

# 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](#)"  
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# 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 photograph of a man in a dark suit walking away from a modern building at night. The building has a large, illuminated wall with a grid pattern of small lights. The scene is lit by the warm glow of the building's exterior and some streetlights.

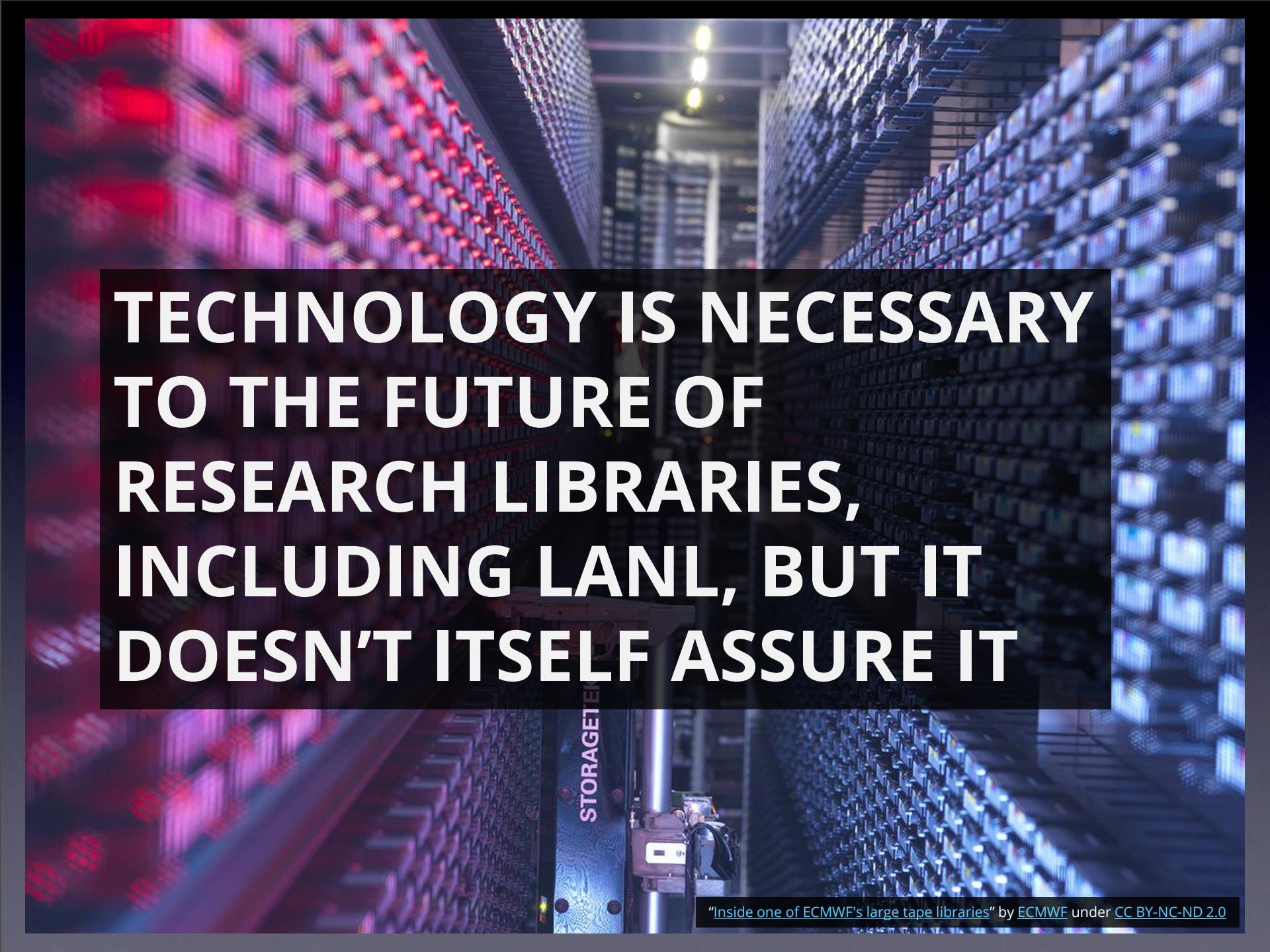
**NO ONE CARES  
ABOUT TECHNOLOGY**

"Message From The Unseen World"  
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# THEY CARE ABOUT VALUE

