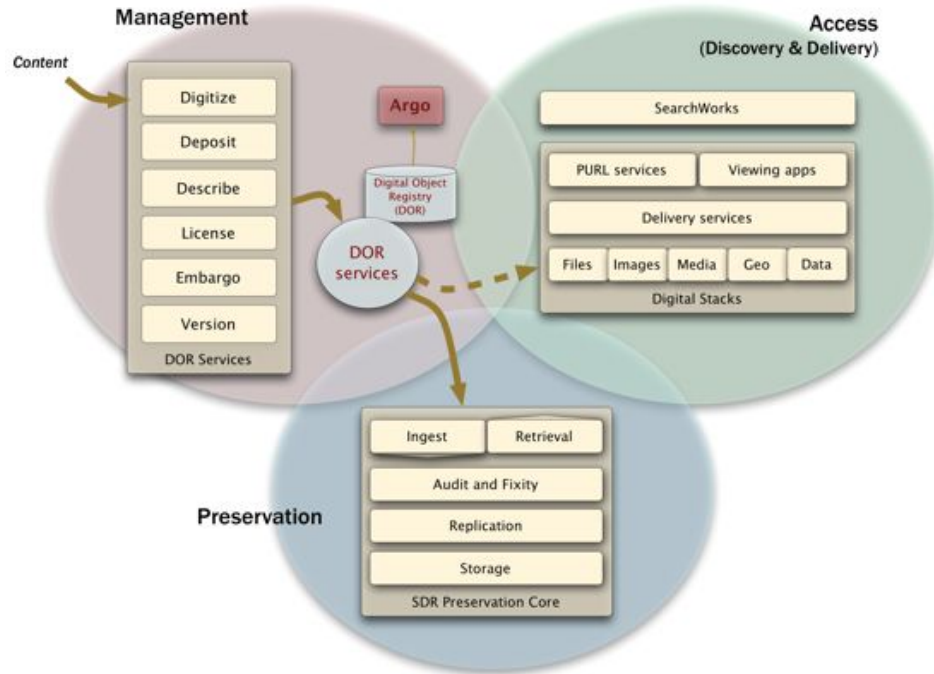
What Does a Library Do?

- **Select** resources to add to its collections
- **Acquire** those resources
- **Describe** the resources to enable discovery
- **Store** & manage items until such time as they are needed
- **Provide** access to the items to patrons on request
- **Preserve** the items so they are available to future scholars
- **Support** teaching, scholarship, and research needs

The Digital Library: Content, Services & Infrastructure



Stanford Digital Repository: Manage, Preserve, Access



SDR at a Glance

- **2006:** 1st year of operation
- **1.6 million** Digital Objects
- **227 million** Files
- **1,800+** Collections
- **467 TB** Unique Data
- **930+** Depositors from **40+** departments

SDR's mission:

The Stanford Digital Repository (SDR) provides services to make scholarly resources

available over the long term

by helping ensure their

integrity, authenticity, and reusability.

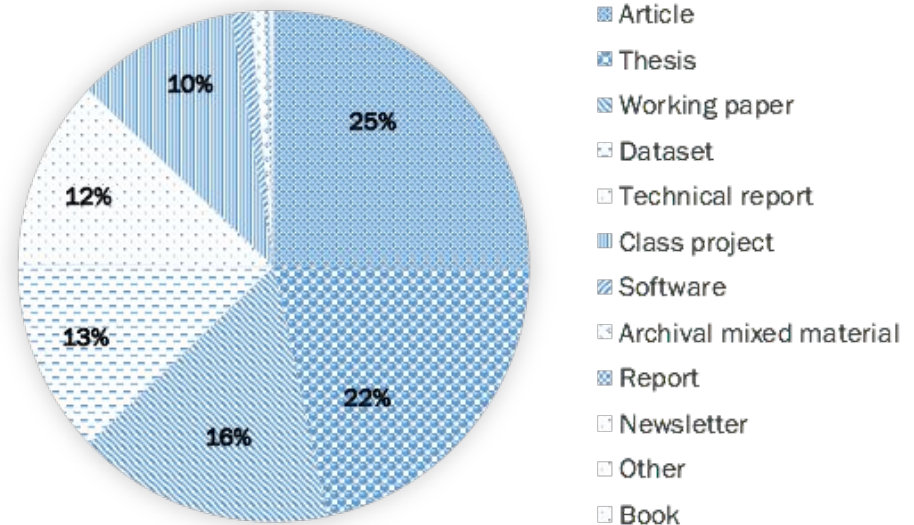
To fulfill its mission, the SDR must be

secure, sustainable and trustworthy.

Funder Mandates & Other Use Cases

- — —
1. Supplemental data files for published articles
 2. Reproducible Research: sharing data & code
 3. Complying with data management plans
 4. Archiving pre-prints (with embargo support)
 5. Publication archives
 6. Open access articles
 7. Dark archiving patent information
 8. Enriched data access (e.g., large file access, video streaming, archived websites)

Distribution of Stanford Community SDR Deposits



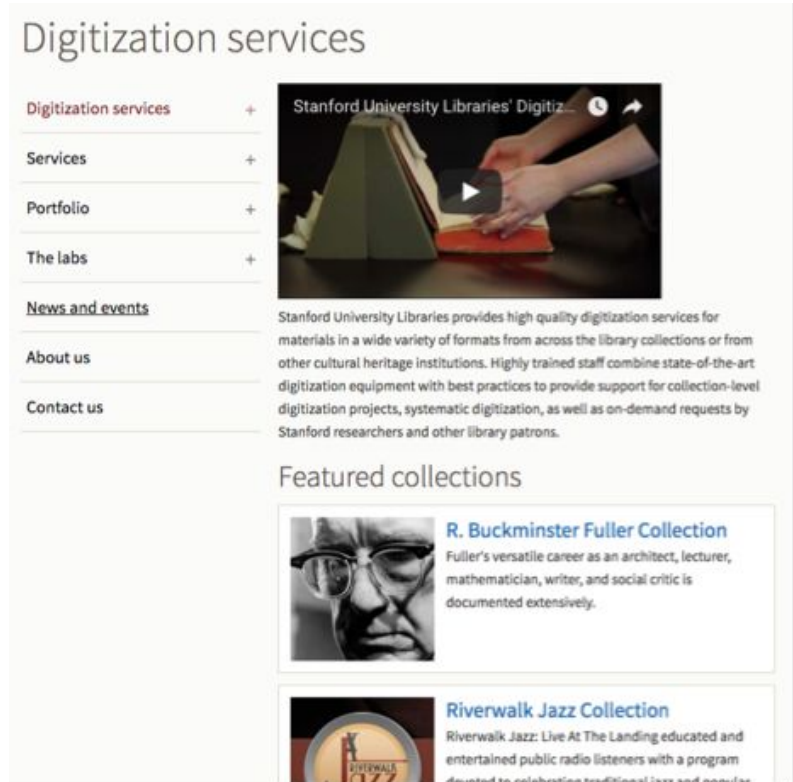
Digitization

Stanford has digitized millions of items in the last 20 years:

- Books
- Images
- Maps
- Manuscripts
- Audio
- Video
- Film
- Legacy digital files
- 3D objects

To support

- Collection development
- Digital access
- Research projects
- New forms of research (AI, ML, etc.)
- Preservation



The screenshot shows the 'Digitization services' webpage. It features a navigation menu on the left with links for 'Digitization services', 'Services', 'Portfolio', 'The labs', 'News and events', 'About us', and 'Contact us'. The main content area includes a video player showing hands digitizing a book, followed by a paragraph describing the high-quality digitization services provided for various materials. Below this, there are two featured collections: the 'R. Buckminster Fuller Collection' and the 'Riverwalk Jazz Collection', each with a representative image and a brief description.

