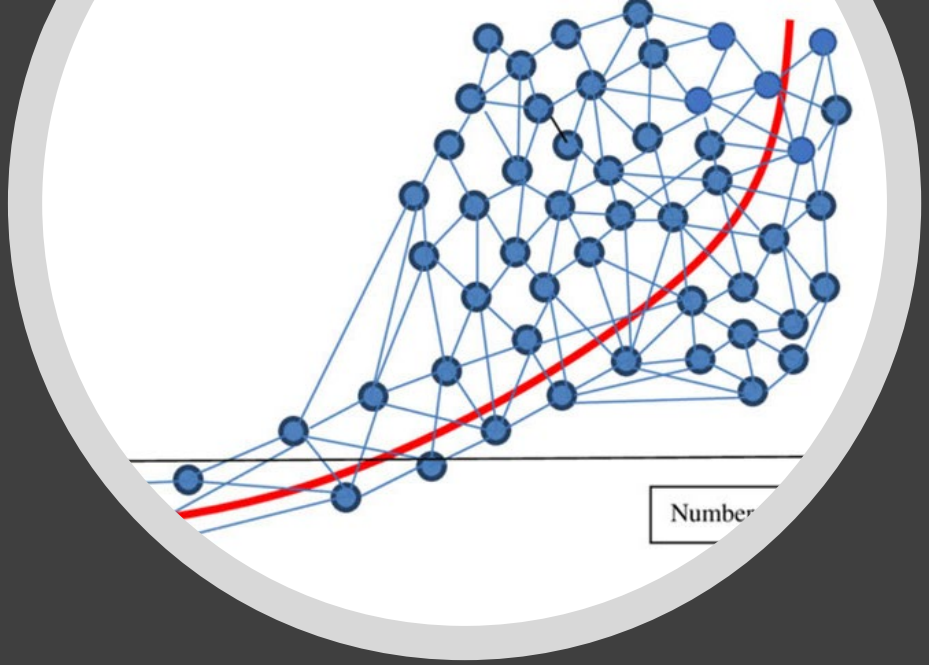
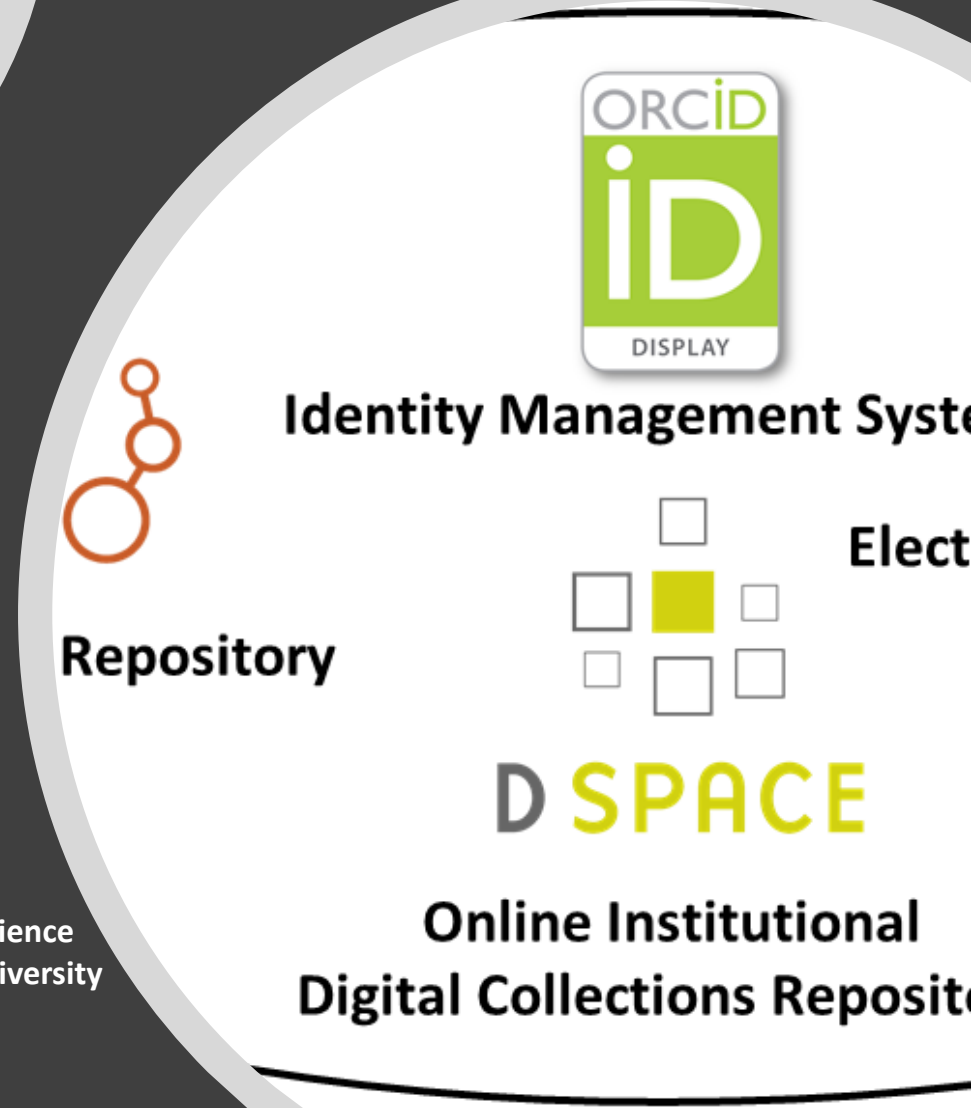


Digital Scholarship Ecosystems for Open Science

(Lightning Talk)

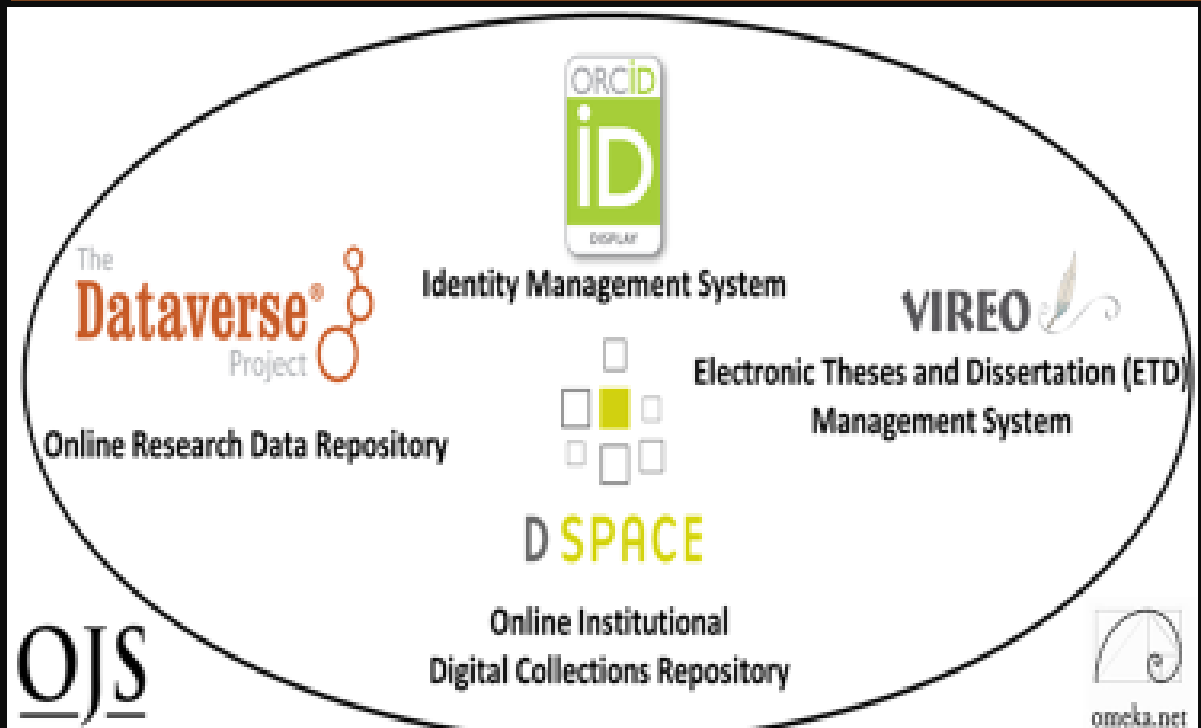
Ray Uzwyshyn, Ph.D. MBA MLIS
http://rayuzwyshyn.net
Director, Collections and Digital Services
Texas State University Libraries

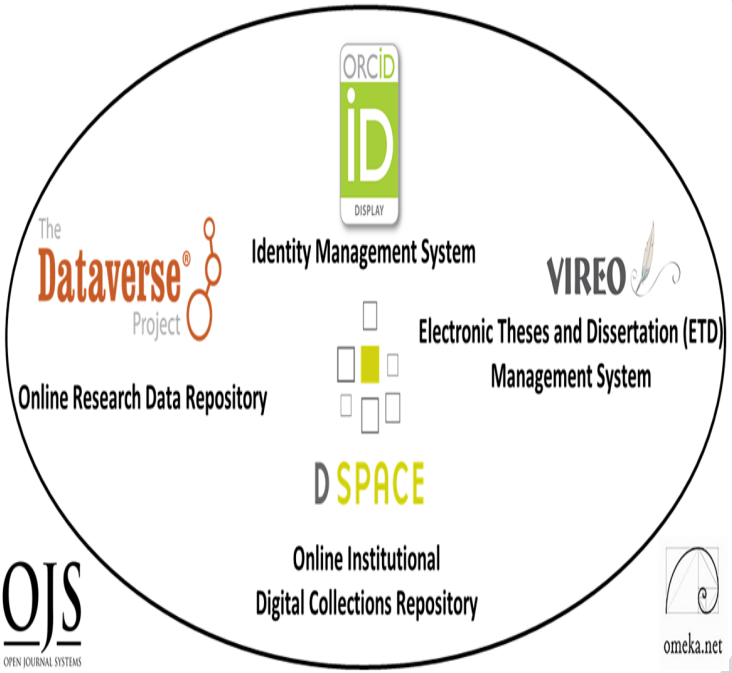
Presented for AIDR and Open Science Symposium, Carnegie Mellon University
October 20, 2020

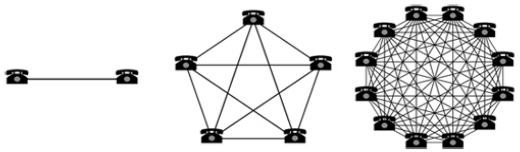


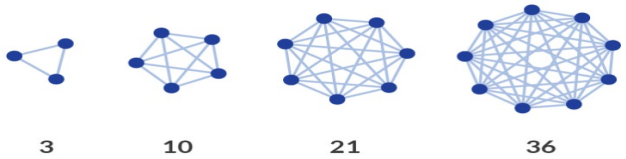
What is a Digital Scholarship Ecosystem for Open Science?