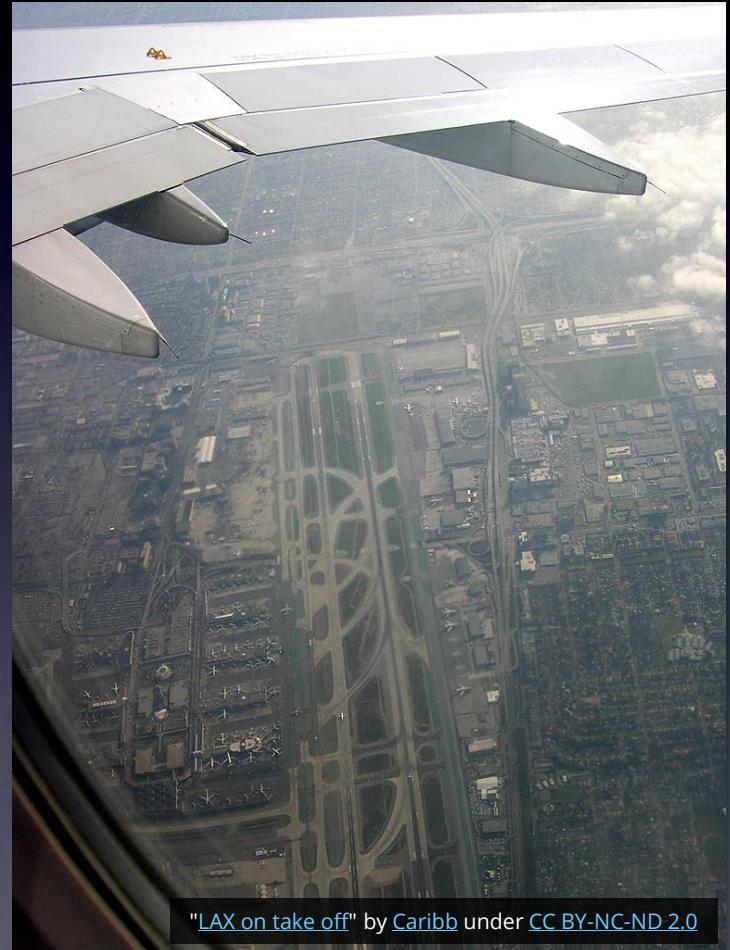
"Gathered around the fire, End of the Road festival" by Mr Seb under CC BY-ND 2.0



**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

# SELF-INTRODUCTION

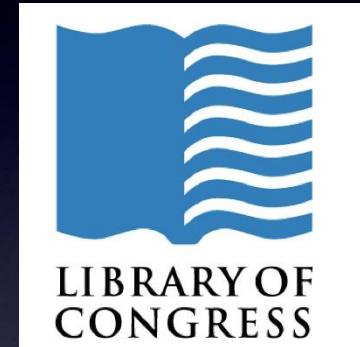
"Light Painting" by Gwen Lancel under CC BY 2.0

# hello, my name is Nicholas...



# 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)



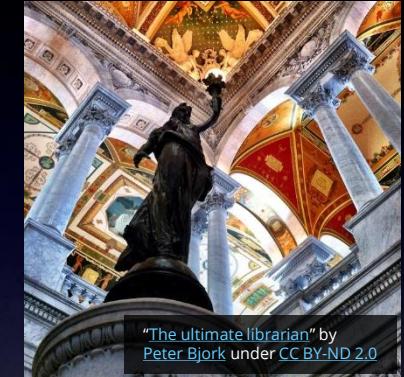
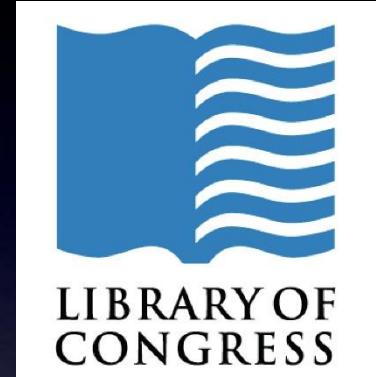
# U.S. Supreme Court Library (2007-2010)