Digitization services

- Digitization services +
- Services +
- Portfolio +
- The labs +
- News and events
- About us
- Contact us

Stanford University Libraries' Digitization services

Stanford University Libraries provides high quality digitization services for materials in a wide variety of formats from across the library collections or from other cultural heritage institutions. Highly trained staff combine state-of-the-art digitization equipment with best practices to provide support for collection-level digitization projects, systematic digitization, as well as on-demand requests by Stanford researchers and other library patrons.

Featured collections

R. Buckminster Fuller Collection
Fuller's versatile career as an architect, lecturer, mathematician, writer, and social critic is documented extensively.

Riverwalk Jazz Collection
Riverwalk Jazz: Live At The Landing educated and entertained public radio listeners with a program devoted to celebrating traditional jazz and popular

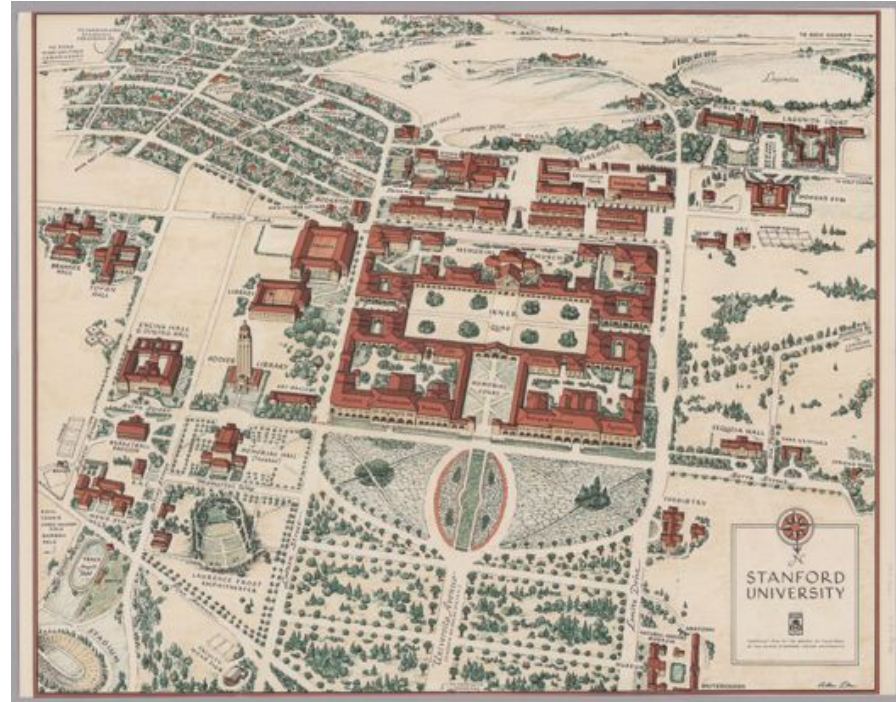
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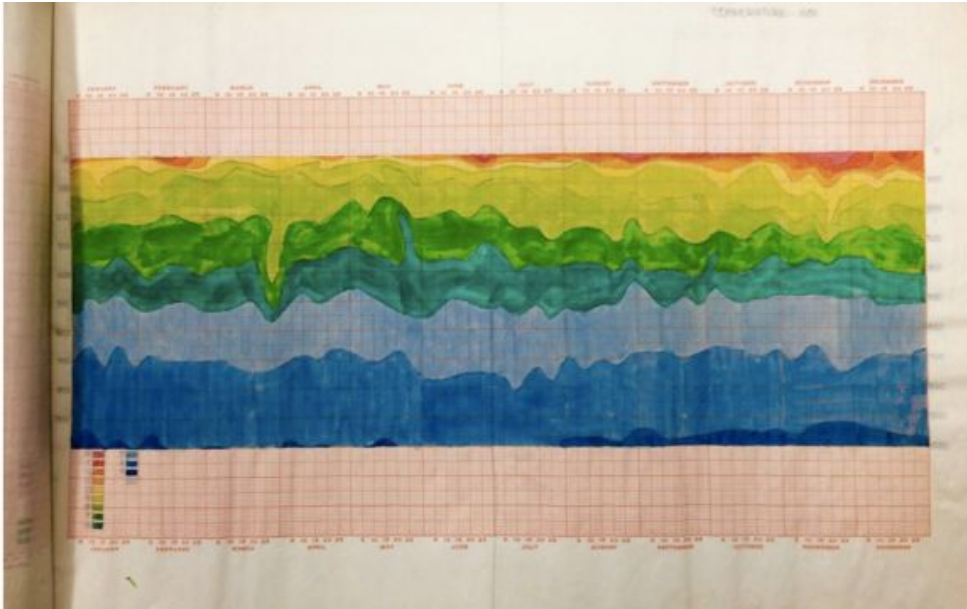
- Collection development
- Digital access
- Research projects
- New forms of research (AI, ML, etc.)
- Preservation



Stanford University by Arthur Lites, 1943 -
<https://purl.stanford.edu/jr426dw0774>

Preserving legacy research

Hopkins Marine Station CalCOFI hydrobiological survey of Monterey Bay, CA: 1951 - 1974 /



Project Goals

1. Digitize everything;
2. Rehouse materials in archival boxes;
3. Make content available via Stanford Digital Repository (SDR);
4. Convert select data from PDF to actionable format (tabular text).

Capturing new research

Stanford LIBRARIES

Welcome hfstro! | Sign out | Contact Us

Stanford Digital Repository – Online Deposit

Home / Dynamic Design Lab / Autonomous Vehicle Control ... (draft)

[View Draft](#) [Edit Draft](#) [History](#) [Datastreams](#)

Autonomous Vehicle Control Up to the Handling Limits for Emergency Scenarios: Supplemental Material

Item Details

Will be online at	https://purl.stanford.edu/jf481sc6894
In collection	Dynamic Design Lab (view items)
Deposited by	jfunke
Contact at	jfunke@stanford.edu
Version Details	v1.0.0 – Initial Version
Item created	2015-04-21 4:16 pm
Version started	2015-04-21 4:17 pm
Last saved	2015-04-21 4:23 pm

Authors and Contributors

Author	Funke, Joseph
Author	Brown, Matthew
Author	Erlie, Stephen
Author	Gerdes, J. Christian

STATUS Draft

- Required fields completed
- File(s) uploaded
- Release and visibility settings reviewed
- Terms of Deposit accepted
- Item can be published

ACTIONS

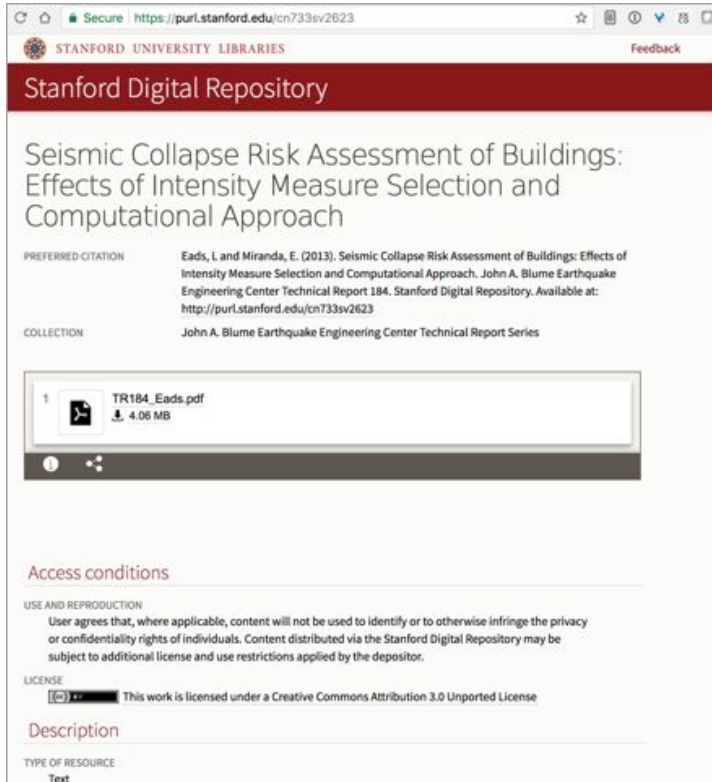
[Publish](#)

