Creative Convergence

Conducting a systematic review project through cross-institutional, distance collaboration

Objective

To reflect on a cross-institutional systematic review project:

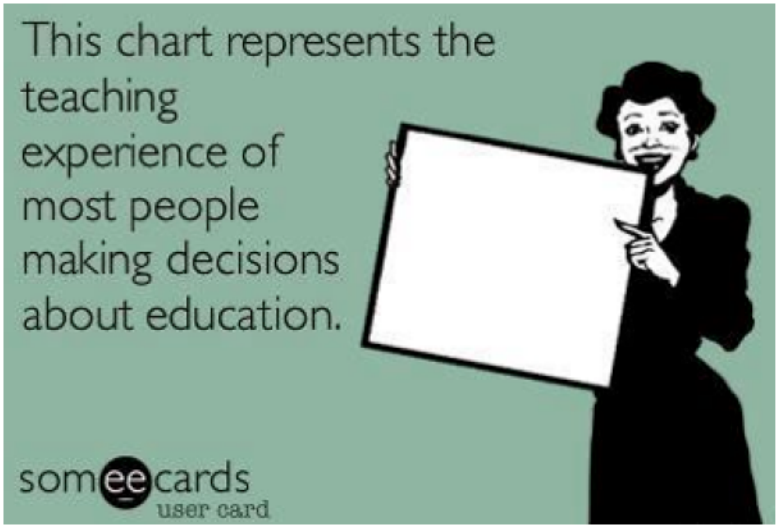
What are effective collaboration methods for geographically dispersed research teams?


We compared our experiences to literature on collaborative research:
Benefits
Challenges
Team Characteristics
Success Factors
Best Practices

Benefits

Our Project

Systematic Review on:
Effective Library Instruction for EBP Health Sciences Education



Our Team Experience

New Perspectives

International Networking

SR Experience

Build Technical Skills

Publication Opportunities

SR Project Specific Challenges

- Ambiguity of concepts
- Duplicate citations
- Lack of abstracts
- Varied Educational Interventions
- Copyright questions

Team Collaboration Challenges

Large, Dispersed Team
Diverse knowledge & Experience
Geography
Methodology Development
Ambitious Timeline
Work/Life Conflicts
Decisions - Maintaining Consistency

Lit Review

What is being written about effective methods for cross-institutional, distance research team collaboration, including:

- **dispersed locations and time zones?**
- **different institutional resources and policies?**

Searching the lit

After trying various options to get to literature *about* how research teams collaborate effectively, especially across institutions and space:

research collaboration
cross institutional collaboration
collaborative research
online collaboration

Team Science!

"The rapid proliferation of scholarly knowledge and the increasing complexity of social and scientific problems have prompted growing investments in team science initiatives."

Team-based research with multiple disciplines may accelerate progress towards resolving complex societal and scientific problems

Hall, et al., 2012

Shift in how science is being conducted - teams increasingly dominate in production of high-impact, highly cited science; teams are growing in size, and are increasingly located across university boundaries rather than within them.

Borner, et al., 2010

How might Med Libs participate in Team Science?

SciTS

Why developed

Definition

Momentum

Characteristics of Team Science

Lit review
Large teams - from a few to 50, to 200, to more!
Multiple projects
Multiple disciplines
Different departments, institutions, and geographic locations
Diverse goals - discovery, training, translational/public health, policy

Team
Large team
Diverse knowledge and experience
Geography
Ambiguity of research focus
Methodology discussions

Benefits

Challenges

Factors for success

Intrapersonal (internal motivations and individual attitudes)
Interpersonal (interactions among team members - communication, learning, work jointly to accomplish goals)
Physical environment (spatial distribution)
Technological (technical infrastructure and support)
Organizational (influence of team member's institution as well as make-up and org of team itself)
Political/Societal

Stokols, D., Misra, S., Moser, R. P., Hall, K. L., & Taylor, B. K. (2008) *Ecology of Team Science*

Recommended Best Practices: Attitudes

Be open and adaptable
Be willing to learn and participate
Communicate
Address and resolve conflicts
Persevere through difficulties

Additional Team & Lit Review Insights

Top 3 Recommendations for Team Research Sponsors

Train team leaders

Facilitate initial f2f meeting

Provide teams with technological support

Tools - What we used

Communication

- Email
- Online meeting software - …(often audio only)
- Recommendation: Use video options when possible, include asynchronous methods such as Google group, discussion board