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



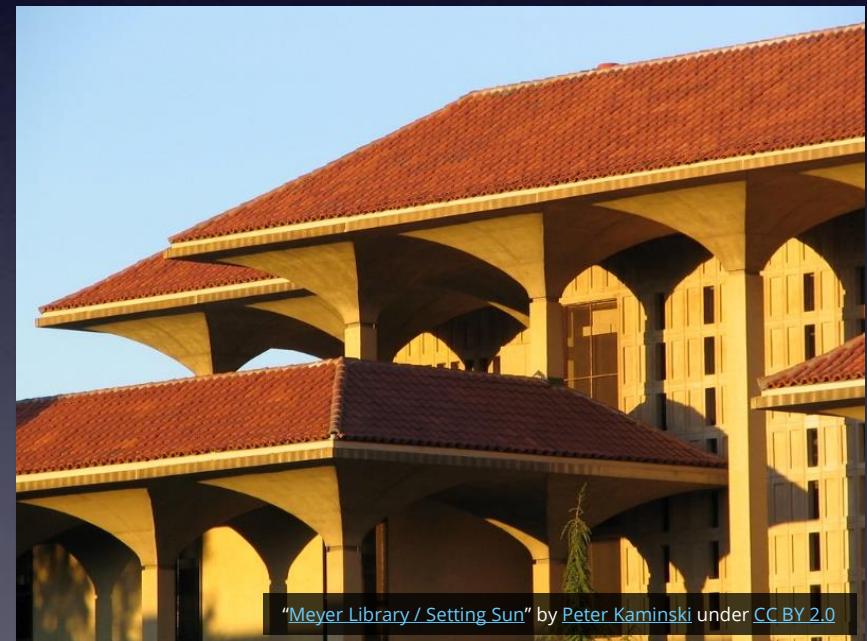
# Library of Congress (2010-2013)