- [View Terms of Deposit](#)
- [Share link to this item](#)
- [Discard this item](#)



Chris Gerdes
Director, Revs Program

Simplifying publication management



Stanford University LIBRARIES

Stanford Digital Repository

Seismic Collapse Risk Assessment of Buildings: Effects of Intensity Measure Selection and Computational Approach


PREFERRED CITATION Eads, L and Miranda, E. (2013). Seismic Collapse Risk Assessment of Buildings: Effects of Intensity Measure Selection and Computational Approach. John A. Blume Earthquake Engineering Center Technical Report 184. Stanford Digital Repository. Available at: <http://purl.stanford.edu/cn733sv2623>

COLLECTION John A. Blume Earthquake Engineering Center Technical Report Series

1 TR184_Eads.pdf 4.06 MB

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Description

TYPE OF RESOURCE Text



Stanford University Log in for Blume and SEG Group

Blume Earthquake Engineering Center

Home About News and Events Publications Research Affiliates Links

Publications

- Blume Center Technical Reports
- Reliability of Marine Structures (RMS)
- RMS Technical Reports
- RMS Theses
- CUREE Publications

Blume Center Technical Reports

No.	Title	Authors	Date Published
191	Ground motion simulations: validation and application for civil engineering problems	L. Burks and J. Baker	Oct 2015
190	A framework for engineering sustainable composites based on time-dependent material properties and environmental impact assessments: an application to bio-based composite design	S.A. Miller, M.D. Lepech and S.L. Billington	Sept 2015
189	Design of Composite RCS Special	D. Kathuria, H. Yoshikawa, S.	Sept 2015

Replaying lectures, performances, oral histories

Martin Luther King at Stanford [motion picture]



RESPONSIBILITY

IDENTITY

PHYSICAL DESCRIPTION

[MPEG-TS]

[S.L. | S.A. | S.M.T.]

1 film reel (30 min.) : sd., b/w.; 16 mm.

1 streaming video file (47 min., 51 sec.) :
digital, MOV file, sd., col.

Guerrilla Girls Whitney Action footage

COLLECTION

Women art revolution : videotape interviews by Lynn Hershman-Leeson for film, 1990-2008



Oral history with Shahezadi Begam, 2015 July 25



Feeding social science research

Stanford **CEPA**

Center for Education Policy Analysis

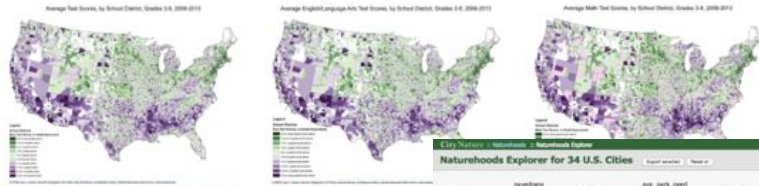
Search...

RESEARCH WHO WE ARE WHAT WE DO WORKING PAPERS TRAINING EVENTS ABOUT US

STANFORD EDUCATION DATA ARCHIVE

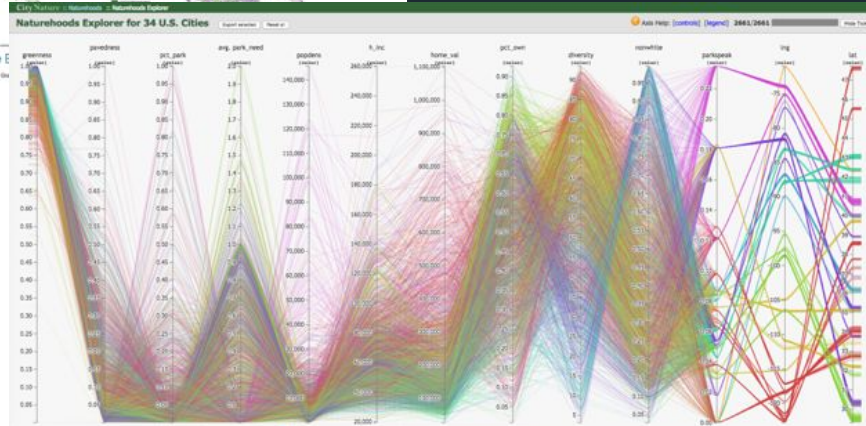
Overview Team Data Archive Papers **Maps** Conference News

Maps



Mean Test Scores, in Grade Equivalents
Average Rate of Test Score Growth Per Grade, School Districts, Grades 4-6, 2008-2012

ELA Test Scores, in Grade Equivalents
Average Rate of English Language Arts Test Score Growth Per Grade, School Districts, Grades 4-6, 2008-2012



THE STANFORD OPEN POLICING PROJECT

On a typical day in the United States, police officers make more than 50,000 traffic stops. Our team is gathering, analyzing, and releasing records from millions of traffic stops by law enforcement agencies across the country. Our goal is to help researchers, journalists, and policymakers investigate and improve interactions between police and the public.

[VIEW DATA](#)

Harvesting the web



ABOUT STANFORD

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- [President's Office](#)

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- [Hoopes III, M.C. Center](#)
- [Libraries](#)
- [Michael Center](#)

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- [Graduate](#)
- [Current Undergrad. Term Schedule](#)

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- [Events, Arts, Tickets](#)
- [Athletics](#)

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- [Business Development](#)
- [The Stanford Collection](#)

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- [Comment on Technology](#)

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- [Maps](#)
- [Taxis](#)
- [Stanford.org](#)

ABOUT THIS SITE

- [Search Tools](#)
- [Site Accessibility](#)
- [Help: FAQ, Feedback](#)

STANFORD UNIVERSITY LIBRARIES

Stanford Web Archive Portal

A searchable collection of websites archived by Stanford University

http:// Any year |

Captured 14 times between December 8, 2012 and December 15, 2012

2017 2018

JAN							FEB							MAR																																															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

MAY					JUN					JUL															
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

SEP					OCT					NOV																			
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

STANFORD UNIVERSITY LIBRARIES

Stanford Web Archive Portal Home | Help

Showing <http://www.ec.gov.gh/> captured on Dec 8, 2012

[Previous capture](#) | [Show overlay](#) | [Next capture](#)

The Electoral Commission of Ghana

FOLLOW US [Facebook](#) [YouTube](#) [Twitter](#)

HOME | 2012 ASPIRANTS | ABOUT EC | ELECTORAL SYSTEM | POLITICAL PARTIES | REGULATIONS | 2012 ELECTION RESULTS

HISTORIC GHANAIS QUEUE TO VOTE

- DEMOCRACY
- HOW TO REGISTER TO VOTE
- HOW TO VOTE

THE ELECTORAL COMMISSION OF GHANA

07 DEC 2012
PRESS RELEASE - ALL ELIGIBLE VOTERS IN THE QUEUE BEFORE 2:00PM ENTITLED TO VOTE.

07 DEC 2012
PRESS RELEASE - ACQUISITION OF POLL AT POLLING STATIONS WHERE BIOMETRIC VERIFICATION OF VOTERS COULD

04 DEC 2012
Special voting starts across the country

04 DEC 2012
SECURITY PERSONNEL AND ELECTION OFFICIALS WHO COULD NOT VOTE IN SPECIAL VOTING TODAY TO VOTE ON FRI

ELECTION 2012 STANFORD

LIVE UPDATES OF PRESIDENTIAL & PARLIAMENTARY RESULTS

Supporting Access, Discovery, and Delivery

— — —

- SearchWorks
- Spotlight
- EarthWorks
- The International Image Interoperability Framework (IIF)
- Requests and Course Reserves