Network of Several Software Components to Enable Research Faculty & Graduate Students and Raise Research Profiles





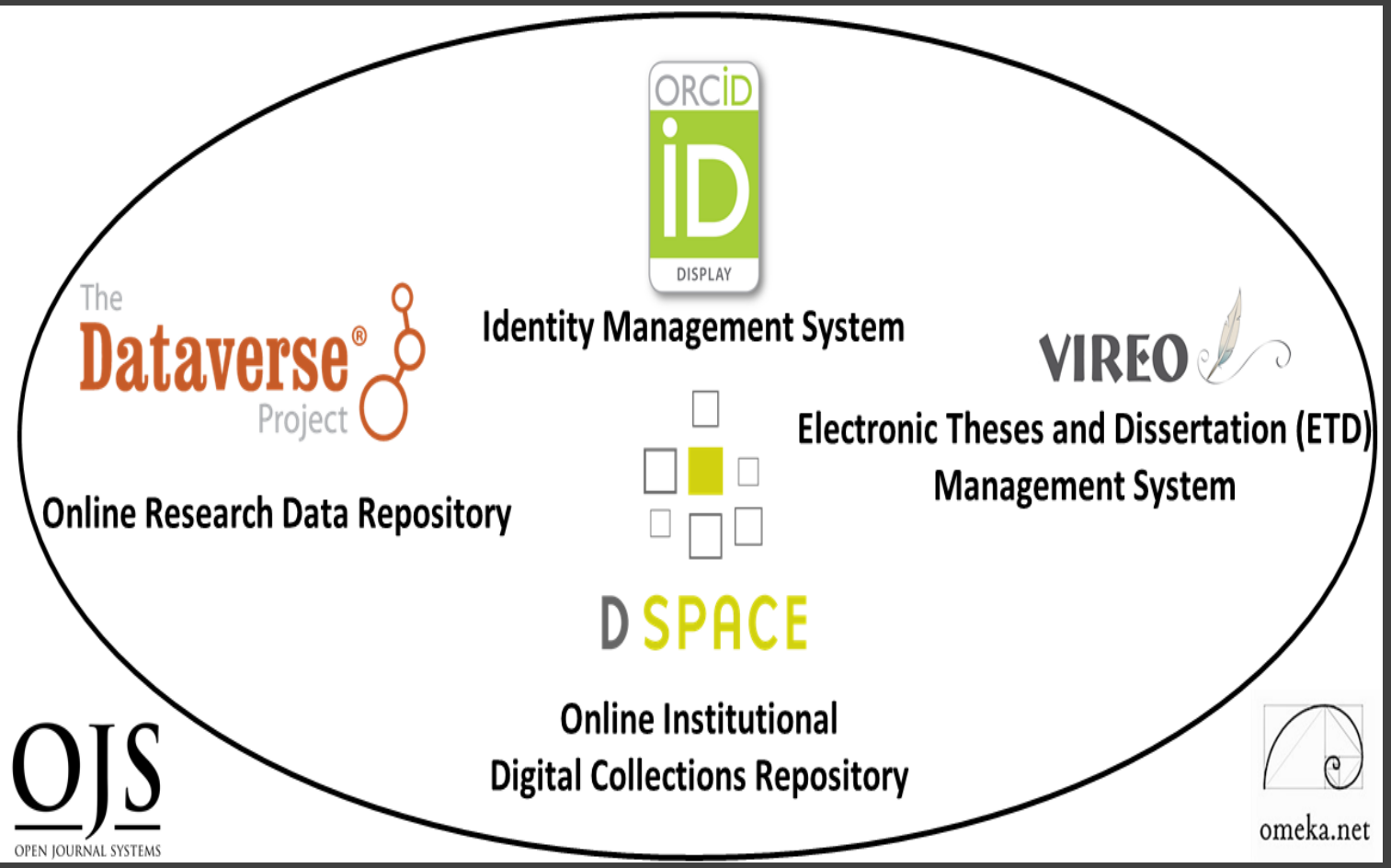




Simple Larger Idea

Collocating Open Source Digital Components in a Networked Research Ecosystem Enables Larger Connections and/or Network Effects

What are the General Characteristics of this Digital Scholarship Ecosystem?