- **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



# 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

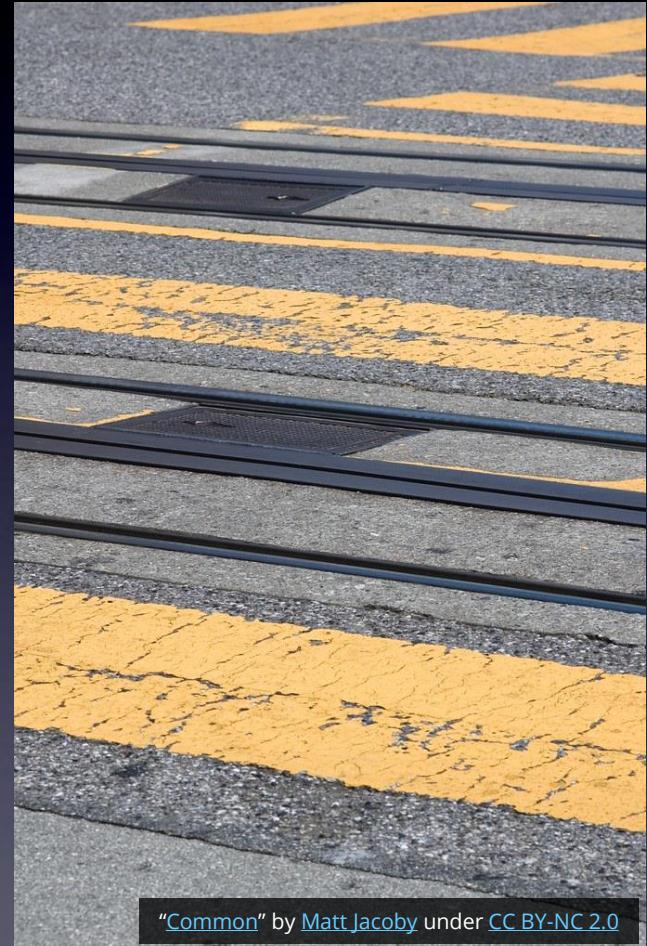
# open infrastructure

## 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](#)

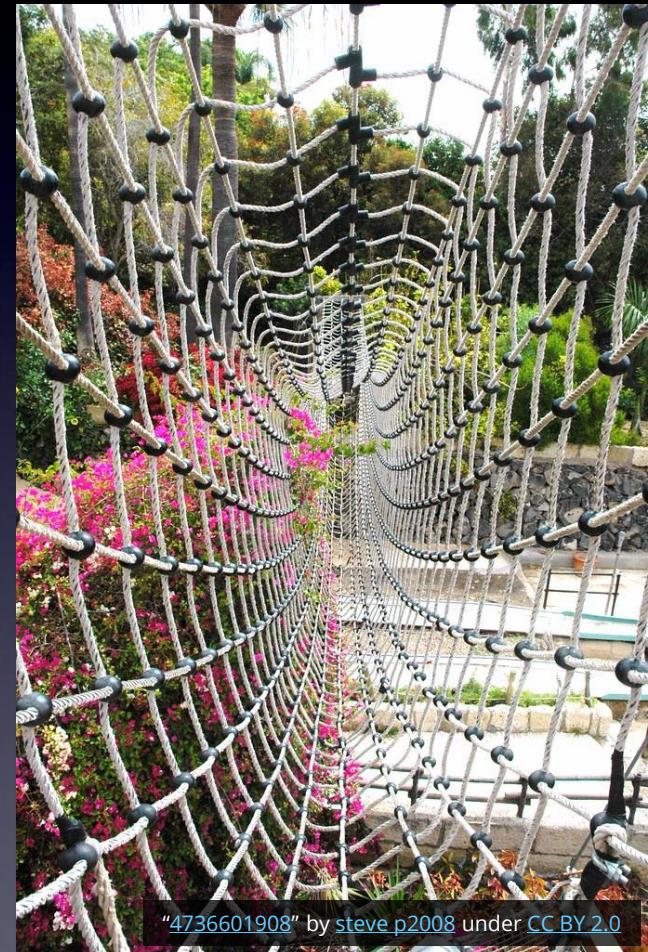
# web centrality

## 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

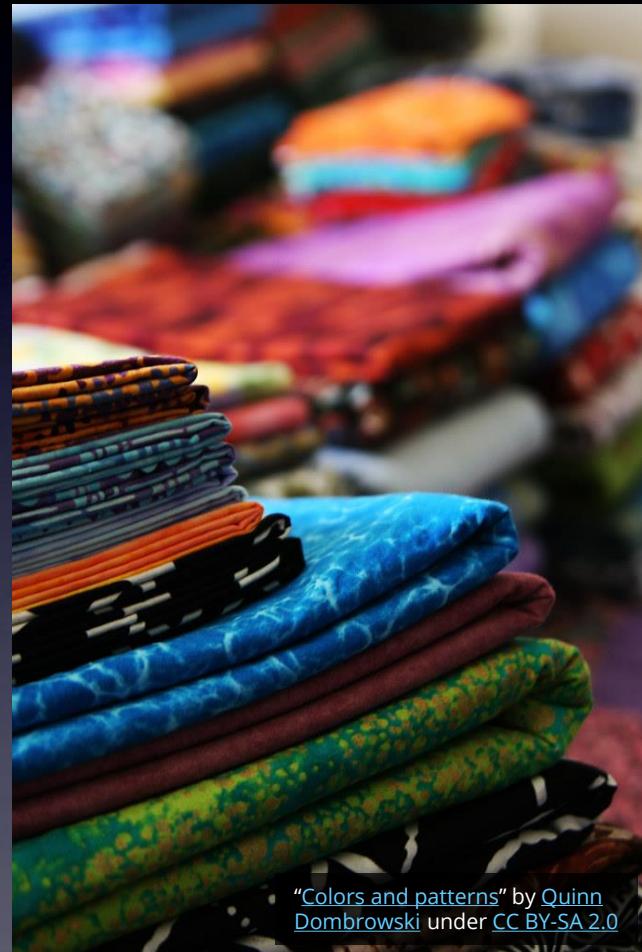
# research data

## 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



[“Colors and patterns” by Quinn Dombrowski](#) under CC BY-SA 2.0

# change debt

## trends:

- purposeful conservatism
- serials crisis
- less valued relatively by parent orgs

## implications:

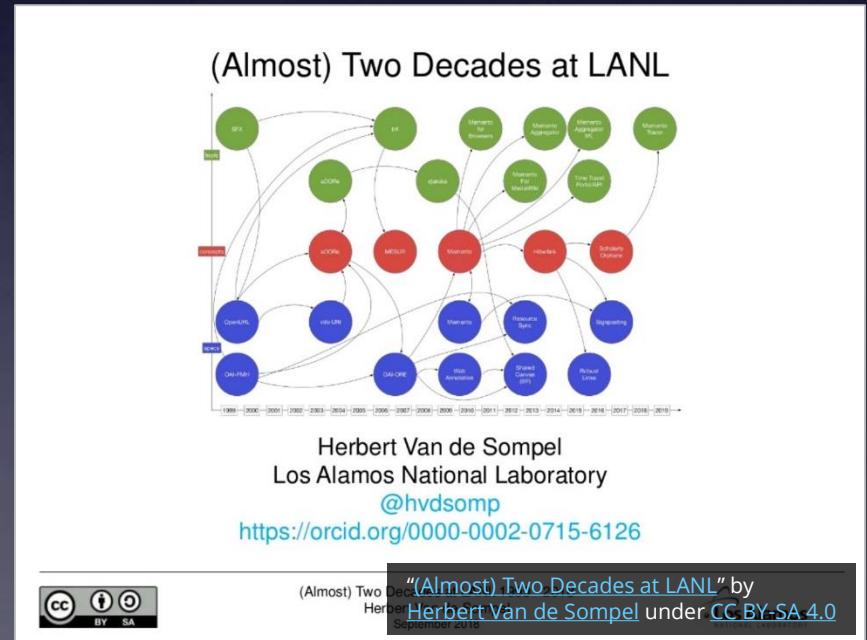
- potential new roles more contested
- under-capitalized to self-transform



