

Calibrating and Catalyzing: Technology and Service Strategy Considerations for the LANL Research Library

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[LANL RL DGL](#) candidacy job talk
8 July 2019

"Moving Rocks on the Racetrack: Mystery Solved"
by [Jeff Sullivan](#) under [CC BY-NC-ND 2.0](#)

job talk questions

- What **experience** do you bring to the Research Library and the Laboratory?
- What is your vision for the **future of technology in research libraries** generally and LANL's Research Library specifically?
 - In this context, please also address aspects of the **adoption, development, maintenance, and long-term management** of (new) information services.
- Please outline your thoughts and your **proposed path** to accomplishing goals that would get us closer to your vision.

A man in a dark suit is walking away from the camera down a modern, brightly lit hallway. The hallway has a high ceiling with long, curved light fixtures. To the right, there is a large wall made of perforated metal, which is illuminated from behind, creating a warm, golden glow. In the background, other people are visible, and the hallway opens up into a larger area with more people and a green wall.

NO ONE CARES ABOUT TECHNOLOGY

"Message From The Unseen World"
by [R-P-M](#) under [CC BY-NC-ND 2.0](#)

A large crowd of people is gathered around a bonfire at night. The fire is bright and intense, with a large, arched structure of branches or logs above it. The crowd is diverse in age and appearance, and many are looking towards the fire. In the background, there are string lights and a sign that says "SWEET CIDER".

THEY CARE ABOUT VALUE

"Gathered around the fire, End of the Road festival" by Mr Seb under [CC BY-ND 2.0](#)

The background image shows a vast, dimly lit storage facility for magnetic tape. Rows of tall, dark shelving units filled with tape cartridges stretch into the distance. A robotic arm, part of an automated storage system, is visible in the foreground, positioned to retrieve or store a tape cartridge. The scene is illuminated by cool blue and white lights, with some red light visible on the left side, creating a high-tech, industrial atmosphere.

**TECHNOLOGY IS NECESSARY
TO THE FUTURE OF
RESEARCH LIBRARIES,
INCLUDING LANL, BUT IT
DOESN'T ITSELF ASSURE IT**

overview

- self-introduction
- strategic landscape
- services vision
- guiding principles
- services lifecycle



"LAX on take off" by Caribb under CC BY-NC-ND 2.0

A long-exposure photograph of a person standing in a dark environment, creating a glowing blue light painting of their silhouette. The figure has a circular head, a long straight torso, and splayed-out limbs. A bright light source at the center of the torso creates a starburst effect. In the background, out-of-focus city lights and a building are visible through a window.

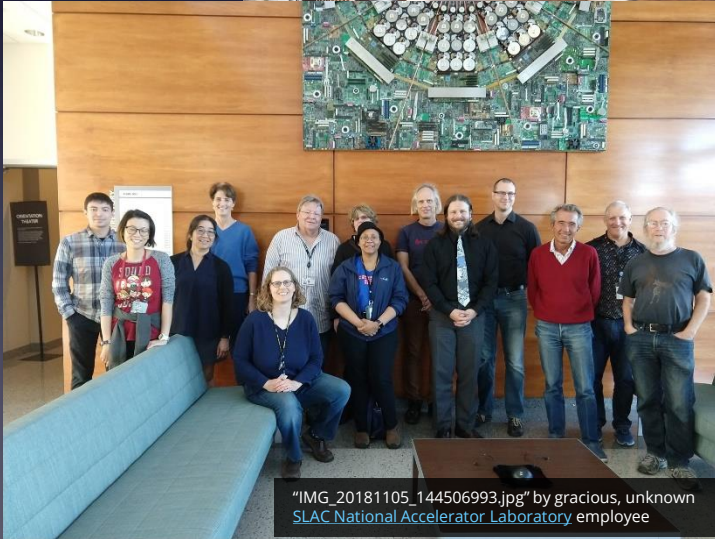
SELF-INTRODUCTION

"Light Painting" by [Gwen Lancel](#) under [CC BY 2.0](#)

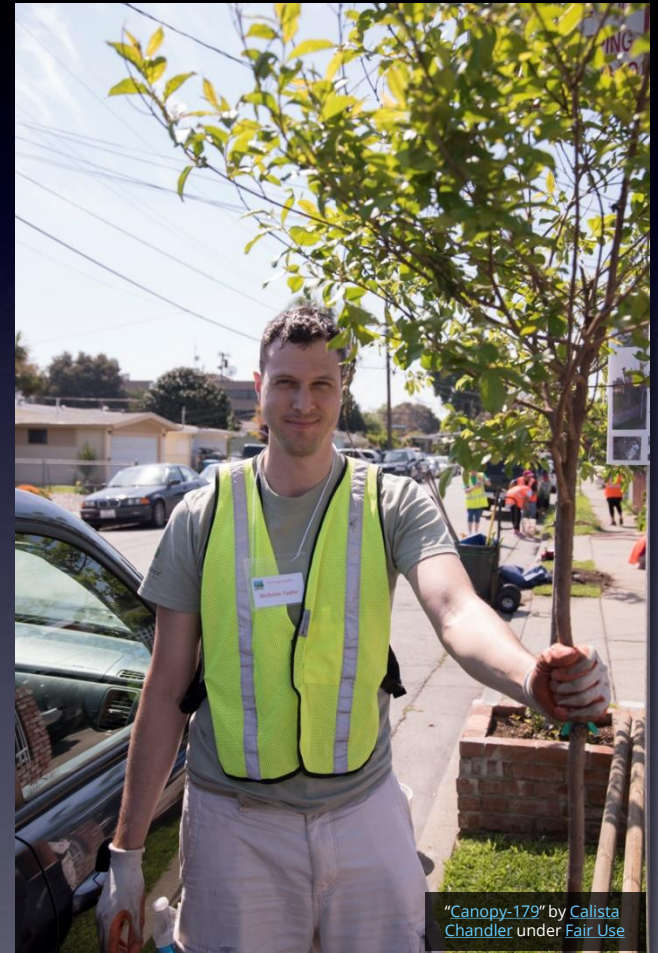
hello, my name is Nicholas...



