

June 07, 2019

Collaborative Approaches to Integrate Repositories within the Research Information Ecosystem

Creating Bridges for Common Goals

David Scherer, *Carnegie Mellon University*

Kate Byrne, *Symplectic*

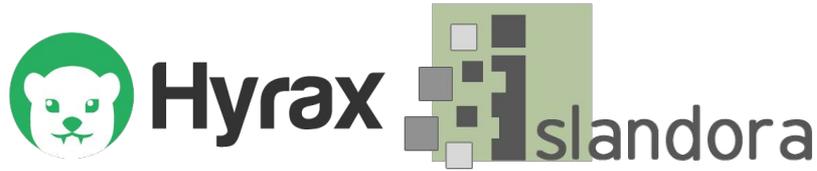
Mark Hahnel, *Figshare*

Dan Valen, *Figshare*



**Repositories
and
Research Information
Management Systems**

Repositories

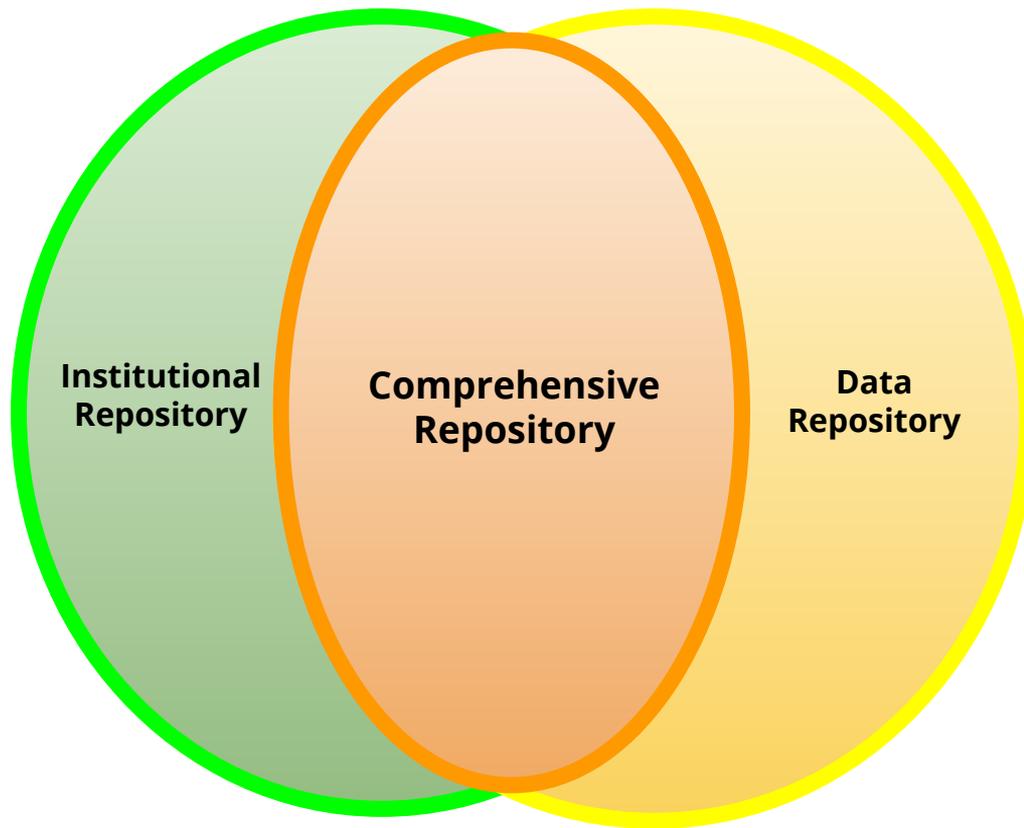


RIMS



Elements





KiltHub

WEAVING THE FABRIC OF YOUR RESEARCH

🐦 @KILTHUB | KILTHUB.CMU.EDU

Research **I**nformation **M**anagement **S**ystems

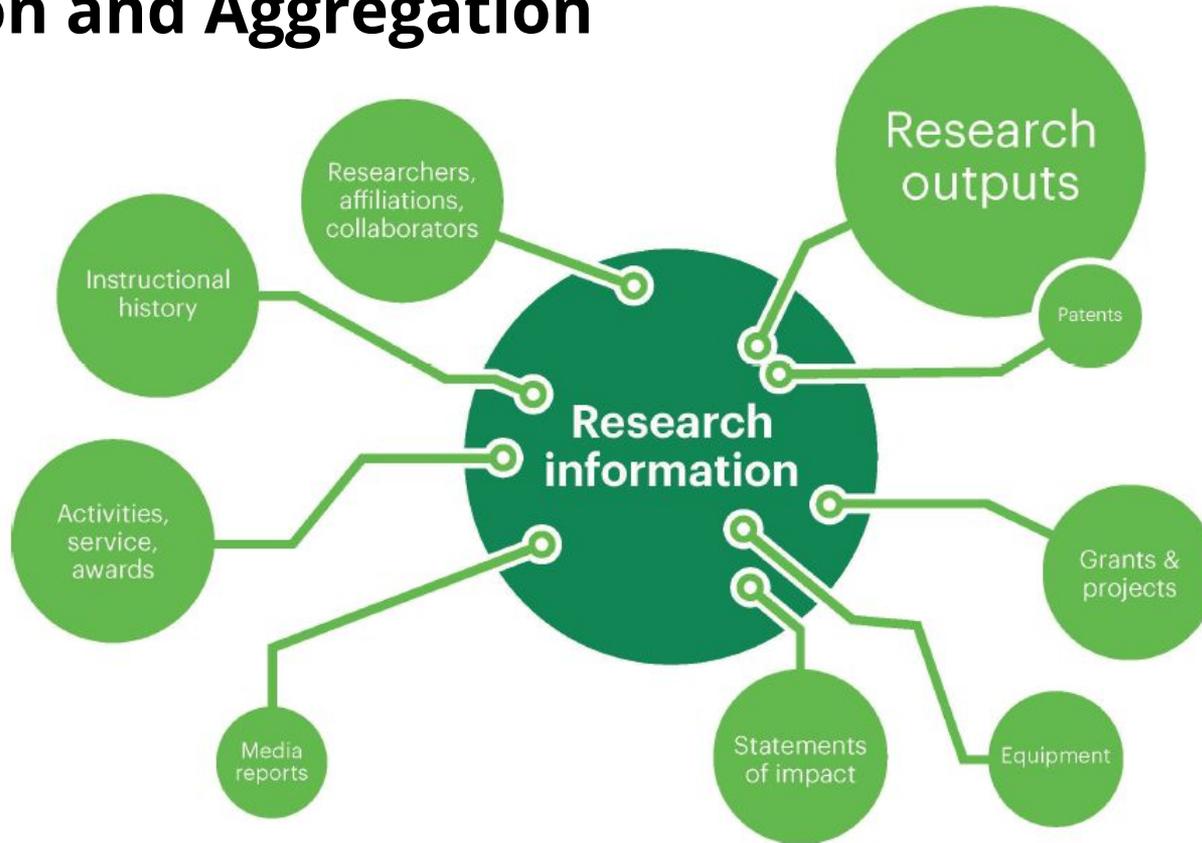
Current
Research
Information
Systems

Faculty
Information
Systems

Scholarly
Information
Systems

Faculty
Activity
Reporting
Systems

Curation and Aggregation



International collaboration clusters in Africa

[+ Add a new journal article](#)

Journal article

Adams J , Gurney K , Hook D , Leydesdorff L
 Scientometrics **98**(1):547-556 06 Jan 2014 [DOI](#)
[figshare for institutions](#) [doi](#)

Labels

0807 Library and Information Studies * Prevention *
 Science Studies * Science & Technology [and 14 more](#)

Altmetrics



Citation Metrics

RCR	Dimensions	EPMC	Scopus	WoS
-	32	-	34	25

Journal Rankings

[Scientometrics](#)

SNIP	SJR	Impact Factor
1.38	1.13	2.00

Actions

- [Mark as Favourite](#)
- [Add to Workspace](#)
- [Request a Waiver](#)

Annual Collection

View in the Assessment page for:

[2013 Collection](#)

Reporting Date

22 Jan 2013

History

Showing 1 - 4 of 14 (newest first) [View all](#)

- Claimed for Professor Daniel Hook.**
by Ms Julia Hawks
14/11/2018
- Claimed for Daniel Hook.**
by Ms Julia Hawks
14/11/2018

Data sources

[Add manual record](#)

arXiv

Crossref

Dimensions

ID: [pub.1050166004](#) [More source info](#)

[Set as preferred record](#)

Title International collaboration clusters in Africa

Authors Adams, Jonathan ; Gurney, Karen ; Hook, Daniel ; Leydesdorff, Loet

An Increasing Role for Libraries

OCLC RESEARCH POSITION PAPER

Research Information Management: Defining RIM and the Library's Role

Rebecca Bryant
OCLC Research (US)

Anna Clements
University of St. Andrews (UK)

Carol Feltes
Rockefeller University (US)

David Groenewegen
Monash University (Australia)

Simon Huggard
La Trobe University (Australia)

Holly Mercer
University of Tennessee-Knoxville (US)

Roxanne Missingham
Australian National University (Australia)

Mallaca Oxnam
University of Arizona (US)

Anne Rauh
Syracuse University (US)

John Wright
University of Calgary (Canada)



OCLC RESEARCH REPORT

Convenience and Compliance: Case Studies on Persistent Identifiers in European Research Information Management

Rebecca Bryant, Annette Dortmund,
and Constance Malpas



OCLC RESEARCH REPORT

Practices and Patterns in Research Information Management

Findings from a Global Survey

Rebecca Bryant, Anna Clements, Pablo de Castro,
Joanne Cantrell, Annette Dortmund, Jan Fransen,
Peggy Gallagher, Michele Mennielli



Libraries in Research Information Management

Publications &
Scholarship Expertise

Training & Support

Discoverability, Access &
Reputational Support

Stewardship of the
Institutional Record

"Libraries in Research Information Management" by [OCLC Research](#), from *Research Information Management: Defining RIM and the Library's Role* (doi.org/10.25333/C3NK88), [CC BY 4.0](#)

What is the Scholarly Communication Ecosystem?