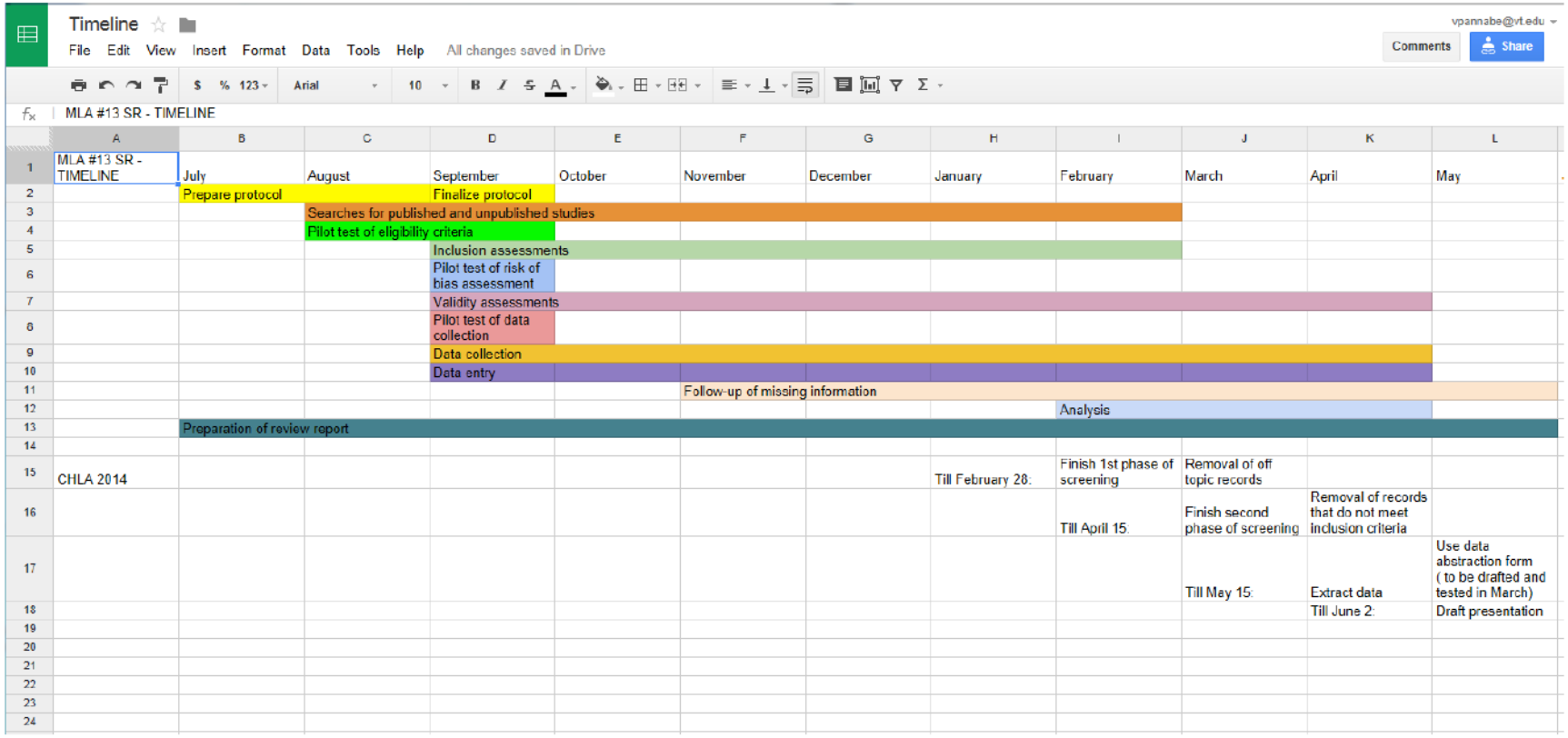
Record Keeping and Production

- Google Drive
  - Documents
  - Spreadsheets
- Wiki - some use at beginning, but set up and use had higher barrier than Google Drive options
- Consider: project management platform

Citation Management

- EndNote and EndNote Web
- Recommendation: Consider platforms that allow for comment, annotation, and full text sharing within restricted group