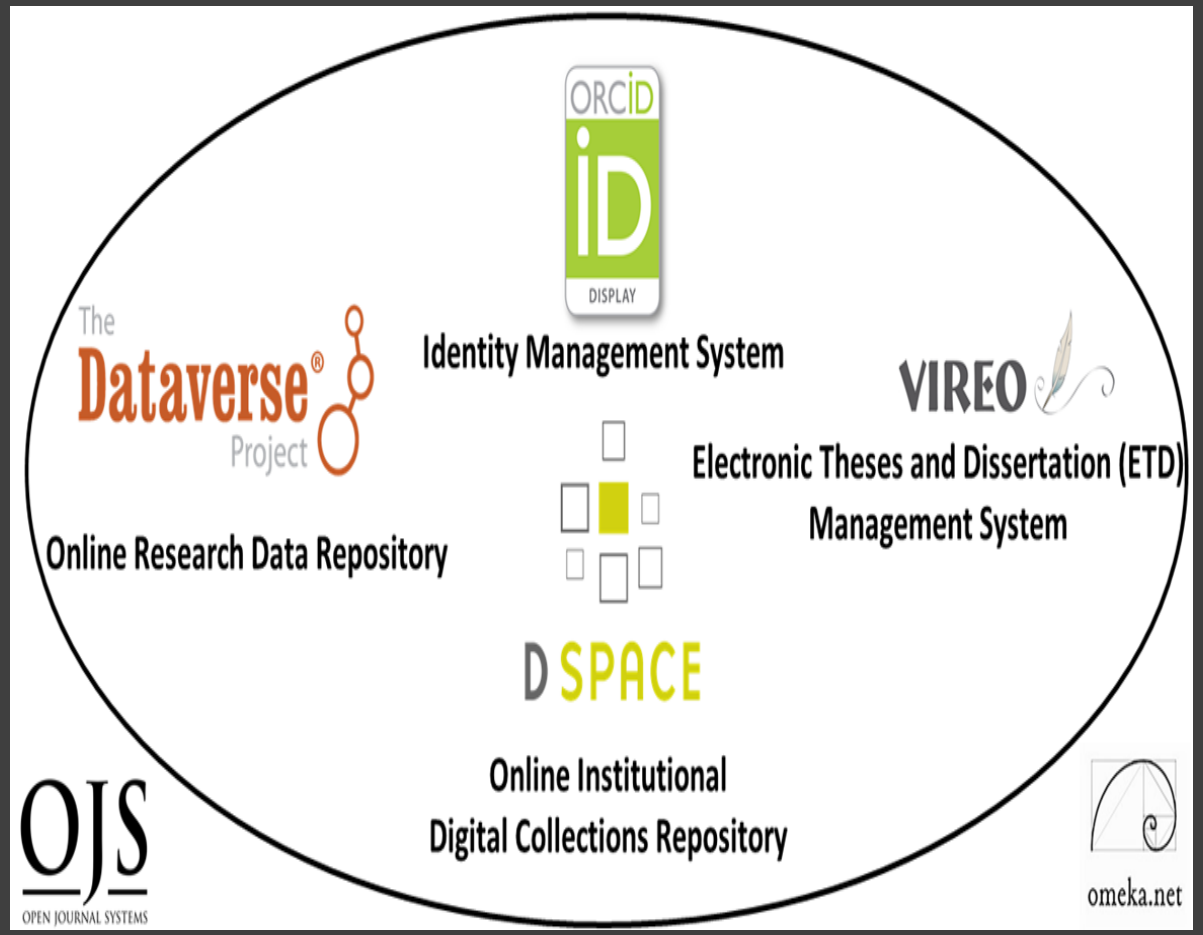


Open Source Software

Active Developer Communities

Customizable Components

Digital Scholarship Ecosystem Consists of Six Open Source Software Components



Content

TWO PRIMARY

- RESEARCH DATA REPOSITORY
- DIGITAL COLLECTIONS REPOSITORY

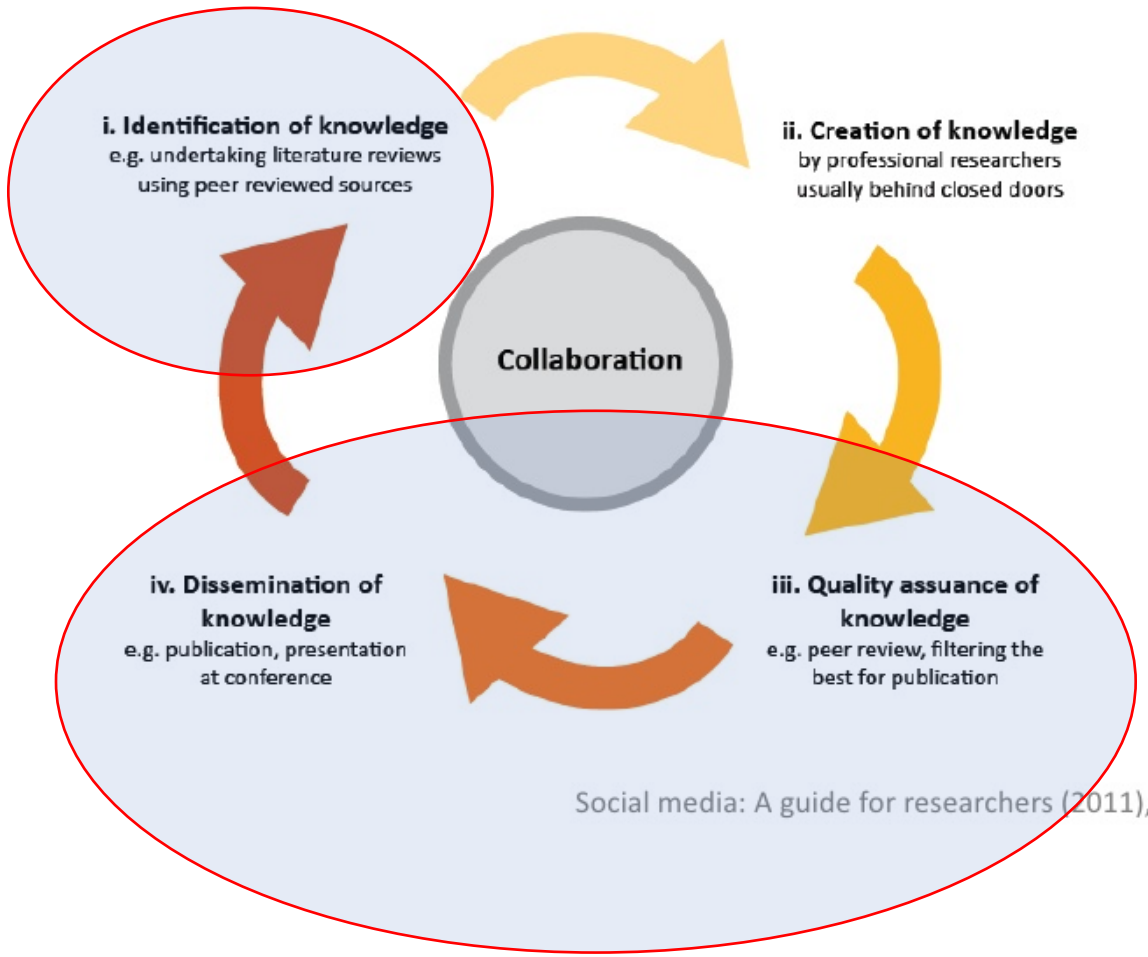
FOUR TERTIARY

- Electronic Thesis and Dissertation Management System
- Identity Management System
- Open Academic Journal Software
- User Interface/Content Management Software

Communication

These Digital Ecosystem Components Together Enable the Academic Research Cycle

Pragmatic Levels



Abstract Levels

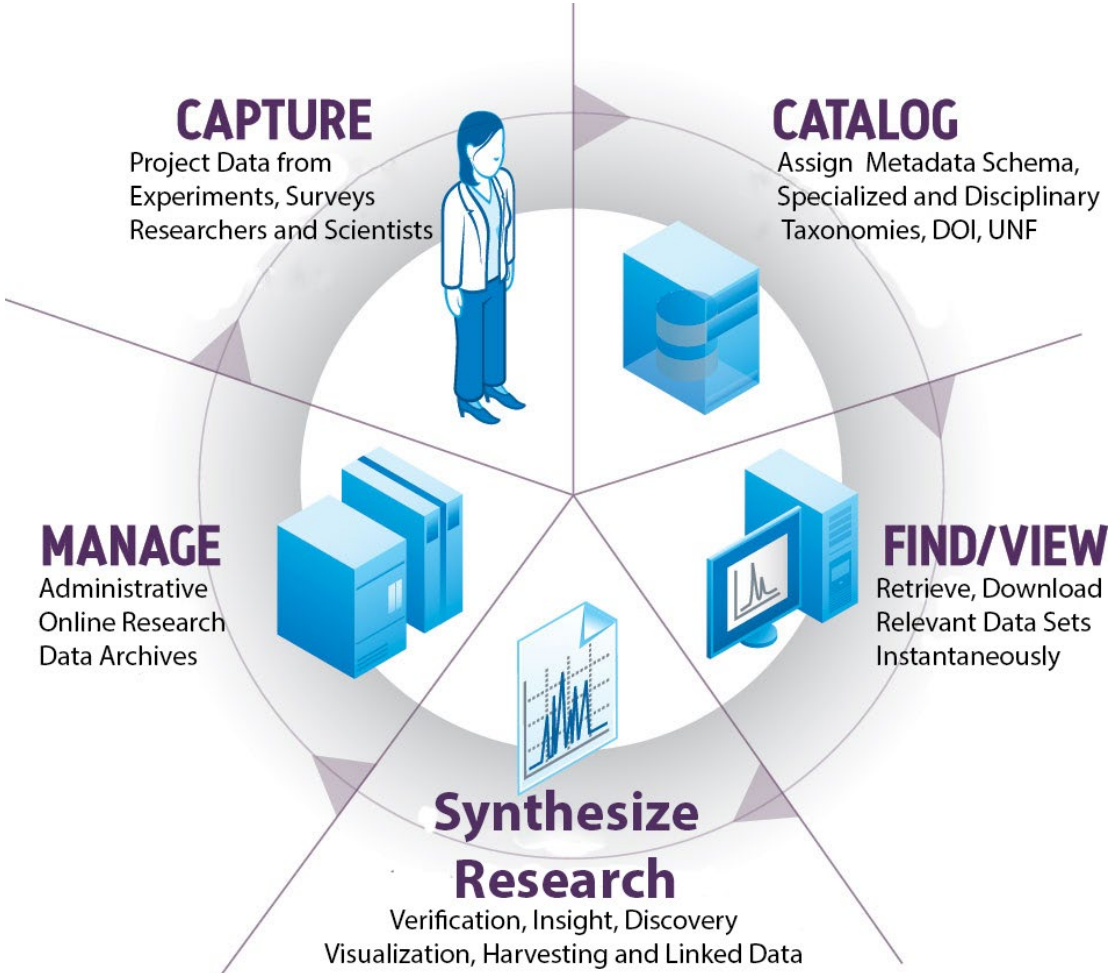
Social media: A guide for researchers (2011), p15

#1 Component for Open Science, Research Data Repository

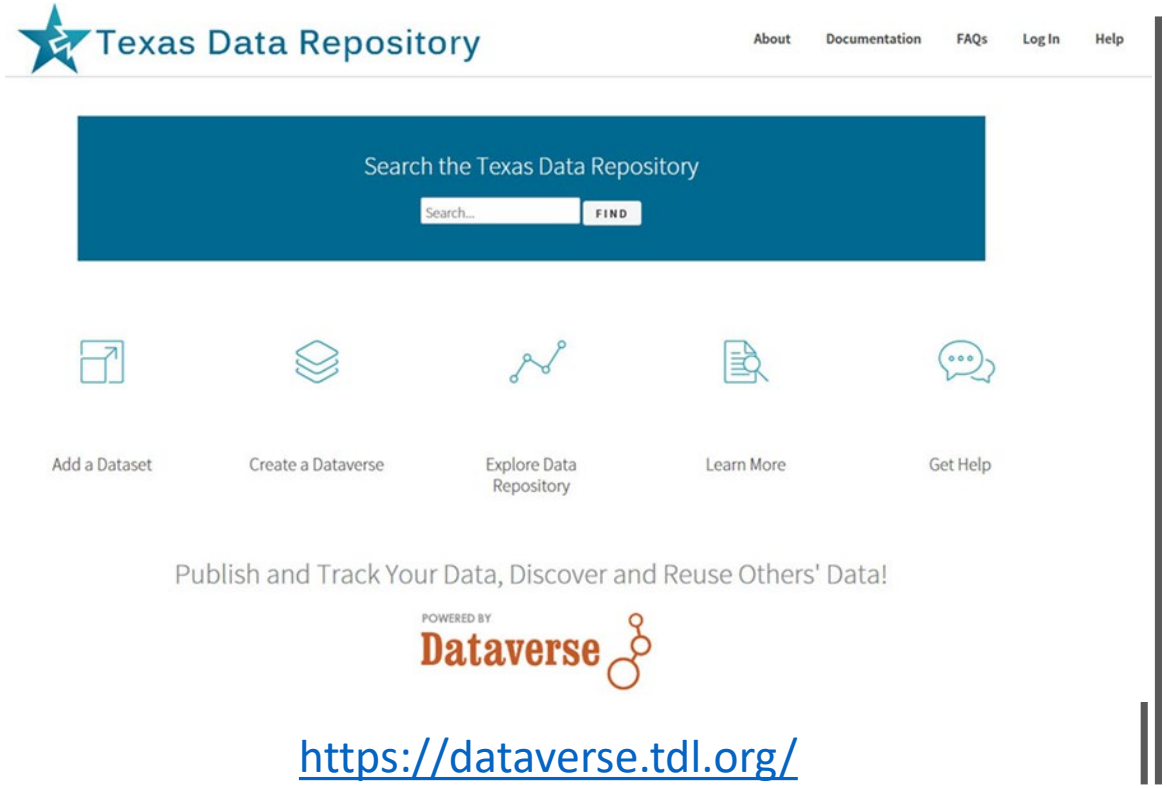
https://dataverse.tdl.org/dataverse/txstate