"Take a giant step" by Whatknot under CC BY-NC-ND 2.0

# 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





# 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

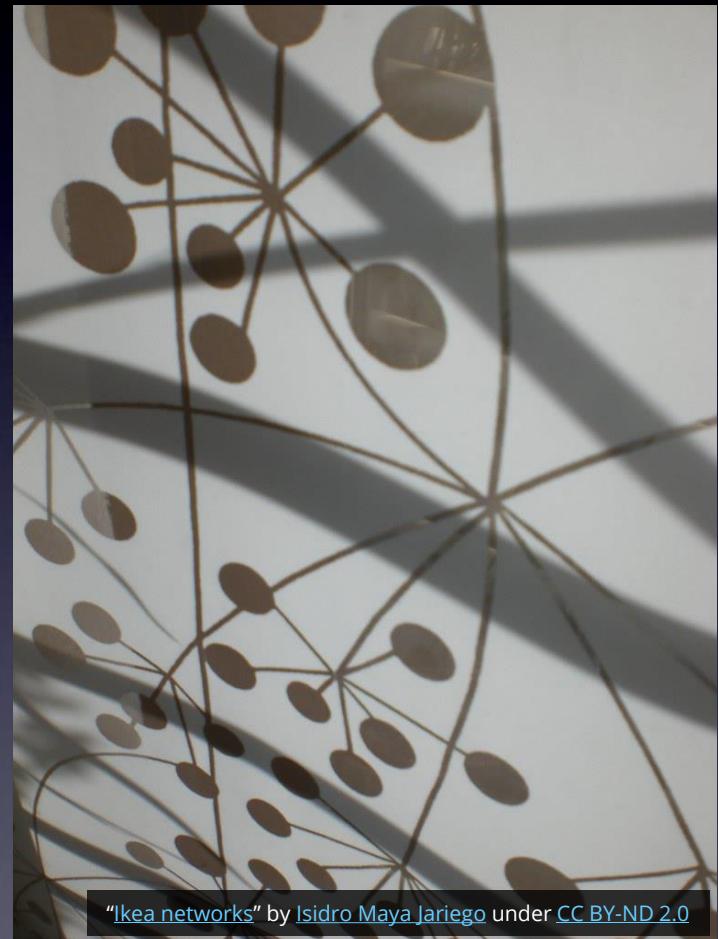
- **value:**
  - enable collaboration, conversation, connections, annotation, visualization
  - reduce redundant effort
- build on Nucleus:
  - extend boundaries of supported collaborators
  - anticipate new integrations, via [FedRamp](#)
- populate journal submission forms w/ RASSTI cached data



"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.