Project Planning
Example timeline at project level



Timeline

File Edit View Insert Format Data Tools Help All changes saved in Drive

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Comments Share

MLA #13 SR - TIMELINE

	A	B	C	D	E	F	G	H	I	J	K	L
1	MLA #13 SR - TIMELINE	July	August	September	October	November	December	January	February	March	April	May
2		Prepare protocol		Finalize protocol								
3			Searches for published and unpublished studies									
4			Pilot test of eligibility criteria									
5				Inclusion assessments								
6				Pilot test of risk of bias assessment								
7				Validity assessments								
8				Pilot test of data collection								
9				Data collection								
10				Data entry								
11						Follow-up of missing information						
12									Analysis			
13		Preparation of review report										
14												
15	CHLA 2014							Till February 28:	Finish 1st phase of screening	Removal of off topic records		
16									Till April 15:	Finish second phase of screening	Removal of records that do not meet inclusion criteria	
17										Till May 15:	Extract data	Use data abstraction form (to be drafted and tested in March)
18											Till June 2:	Draft presentation
19												
20												
21												
22												
23												
24												

Project Planning
Example task-specific timeline

Example:

1. Preparing a search strategy for 1 database (LISTA via EBSCOHost) based on the group's model strategy for PubMed/ Medline
   - **3 hours** (mainly due to need to adjust MeSH to appropriate LISTA headings)
2. Conduct 1 database search and post the results for the group
   - **15 minutes**
3. Set up an EndNote Web account and become familiar with using it
   - **30 minutes**
4. Title/Abstract Review of 100 abstracts
   - **1.5 hours**
5. Full Text Review of 10 articles (for inclusion/exclusion)
   - **1.5 hours**
     - **Additional time** to pull full text / request via ILL: 30 minutes with possible wait time of 1-14 days to receive ILL response
6. Data extraction for 1 article
   - **30 minutes**
7. Critical appraisal for 1 article
   - **15 minutes**

Example expectation - title/abstract review time for 500 results: 7.5 hours

Tools: Communication

Consider Online Education recommendations

- Asynchronous
  - Discussion forum
  - Email list - Google group
- Synchronous
  - Video, audio, chat meeting options