SearchWorks

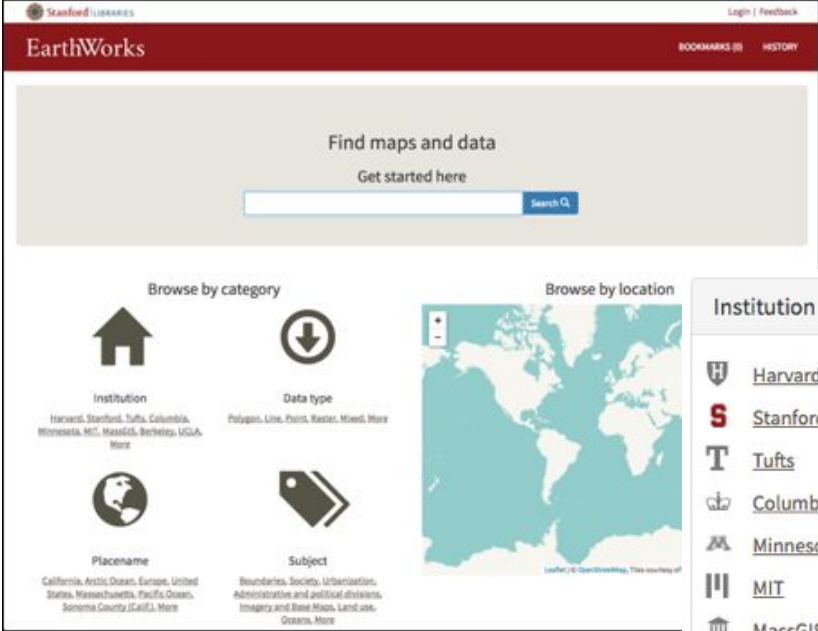
- Discovery environment (“library catalog”) for Stanford University
- Allows for searching and browsing of materials from SDR and Stanford’s libraries (inc. some outside of SUL), and articles
- Integrated access to digital resources, request management for delivery of materials, and citation generation

The screenshot shows the SearchWorks catalog homepage. At the top, there is a navigation bar with the Stanford Libraries logo, a search bar, and links for 'Login', 'My Account', and 'Feedback'. Below the navigation bar, the main heading is 'SearchWorks catalog' followed by a search bar and a 'Books & media' dropdown. The page is divided into several sections: 'Library services', 'Advanced search', 'Course reserves', and 'Selections (0)'. The main content area is titled 'Books, media, & more' and features a 'Find materials by...' section with filters for 'Access', 'Resource type', 'Library', and 'Language'. The 'Access' filter shows counts for 'At the Library' (6,795,138), 'Online' (3,988,239), and 'On order' (15,364). The 'Featured resources' section includes 'Digital collections', 'Government documents', 'Theses & dissertations', 'Course reserves', and 'Databases'. The 'Search Stanford's library resources' section offers options for 'Catalog', 'Articles+', 'Library website', and 'Yewno'. At the bottom, there is a 'More search tools' section with a magnifying glass icon and a link to 'Discover and access library and archival materials, journals, databases, data, and e-resources beyond SearchWorks.'

<https://searchworks.stanford.edu/>

EarthWorks

- Discovery of geospatial assets
 - Purchased
 - Licensed
 - Stanford-produced
 - Multi-institutional
- Direct access to geospatial web-services
 - Preview
 - Download
 - Sideload to online services



The screenshot shows the EarthWorks website interface. At the top, there is a navigation bar with the Stanford Libraries logo, the text "EarthWorks", and links for "Login | Feedback", "BOOKMARKS (0)", and "HISTORY". Below the navigation bar is a search area with the text "Find maps and data" and "Get started here" above a search input field with a "Search Q" button. The main content area is divided into two columns: "Browse by category" and "Browse by location".

Browse by category

- Institution**: Represented by a house icon. Lists: Harvard, Stanford, Tufts, Columbia, Minnesota, MIT, MassGIS, Berkeley, UCLA, More.
- Data type**: Represented by a download icon. Lists: Polygons, Line, Point, Raster, Mixed, More.
- Placename**: Represented by a globe icon. Lists: California, Arctic, Doran, Europe, United States, Massachusetts, Pacific, Ocean, Sonoma County, Calif., More.
- Subject**: Represented by a tag icon. Lists: Boundaries, Society, Urbanization, Administrative and political divisions, Imagery and Base Maps, Land use, Oceans, More.

Browse by location

Includes a world map with a search bar and a "Location" dropdown menu.

Institution

Institution	Count
Harvard	9,895
Stanford	8,205
Tufts	2,802
Columbia	2,795
Minnesota	2,258
MIT	2,127
MassGIS	398
Berkeley	150

<https://earthworks.stanford.edu/>

Spotlight

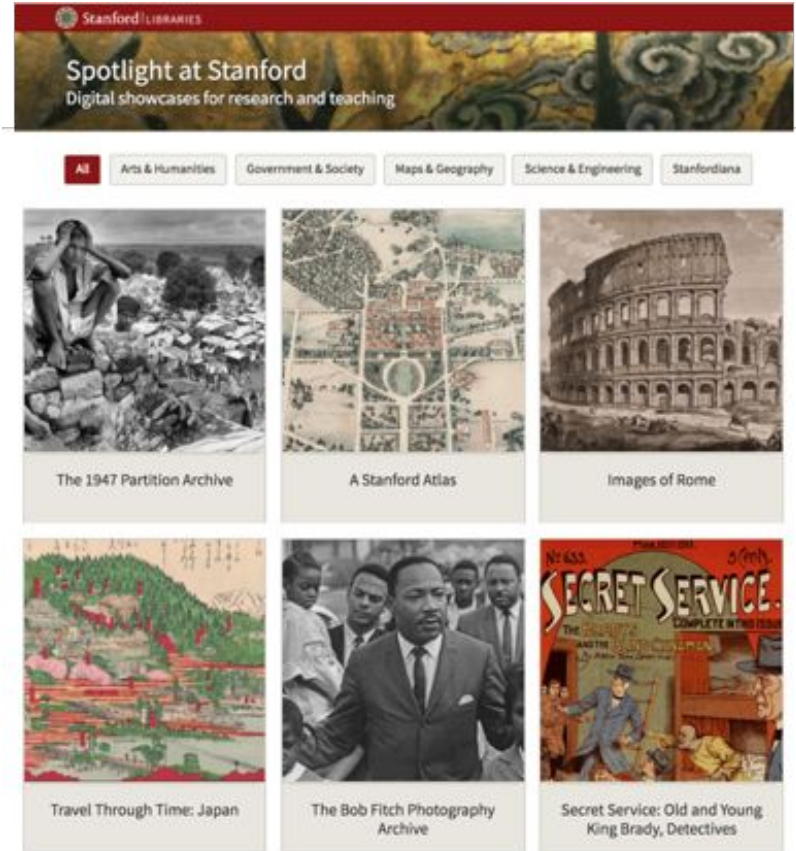
— — —

Full-featured website for showcasing digital collections:

- Visually attractive, responsive, and accessible website
- Self-service exhibit creation
- Powerful searching and browsing, multiple search result views, include gallery, slideshow, and map views
- Integrated with SDR and IIIF

Uses: rich digital libraries, digital exhibits, student portfolios and teaching tool

<https://library.stanford.edu/research/spotlight>



<https://exhibits.stanford.edu/>

exhibits.stanford.edu

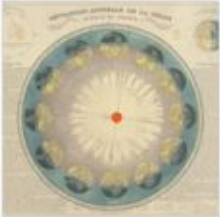
— — —


STANFORD UNIVERSITY LIBRARIES


Online Exhibits


Notable collections showcased by Stanford librarians, archivists, and other curators