"kimjacksonphoto-47.JPG" by [Kim Jackson](#)



"IMG_20181105_144506993.jpg" by gracious, unknown [SLAC National Accelerator Laboratory](#) employee



"Canopy-179" by [Calista Chandler](#) under Fair Use

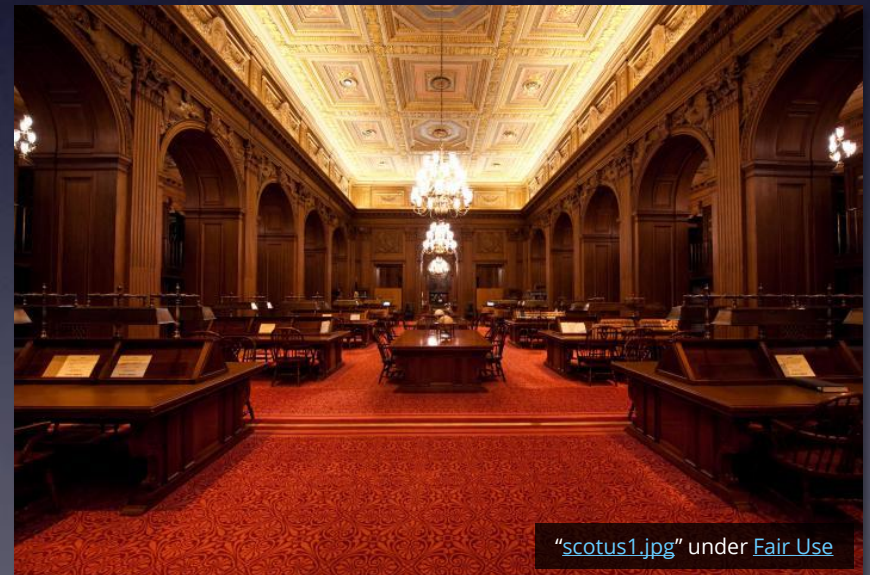
12+ years in research libraries

- **U.S. Supreme Court Library** (2007–2010)
- **Library of Congress** (2010–2013)
- **Stanford Libraries**
 - **Web Archiving** (2013–2016)
 - **LOCKSS Program** (2017–present)



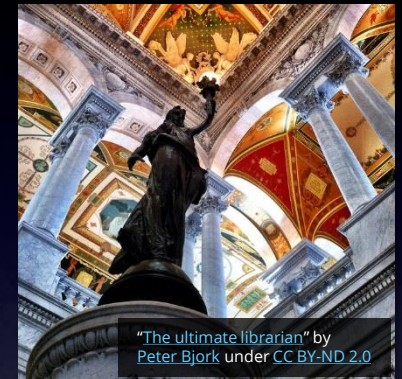
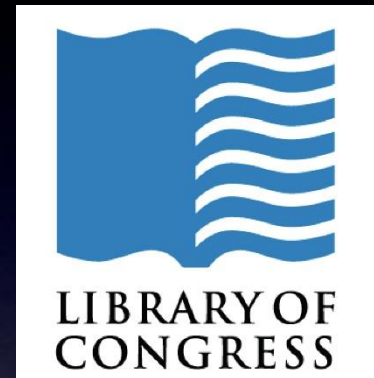
U.S. Supreme Court Library (2007–2010)

- **role:** Library Technology Specialist
- **summary:** supporting library technology in a restricted information environment
- **activities:** technical support, ILS + intranet admin, documentation, website management, scripting, training



Library of Congress (2010–2013)

- **role:** Data Specialist, Web Archiving
- **summary:** serving web archiving operational needs within a gov org
- **activities:** web archiving workflow improvement, data transfer, software dev coordination, QA, central IT + contractor liaison, program representation



Stanford Libraries – Web Archiving (2013–2016)

- **role:** [Web Archiving Service Manager](#)
- **summary:** setting up a new web archiving program in an academic environment
- **activities:** service dev + management, product ownership, policy dev, project support, user outreach, community representation



"Meyer Library / Setting Sun" by Peter Kaminski under CC BY 2.0

Stanford Libraries – LOCKSS Program (2017–present)

- **role:** Program Manager, [LOCKSS](#) + [Web Archiving](#)
- **summary:** running a 20yo P&L digital preservation service provider w/ dozen staff
- **activities:** program + service management, budgeting, partnerships, product ownership, strategy, community leadership



Lots of Copies Keep Stuff Safe

- principle, program, software, community
- bottom-up view on risks to digital info
- enable distributed, local custody by communities
- validate co-stored data via consensus + reputation
- built for PCA, later generalized
- operates under [“Red Hat” business model](#) as [SU Auxiliary](#)



"Domino's" by david pacey under CC BY 2.0

A topographic map with contour lines and place names like 'MUNTANYA DE SALTÈGUET' and 'la Molina'. A red rope is draped across the map, and a compass is in the upper right corner.