"Ikea networks" by Isidro Maya Jariego under CC BY-ND 2.0

# automate content + data loading

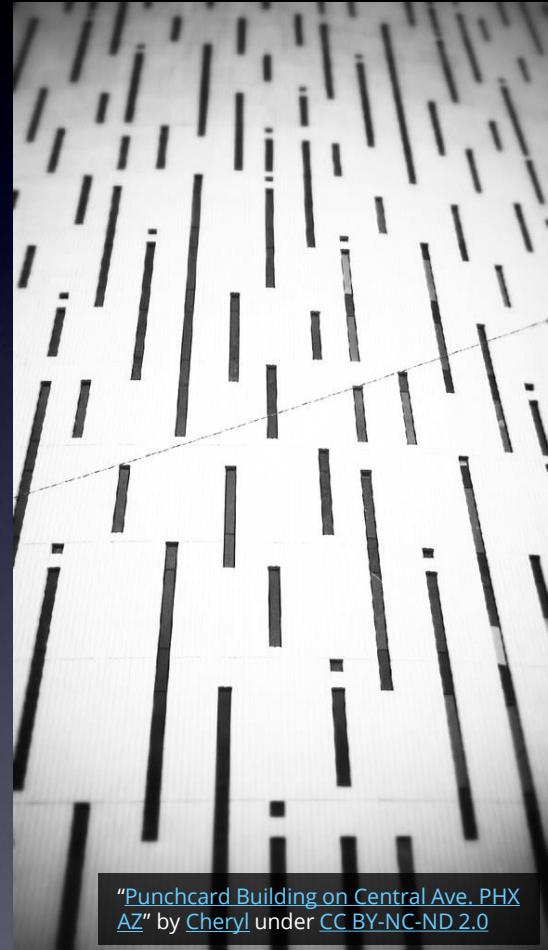
- **value:**
  - comprehensively-populated platform for persistent, trustworthy access to LANL scholarly output
  - techniques + tools to enhance utility + viability of distributed open repositories
- enhance Autoload w/ [OAButton](#), [UnPaywall](#), + [Fatcat](#) APIs
- cross-pollinate w/ or converge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



["Punchcard Building on Central Ave, PHX AZ"](#) by [Cheryl](#) under [CC BY-NC-ND 2.0](#)

# 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



"Concurs Castells TGN 2012" by [calafelvalo](#) under CC BY-NC-ND 2.0

# APIs + interoperability

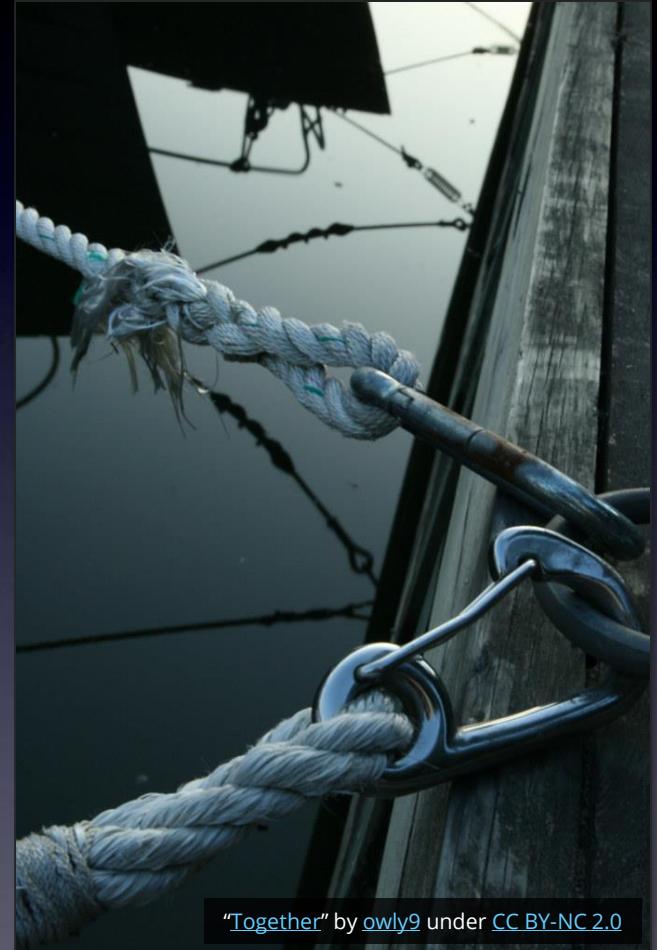
- prefer modular architectures using widely-implemented standards
- diminish project risk w/ smaller projects
- better capitalize on external work
- build + procure more replaceable systems