Research Data Repository

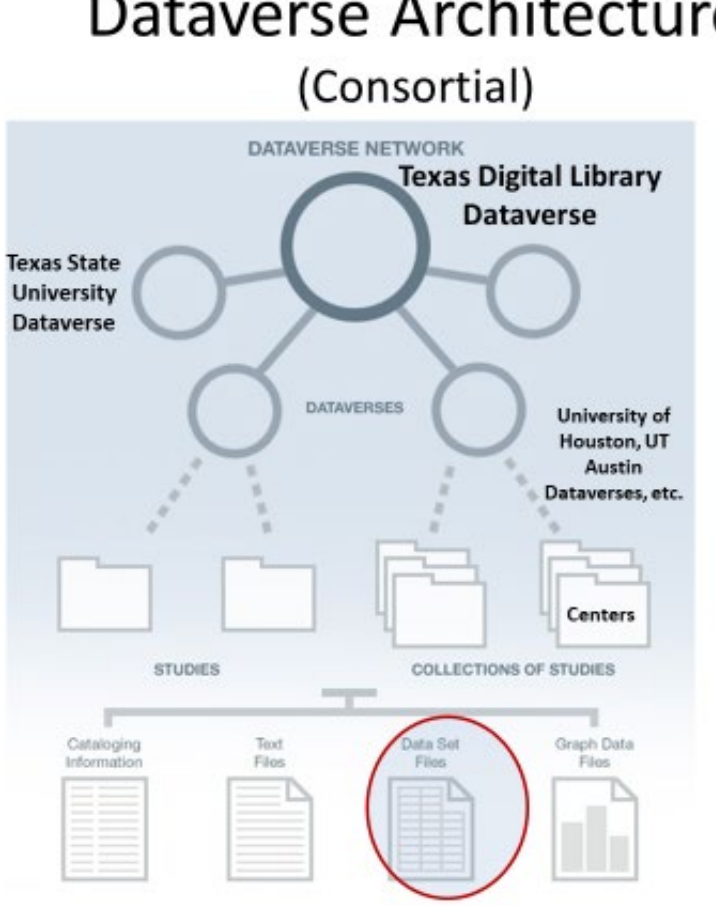
https://dataverse.tdl.org/dataverse/txstate



Dataverse can be configured as Single Instance or as a Consortial Model



https://dataverse.tdl.org/



(Texas Aggregates 22 Individual Instances, through the Texas Digital Library)

#2 Institutional Digital Collections Repository (Dspace)

Organizes, centralizes and makes accessible research and knowledge generated by the institution's research community (Research Faculty and Graduate Students):

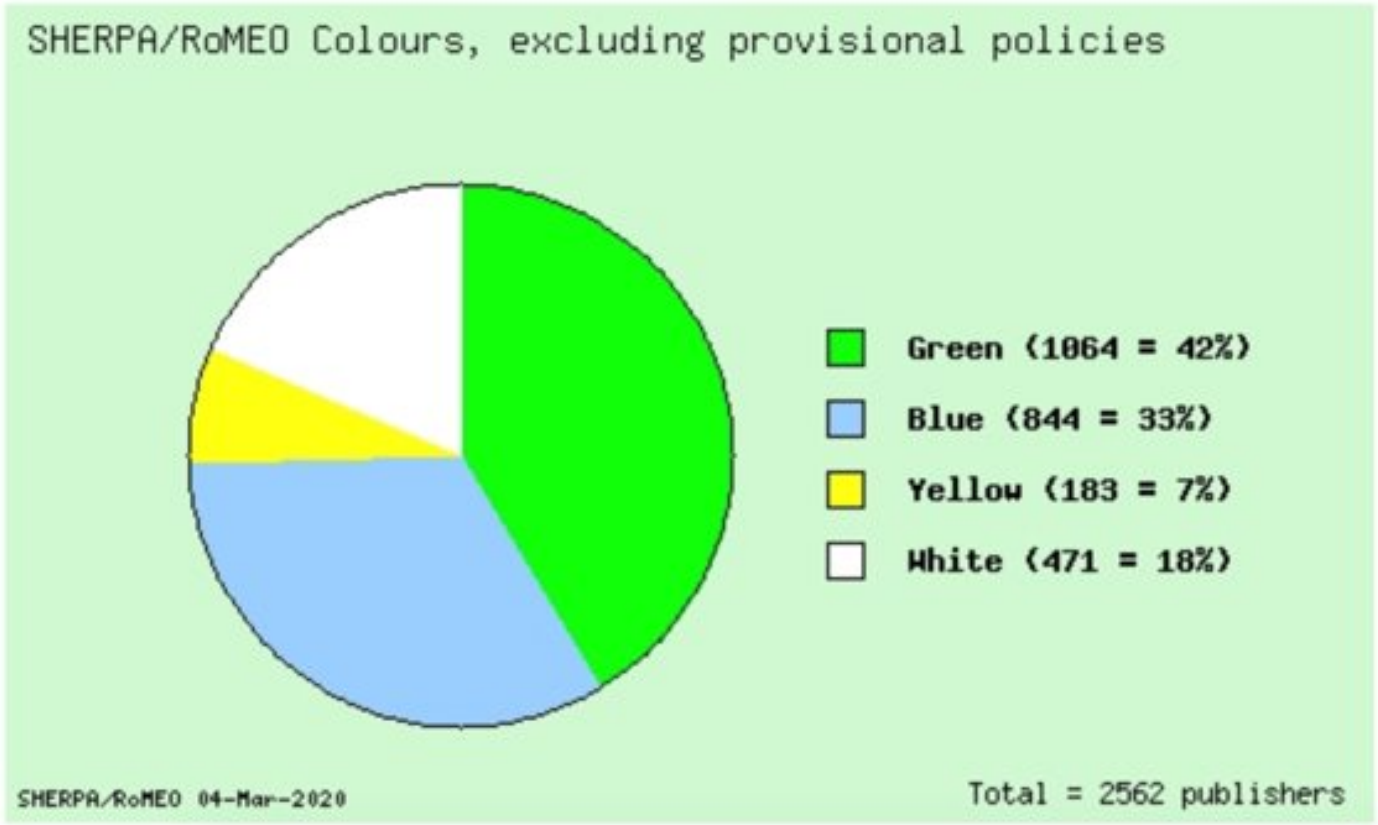
Pre-prints
Faculty Publications
White Papers
Conference Presentations
Graduate Student Theses and Dissertations

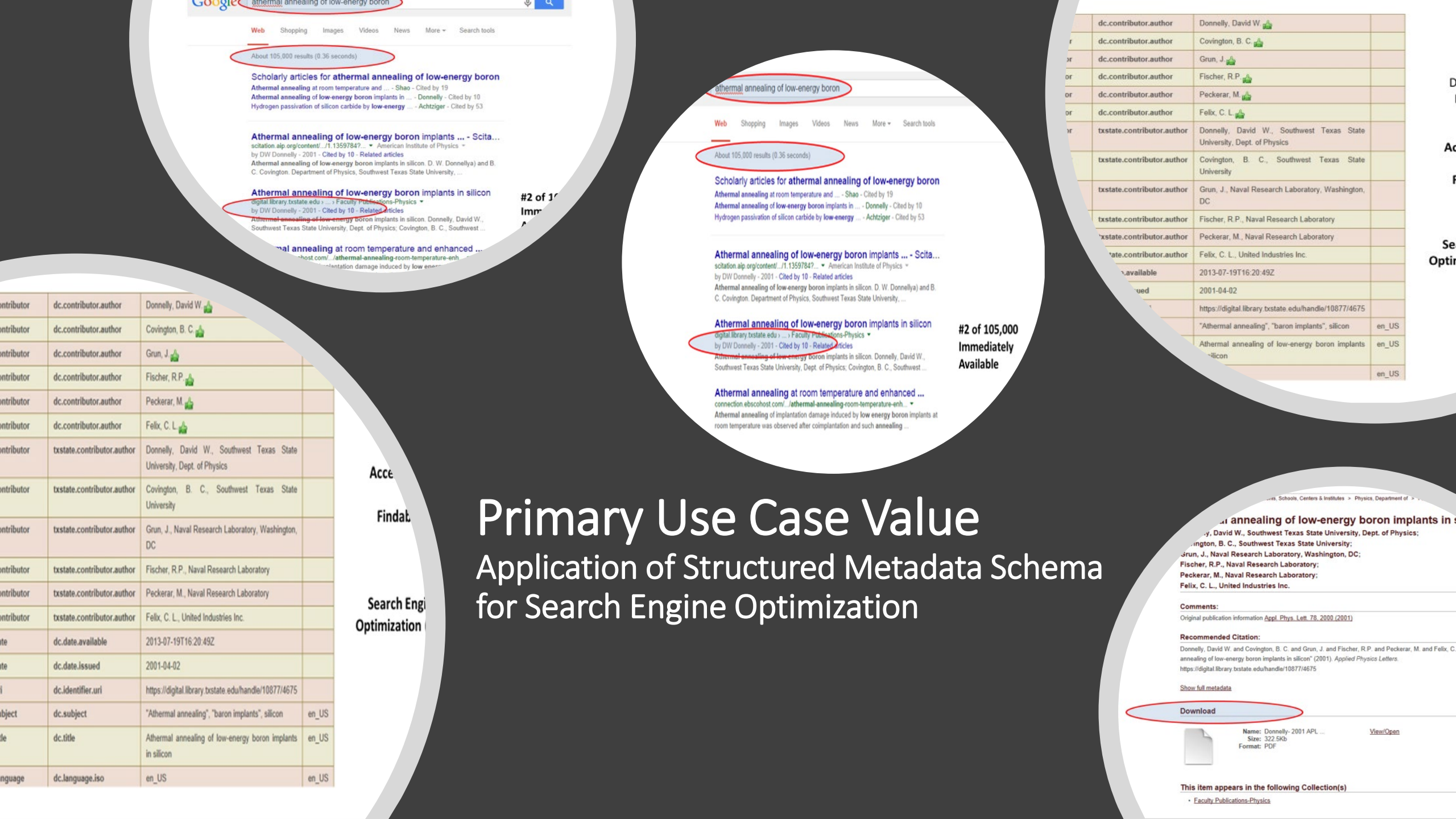
A Vast Majority of Publishers Allow Digital Archiving in some form. (82% from 2562 publishers)