STRATEGIC LANDSCAPE

"Pics" by Dani Armengol Garreta under CC BY-NC 2.0

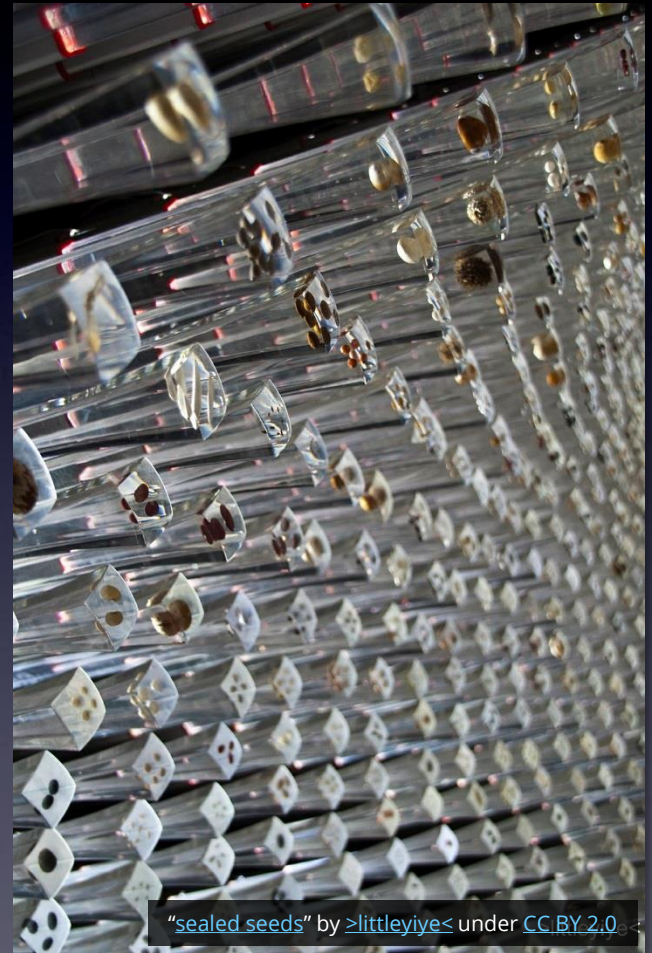
digital stewardship

trends:

- more (+ different) content to preserve
- ambivalence about:
 - what to preserve...
 - at what level

implications:

- strong pressure to define digital preservation down
- be deliberate about trade-offs
- greatest threat is (still) economic



"sealed seeds" by >littleyiye< under [CC BY 2.0](#)

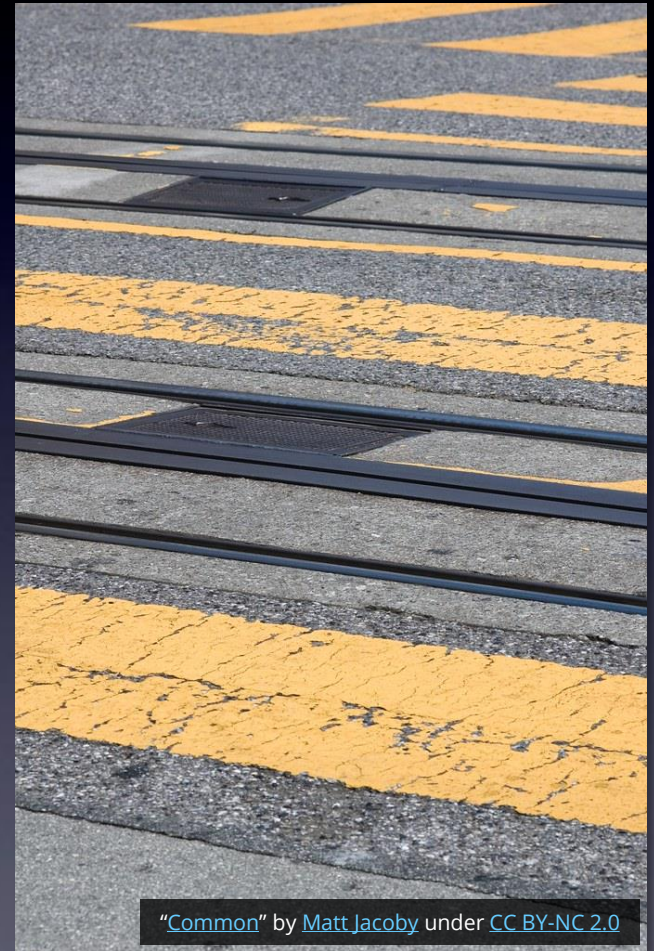
open infrastructure

trends:

- growing recognition of the value of values alignment
- innovation, but also consolidation, lack of coordination, sustainability challenges
- lots more technologies than solutions

implications:

- open infrastructure (still) needs business models
- new frameworks for solutions dev, advocacy, funding, interoperability