Universiteit Utrecht

INNOVATIONS IN SCHOLARLY COMMUNICATION

Changing Research Workflows

Research Lifecycle/Workflow





Scholarly Communication Tools

- 2015 - 101 Tools
- 2015 - 400+ Tools
- 2019 - 680+ Tools!

Current List:

https://docs.google.com/spreadsheets/d/1KUMSeq_Pzp4KveZ7pb5rddcssk1XBTiLHniD0d3nDqo/edit#gid=0





Open Science





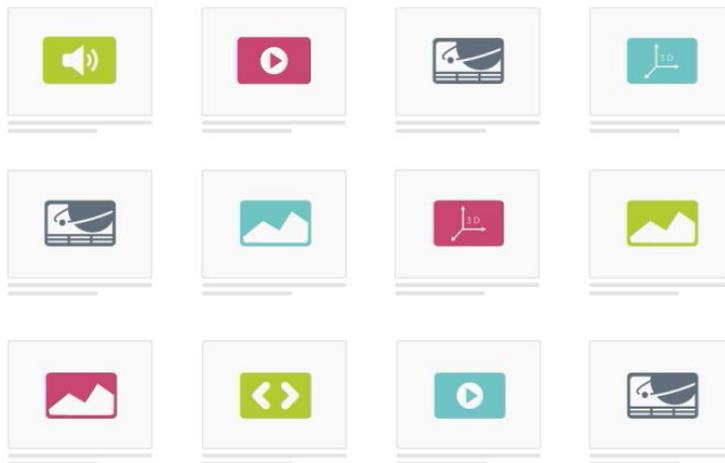
THE SCE at CMU



THE SCE at CMU



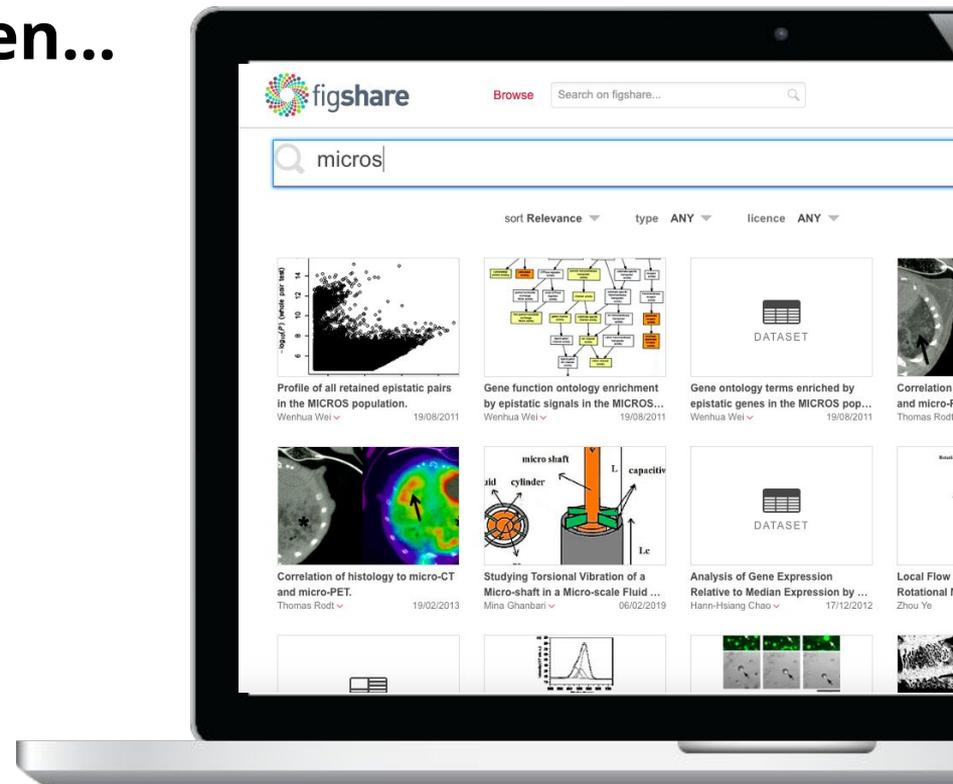
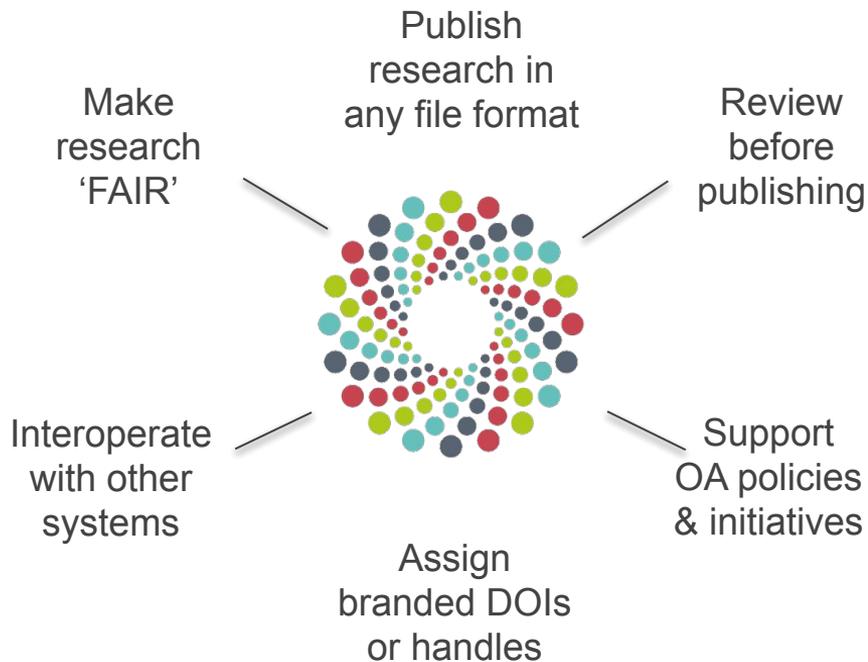
Repositories and the SCE



PANGAEA.

**Carnegie
Mellon
University**

Helping make research open...



Support for open standards and de facto standards

Type	Indexed in
Datasets	Google Dataset Search Datacite DataONE Dimensions OpenAire SHARE Clarivate Data Citation Index PubMed National metadata registries eg. Research Data Australia
Papers	Google Scholar
Preprints	Google Scholar Dimensions
Theses	Google Scholar Networked Digital Library of Theses and Dissertations