March 2020 Sherpa/Romeo Copyright Polices

RoMEO colour	Archiving policy	Publishers	%
green	Can archive pre-print and post-print	1064	42
blue	Can archive post-print (ie final draft post-refereeing)	844	33
yellow	Can archive pre-print (ie pre-refereeing)	183	7
white	Archiving not formally supported	471	18

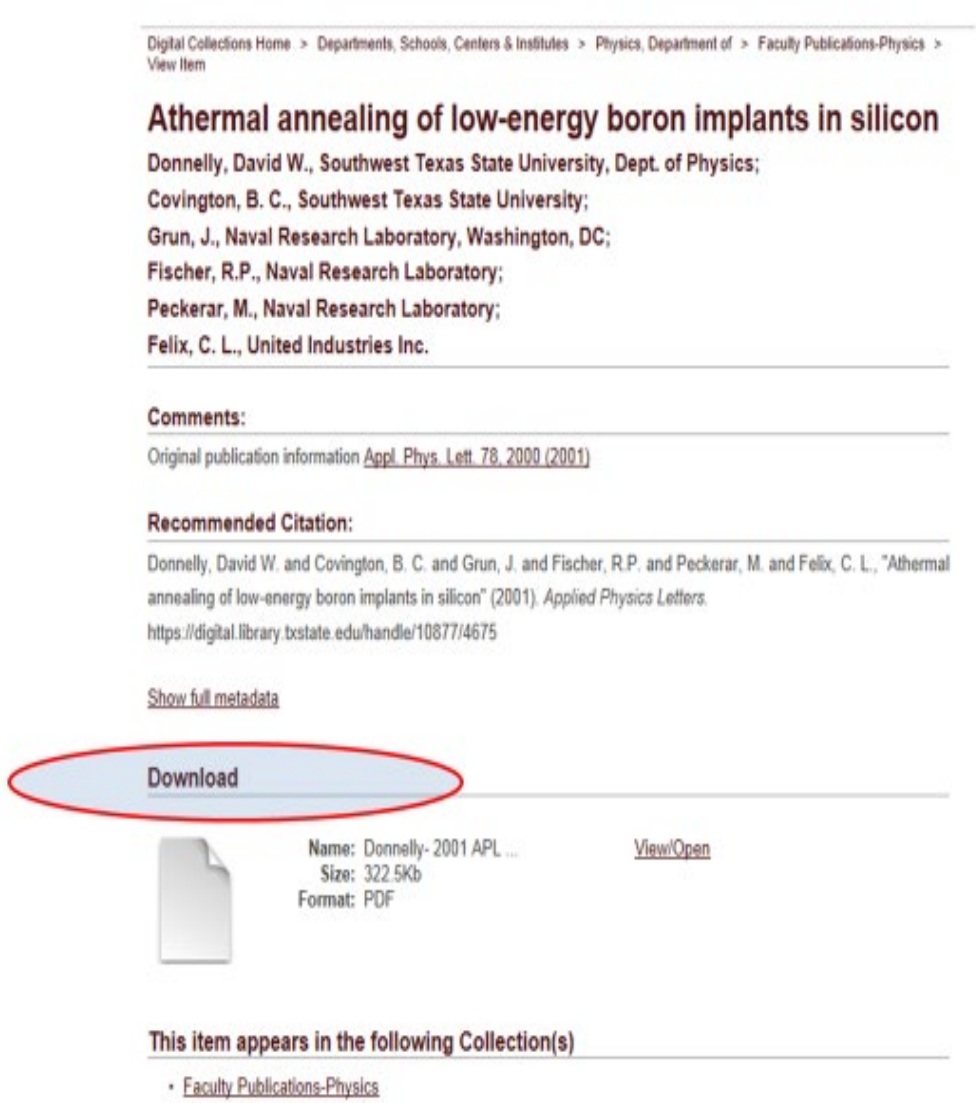
Summary: **82%** of publishers on this list formally **allow** some form of self-archiving.





Primary Use Case Value

Application of Structured Metadata Schema for Search Engine Optimization



Digital Collections Home > Departments, Schools, Centers & Institutes > Physics, Department of > Faculty Publications-Physics > View Item

Athermal annealing of low-energy boron implants in silicon

Donnelly, David W., Southwest Texas State University, Dept. of Physics;
Covington, B. C., Southwest Texas State University;
Grun, J., Naval Research Laboratory, Washington, DC;
Fischer, R.P., Naval Research Laboratory;
Peckerar, M., Naval Research Laboratory;
Felix, C. L., United Industries Inc.

Comments:

Original publication information Appl. Phys. Lett. 78, 2000 (2001)

Recommended Citation:

Donnelly, David W. and Covington, B. C. and Grun, J. and Fischer, R.P. and Peckerar, M. and Felix, C. L., "Athermal annealing of low-energy boron implants in silicon" (2001). *Applied Physics Letters.*
https://digital.library.txstate.edu/handle/10877/4675

Show full metadata

Download

Name: Donnelly- 2001 APL ... View/Open
Size: 322.5Kb
Format: PDF

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- Faculty Publications-Physics

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Contributor	dc.contributor.author	Donnelly, David W.	
Contributor	dc.contributor.author	Covington, B. C.	
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Contributor	dc.contributor.author	Fischer, R.P.	
Contributor	dc.contributor.author	Peckerar, M.	
Contributor	dc.contributor.author	Felix, C. L.	
Contributor	txstate.contributor.author	Donnelly, David W., Southwest Texas State University, Dept. of Physics	
Contributor	txstate.contributor.author	Covington, B. C., Southwest Texas State University	
Contributor	txstate.contributor.author	Grun, J., Naval Research Laboratory, Washington, DC	
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Contributor	txstate.contributor.author	Peckerar, M., Naval Research Laboratory	
Contributor	txstate.contributor.author	Felix, C. L., United Industries Inc.	
Date	dc.date.available	2013-07-19T16:20:49Z	
Date	dc.date.issued	2001-04-02	
Url	dc.identifier.uri	https://digital.library.txstate.edu/handle/10877/4675	
Subject	dc.subject	"Athermal annealing", "baron implants", silicon	en_US
Title	dc.title	Athermal annealing of low-energy boron implants in silicon	en_US
Language	dc.language.iso	en_US	en_US

Dublin Core Metadata

Access Points

Findability

Search Engine Optimization (SEO)

Web Shopping Images Videos News More Search tools

About 105,000 results (0.36 seconds)

Scholarly articles for **athermal annealing of low-energy boron**

Athermal annealing at room temperature and ... - Shao - Cited by 19

Athermal annealing of **low-energy boron** implants in ... - Donnelly - Cited by 10

Hydrogen passivation of silicon carbide by **low-energy** ... - Achtziger - Cited by 53

Athermal annealing of low-energy boron implants ... - Scita...

scitation.aip.org/content/.../1.1359784?... ▾ American Institute of Physics ▾

by DW Donnelly - 2001 - Cited by 10 - Related articles

Athermal annealing of **low-energy boron** implants in silicon. D. W. Donnellya) and B. C. Covington. Department of Physics, Southwest Texas State University, ...

Athermal annealing of low-energy boron implants in silicon

digital.library.txstate.edu › ... › Faculty Publications-Physics ▾

by DW Donnelly - 2001 - Cited by 10 - Related articles

Athermal annealing of low-energy boron implants in silicon. Donnelly, David W., Southwest Texas State University, Dept. of Physics; Covington, B. C., Southwest ...

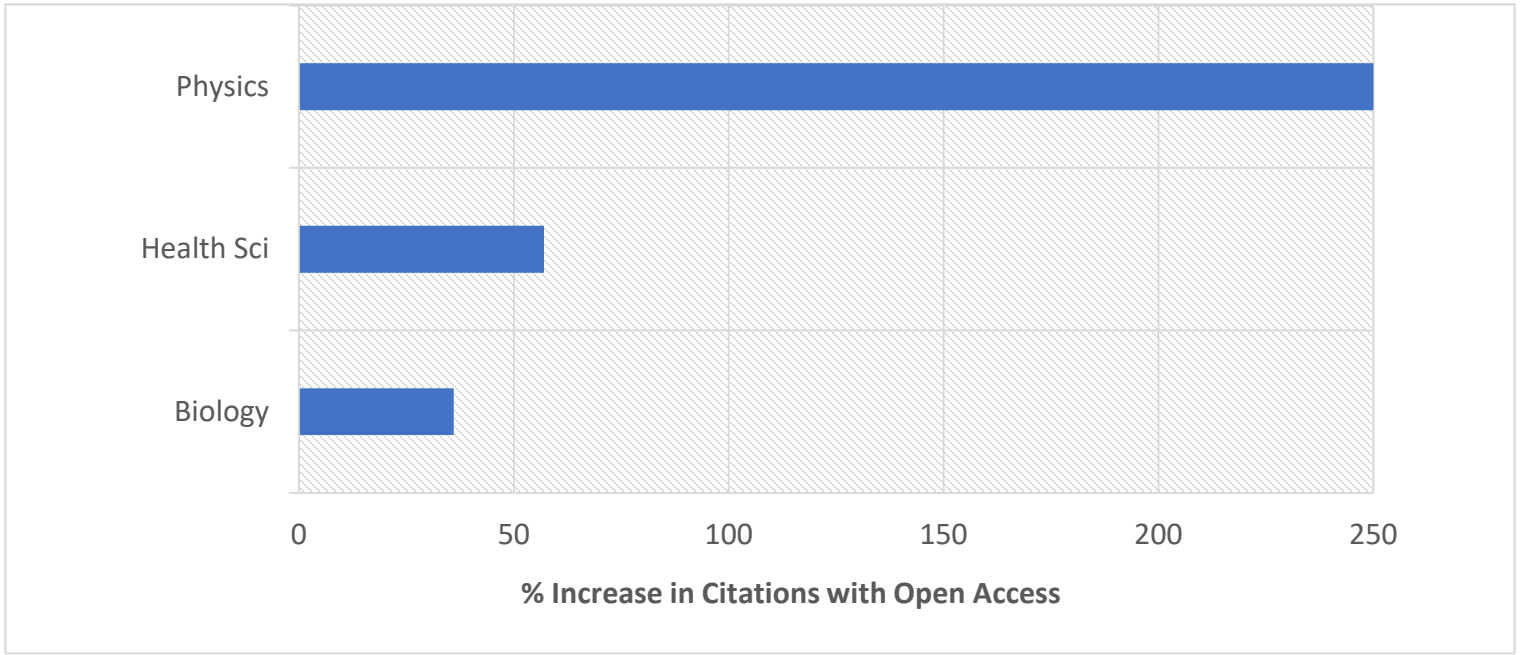
Athermal annealing at room temperature and enhanced ...

connection.ebscohost.com/.../**athermal-annealing**-room-temperature-enh... ▾

Athermal annealing of implantation damage induced by **low energy boron** implants at room temperature was observed after coimplantation and such **annealing** ...