"Common" by Matt Jacoby under CC BY-NC 2.0

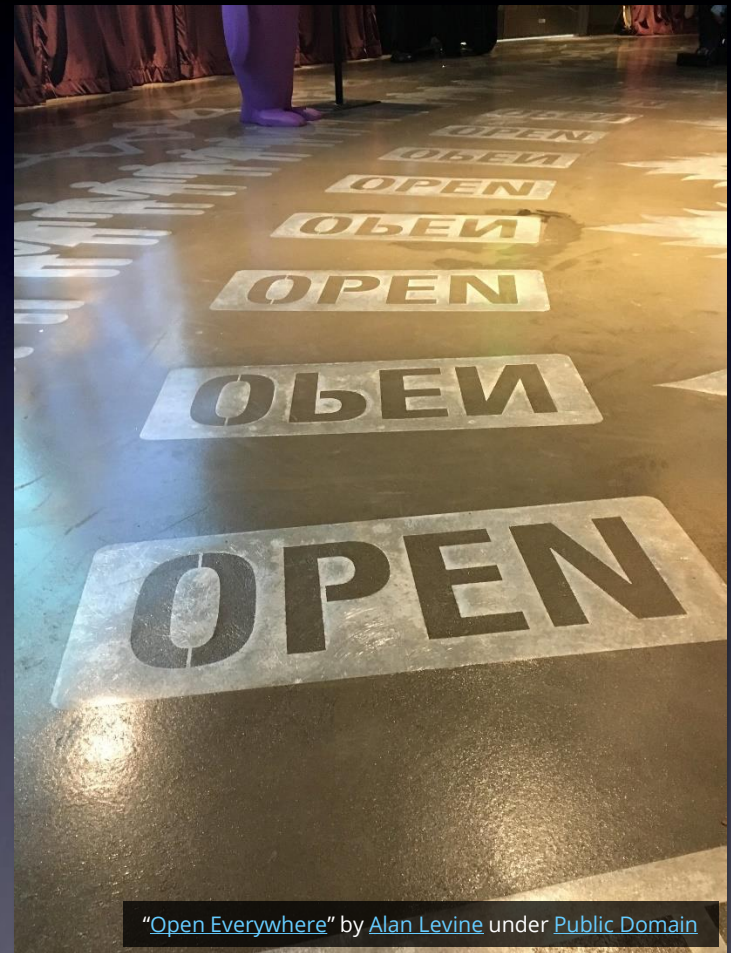
open access

trends:

- funder policies + prerogatives
- growing researcher awareness + buy-in
- “Big Deal” giving way to “Read and Publish”

implications:

- democratize access to scholarly pubs
- less custodial interest for preservation, but more for data mining



“Open Everywhere” by Alan Levine under Public Domain

web centrality

trends:

- evolving research lifecycle
- research sources live on the web
- “web archiving” → “archiving”
- consolidated web archiving capacity

implications:

- favor web- rather than library-centric approach to services
- participate in standards-setting
- web archiving (still) needs to be mainstreamed in digital libraries



“inside-out” library

trends:

- discovery happens beyond library
- network- vs. institution-scale services

implications:

- reconceptualize library collecting, stewardship, access facilitation
- build library services around user workflows
- APIs + interoperability relatively more important



“Externalising” by Michael Coghlan under CC BY-SA 2.0

research data

trends:

- research data as “first-class” scholarly objects
- funder pressure for research data management
- open science, reproducibility driving normative change

implications:

- opportunity for better science + new stewardship capacities
- unsettled landscape of services + providers



change debt

trends:

- purposeful conservatism
- [serials crisis](#)
- less valued relatively by parent orgs

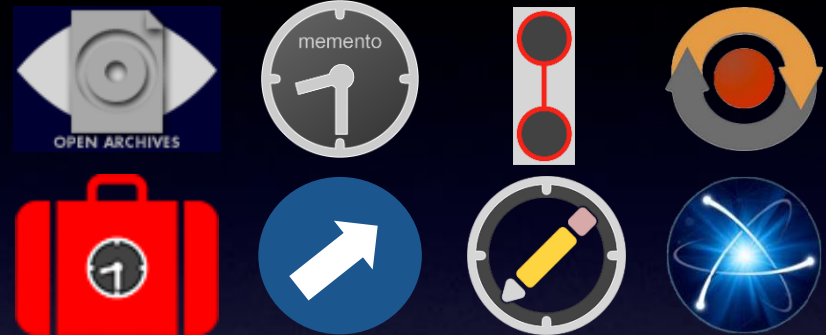
implications:

- potential new roles more contested
- under-capitalized to self-transform

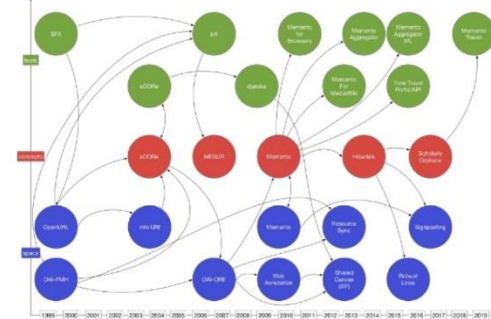


LANL RL strategy + services

- LANL RL has been responsive to changing strategic landscape
- national security context means:
 - relatively more essential to community it serves
 - stronger pressure to provide value
 - less able to leverage common infrastructure



(Almost) Two Decades at LANL



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(Almost) Two Decades at LANL by Herbert Van de Sompel under CC BY-SA 4.0