"Container Ship" by Daniel Ramirez under CC BY 2.0

# partnerships + collaboration

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



"Together" by [owly9](#) under CC BY-NC 2.0

# 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

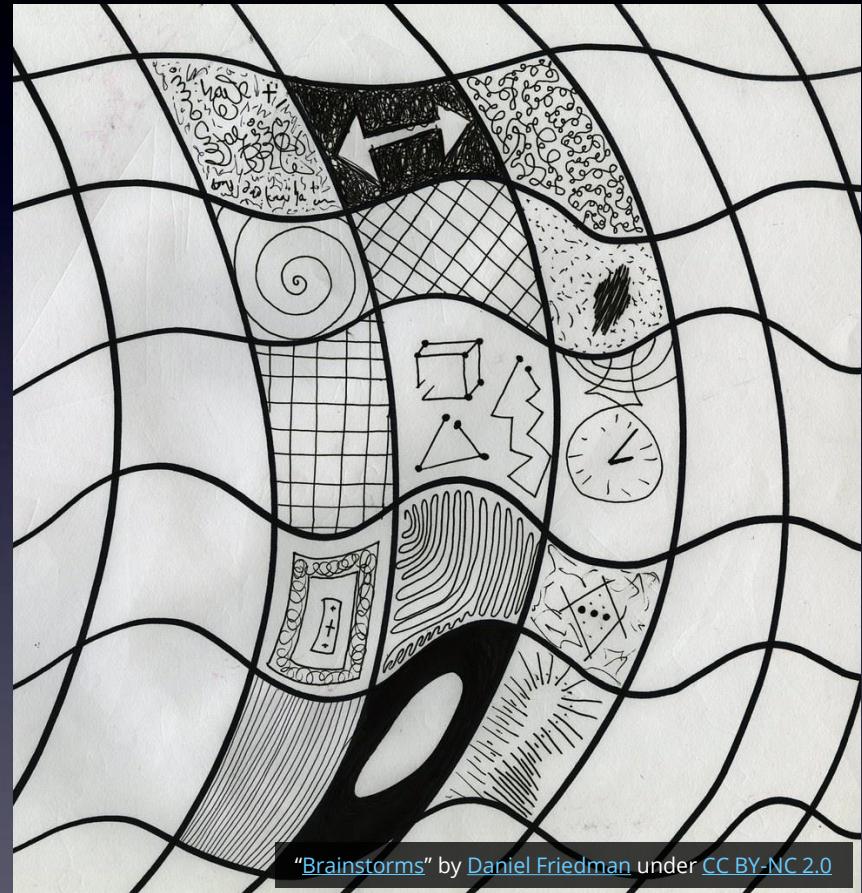


"Kenroku-en, Kanazawa" by Andrea Schaffer under CC BY 2.0

# SERVICES LIFECYCLE

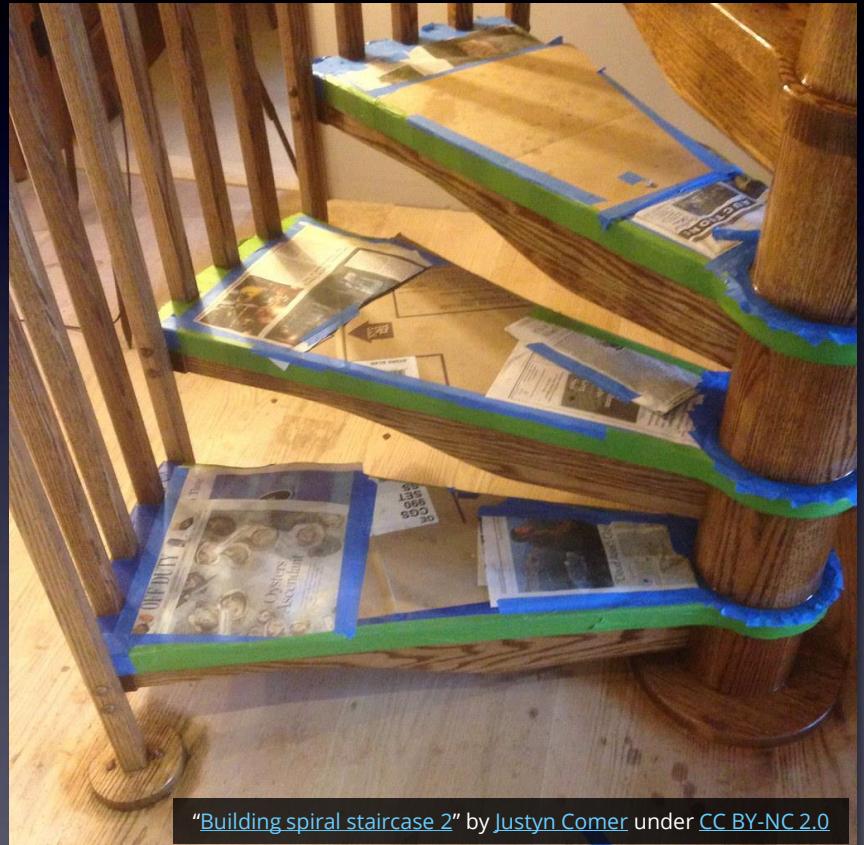
# conceptualize + design

- 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](#)