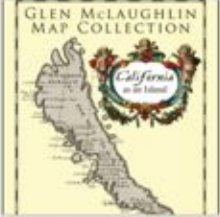
All Arts & Humanities Government & Society Maps & Geography Science & Engineering Stanfordiana


- 

David Rumsey Map Center
- 

Herbert Matter: Modernist Photography and Graphic Design
- 

Rare Music Materials at Stanford
- 

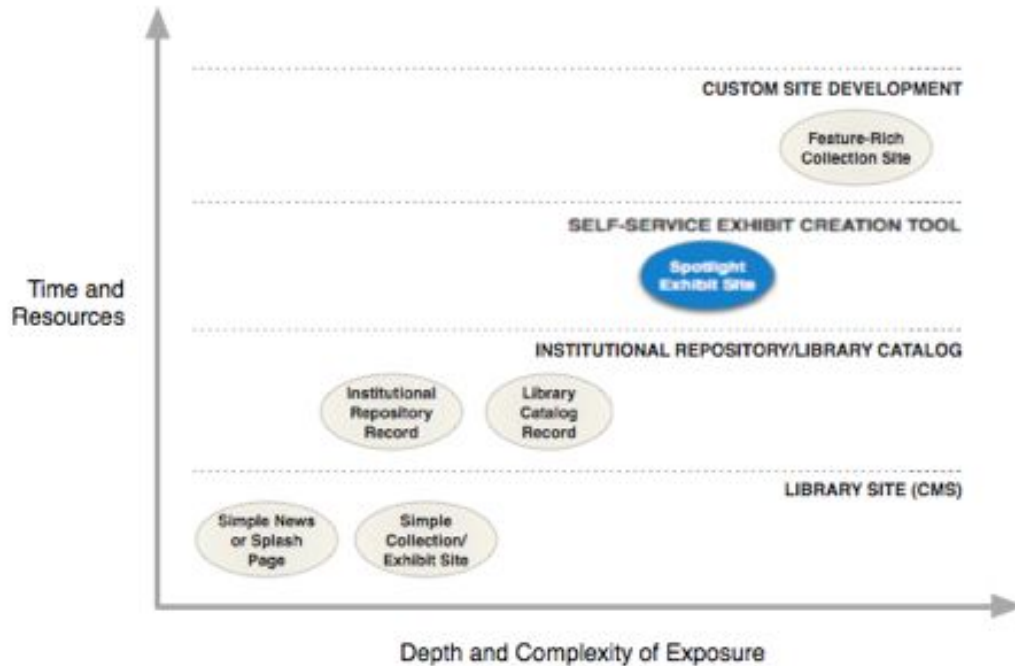
Helen Mayer Harrison and Newton Harrison
- 

California as an Island in Maps
- 

The Bob Fitch Photography Archive

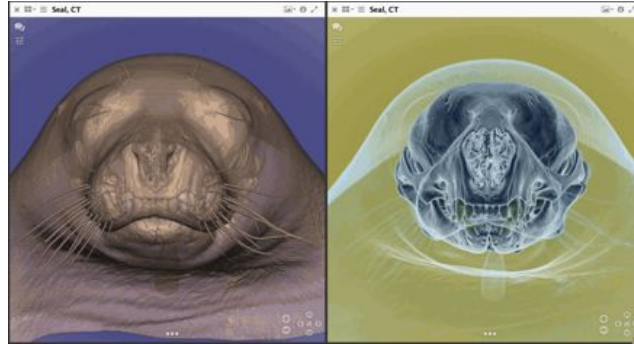
Why Spotlight?

What are the options for highlighting, showcasing, or publicizing a collection?



International Image Interoperability Framework

- Open international community building specifications for rich access to image and other resources
- Used to support deep zoom, presentation, annotation, and comparison of images
- Expanding to provide support for audiovisual materials and 3D resources