SERVICES VISION

"The two bridges" by [Frank Schulenburg](#) under [CC BY-SA 2.0](#)

LANL RL Strategic Plan FY17–FY19

1. Support the **research lifecycle**.
2. Provide strategic intelligence to quantify, analyze and illustrate **research impact**.
3. Advance research by facilitating a network of expertise and services that promote **collaborative science**.
4. Deliver services, tools and outreach to the **classified research environment**.
5. Enhance research communications by helping to shape and influence the future of **scientific communication and knowledge management**.

embed services in the research lifecycle

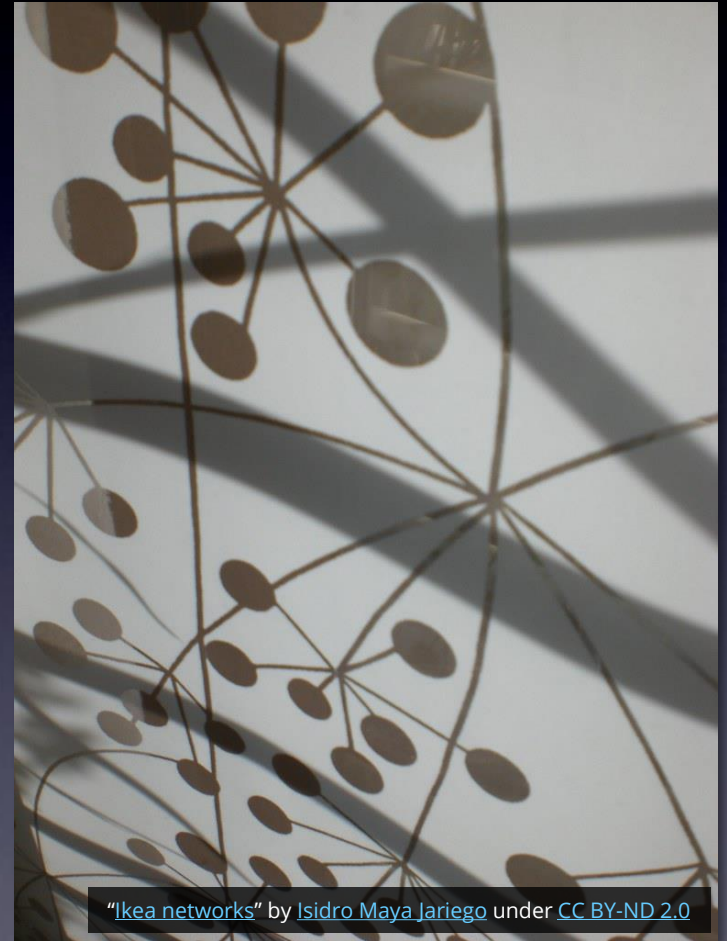
- **value:**
 - enable collaboration, conversation, connections, annotation, visualization
 - reduce redundant effort
- build on Nucleus:
 - extend boundaries of supported collaborators
 - anticipate new integrations, via [FedRamp](#)
- populate journal submission forms w/ RASSTI cached data



"Gambit...." by Nikk under [CC BY 2.0](#)

provide meta-insight to designated community

- **value:**
 - dynamic, macro, multi-dimensional view of institutional research activity
 - assessment, reporting, expertise discovery, collaboration
- aggregate, curate, leverage metadata about institutional research activity
 - via [aDORe](#), [Altmetric](#), [Symplectic](#), [LDRD](#) data, etc.



automate content + data loading

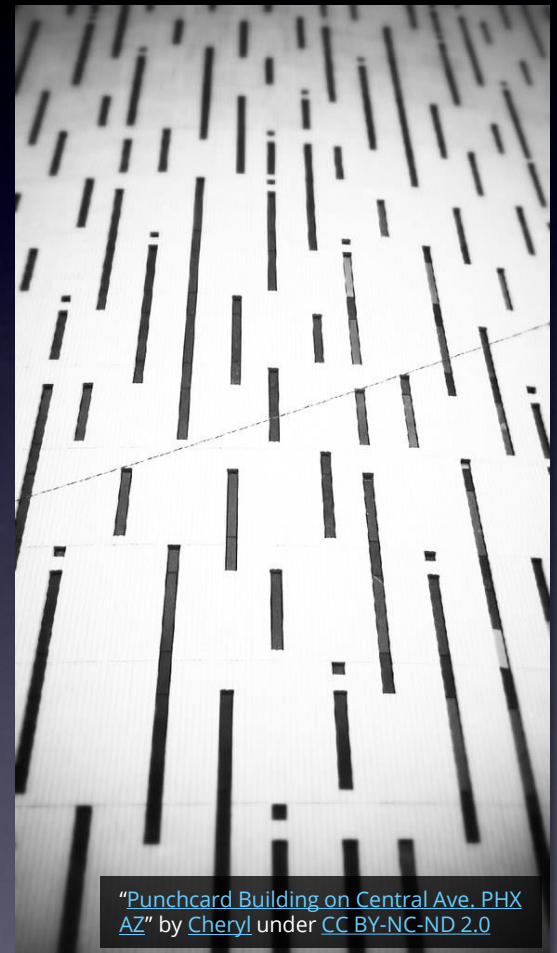
- **value:**
 - comprehensively-populated platform for persistent, trustworthy access to LANL scholarly output
 - techniques + tools to enhance utility + viability of distributed open repositories
- enhance Autoload w/ [OAButton](#), [UnPaywall](#), + [Fatcat](#) APIs
- cross-pollinate w/ or converge on site-specific capture heuristic framework ([Tracer](#)) w/ [LOCKSS](#), [BrowserTrix](#), others