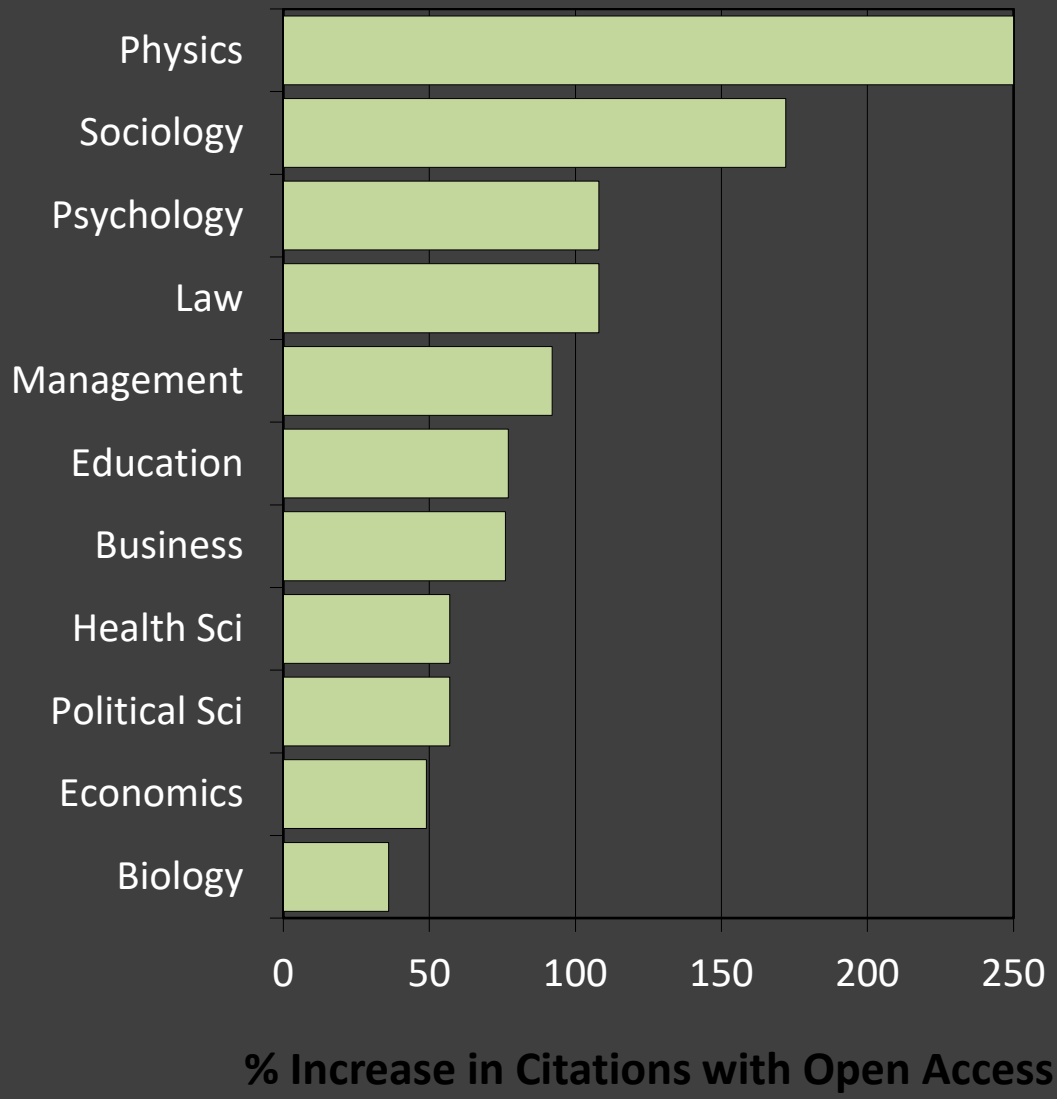
#2 of 105,000
Immediately
Available

Percent Increase in Article Citations by Discipline with Open Access Online Availability Through Google



Range = 36%-250% Increase in Citations over 2 Year period

(Data: Stevan Harnad and Heather Joseph, 2014)



Percent Increase in Article Citations by Discipline with Open Access Online Availability Through Google

Range = 36%-250%

(Data: Stevan Harnad and Heather Joseph, 2014)

Vireo

Electronic Thesis and Dissertation Management System

- Bridges Student Thesis/Dissertation Submission with Graduate School Review,
- Connects the Collections Repository And Data Repository so graduate students can publish and link their theses/dissertations, data and research
- Addresses Intermediary steps in the ETD Process

ORCID is a hub connecting the research landscape

Researcher Identity Management System

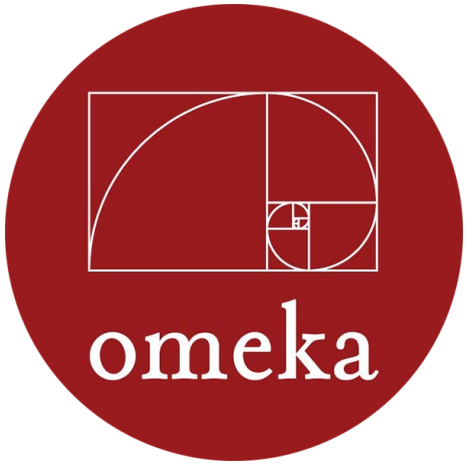
- Gives Researchers Unique Number (ORCID ID) Connecting and Disambiguate Scholars names:

Maria Hernandez, Biochemist
Maria Hernandez, M.D. or Astrophysicist

- Allows Papers in the collections repository and datasets in data repository to be associated with ORCID ID's for aggregation of research profiles.

Orcid can act as a Network Hub aggregating from several sources and connecting to other internal and external networks

Omeka and OJS3



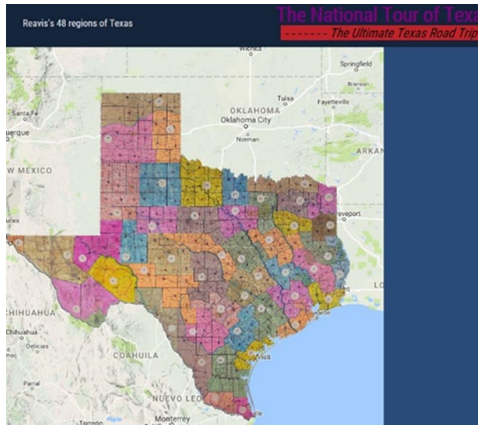
Open Source User Interface Software
Provides a front end gateway for more complex research projects - linking text, image media and datasets and acting as a front end for connecting components.