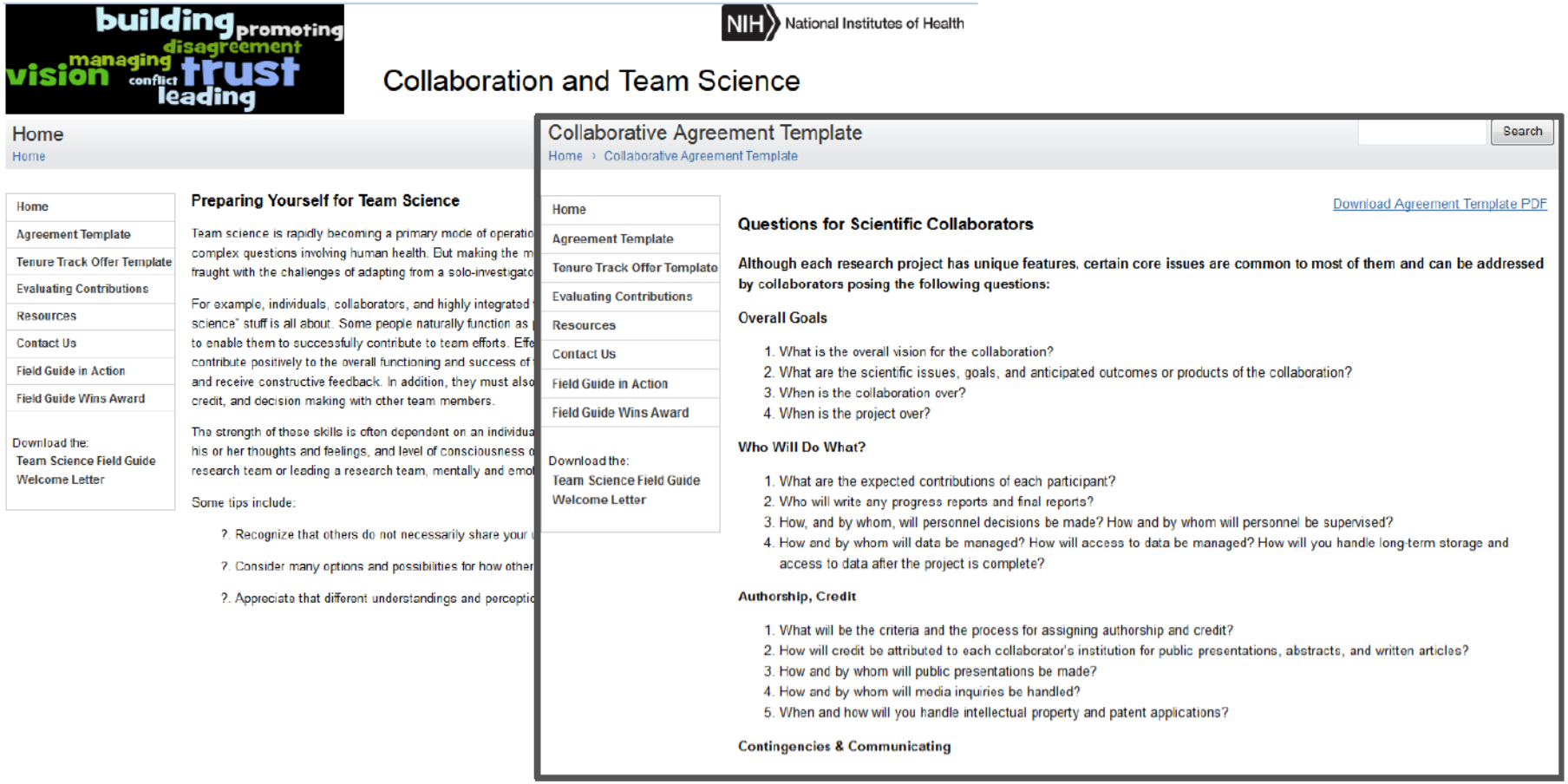
Tools: Communication

Consider Online Education recommendations

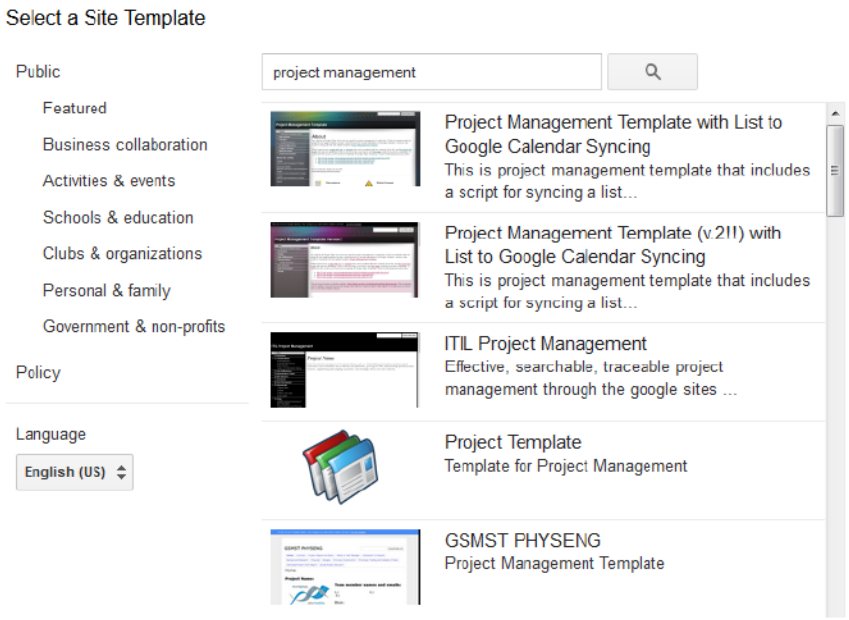
- Stable
  - Group project website, wiki, or planning platform
  - Deadlines and goals on front page
- Automated
  - Shared calendar with reminders

Tools: Project Planning

Prepare Yourself for Team Science
Template of questions to consider in preparation