Stats

Oai pmh

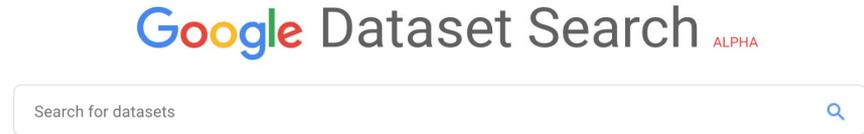
Oai-pmh

Base url

Item equals article

Metadata formats

Currently, the supported formats are: **Dublin Core** (*oai_dc*), **Datacite** (*oai_datacite*), **RDF** (*rdf*), **CERIF XML** (*cerif*), and **Qualified Dublin Core** (*qdc*) (hasPart support).



```

Secure | https://figshare.com/rss/portal_group/plos/plosbiology
Apps | ALL figshare Client... | figshare.com | Google+ | https://docs.google... | figshare: LinkedIn | Tumblr | Implement

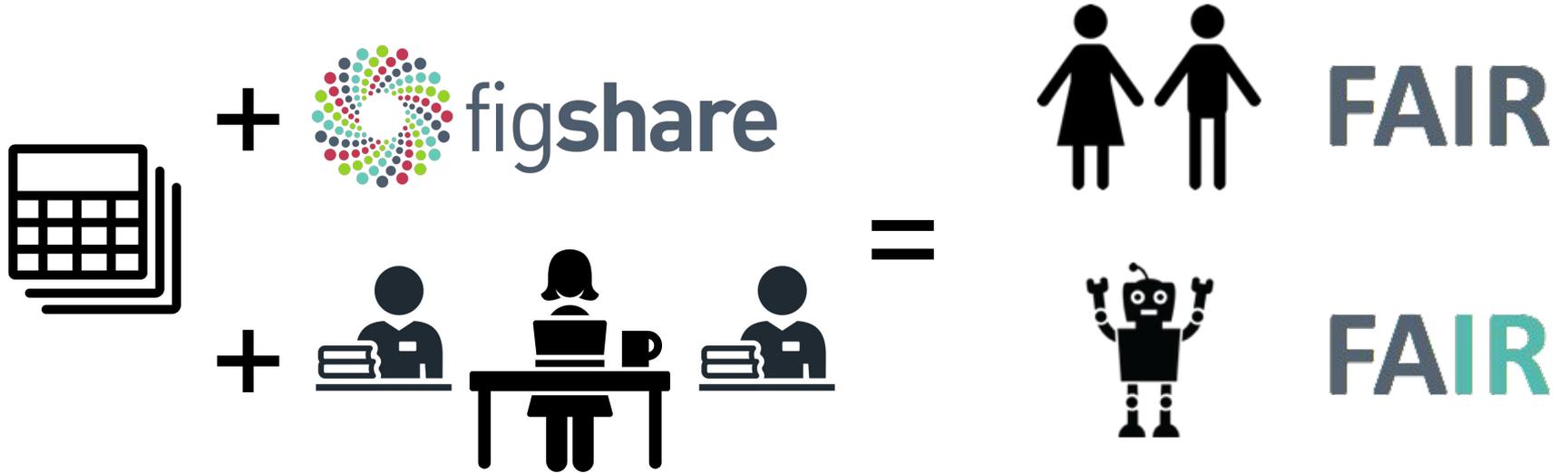
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<link>https://plos.figshare.com/plosbiology</link>
<description>RSS feed for Figshare Group PLOS Biology from the Public Library of Science institution</descri

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<title>Towards an integrated view of vocal development</title>
<link>https://figshare.com/collections/Towards_an_integrated_view_of_vocal_development/4039298</link>
<description>Vocal development is usually studied from the perspective of neuroscience. In this issue, Z
growth might condition the process. They study the vocalizations of marmoset infants with a wide range of tech
experiments that mimic growth reversal. Their results suggest that the qualitative changes that occur during d
between the nervous system and the biomechanics involved in respiration. This work illustrates how an integrat
</description>
<category>Ecology, Developmental Biology, Science Policy, Mental Health, Environmental Sciences not else
classified</category>
<pubDate>2018-03-22 17:27:36</pubDate>
</item>

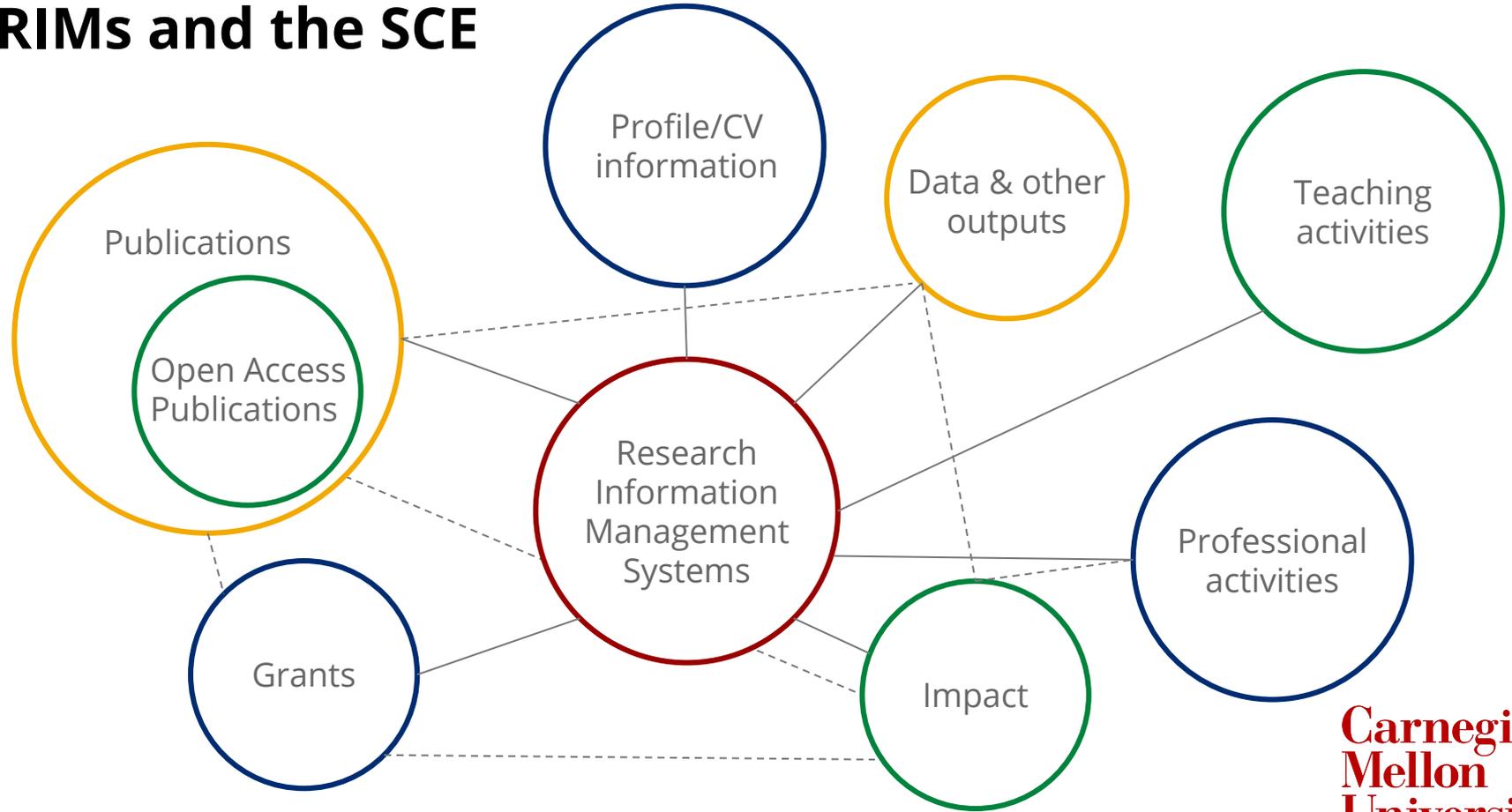
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<link>https://figshare.com/articles/The_schematics_of_a_bifurcation_diagram_and_its_use_in_experimental_