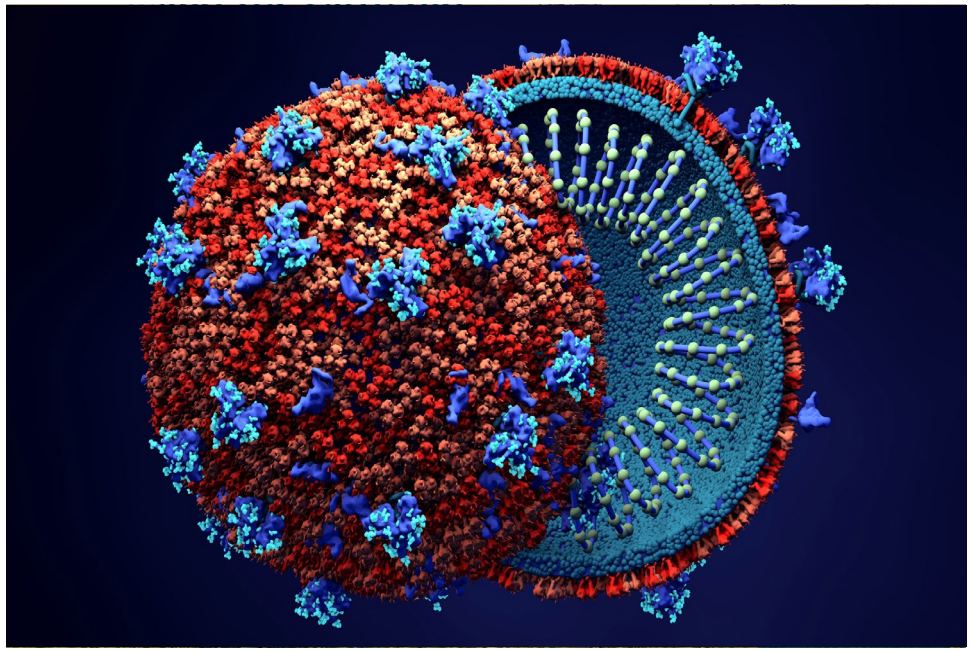
OJS
OPEN JOURNAL SYSTEMS

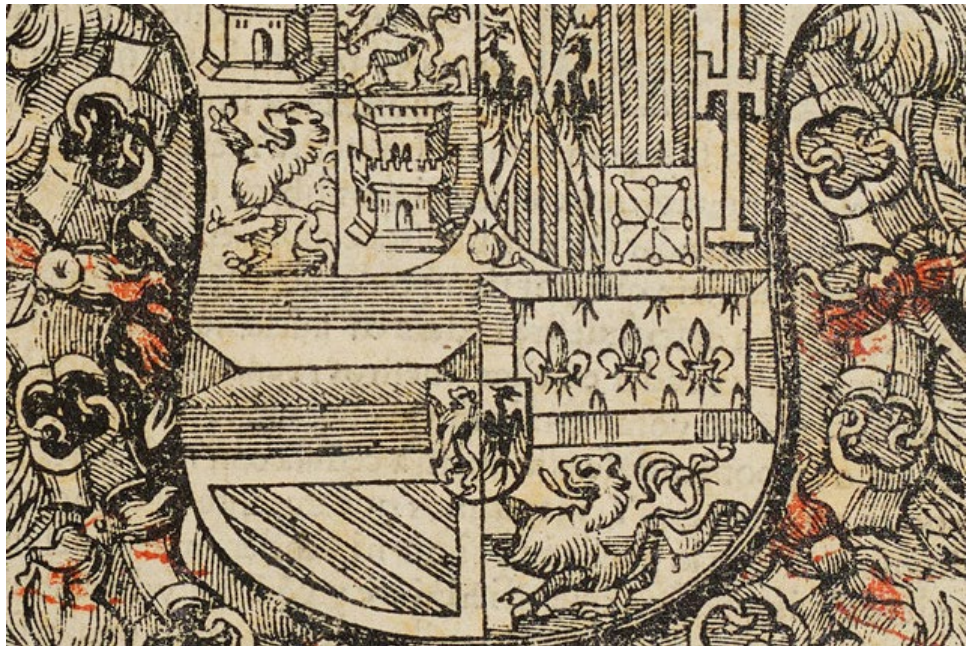
Open Access Academic Journal Software for refereed journal online publishing, workflow and connections with background research and datasets etc. through Dataverse/Dspace connections

The Digitization Lab

- Expands Possibilities for Faculty/Graduate Student Research Projects
- Possibilities range from OCR, scientific slides, image, manuscript & journal digitization to 3D objects, audiovisual material, GIS and visualization technologies



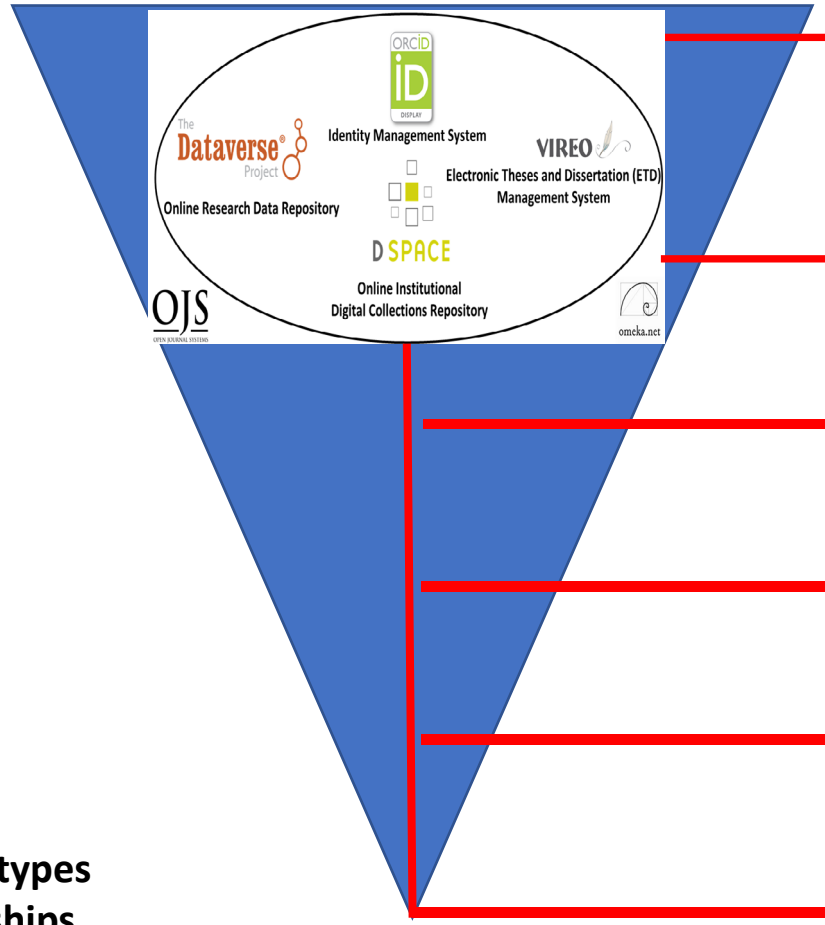




Together, These Research Ecosystem Components

Open Amazing Possibilities For Digital Scholarship & Collaboration

Complexity



Complex Multimedia Archives/Cognitive Cartographies

Digital Archives/ETD Projects

Online Exhibits/ Online Academic Journals

Interactive Image Archives/Data Projects

Digital Libraries, Research Documentation Projects

[Faculty Digitization Proposals/Partnerships]

Projects,Prototypes
Grant Partnerships

Human Resources

Essential

- **System Administrator/Programmer**
  server infrastructure set-up/maintenance/basic customization
- **Digital Collections Librarian**: Administration, Marketing, User Support, Collections and Data Repository, OJS/ORCID

Optional as System Expands

- **Metadata Librarian**: Dublin Core, Specialized Schema
- **Web Developer/Programmer**: OMEKA, System Integration
- **Project Manager/Department Head** (PMP Certification)
- **Digitization Specialist**
- **GIS Specialist/Data Visualization Specialist**
- **AI Specialist/Post-Doc/CLIR Fellow**

Implementation Paths For Open Science

(Many Roads To Rome for Timelines, 1-5 Year Paths)

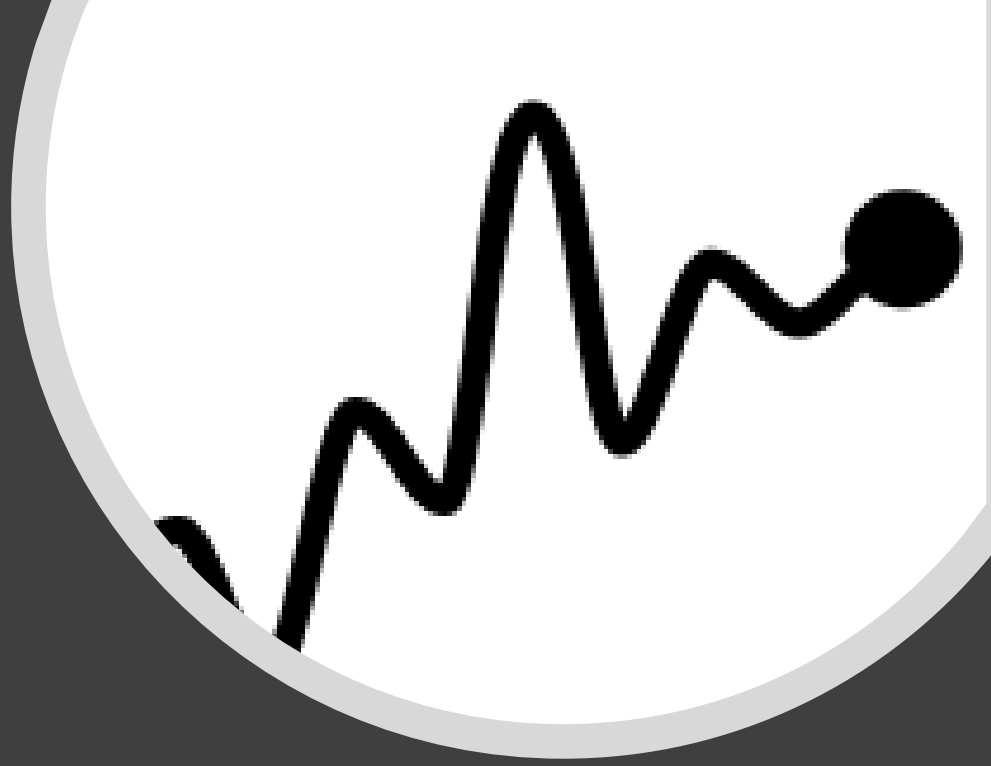
Year 1
Data Repository and Digital Collection Repository

Year 2
User Interface Software (OMEKA), Identity Management System, ORCID

Year 3
Digitization Lab

Year 4
ETD Middleware (VIREO) and OJS Software

Year 5
Complex Digitization Projects, IIIF Server, Faculty Grant Projects etc.