Tools



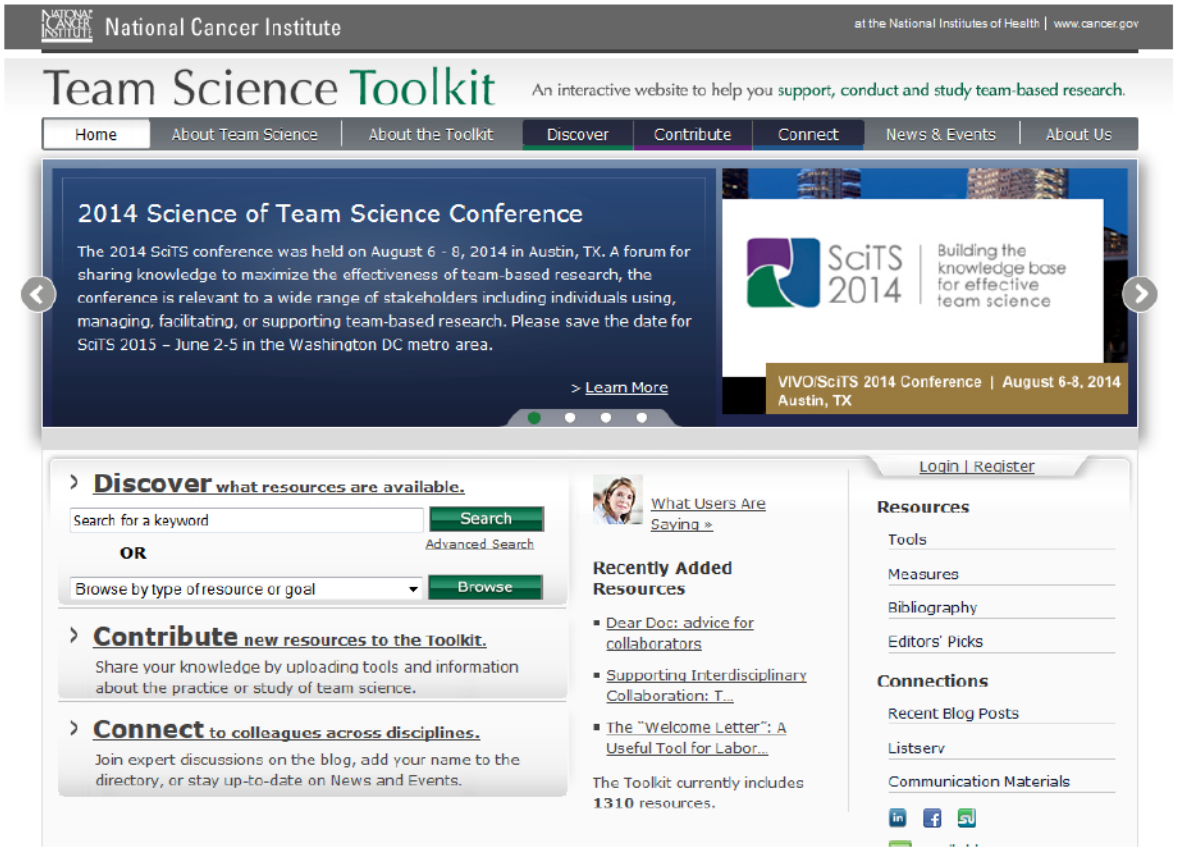
Google

- Sites
  - Project templates
- Groups - discussion and email
- Drive - documents, spreadsheets, forms, presentations
- Calendar - reminders, list-calendar syncing