Le manuscrit 5 de la
Bibliothèque municipale
de Châteauroux, c. 1460






Folio in BVMM
Miniature in the BNF



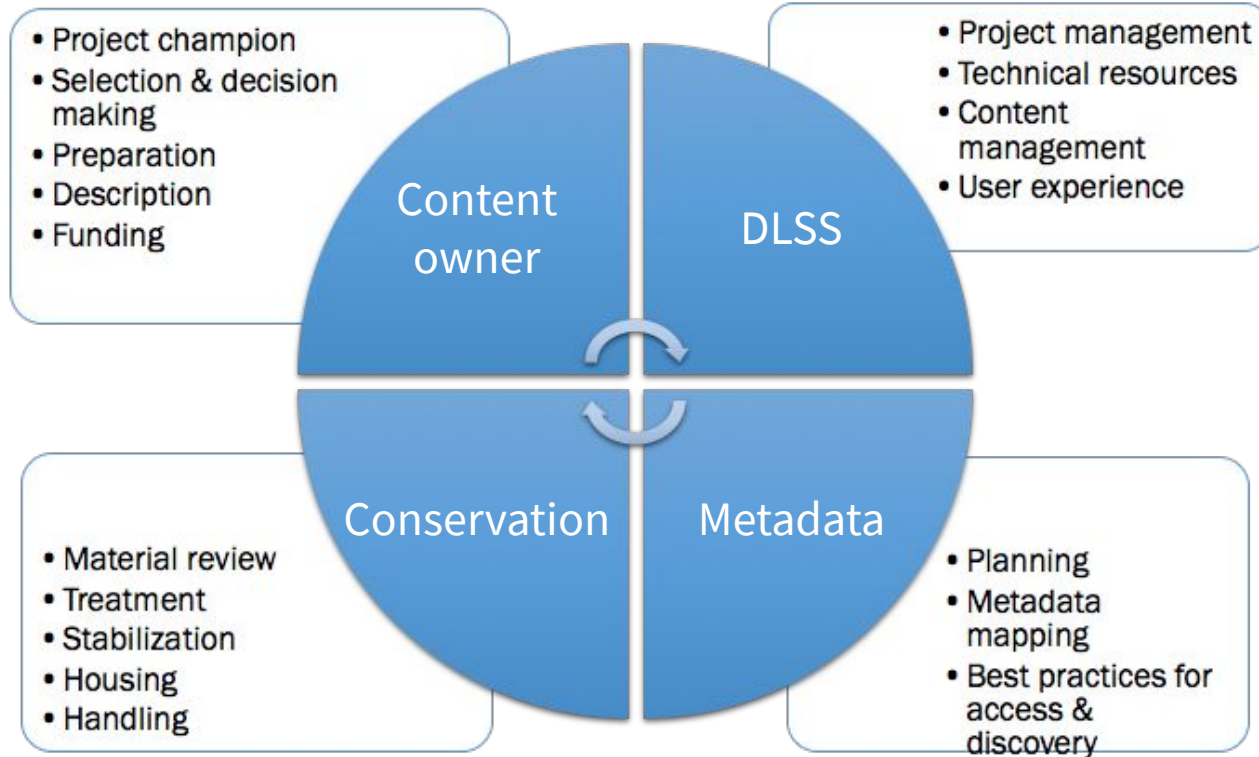
<https://iiif.io/>

How digital library projects happen: content and projects

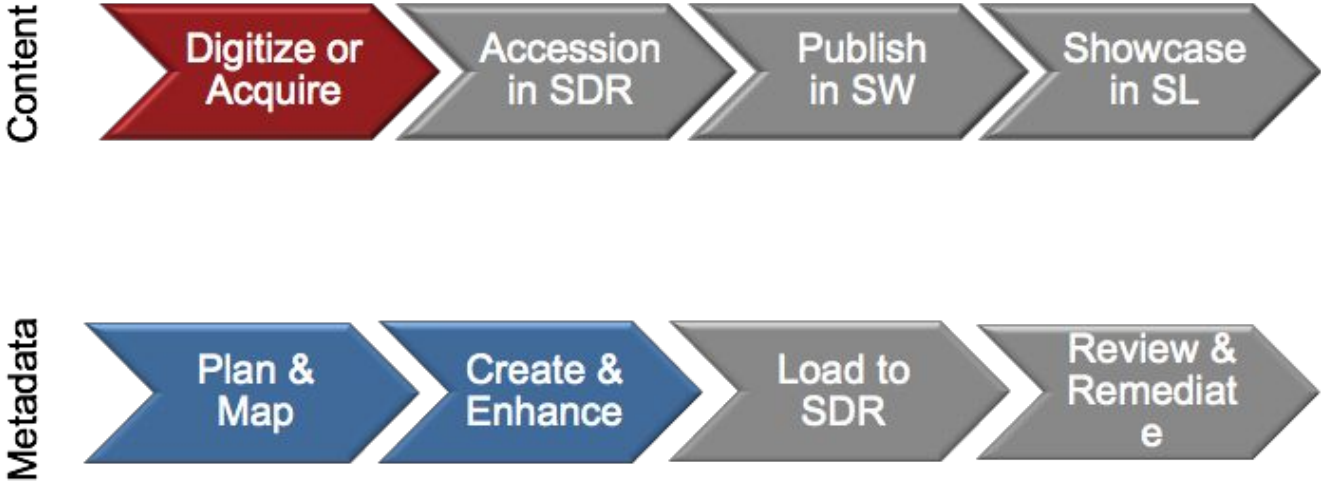
Digital Object Life Cycle

	Original	Capture	Accession: PURL/SDR	Index: SearchWorks	Showcase: Spotlight
					
Accessible:	Limited	✓	✓	✓	✓
Preserved:		✓	✓	✓	✓
Discoverable:			✓	✓	✓
Curated:					✓

Stakeholder Roles and Responsibilities



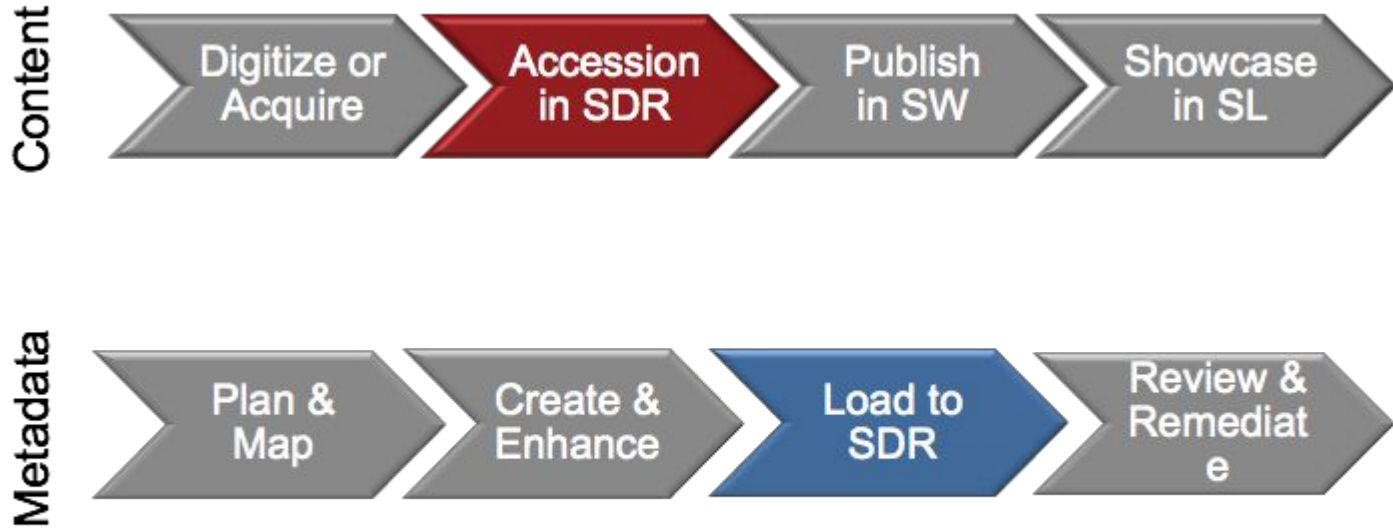
Digitization/Acquisition



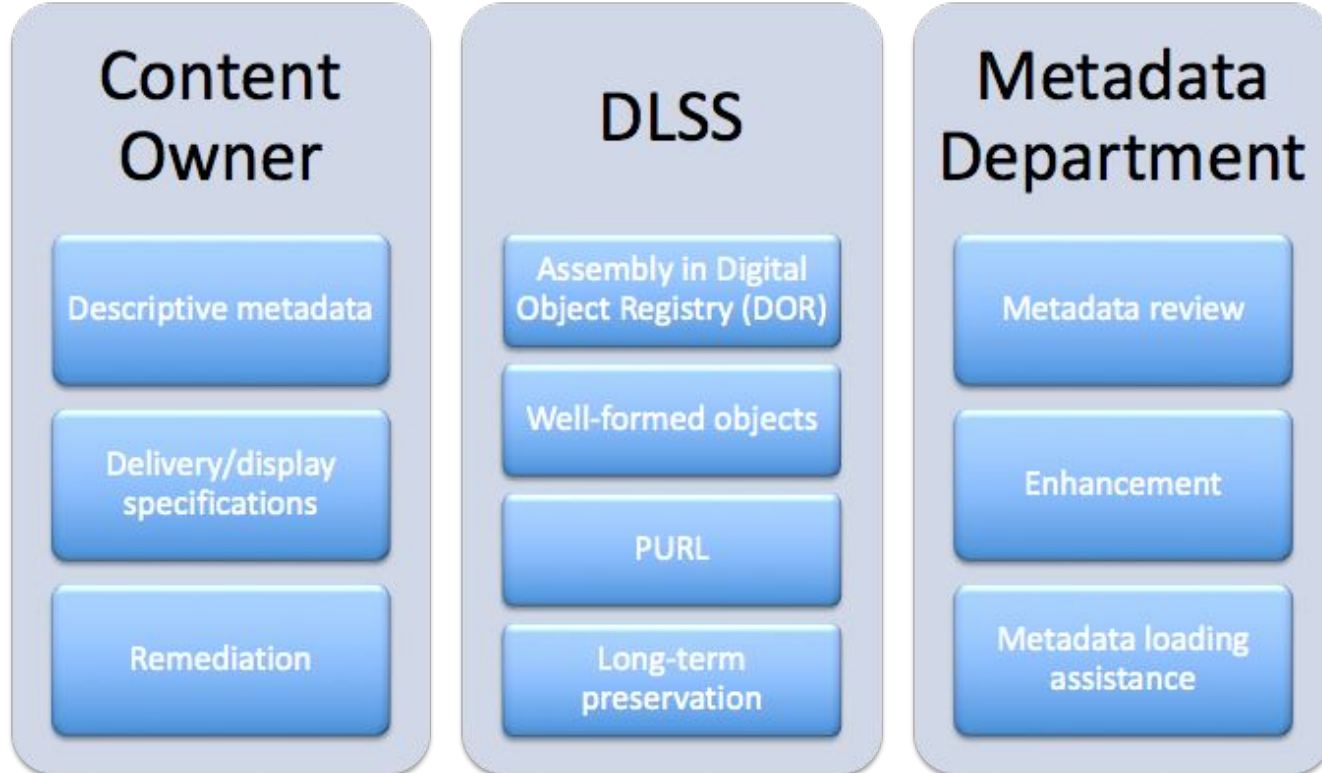
Digitization/Acquisition is a Team Effort