<description>A computational model for slow motor gestures predicts the existence of three regions of th
region, qualitatively different solutions (different behaviors) are expected. One of the parameters is relat
varied, different solutions can be found at early stages of development (light grey arrow), and only one solut
Placing marmoset infants in a heliox atmosphere, Zhang and Ghazanfar mimic the reversal of a parameter that co
behaviors (green arrow).</description>
<category>Ecology, Developmental Biology, Science Policy, Mental Health, Environmental Sciences not else
classified</category>
<pubDate>2018-03-22 17:27:36</pubDate>
</item>
    
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Findable, Accessible, Interoperable, Reusable

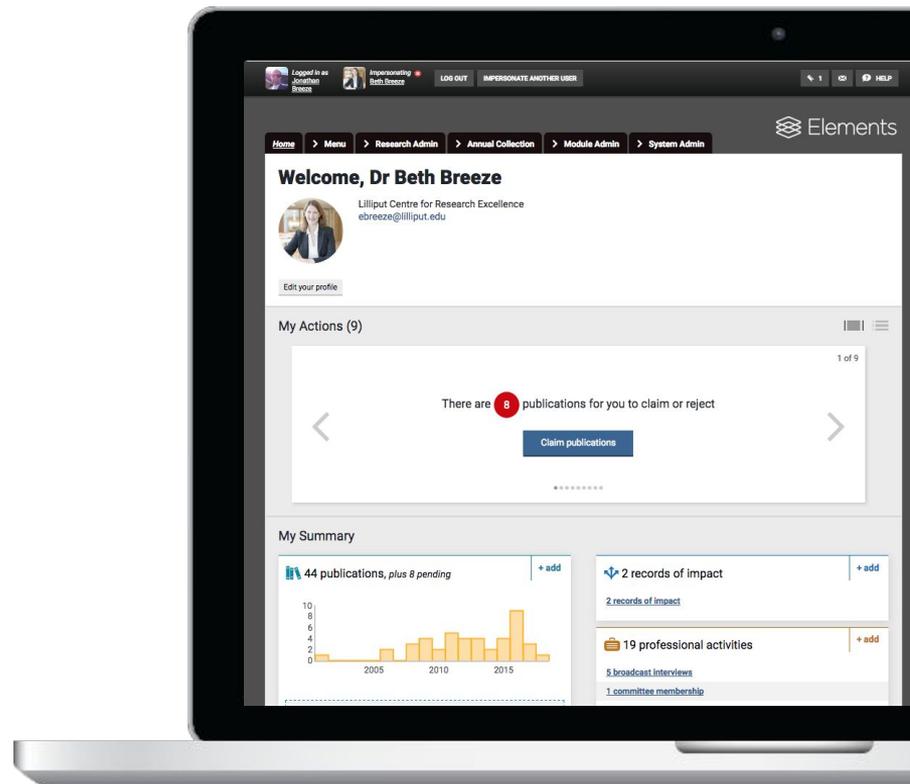
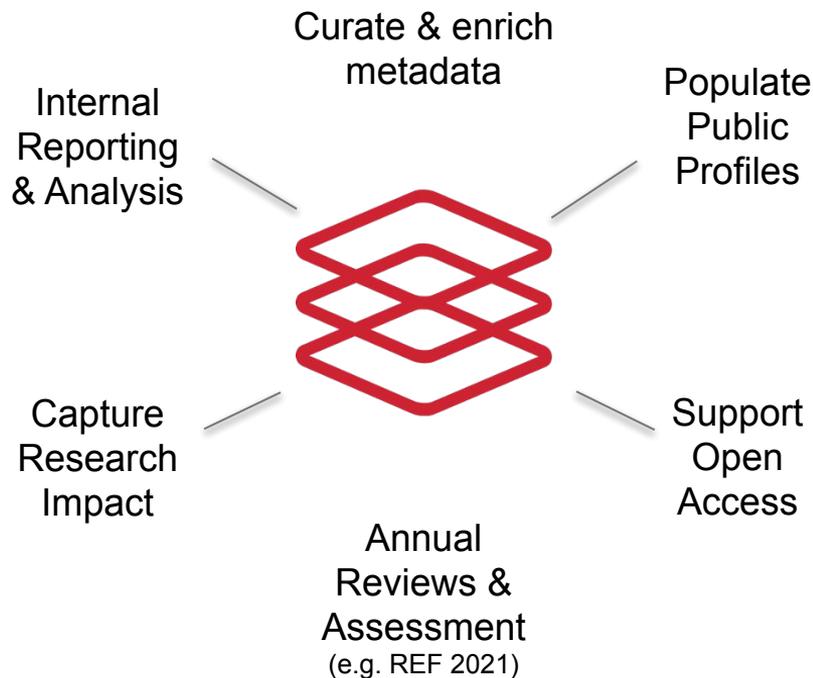


RIMS and the SCE

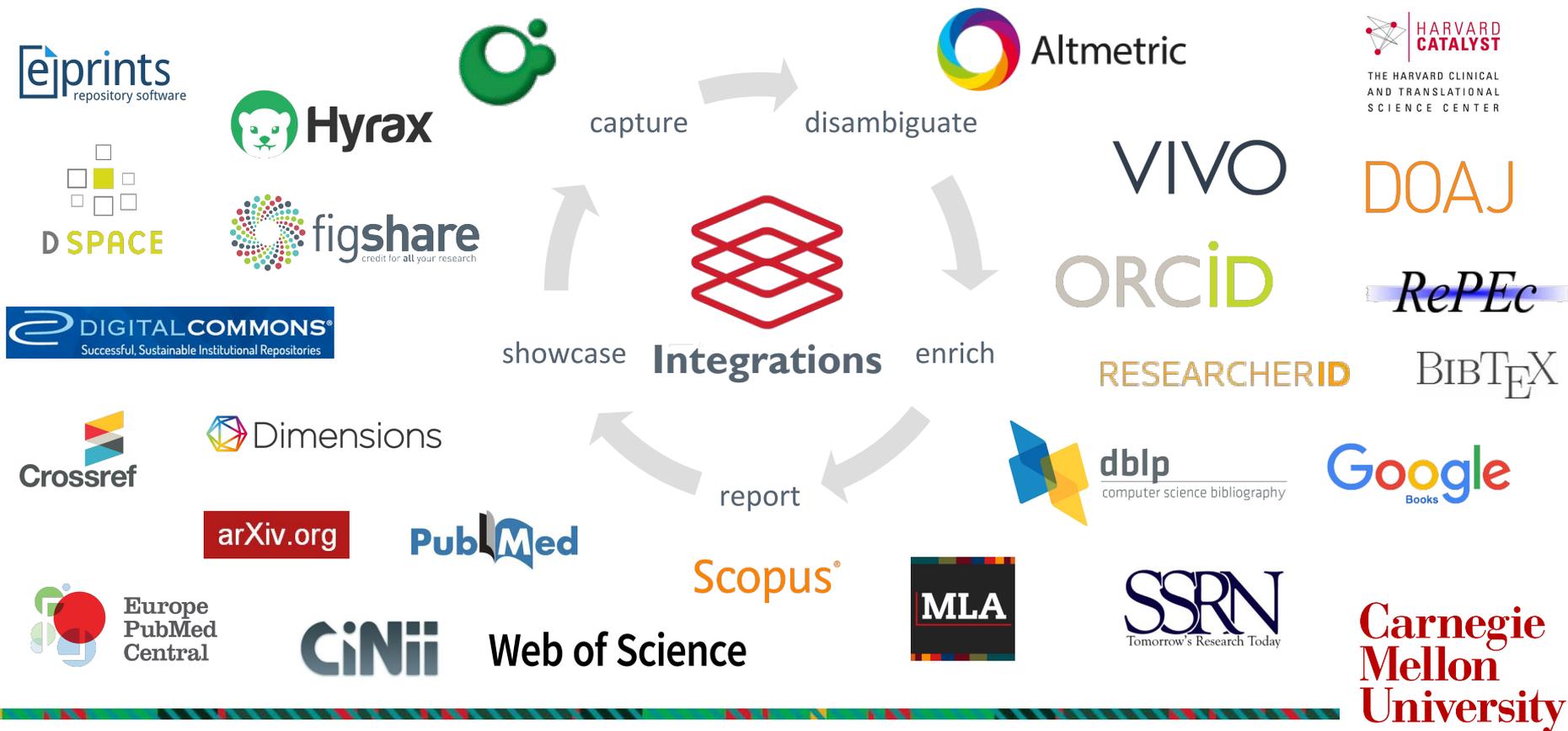
RIMs and the SCE



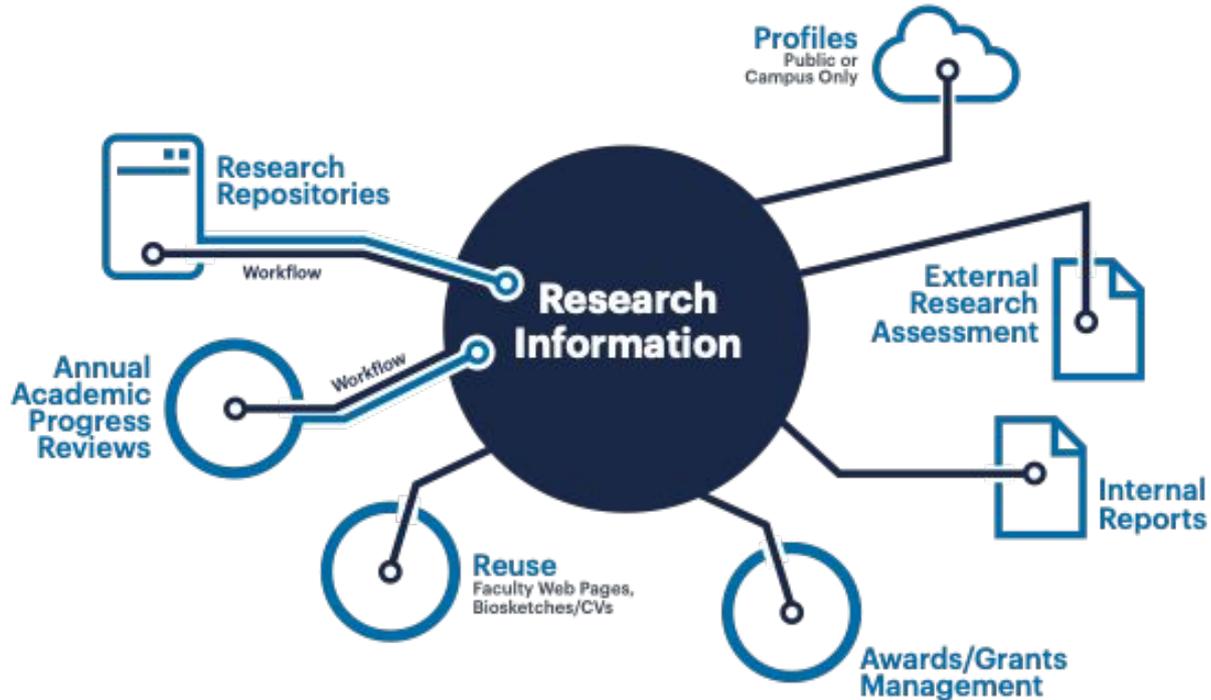
Beyond collecting data...



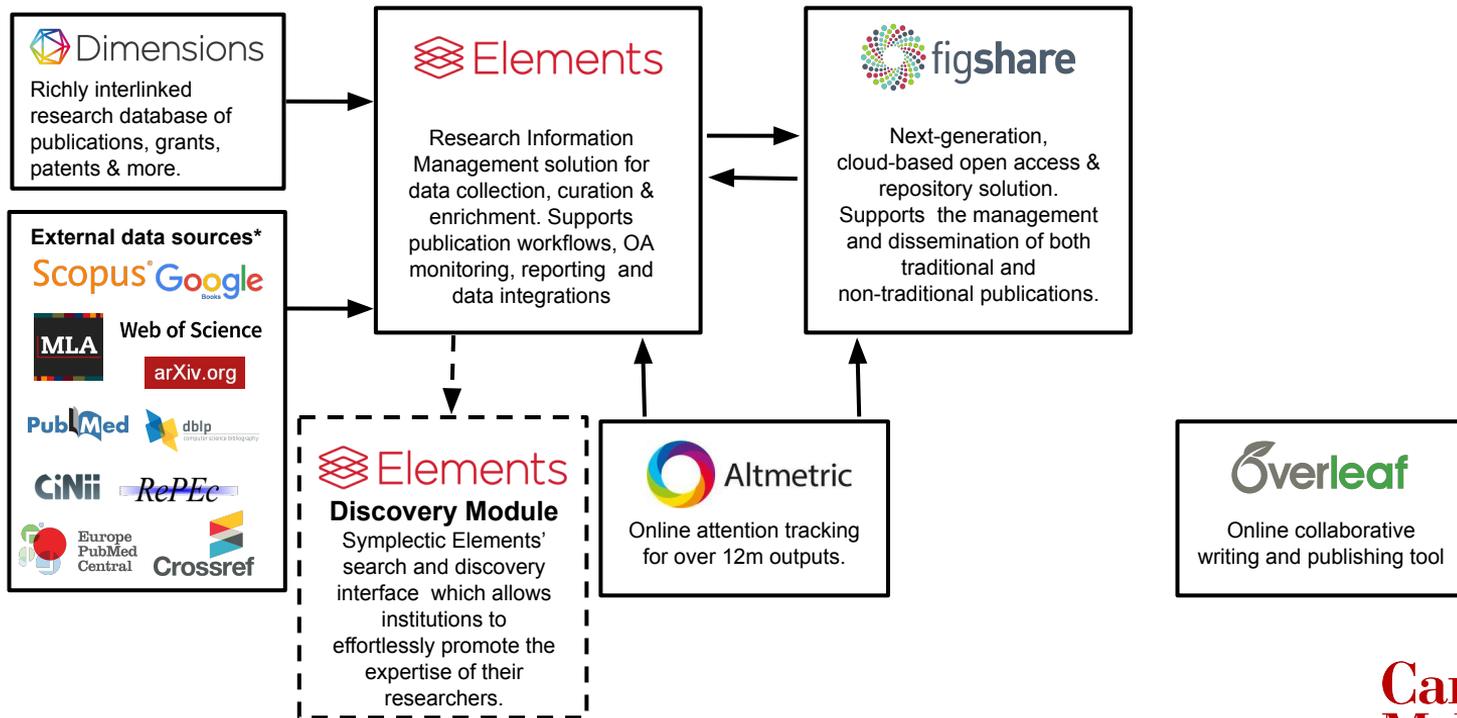
Integrated in the landscape



Views of the Network

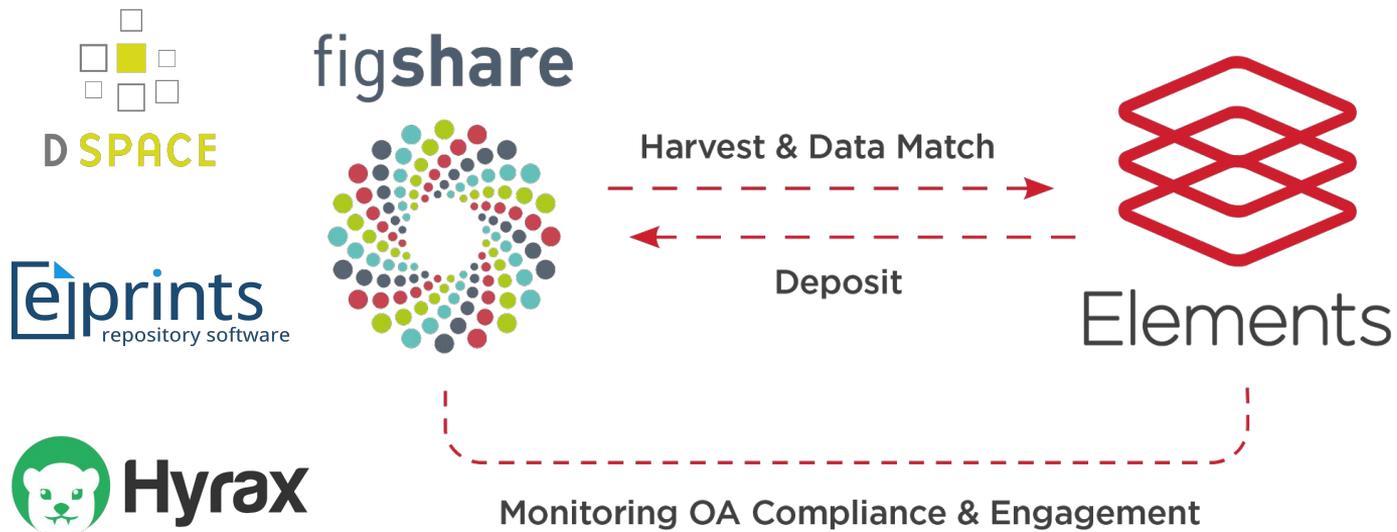


Views of the network: Carnegie Mellon University

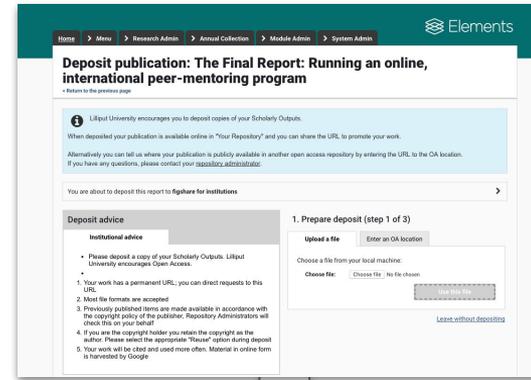
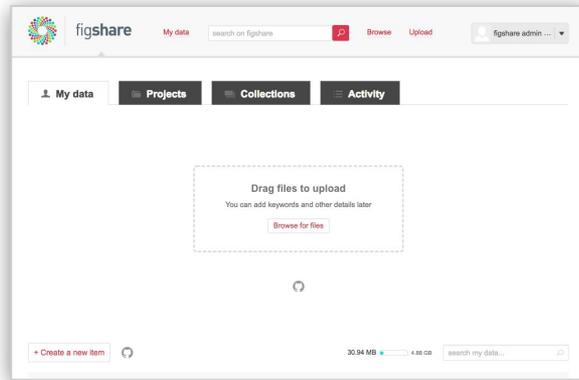


*Data sources used by Elements. Data sources actually integrated with Primo may differ.

Creating rich bi-directional integrations



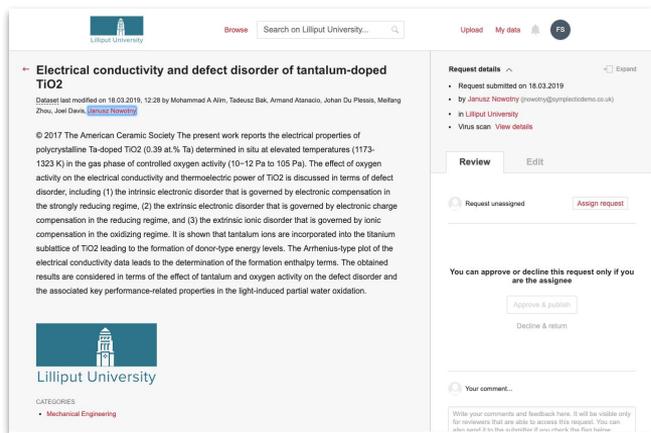
Supports flexible workflows for researchers



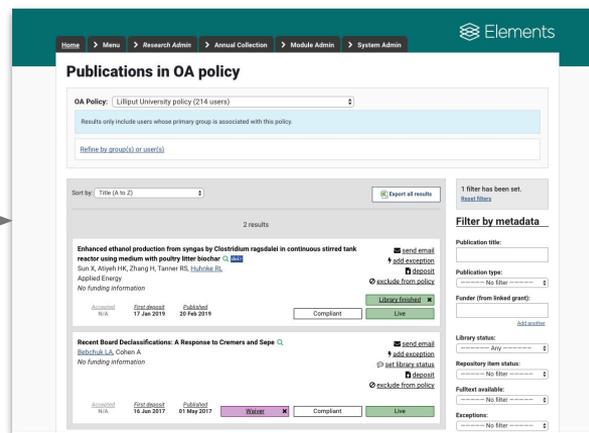
Researchers can 'live' in the system that aligns best with their workflows, safe in the knowledge that everything will be automatically synchronised between the systems



Consolidates activities for administrators