Assessment and Results

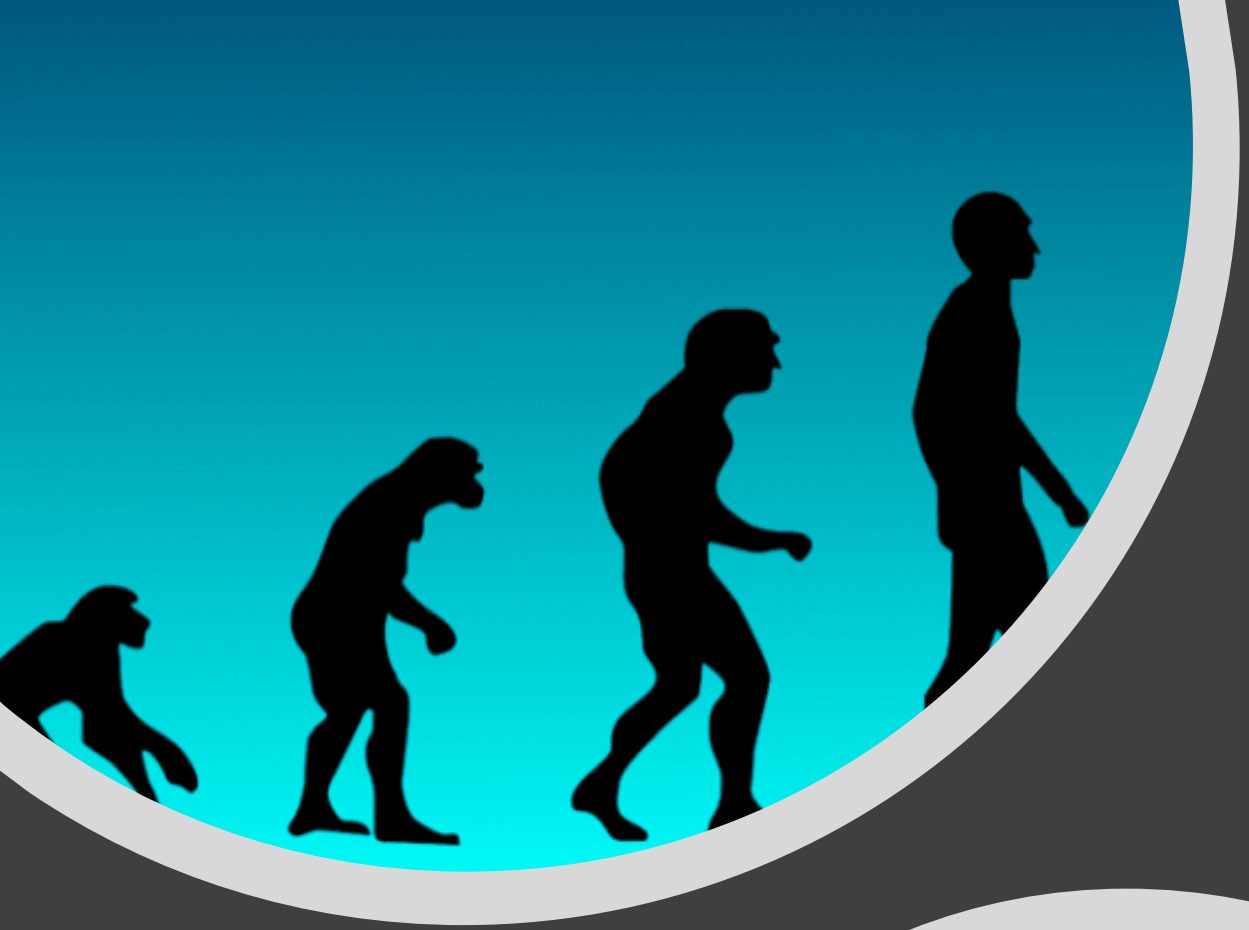
Quantitative and Qualitative Measures

Ecosystem Implemented in Stages, 2014-2019

System	2014	2015	2016	2017	2018	2019
Downloads						
DSpace	326,762	318,742	385,163	341,224	972,359	1,010,349
ETDs	136,985	158,240	200,373	328,420	470,437	505,658
Dataverse	n/a	n/a	n/a	455	3,451	2,043
Number of Items						
DSpace	1,340	1,437	1,546	1,660	2,135	2,720
ETDs	967	1,174	1,326	1,581	1,789	2,218
Dataverse	n/a	n/a	n/a	28	33	53
ORCID IDs						
ORCID	101	190	316	438	545	669
Hosted Journals						
OJS	1	1	2	2	3	4

Annual Usage Growth (Downloads, Number of Items, ORCID ID's and Hosted Journals)

LibQual Biannual Survey 2013-2019, Faculty and Student System Perceptions, Comments



Summary Reflections

Placing Open Science Research Cycle Components within an Ecosystem Paradigm Enables:

1) New Possibilities For Research accessiblity, retrieval and sharing

2) Better Roadmaps for Future Development of Digital Open Science Components

3) Evolutionary Guideposts for Research Systems Development

Further References, Papers & Working Examples

Uzwyshyn, R. 2020 **Developing an Open Source Digital Scholarship Ecosystem (Preprint)**. ICEIT2020. Oxford, UK. https://www.researchgate.net/publication/336923249_Developing_an_Open_Source_Digital_Scholarship_Ecosystem

Texas State University Libraries Website.
https://www.library.txstate.edu/
Texas State Digital Collections Repository
https://digital.library.txstate.edu/
Texas State Data Research Repository
https://dataverse.tdl.org/dataverse/txstate
Texas State Online Research Identity Management System:
https://guides.library.txstate.edu/researcherprofile/orcid
Texas State Electronic Thesis and Dissertation Management (VIREO):
https://www.tdl.org/etds/
Texas State Digital & Web Services:
https://www.library.txstate.edu/services/faculty-staff/digital-web-services.html

Further Links to Open Source Software & Downloads

- **Dspace**
https://duraspace.org/dspace/

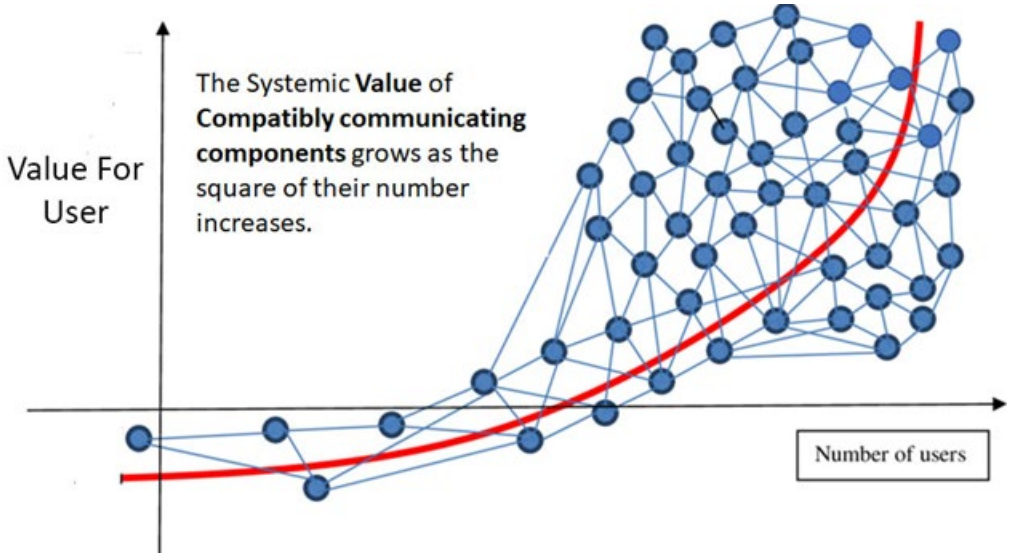
- **Dataverse**
https://dataverse.org/

- **Omeka**
https://omeka.org/

- **Open Journal Systems 3**
https://pkp.sfu.ca/ojs/

- **ORCID**
https://orcid.org/

- **Vireo**
https://www.tdl.org/etds/



Questions, Comments

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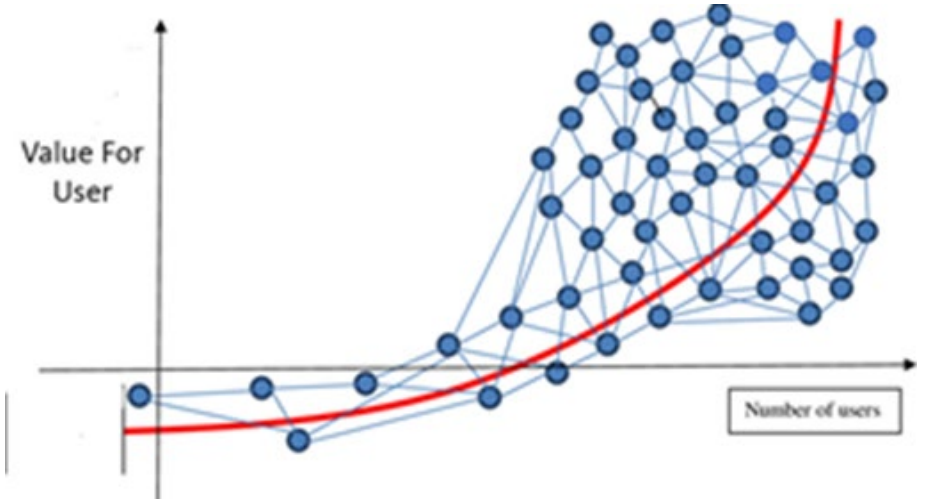
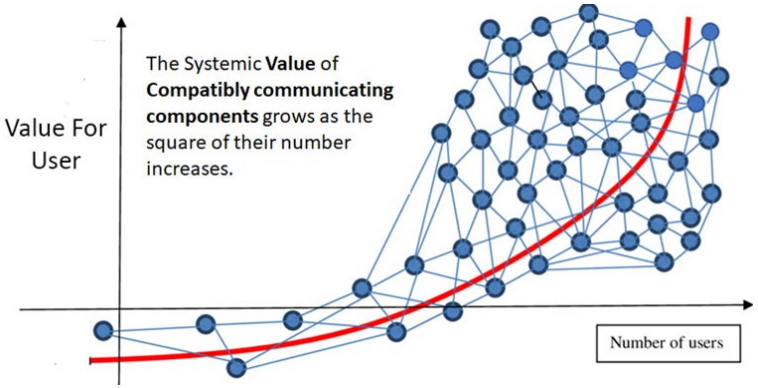
Texas State University Libraries
ruzwyshyn@txstate.edu, 512-245-5687
http://rayuzwyshyn.net

Future Pathways

Networked Global Scholarly Research Environment



Research Universities and Digital Research Ecosystems



- **~266-300 Research Institutions US & Canada**
  Carnegie R1 & R2, Very High or High Research Activity

- **~1000-1250 Research Universities Worldwide**
  QS Rankings and Times Higher Education Supplement. (40% Europe, 26.5% Asia Pacific, US/Canada 18%, Latin America 9% and Middle East/Africa.

- **Enable Top 2-3% Research Institutions Globally, 1000 Institutions beyond the US and Canada.**
  (This represents the other 90% of Research Libraries Globally)

One Server Per Research Institution 2020-2025

- Empower 1000 Research University Institutions/Research Libraries Globally
- Gift each Research University One Configured Server Ecosystem with 6 Open Source Scholarly Research Software Components, < $1000.00 US/Server or set up Fractional Server Space with Mirror Sites Globally (SAAS)
- Set Up brief weeklong training over five continents
- Connect Networks
- Measure the Effects