The Empires of the Future are the Empires of the Mind: Defining the role of libraries in the Open Science landscape

Conclusions

Citizen Science
e-Infrastructure
Open Access
RDM

Scope
Content

- The scope of Open Science
- Open Access
- Research Data Management
- e-Infrastructure
- Citizen Science
- Conclusions
The Three Major Shifts of Open Science

- How scientists collaborate to create knowledge
  *RDM, EOSC, ERA, ERIC*

- How scientists find meaning in knowledge
  *The International HapMap Project*

- A change in the relationship Science - Society
  *OA, Citizen Science, Open Days, Pop Science*
Content

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e-Infrastructure
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Plaster Relief by John Flaxman,
Flaxman Gallery, UCL
What is Open Science?

Open Science is the movement to make scientific research, data and dissemination accessible at all levels of an enquiring society.

fosteropenscience.eu/foster-taxonomy/open-science
Open Science
a paradigm shift in the modus operandi of research and science impacting the entire scientific process

RESEARCH CYCLE
- Conceptualization
- Data Gathering
- Analysis
- Review
- Publication

CHARACTERISTICS
- Citizen Science
- Open Code
- Pre-print
- Open Access
- Alternative Reputation Systems
- Collaborative Bibliographies
- Science Blogs
- Open Annotation
- Open Data
- Open Lab Books / Workflows
- Data Intensive
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Gold APC payments (to March 2017)

8,661 APCs paid since April 2013
RCUK – 3,641  COAF/WT – 2,103  UCL GOLD – 2,917

The Library: significant expertise in managing the workflow around APCs

UCL academics rely on library's service to enable them to comply with funder's requirements, both Green and Gold
UCL Press
The UK's first fully Open Access University Press

23 months. 33 books.
330,000 downloads.

http://www.ucl.ac.uk/ucl-press
OA Texbooks

Written by Deepak Kalaskar, Peter E. M. Butler, and Shadi Ghali from The Royal Free Hospital, London. The textbook offers a comprehensive overview of reconstructive plastic surgery for introductory plastic surgery and surgical science courses. June 2016
UCL Publishing model

- OA business model
- Sales via Print on Demand
- Enhanced digital interface
- Books peer reviewed before publication

- Textbook activity
- Journal programme
- Publishing services offered to other universities

Publishing Manager

Marketing and Distribution Manager
Managing Editor
Commissioning Editor
Journals Editor
Administrative Assistant
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LEARN

• 5 partners
  • UCL (University College London) – lead partner
  • University of Barcelona
  • University of Vienna
  • LIBER
  • ECLAC – UN Commission for Latin America and the Caribbean
• Started in June 2015; it ran for 24 months
• €497,000 budget
• 100% funded

www.learn-rdm.eu
LEARN Deliverables

- Model Research Data Management Policy
- Toolkit to support implementation
- Self-assessment survey
- KPIs to measure levels of success at institutional level
- Executive Briefing (in six languages)
- 20 Recommendations on Best Practice in RDM

All Deliverables at: http://learn-rdm.eu/en/dissemination
The LEARN Toolkit of Best Practice Case Studies

23 chapters of Best Practice Case Studies in 8 sections

- Policy and Leadership
- Advocacy
- Subject approaches
- Open Data
- Research Data Infrastructure
- Costs
- Roles, Responsibilities, Skills
- Tool development

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European Open Science Cloud

- EU High Level Expert Group Report
- Launched on 11 October 2016
- Issues considered:
  - Infrastructures
  - Skills development
  - Reward and Recognition
  - Roles and responsibilities
  - Governance & Standards
  - Funding opportunities
- Available here:
European Open Science Cloud

- Headline points:
  - Build on existing infrastructure and expertise
  - Devise Rules of Engagement
  - EU contribution to FAIR data and Open Science
  - Build links to regional Cloud(s) around the globe
  - Develop expertise
    - Half a million ‘core data scientists’ in Europe
    - 5% of total research spend should be on data stewardship

King's Cross Station, London
EOSC Declaration (Autumn 2017–)

Data Culture & FAIR Data
- Open by default
- Skills development
- FAIR principles
- Data Management Plans
- Engagement with researchers

Services & Architecture
- EOSC is an infrastructure commons
- EOSC to use existing high spec. services
- HPC to be developed in tandem

Governance & Funding
- Strong Governance model, but flexible
- 3 levels of membership – institutional, operational, advisory

EOSC is a process, not a project!
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Citizen Science: Definition

Citizen Science refers to the general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources.

- 2014 EC White Paper on Citizen Science for Europe

Science isn’t just something scientists do. It is something in which every single one of us has a stake.

