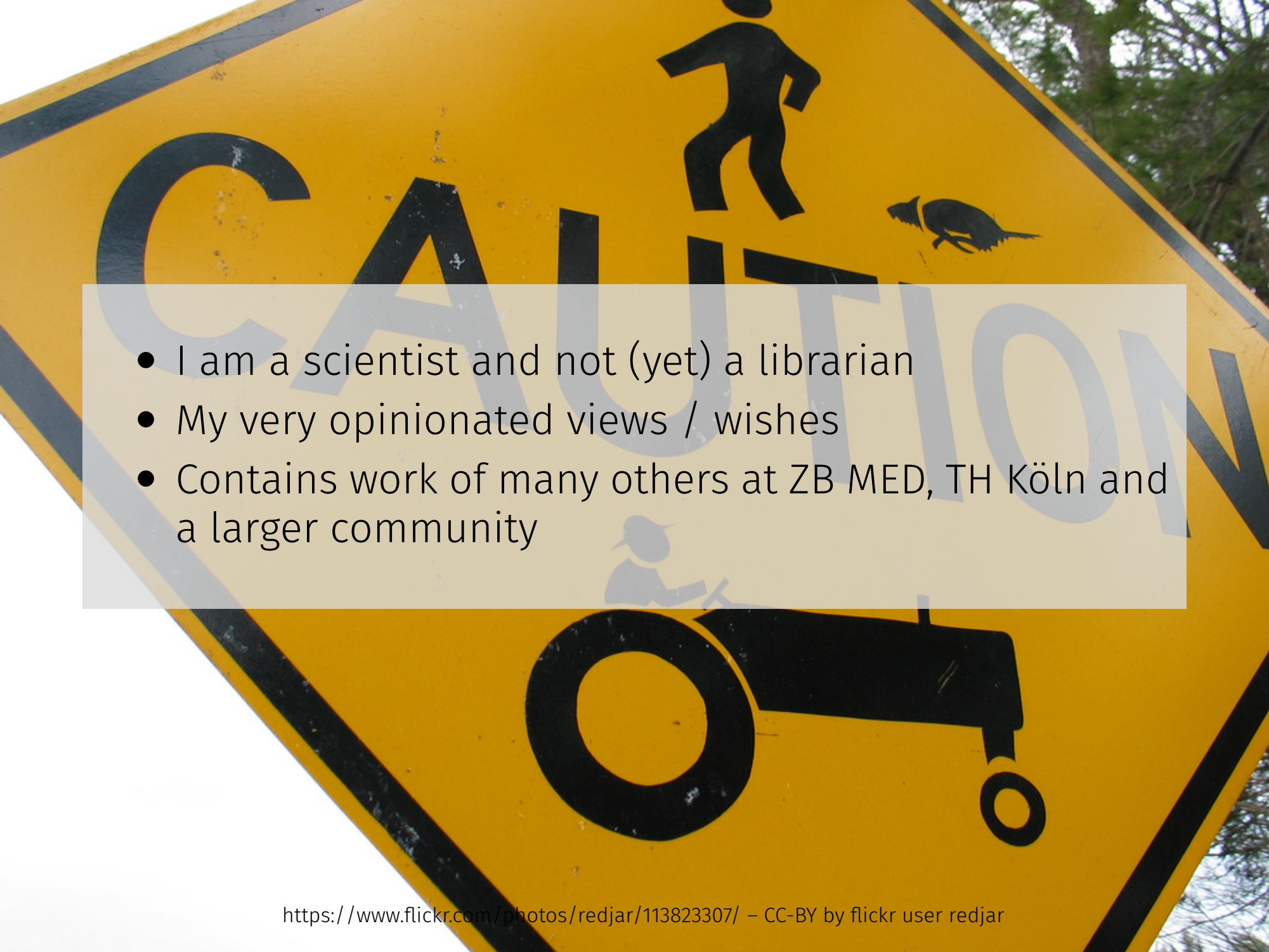
The scientific library in transition – future tasks, challenges and opportunities

Konrad U. Förstner

ZB MED – Information Center Life Sciences, Cologne, Germany &
TH Köln, Cologne Germany

Sep. 11th, 2018, ICSTI's Conference, London

ZB MED Information Centre for Life Sciences
Technology Arts Sciences TH Köln



- I am a scientist and not (yet) a librarian
- My very opinionated views / wishes
- Contains work of many others at ZB MED, TH Köln and a larger community

https://www.flickr.com/photos/redjar/113823307/ – CC-BY by flickr user redjar

The good news:

Open Access is on its way to become the default publishing mode.

https://www.flickr.com/photos/subcircle/500995147 – CC-BY by flickr user subcircle

cOAlition S

What is cOALition S?