Tools

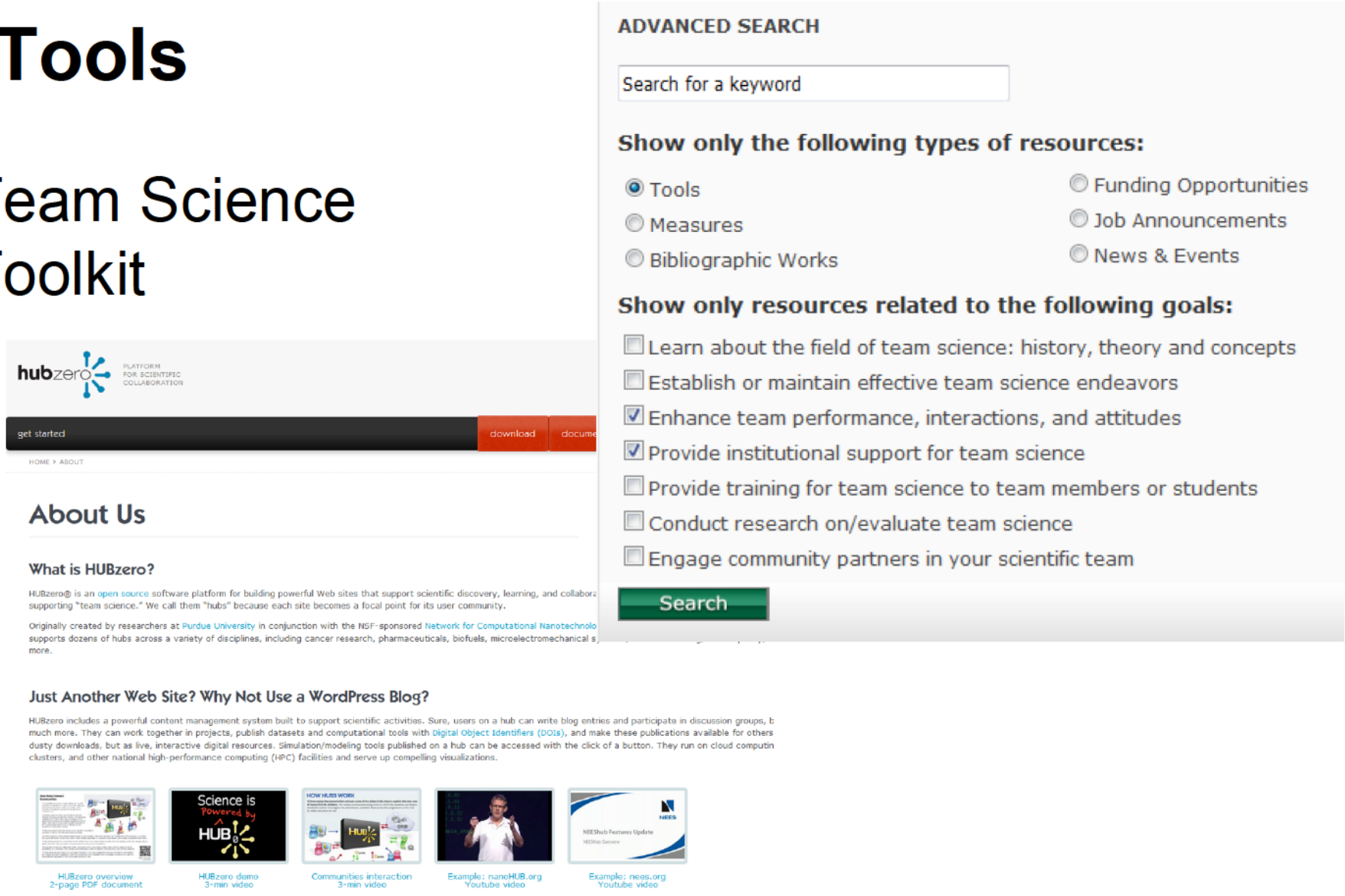
Team Science Toolkit

www.teamsciencetoolkit.cancer.gov



Tools

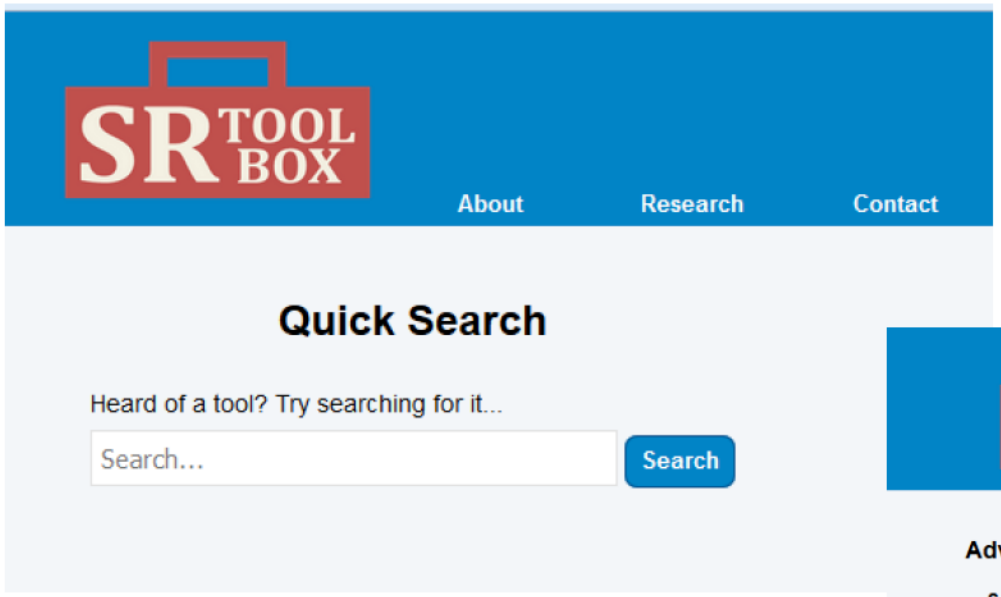
Team Science Toolkit

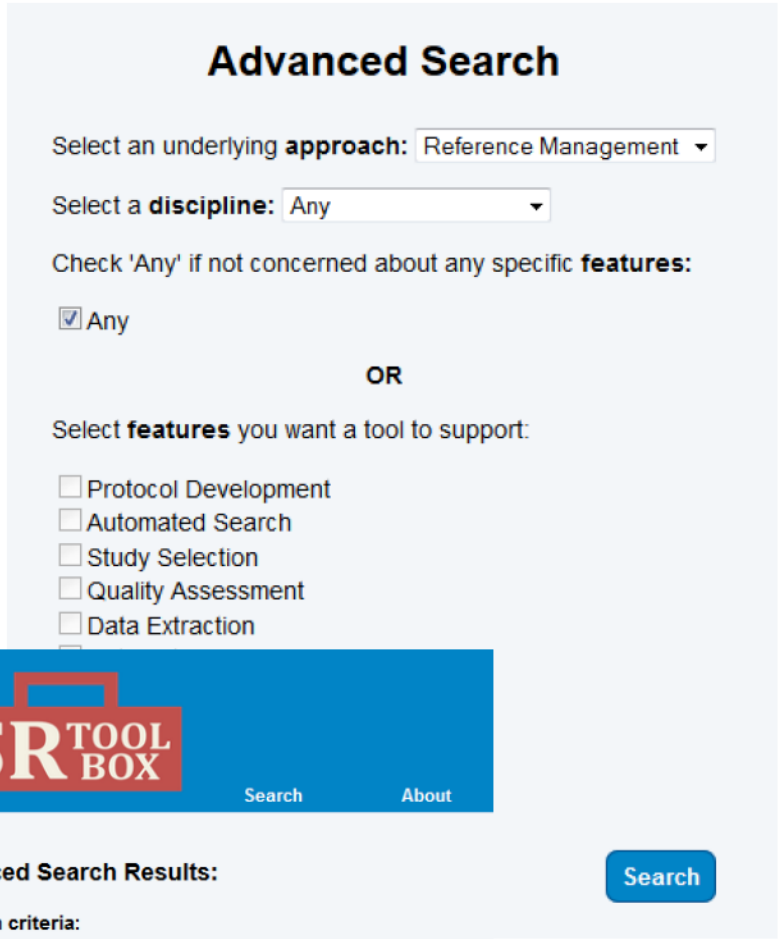


Tools

Systematic Review Toolbox

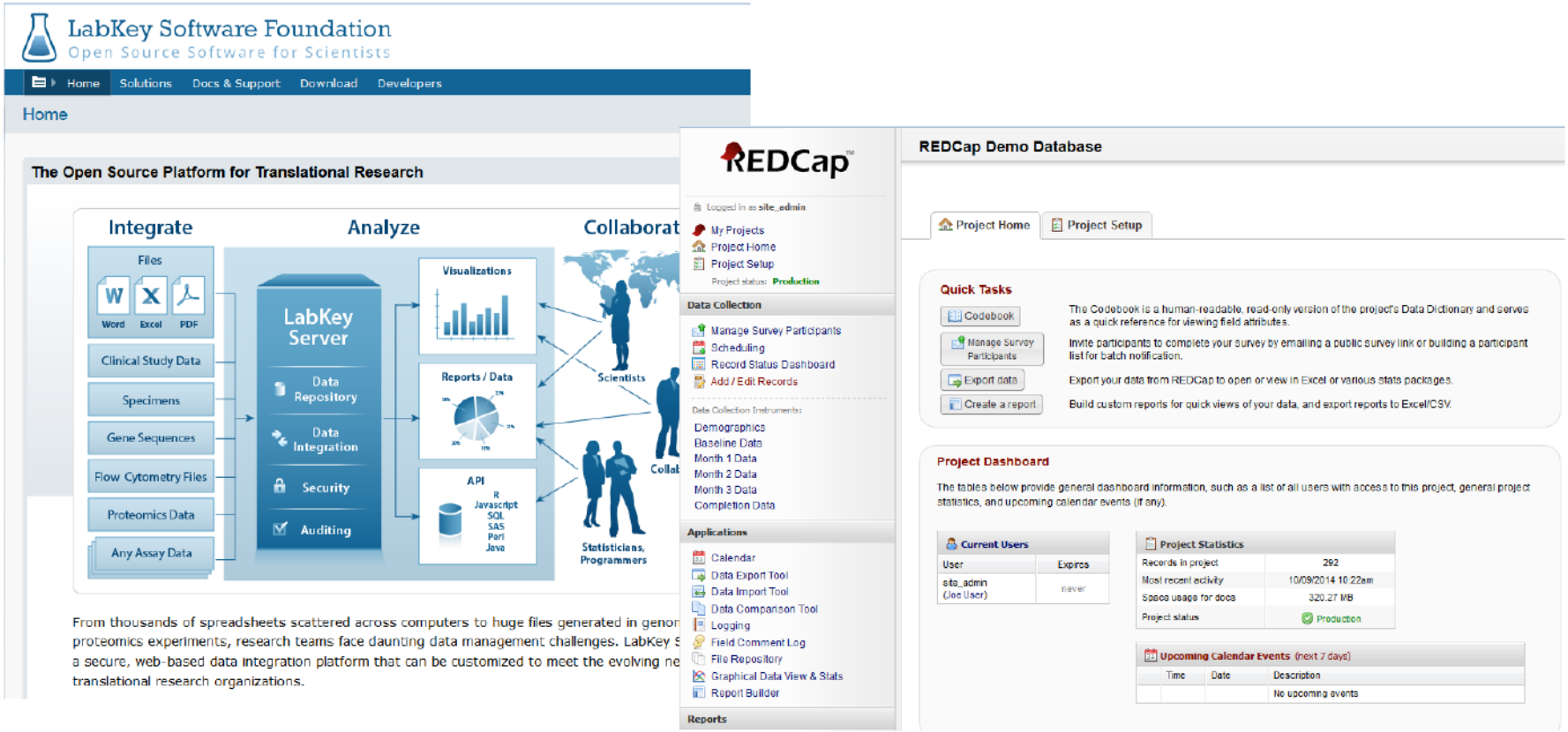
http://systematicreviewtools.com





Tools - Data

Translate what you learn to support your users



Further questions

Possible roles for librarians in support of team science

- Data management
- Collaboration methods
- Researcher networks
- Knowledge sharing and transfer
- Open access support
- SciTS research

Image Sources

- Map image created by Alison Ferrell and Genevieve Gore
- Project timeline example created by Genevieve Gore
- All screenshots taken by Ginny Pannabecker using the Mac Grab utility application or Windows Snippy application.
- Additional photo and image sources*
  - http://pixabay.com/en/road-landscape-clouds-sky-348544/ - public domain image
  - https://flic.kr/p/dUwB97 - CC-BY photo, Education Experts, AJ Cann
  - http://pixabay.com/en/swiss-corner-kirchlispitzen-r%C3%A4tikon-57259/ - public domain image