"k4258-9" by U.S. Department of Agriculture under CC BY 2.0

optimize for machine access

- **value:**
 - more machine-legible + machine-actionable holdings, supporting new modes of interacting w/ RL
 - improve discovery of RL holdings at network-scale
- provide [LARO ResourceSync](#) endpoint
- improve [LARO](#) visibility to external search engines
 - add [sitemaps](#), [schema.org](#), embedded metadata
 - adjust [robots.txt](#)



modernize systems

- **value:**
 - services that better align w/ contemporary user expectations + interfaces
 - enhance + maintain services at lower cost
- **candidates:**
 - 15yo repository ([aDORe](#))
 - 6yo [library website](#)



"New York Reflection" by Reto Fetz under CC BY-NC-SA 2.0



GUIDING PRINCIPLES

"Full Sun - Shattering Silence" by Jason Mrachina under [CC BY-NC-ND 2.0](#)

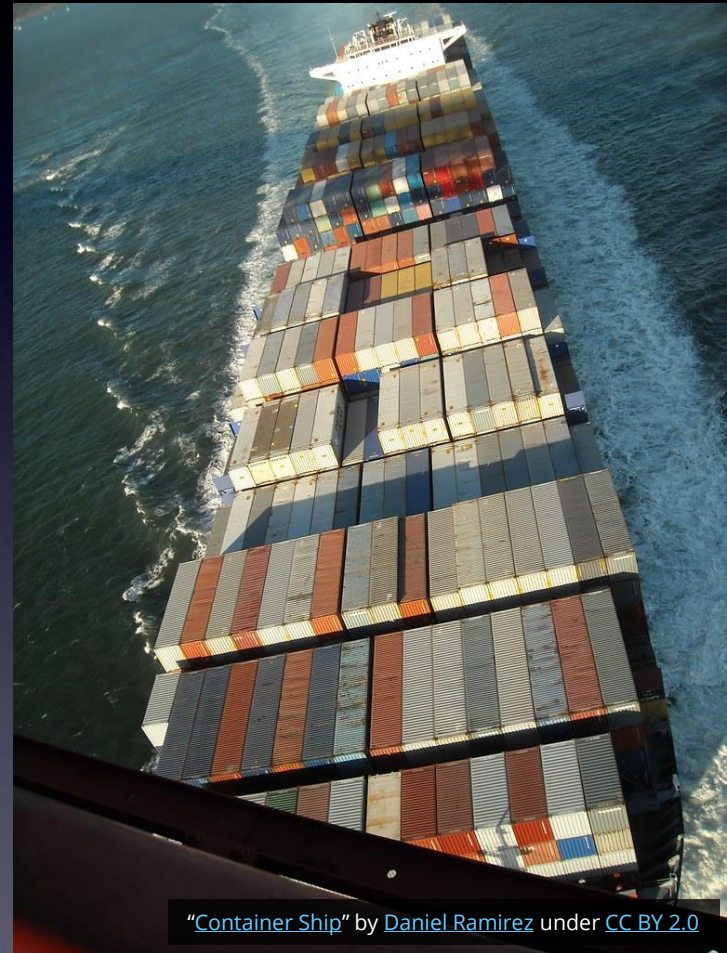
align w/ broadest possible communities

- pursue most **general solutions** to address **specific needs**
- leverage scale
- for [LOCKSS software re-architecture](#), align w/:
 - IT + web industries
 - digital preservation community
 - web archiving community
 - LOCKSS community
- for LANL RL, could be:
 - IT + web industries
 - higher ed + FedGov RLs
 - FedGov classified IT + RLs
 - NNSA IT + RLs community
 - LANL IT + RL community