On 4 September 2018, 11 national research funding organisation, with the support of the European Commission including the European Research Council (ERC), announced the launch of cOAlition S, an initiative to make full and immediate Open Access to research publications a reality. It is built around Plan S, which consists of one target and 10 principles.

cOAlition S signals the commitment to implement, by 1 January 2020, the necessary measures to fulfil its main principle: **"By 2020 scientific publications that result from research funded by public grants provided by participating national and European research councils and funding bodies, must be published in compliant Open Access Journals or on compliant Open Access Platforms."**

Login Area

News

(04/09/18) Science without publication paywalls: cOAlition S for the realisation of full and immediate Open Access... read more

(11/07/2018) Research funders making Open Access a reality by 2020...read more

Documents

Science Without Publication Paywalls: cOAlition S for the Realisation of Full and Immediate Open Access... read more

The bad news (for libraries):

This means scientific libraries
are not needed anymore.

https://www.flickr.com/photos/subcircle/500995147 – CC-BY by flickr user subcircle

~~The bad news for libraries:~~

~~This means scientific libraries are not needed anymore.~~

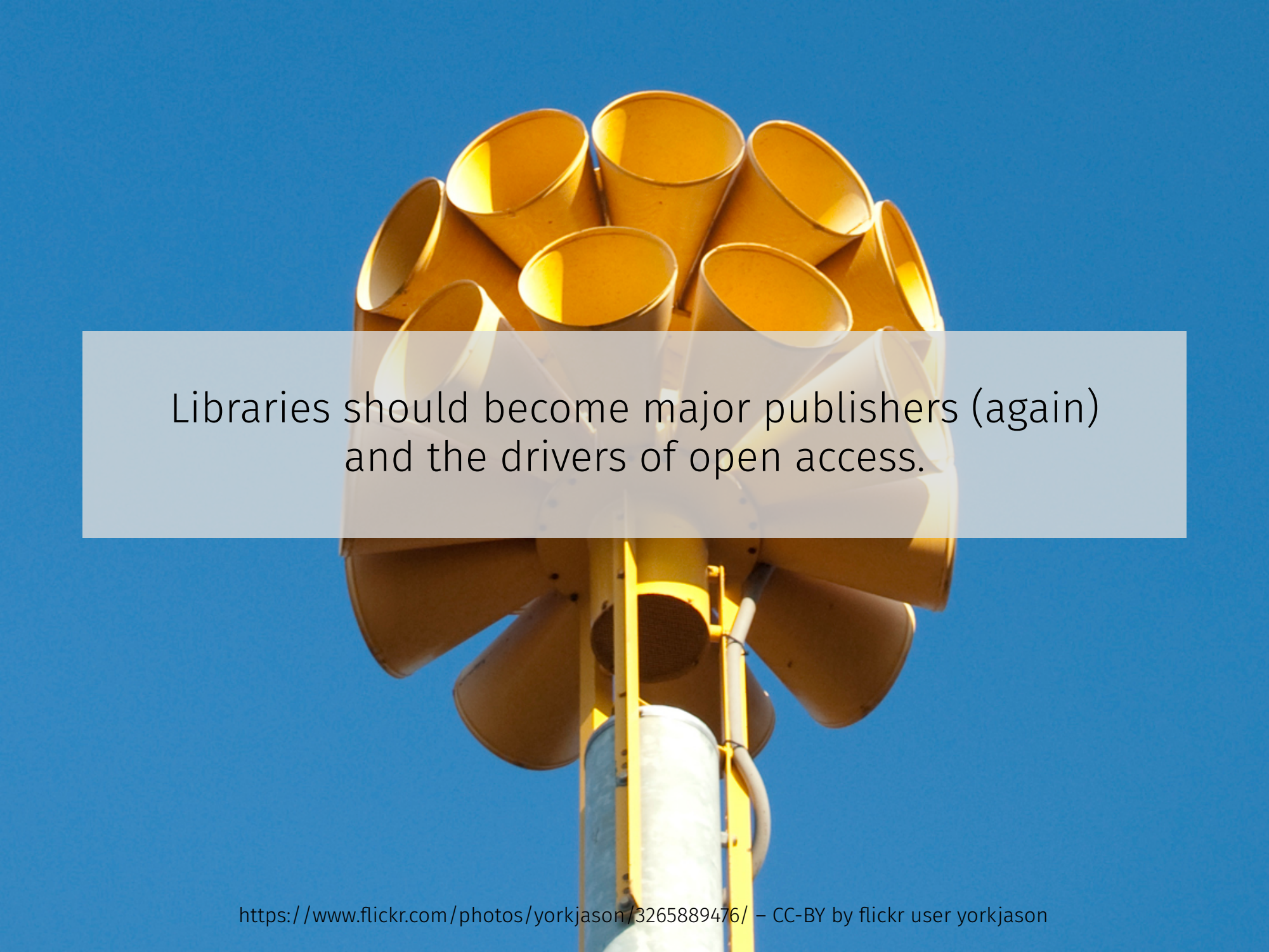
Scientific libraries have new tasks.