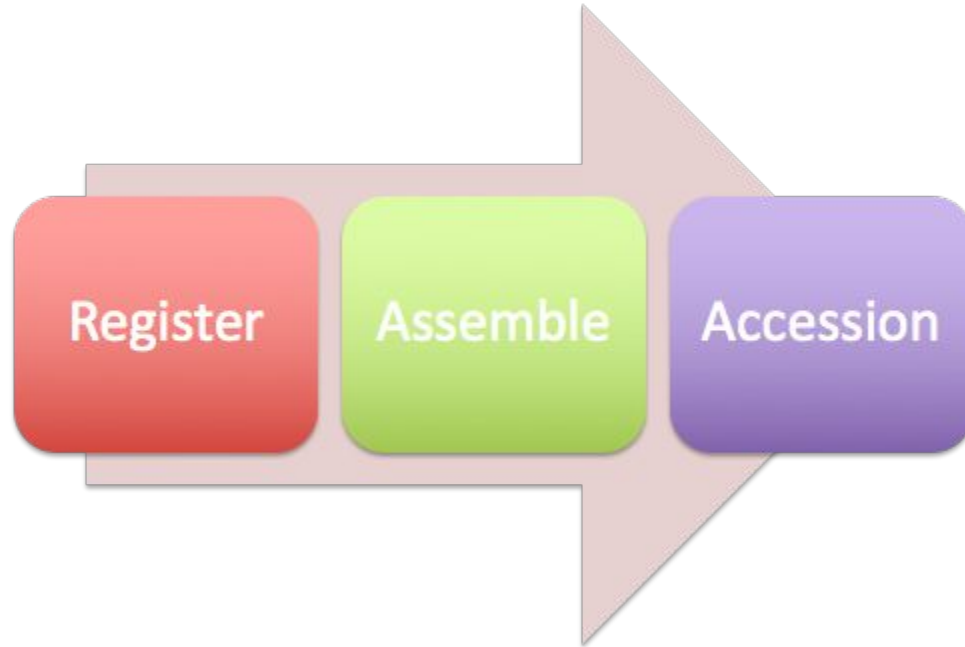
Accessioning



Creating Digital Objects is a Team Effort



Accessioning process



Assembly



Original
Files

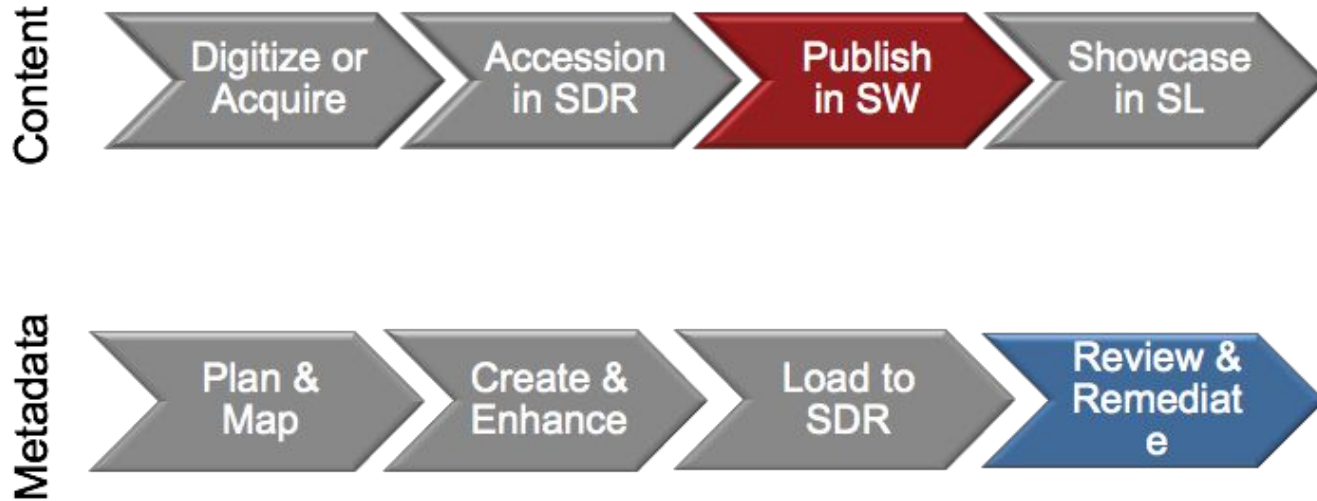


Derivatives

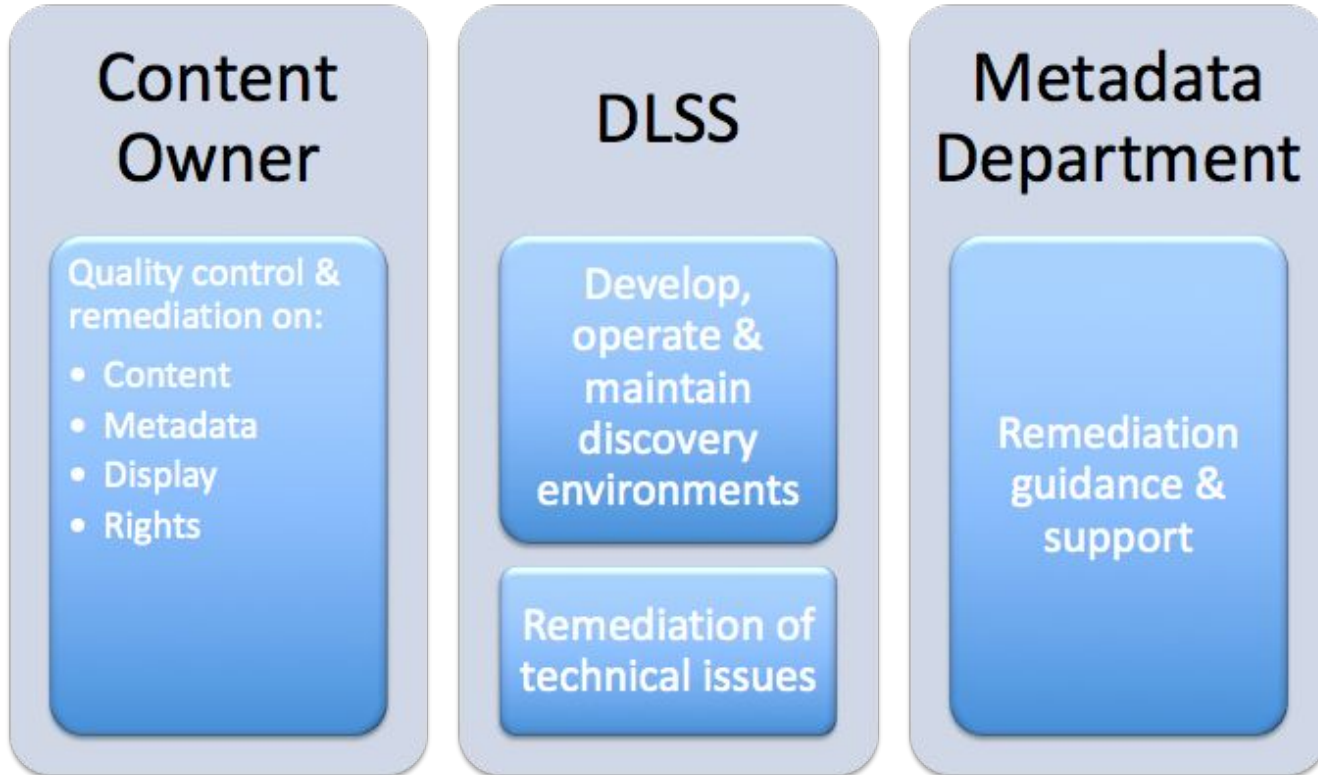


Additional
Metadata

Publishing in SearchWorks



Publishing is a team effort

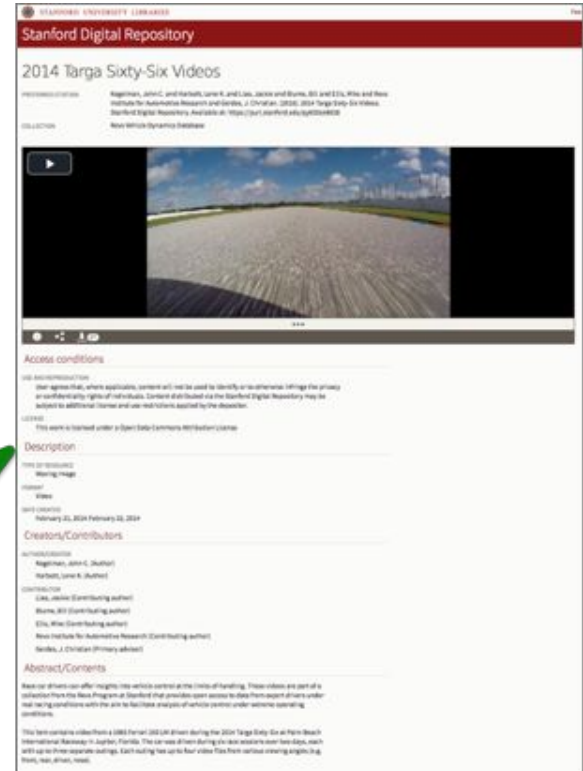


Minimum Metadata for SearchWorks

— — —

- Title