"Bocce - Pier 2, Brooklyn, NY" by Marco under CC BY-ND 2.0

# 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



"Preparing to Repair the Hubble Space Telescope" by NASA'S Marshall Space Flight Center under CC BY-NC 2.0

# 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



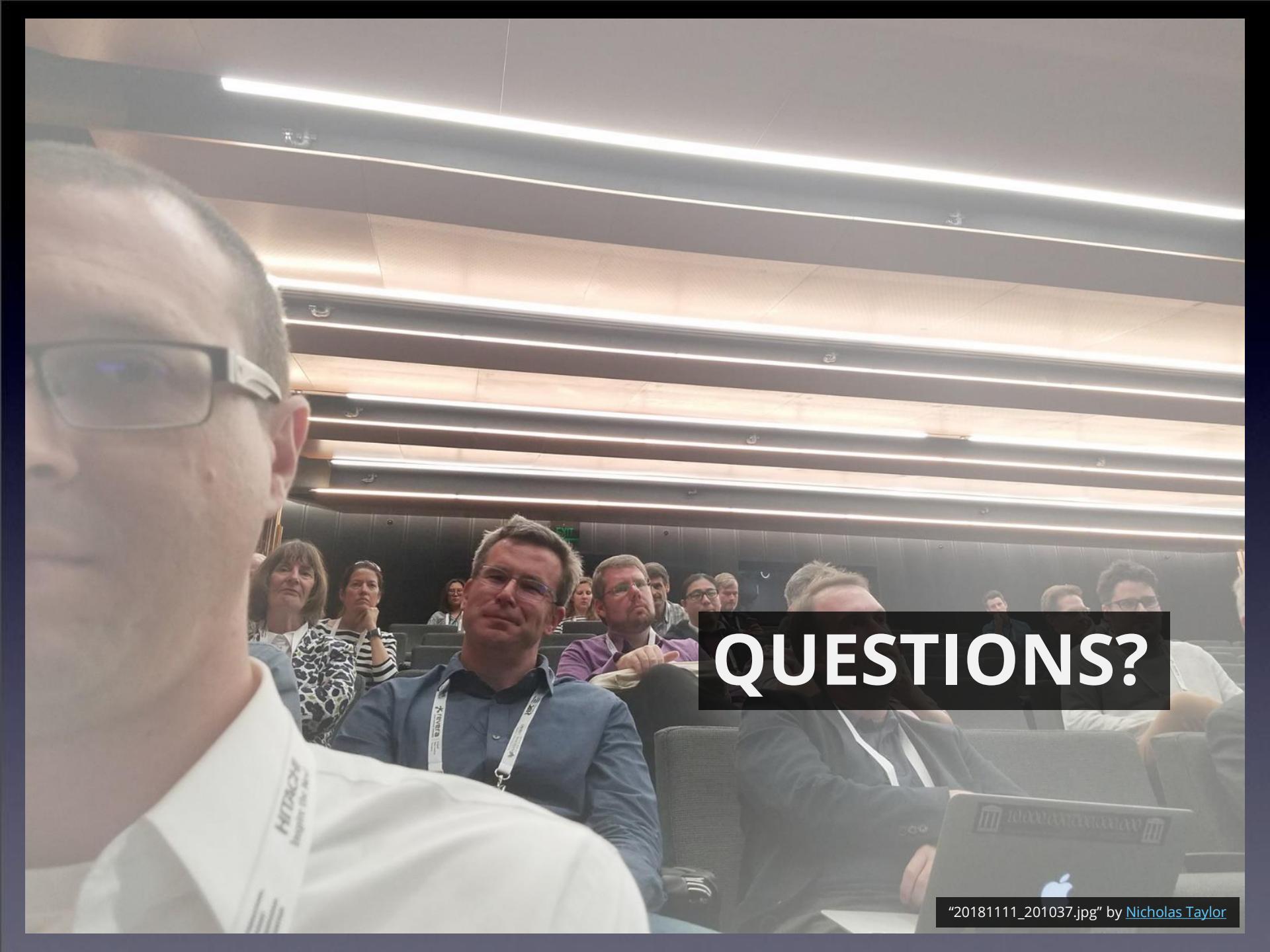
"pollinator friendly PV" by National Renewable Energy Lab under CC BY-NC-ND 2.0

# 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**



QUESTIONS?