The screenshot shows a web interface for Lilliput University. At the top, there is a search bar and navigation links for 'Browse', 'Upload', 'My data', and 'FS'. The main content area displays a request for review for a paper titled 'Electrical conductivity and defect disorder of tantalum-doped TiO2'. The paper's abstract is visible, discussing the electrical properties of polycrystalline Ta-doped TiO2. On the right side, there is a 'Request details' panel with a list of actions: 'Request submitted on 18.03.2019', 'by Januz Nowotny', 'in Lilliput University', and 'Virus scan'. Below this is a 'Review' section with 'Request unassigned' and an 'Assign request' button. A message states: 'You can approve or decline this request only if you are the assignee'. There are buttons for 'Approve & publish' and 'Decline & return'. At the bottom, there is a 'Your comment...' section with a text area and a 'Submit' button.



The screenshot shows the 'Elements' repository interface. The top navigation bar includes 'Home', 'Menu', 'Research Admin', 'Annual Collection', 'Module Admin', and 'System Admin'. The main heading is 'Publications in OA policy'. Below this, there is a search bar for 'OA Policy' and a filter for 'Results only include users whose primary group is associated with this policy'. A 'Filter by metadata' section is visible on the right. The main content area displays a list of publications. The first entry is 'Enhanced ethanol production from syngas by Clostridium ragdalei in continuous stirred tank reactor using medium with poultry litter biochar'. It includes the authors 'Sanku, A.; Gupta, H.C.; Chung, H.; Varner, R.S.; Stubbins, B.' and the journal 'Applied Energy'. The second entry is 'Recent Board Declassifications: A Response to Creemers and