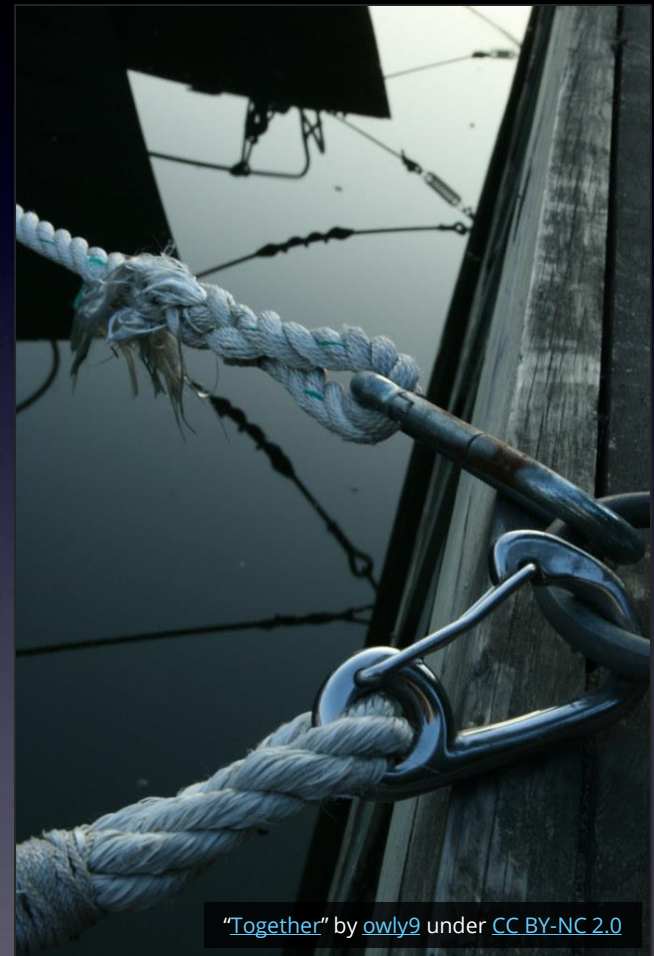
APIs + interoperability

- prefer modular architectures using widely-implemented standards
- diminish project risk w/ smaller projects
- better capitalize on external work
- build + procure more replaceable systems



partnerships + collaboration

- internal + external
- researcher + practitioner communities
- be informed by users + best practice
- facilitate pipelines + cross-pollination



sustainability

- for open initiatives, a foundational concern
- need to continually benchmark, marshal, reassess resources re:
 - current portfolio
 - prospective ambitions
- resources include funding, staffing, social + political capital



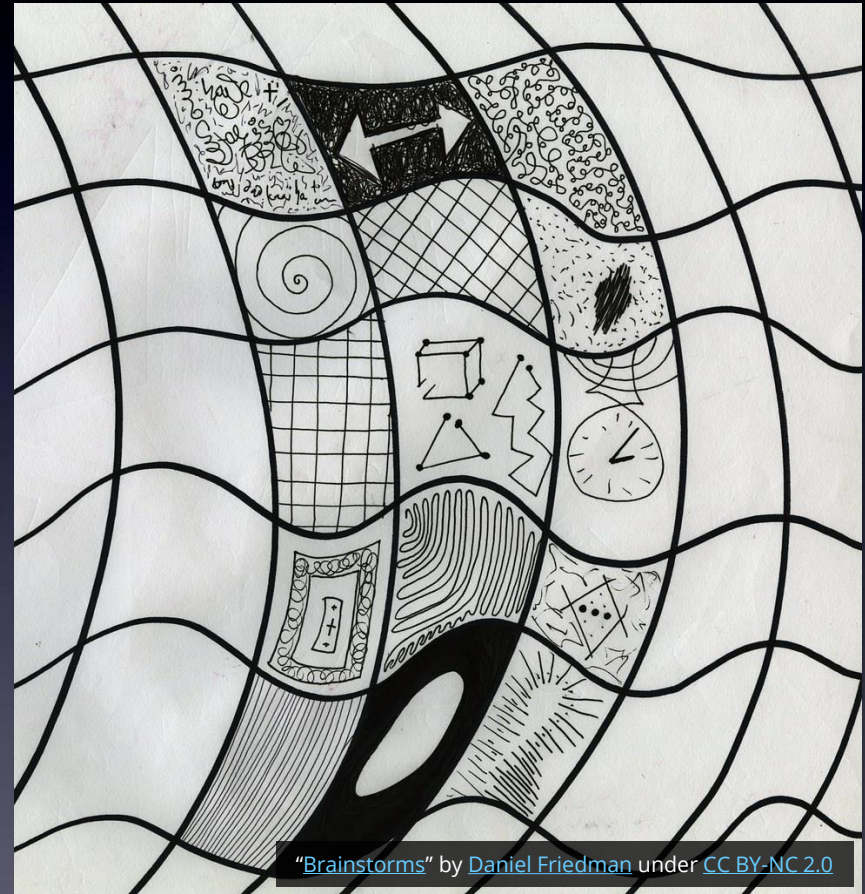
"Kenroku-en, Kanazawa" by
Andrea Schaffer under CC BY 2.0

A collection of leaves in various stages of decay, from green to brown, arranged on a gravel surface. The leaves are scattered across the frame, with some showing signs of aging and discoloration. The background is a light-colored, textured surface, possibly gravel or sand.

SERVICES LIFECYCLE

conceptualize + design

- seek stakeholder input, buy-in, prioritization
- learn from peers
- engage in a design process
 - create service blueprint, user stories, personas, wireframes, etc.
- have process + secure approval to proceed w/ development