- Professor Ian Chubb, former Chief Scientist of Australia
Citizen Science: Perspectives and Outcomes

**Perspectives:**
- Science
- Education and Engagement
- Project Management

**Outcomes:**
- Scientific
- Individual
- Community
- Organizational
Citizen Science: Components At A Glance

Determine a suitable research idea

Form a team:
(ideally: scientist+educator+librarian+evaluator)

Develop, test, and refine:
(protocols, data forms, educational support materials, marketing and communication package)

Recruit citizens:
(and include them in a retention programme)

Train citizens:
(and keep records of their training certificates)

Event(s) development:
(on sites, online, base camps, etc)

Build FAIR Data:
(accept, edit, make it FAIR and display data)

Analyze and interpret data:
(inform citizens about research methods and the use of their data)

Disseminate results:
(use both academic and pop-science standards)

Measure outcomes:
(perspectives: scientific, educational and engagement, event management)

After event actions:
(equally important with any from above. Ask us!)
Citizen Science: Examples

… it's not only about bugs, birds and stars (although we love them) …

MATHEMATICS

• 1938, The Math Tables Project (Work Projects Administration, NYC)
• 2016, CrowdMath (MIT PIMES and AoPS)

PUBLIC HEALTH

• 2005, Malariacontrol (Swiss Tropical and Public Health Institute + Citizen Cyberlab of CERN, UNITAR and UniGE)

NEUROSCIENCE

• 2012, Eyewire (Wired Differently, Inc, Seung Lab / Princeton University, Max Planck Institute for Medical Research)

GOVERNANCE

• 2015, Open Seventeen (ONE, The Governance Lab at New York University, SciFabric, Citizen Cyberlab)
Citizen Science: Examples

...it's not your job to fight against the stars (although we love them)...

**LOOK AT THIS!**

**European Illegal Parking** (a project of SciStarter)

The information you provide will help us collect enough data to build an European Illegal Parking Ranking. Hopefully, this ranking will raise awareness to the problem in Europe and thus pressure the national and local institutions to pursue more effective measures to tackle the problem.
Citizen Science: Roles for Libraries

- Build skills for engaging in citizen science projects
- Support (be part of) your organisation's toolkit for developing citizen science projects
- Build collections of protocols, data forms and educational materials
- Contribute to FAIR data. Develop collections of FAIR data
- Offer infrastructure (IT, spaces)
- Contribute to evaluation process
- Communicate collections and support both scholarly and pop science processes
- Participate in recruiting and retention process. Assist volunteers to participate
- Participate in marketing activities
- Promote a positive attitude towards citizen science
Citizen Science: part of European strategies

**LIBER Strategy 2018-2022: HUB FOR DIGITAL SKILLS & SERVICES**

LIBER wants to increase the role of libraries in supporting citizen science. It proposes to do this by:

- Ensuring that Citizen Science enthusiasts are informed about library support for this field
- Making an overview of Citizen Science actions in Europe available to LIBER members
- Organising a Citizen Science workshop where members can discuss the most valuable actions

**European Council:**

- Promote the creation of appropriate tools as well as standards for interoperability, metadata, citations, anonymization and accessibility.
- Promote the design and definition of sustainability models for Citizen Science projects with long-term commitment for infrastructures and data repositories

**LERU:**

- Recognise citizen science as an evolving set of research methods, as well as its societal and educational benefits
- Consider creating, where viable, a single point of contact for citizen science within the institution, to advise scientists and ensure liaison with national and regional citizen science initiatives
Citizen Science: Roles for Libraries, A Survey

The aim is twofold:
1. To picture the current involvement of libraries in citizen science
2. To receive ideas about suitable roles for libraries in citizen science initiatives

· Over 130 invitations were sent
· 8 answers

You are kindly invited:

http://knowledge.services/citizenscience
Citizen Science: Acknowledgements

- BONEY, R. Citizen Science: A Developing Tool for Expanding Science Knowledge and Scientific Literacy (2009)
- NIELSEN, M. Reinventing Discovery (2011)
- LERU: Citizen Science at Universities: Trends, Guidelines and Recommendations (2016)
- University of Zurich: Citizen Science: New Ways for Research (2016)

Please revisit this presentation:
http://knowledge.services/presentations
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Challenges for libraries in Open Science

4-step test for libraries to engage in Open Science

1. Offer leadership across the university in open science approaches
2. Identify infrastructure needed to deliver change
3. Engage in skills development for staff
4. Ensure that your advocacy leads to innovation
LEARN Survey

Test Your RDM Readiness

Take the survey

112.
Focus on Open Science

*a series of workshops, in partnership with LIBER, e-Infrastructure Plus Austria, EISZ Hungary and CTK Ljubljana*

Nov. 20th, Vienna: [https://knowledge.services/events/2017-vienna/](https://knowledge.services/events/2017-vienna/)

Nov. 22nd, Budapest: [https://knowledge.services/events/2017-budapest/](https://knowledge.services/events/2017-budapest/)

Nov. 24th, Ljubljana: [https://knowledge.services/events/2017-ljubljana/](https://knowledge.services/events/2017-ljubljana/)
Thanks for listening!
Happy to answer any questions

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