Sappe'. It includes the author 'Reichardt, L.S.; Cohen, A.' and the journal 'No funding information'. Each entry has buttons for 'Library finished', 'Line', 'Compliant', and 'Low'. There are also buttons for 'send email', 'add exception', 'set library status', 'deposit', and 'exclude from policy'.

Manage repository collections including:

- Review & verify deposits
- Categorise materials
- Manage embargos
- Manage reuse licenses
- Store & preserve files

Support OA engagement & compliance including:

- Identify which outputs are 'in policy' (aka targeted for deposit)
- Monitor proportion of outputs that have been deposited.
- Tools to encourage deposits or deposit on researcher's behalf.

Maximising reuse, minimises manual effort

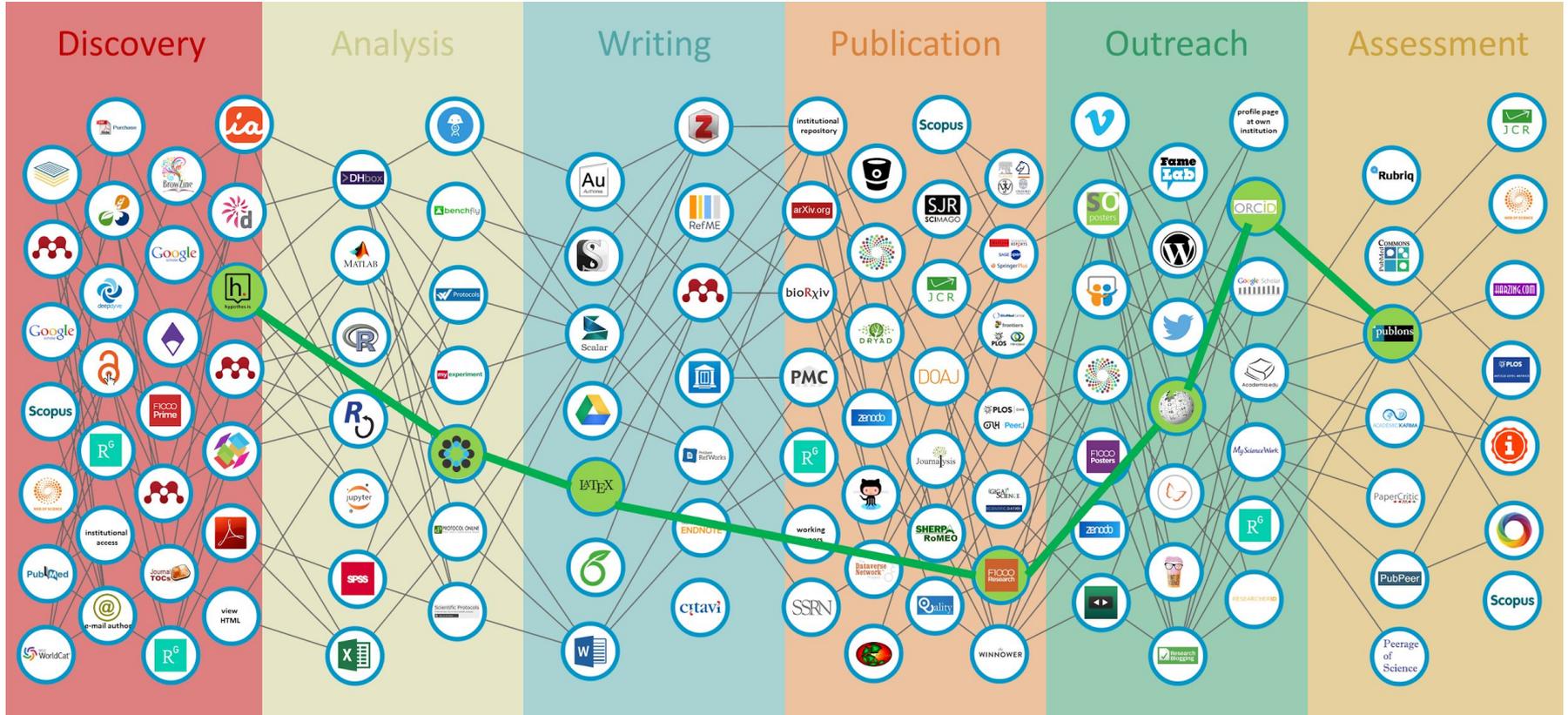


Data-focussed interoperability minimises time spent typing metadata into manual entry forms over and over, which in turn reduces the likelihood of typos and other human error.

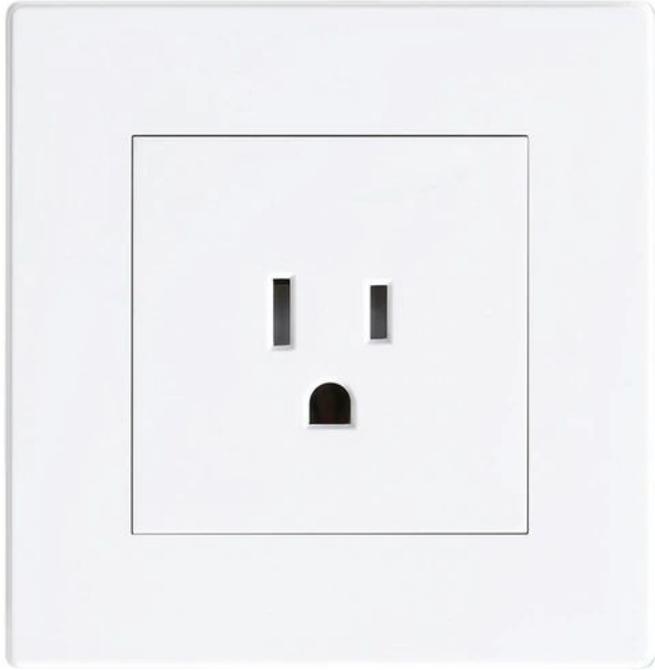
Being asked to do the same task multiple times is a common source for frustration for academics and administrators alike - reducing this frees up time for more important tasks.

Building the Network

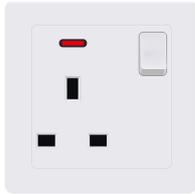
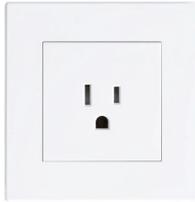
Models for integrations



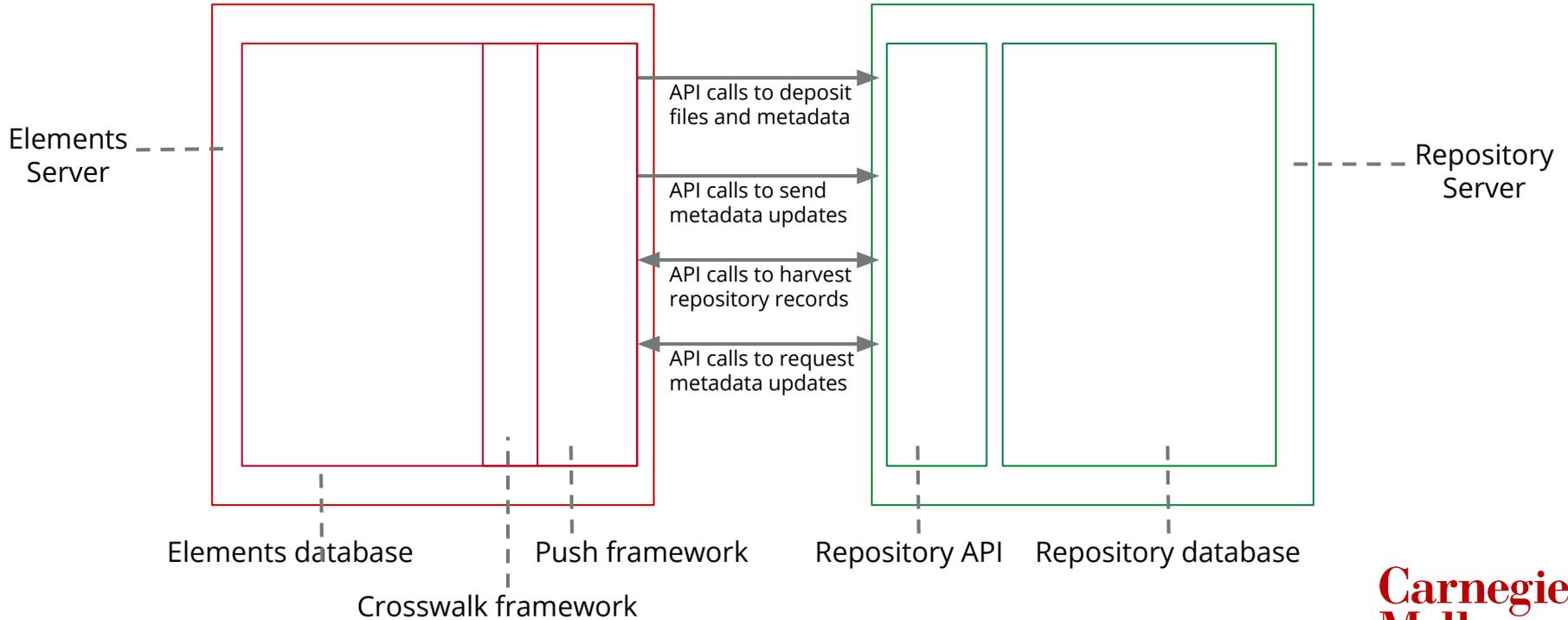
Foundations for interconnectivity



Foundations for interconnectivity

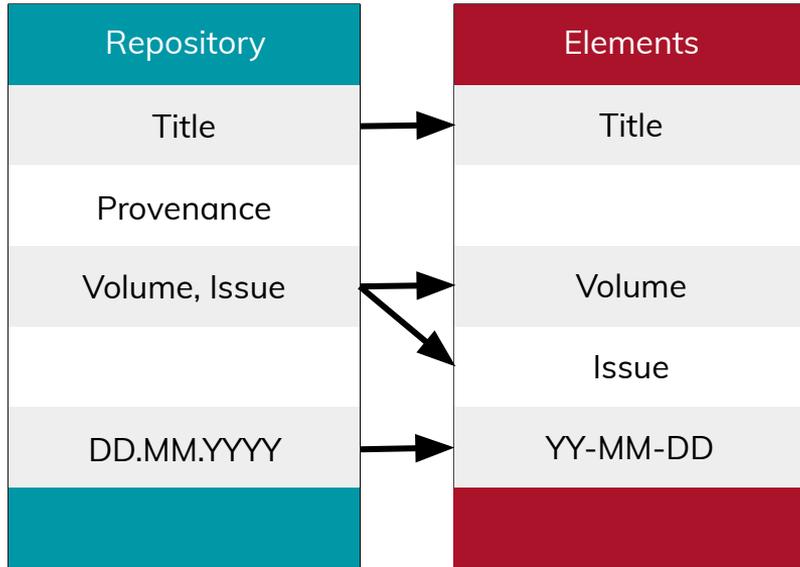


Under the hood of our bi-directional integrations

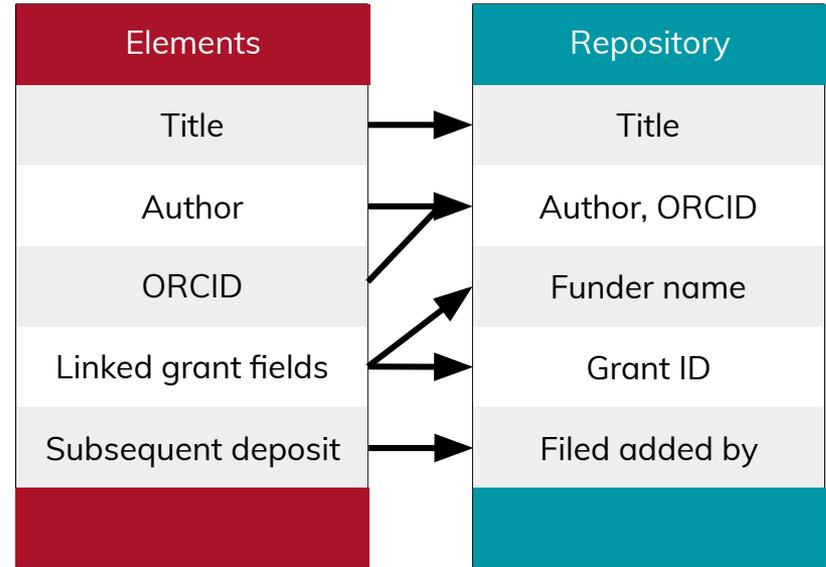


Crosswalks & translation layers

Harvest crosswalks



Deposit crosswalks



Edit Harvest Crosswalk for figshare for institutions

[< Return to the figshare for institutions configuration page](#)

Map

Input

Output