  - https://flic.kr/p/dxvmRd - CC-BY photo, SAM team celebrates landing, NASA Goddard Space Center
  - http://pixabay.com/en/wave-circle-monitor-send-globe-376967/ - public domain image
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  - http://pixabay.com/en/laboratory-scientists-research-385349/ - public domain image

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Lit Review

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Tools

Google Sites
http://www.google.com/sites/overview.html
NIH - Prepare Yourself for Team Science - Collaborative Agreement Template
https://ccrod.cancer.gov/confluence/display/NIHOMBUD/Collaborative+Agreement+Template
Team Science Toolkit
https://www.teamsciencetoolkit.cancer.gov/Public/Home.aspx
HUBzero
https://hubzero.org/
Systematic Review Toolbox
http://systematicreviewtools.com/
LabKey
http://www.labkey.com/
REDCap
http://www.project-redcap.org/

Recommended Best Practices

For institutions / funders / supporting groups

- Plan ahead using templates
- Clear vision of what constitutes success
- Assessment to track project, adjust
- Guage team member readiness toward teams science: openness and adaptability, previous experience with collaborative projects
- Consider combining strangers and known colleagues
- Provide training for leaders and team members
- Provide platform/tools for project management, communication, and discussion

Recommended Best Practices

For team leaders

- Communicate with open, enthusiastic, inclusive approach
- Set regular meeting times
- Provide opportunities for f2f meetings to build community
- Utilize centralized planning and production platform
- Plan ahead with team using templates
- Designate roles and responsibilities - when changes, communicate to all along with changed expectations
- Encourage open, frequent, explicit communication
  - Decisions - reinforce group decisions for consistency
- Address conflicts and work through to resolution

Recommended Best Practices

For individual team members

- Attitudes: openness, adaptability, willingness to devote substantial time to learning and participating, egalitarian values
- Commit time needed
- Active participation in meetings, planning, and tasks
- Keep up with progress and activities
- Communicate openly, with empathy, explicitly, and often
- Willingness to address conflicts and work to resolution

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