develop + test

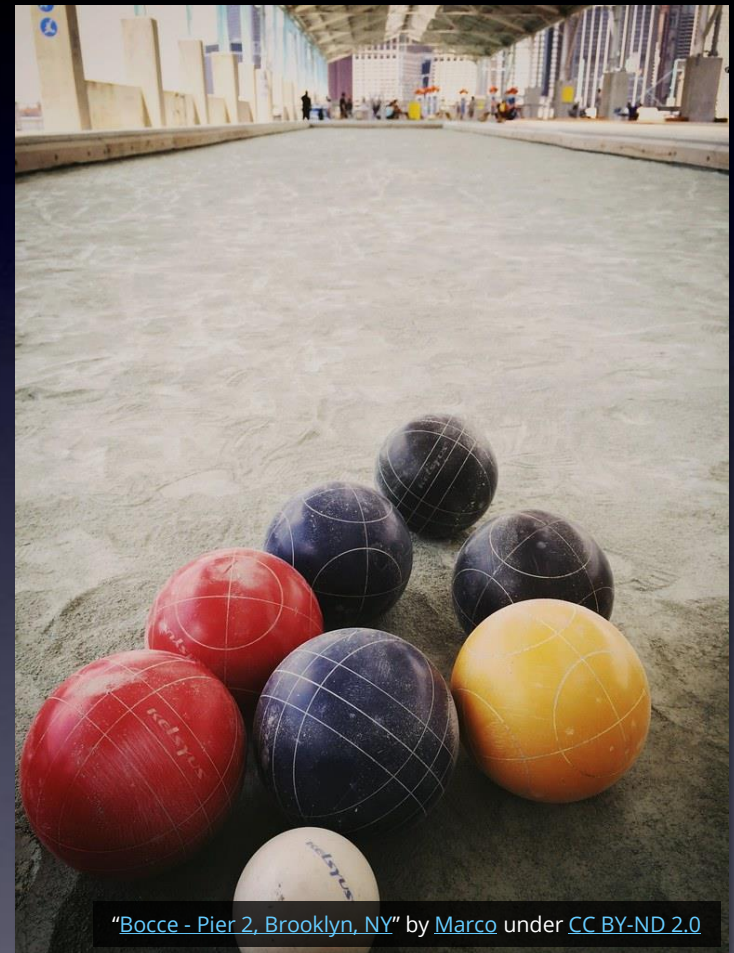
- explore iterative + team-centric methodologies
- plan, schedule, scope work
- time- or feature-bound
- discretize + break work down
 - epic → user story → dev task
 - project → work cycle → sprint
- meetings: kickoff, standup, wind-down, retrospective
- define + adhere to testing for production deployment



"Building spiral staircase 2" by [Justyn Comer](#) under [CC BY-NC 2.0](#)

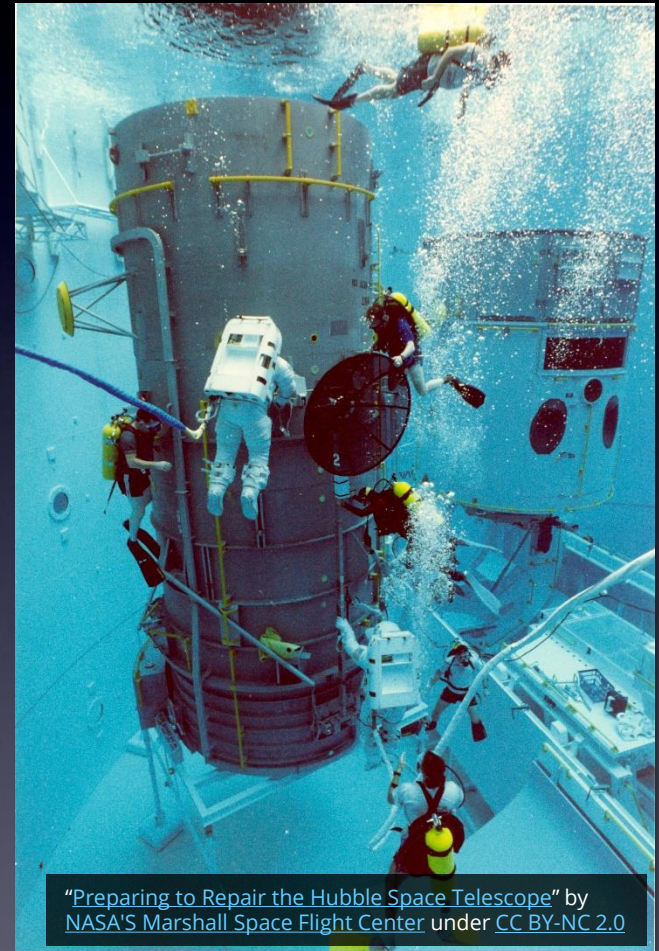
rollout + engage

- production-ready app ≠ service readiness
- define + adhere to process for service rollout
- documentation + training
- communication + marketing
- enlist + cultivate champions
 - [Library Advisory Board](#)



maintain + improve

- maintenance at least as important as new feature dev
- build trust by showing that feedback is acted upon
- understand resources needed to sustain service
- less frequent means more expensive each time



manage over time

- manage the backlog
- establish + nurture mechanisms for ongoing feedback
- understand potential + actual value, to whom, for what
- maintain view of entire service portfolio
- be willing to transition + sunset services



[“pollinator friendly PV”](#) by [National Renewable Energy Lab](#) under [CC BY-NC-ND 2.0](#)

A large, green, wrapped hay bale is the central focus of the image. It is situated in a field of dry, yellowish grass. In the background, there are several other smaller, similarly wrapped hay bales. The sky is blue with scattered white clouds. The overall scene is a rural landscape.

WRAP-UP

"Wrapped" by [Geerd-Olaf Freyer](#) under [CC BY-NC-SA 2.0](#)



**YES, TECHNOLOGY, BUT AS A
FOUNDATION FOR THE USER-
ORIENTED SERVICES THAT
WILL SUSTAIN THE FUTURE
OF RESEARCH LIBRARIES**

A photograph of an audience in a lecture hall. In the foreground, a man with glasses and a white shirt is partially visible on the left. Behind him, several other people are seated, looking towards the front of the room. The ceiling features multiple long, horizontal light fixtures. A black rectangular box with the word "QUESTIONS?" in white capital letters is overlaid on the right side of the image. A laptop with an Apple logo is visible in the lower right foreground.

QUESTIONS?