```

122
123     <!-- BASIC BIBLIOGRAPHIC METADATA -->
124
125     <!-- defined_type_name => types -->
126     <xwalk:field-mapping to="types">
127         <xwalk:field-source from="defined_type_name" />
128     </xwalk:field-mapping>
129
130     <!-- title => title -->
131     <xwalk:field-mapping to="title">
132         <xwalk:field-source from="title" value-map="ignore-empty-string" />
133     </xwalk:field-mapping>
134
135     <!-- description => abstract -->
136     <xwalk:field-mapping to="abstract">
137         <xwalk:field-source from="description" value-map="strip-html-elements" />
138     </xwalk:field-mapping>
139
140     <!-- authors => authors -->
141     <xwalk:field-mapping to="authors">
142         <xwalk:field-source from="authors">
143             <!-- Name -->
144             <xwalk:field-source from="full_name" format="person:firstnames-lastname" />
145             <!-- Figshare for Institutions user account ID -->
146             <xwalk:field-source data-part="person:identifier">
147                 <xwalk:field-source data-part="identifier:scheme" value="figshare-for-institutions-user-account-id" />
148                 <xwalk:field-source data-part="identifier:value" from="id" value-map="ignore-empty-string" />

```

 Full screen

 Revert

 Save

Use provided input: or specify figshare for institutions ID:

 Test Crosswalk

Use this page to edit and test your figshare for institutions harvest crosswalk. Any changes you make to the harvest crosswalk will not be deployed until you save. The buttons above can be used to revert the harvest crosswalk to the currently installed version, or to save this version. The following keyboard shortcuts can be used:

Cite

Share + Collect (you need to log in first)

DataCite

Gu, Peishi; Li, Hugh Z.; Ye, Qing; Robinson, Ellis; Apte, Joshua S.; Robinson, Allen; et al. (2019): Intracity Variability of Particulate Matter Exposure Is Driven by Carbonaceous Sources and Correlated with Land-Use Variables. figshare. Journal contribution.

<https://doi.org/10.1184/R1/7568579.v1>

Select your citation style and t
your mouse over the citation t
select it.

Repository DOI

Intracity Variability of Particulate Matter Exposure Is Driven by Carbonaceous Sources and Correlated with Land-Use Variables

305 views | 0 downloads

Journal Contribution posted on 23.09.2018, 20:00 by Peishi Gu, Hugh Z. Li, Qing Ye, Ellis Robinson, Joshua S. Apte, Allen Robinson, Albert Presto

CATEGORIES

- Atmospheric Sciences
- Atmospheric Aerosols

FUNDING

Center for Air, Climate, and Energy Solutions (CACES)

Environmental Protection Agency

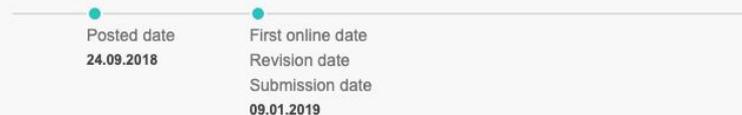
NLM

DC

Spatial Variability in Organic Aerosol: Relationships between Sources, Processing, and Composition

Directorate for Geosciences

TIMELINE



REFERENCES

- <https://pubs.acs.org/doi/10.1021/acs.est.8b03833>
- <https://doi.org/10.1184/R1/7353287>

Publisher's DOI

PUBLISHER STATEMENT

This is the author's accepted manuscript version of, " Gu, P., Li, H., Ye, Q., Robinson, E., Apte, J., Robinson, A., & Presto, A. (2018). Intracity Variability of Particulate Matter Exposure Is Driven by Carbonaceous Sources and Correlated with Land-Use Variables. Environmental Science & Technology, 52(20), 11545–11554. <https://doi.org/10.1021/acs.est.8b03833>."

Mutiple Sources

Opportunities for real-time digital reference service

Summary Organisation users (1) History (2) **Data sources (3)** Links (1)

-    Opportunities for Real-Time Digital Reference Service
-    Opportunities for real-time digital reference service
-    Opportunities for real-time digital reference service

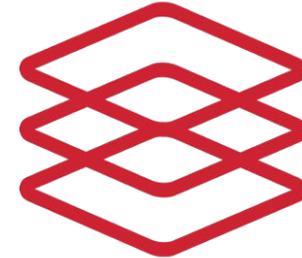
Chapter 

CMU Crosswalks & Translations

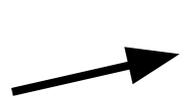


**Publisher DOI
Present**



**Publisher DOI Not
Present**

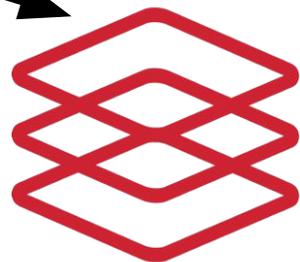
CMU Crosswalks



Publisher DOI Present



Scopus[®] SciVal



Publisher DOI Not Present



Carnegie Mellon University's workflows

Metadata Harvesting & Content Matching



Monitoring OA Status
and Engagement



Elements

Content Verification, Submission, and Deposit



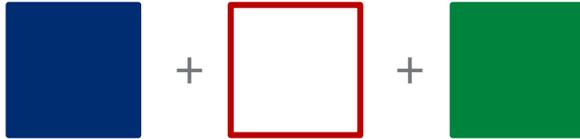
Carnegie
Mellon
University

Why this Matters

Why this matters for institutions