- Creator
- Language
- Type of Resource
- Date
- & preferably more!

Metadata supporting discovery



Building Exhibitions in Spotlight

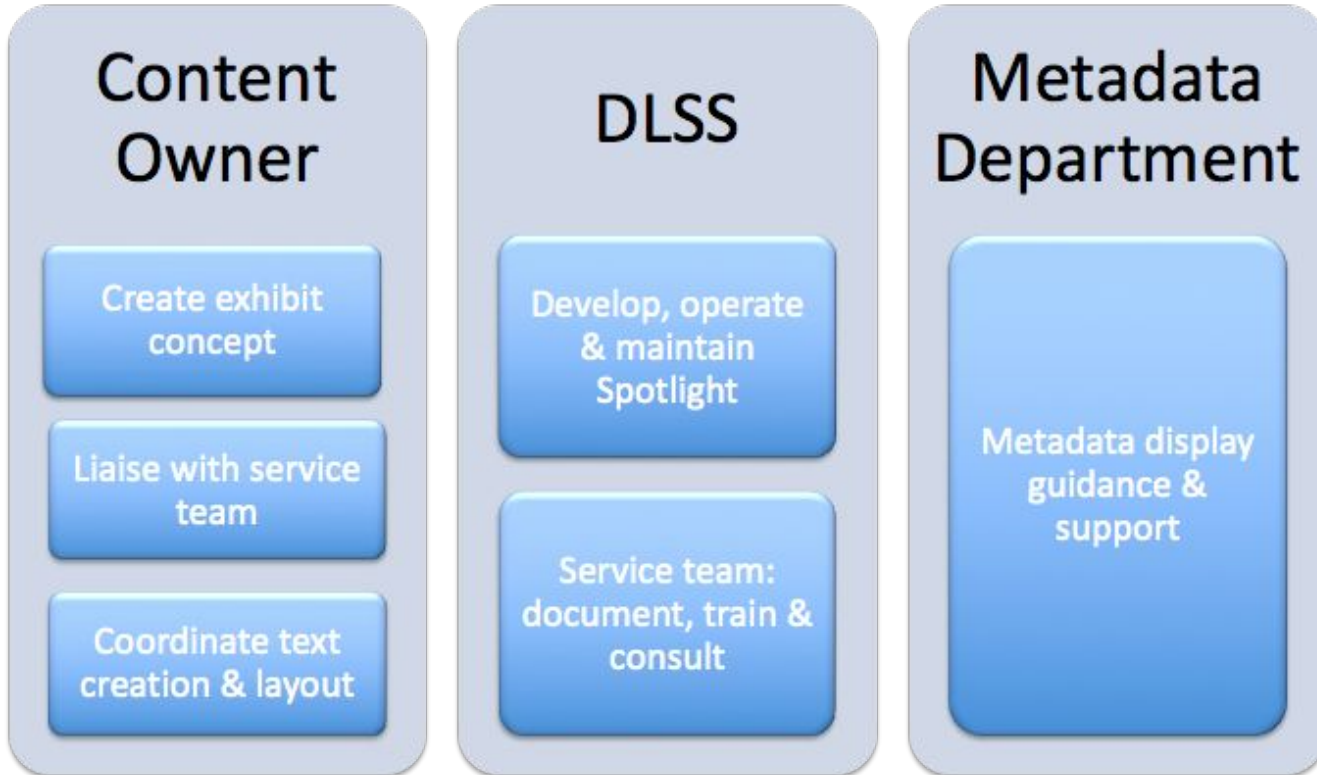
Content



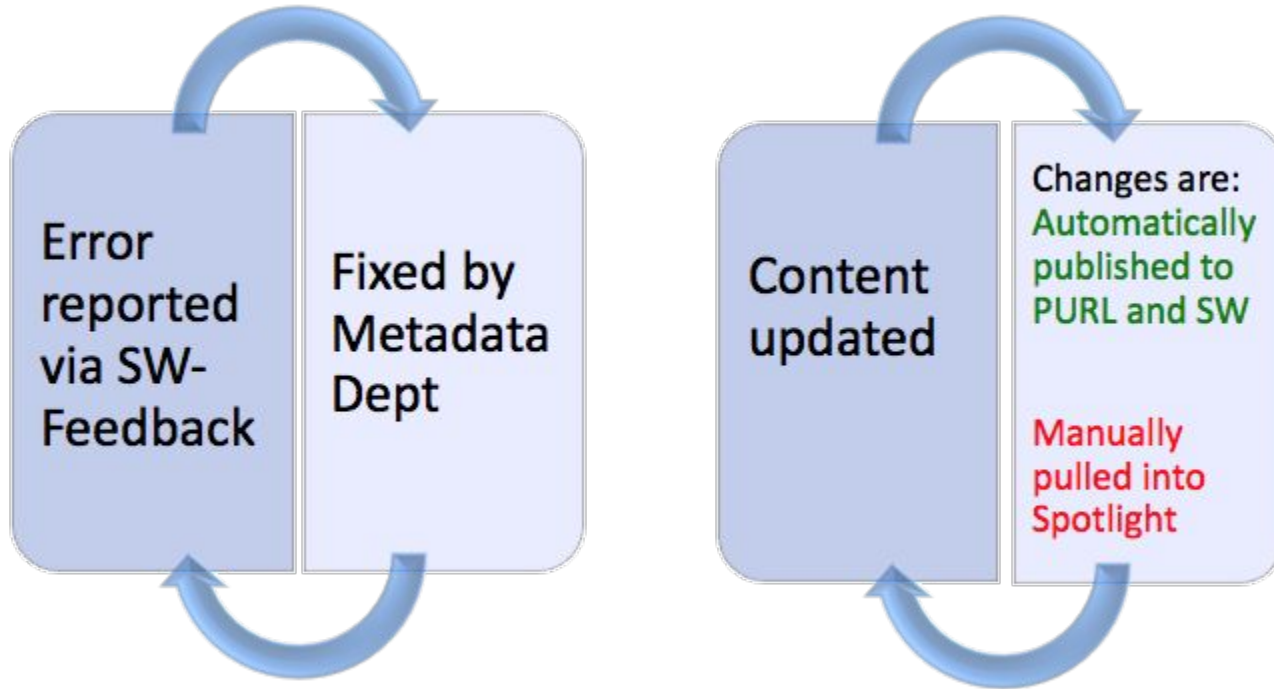
Metadata



Building an Exhibit is a Team Effort



Ongoing Maintenance



Summary



Thank You!

Questions?

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Stanford Libraries
matienzo@stanford.edu