Integrations = Choices



Why it matters to do it the right way?



We need to make integrations **sustainable and scalable**.

Symplectic supports over 80 repository integrations for over 70 institutions - we need to ensure those integrations meet our clients needs but also are **easy to implement, use, manage and maintain**.

Future of Repositories and RIMS

Continuing to build the network

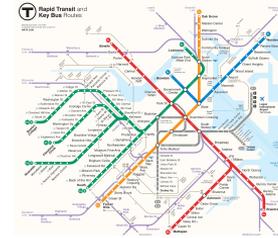
Interoperability is paramount

- APIs should be standard
- Also translation layers & admin toolsets
- Power to swap out any one system



Wider range of integrations between systems

- Connections in line with the research lifecycle
- Consider opportunities for chaining together integrations



Flexible workflows & configurability

- Consistent but still configurable.
- Support choice eg. multiple deposit options.



[Socket Wrench and Sockets](#) by Kae. CC-BY 3.0

Enhanced interoperability starts with asking questions

Creating connections

- Does the platform offer APIs or other kinds of interfaces for feeding & receiving data from other systems?
Automated/manual
- What kinds of operations do the APIs support?
Read/Write/Update
etc.

Metadata Quality

- Which metadata standards does the system use?
- Does the system offer crosswalks/translation layers or other kinds of metadata mapping tools?
- How does the system handle metadata updates?

Sustainability

- What tools does the system offer to help maintain the integration?
- How does the system manage data at volume?
- How can we configure the integration to meet our needs?

Integrated Data Models

The screenshot shows the Altmetric interface for the book 'Software Engineering for Self-Adaptive Systems'. The page features a dark header with the Altmetric logo and navigation links. The main content area displays the book cover, a table of contents, and attention metrics for Chapter 3. A circular gauge shows 13 mentions, broken down into 1 news outlet, 1 Wikipedia page, and 160 Dimensions citations. A snippet from The Guardian is highlighted, discussing the role of robots in the workplace.

Altmetric Access Altmetric Explorer What is this page? Embed badge Share

Software Engineering for Self-Adaptive Systems

Overview of attention for book

Attention for Chapter 3: Engineering Self-Adaptive Systems through Feedback Loops

13 Mentioned by Citations Readers on

- 1 news outlet
- 1 Wikipedia page
- 160 Dimensions
- 350 Mendeley
- 9 CiteULike

SUMMARY News Wikipedia Dimensions citations

So far, Altmetric has seen 1 news story.

theguardian **Why a robot could be the best boss you've ever had**
The Guardian, 09 Sep 2016
Would you like to work for a robot? Although the automation of skilled jobs is a reality, your boss is probably (still) a human.

TABLE OF CONTENTS

- Book Overview**
- Chapter 1** Software Engineering for Self-Adaptive Systems: A Research Roadmap
- Chapter 2** Modeling Dimensions of Self-Adaptive Software Systems
- Chapter 3** Engineering Self-Adaptive Systems through Feedback Loops
- Chapter 4** Improving

Integrated Data Models



TABLE OF CONTENTS

- 13** Publisher Version
- 7 Repository Version 1
- 7 Repository Version 2
- 13** Repository Version 3
- 7 Repository

Attention for Chapter 3: **Engineering Self-Adaptive Systems through Feedback Loops**



Aggregate of Scholarship

1 news outlet 1 Wikipedia page 160 Dimensions

Readers on
350 Mendeley
9 CiteULike

- SUMMARY**
- News
- Wikipedia
- Dimensions citations

So far, Altmetric has seen 1 news story.

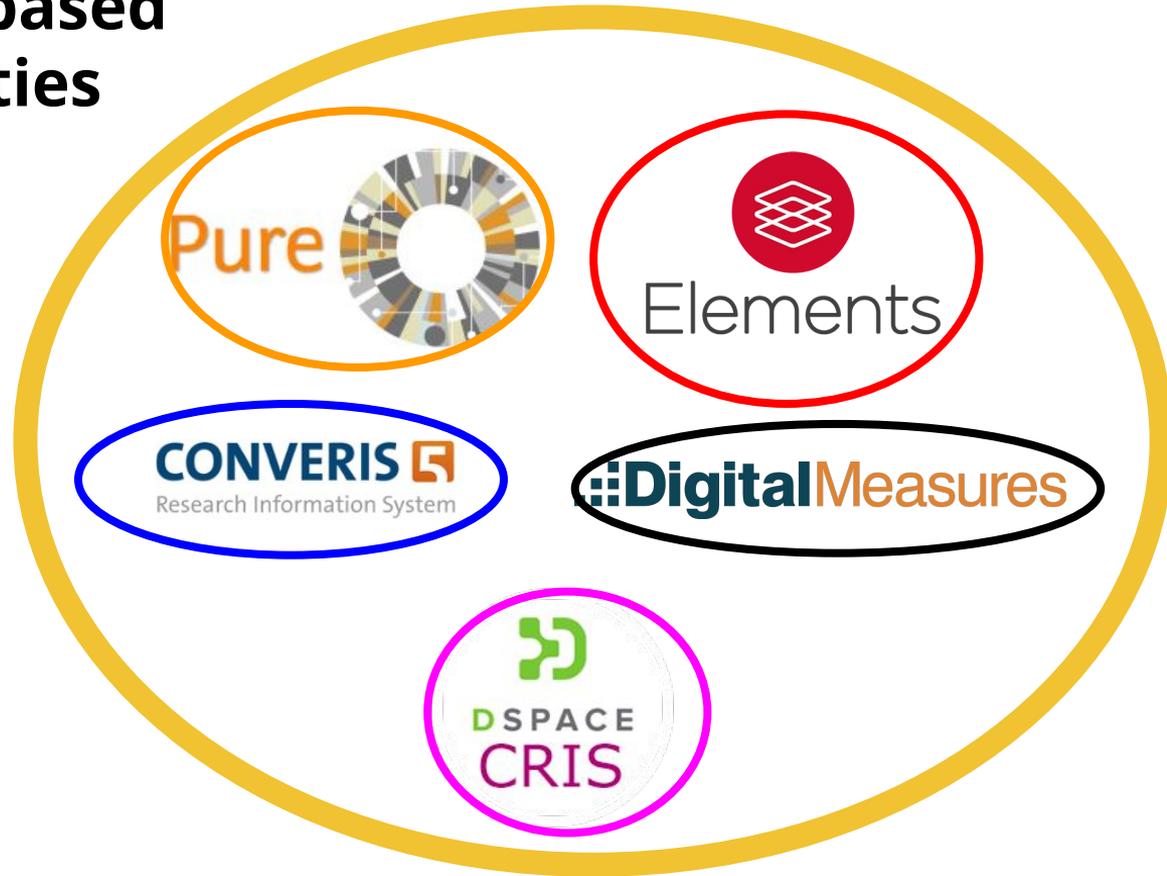


Why a robot could be the best boss you've ever had

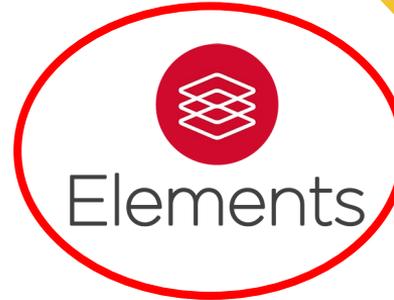
The Guardian, 09 Sep 2016

Would you like to work for a robot? Although the automation of skilled jobs is a reality, your boss is probably (still) a human.

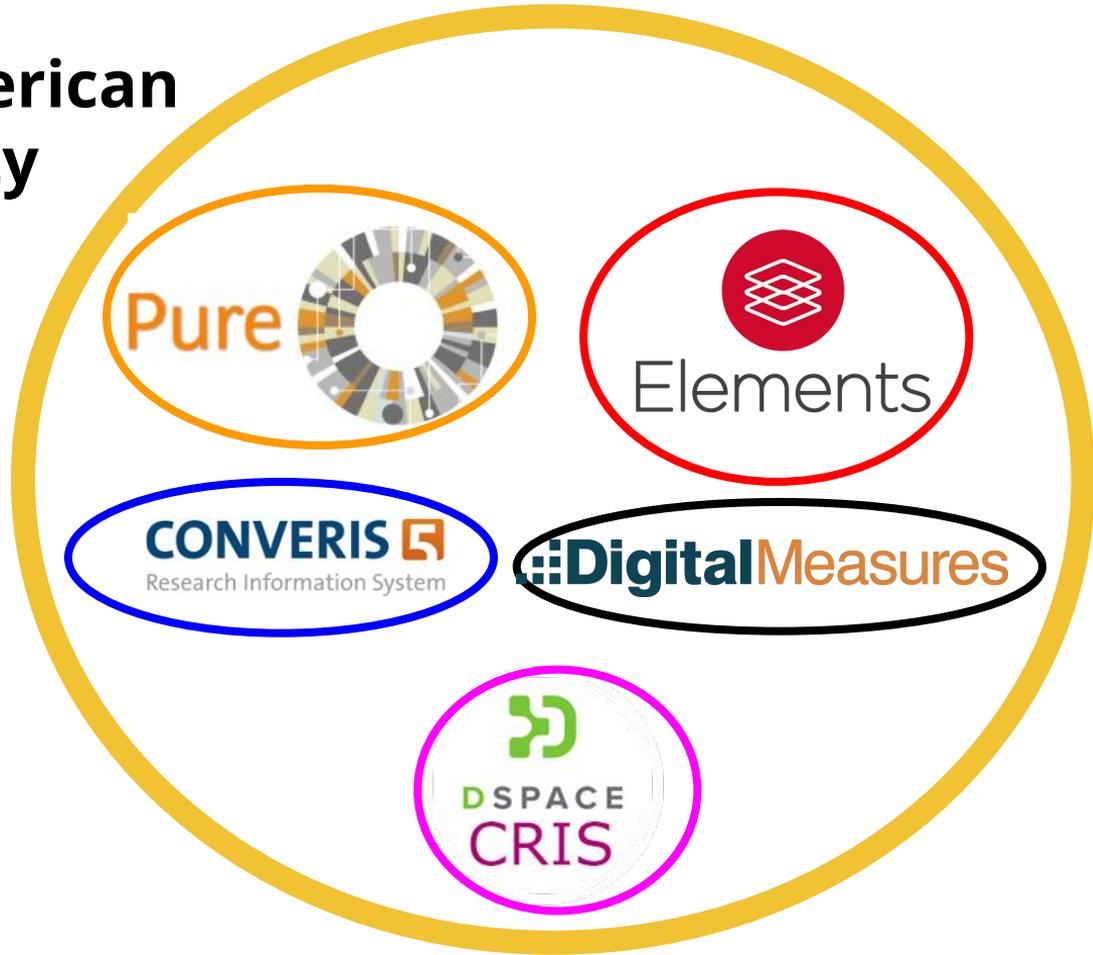
Platform-based Communities



Global Community



North American Community



Question/Comments

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daschere@andrew.cmu.edu

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Kate Byrne

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@katecbyrne

Mark Hahnel

mark@figshare.com

@markhahnel

Dan Valen

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@dnvln