https://www.flickr.com/photos/subcircle/500995147 – CC-BY by flickr user subcircle

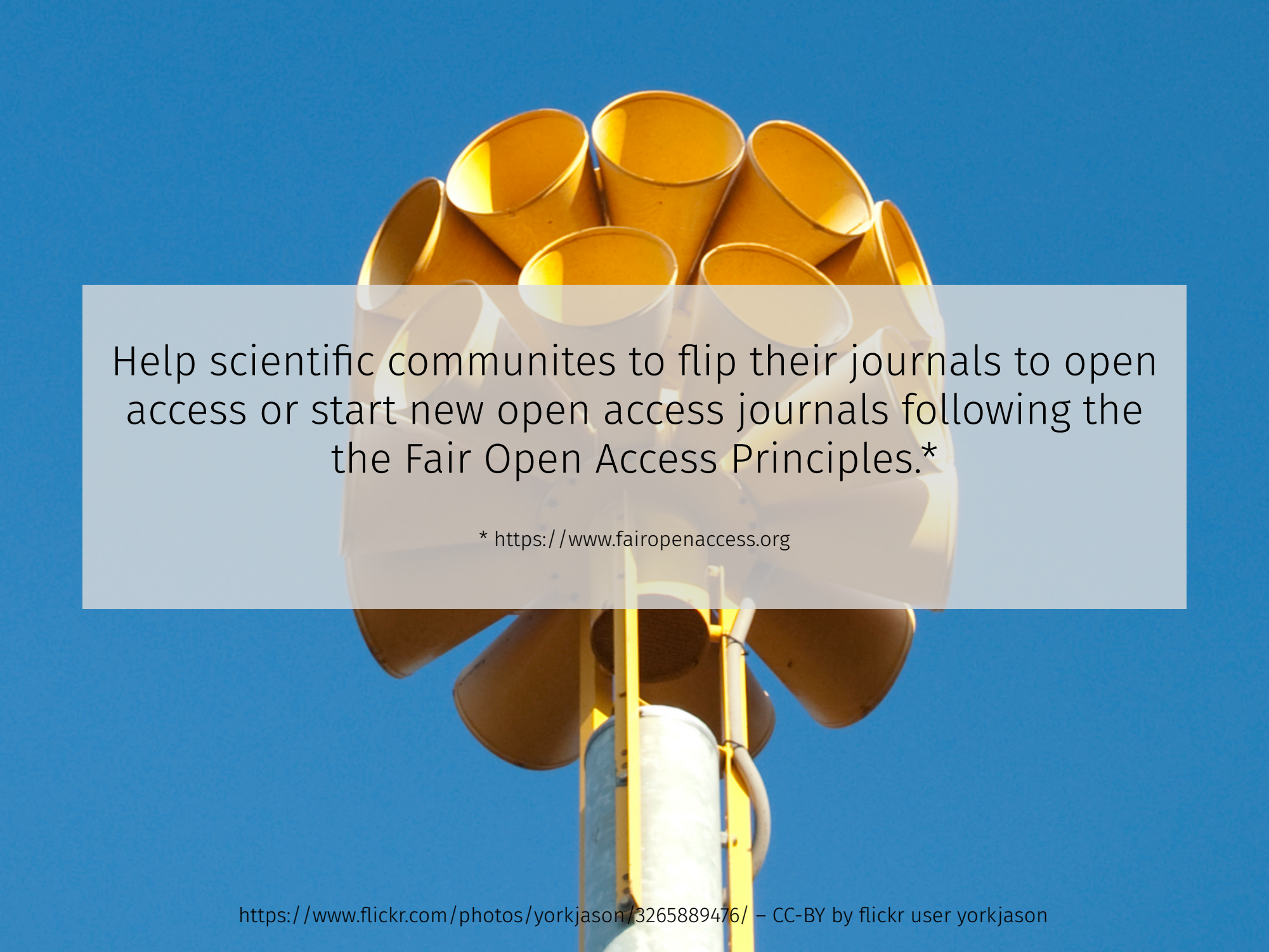
The mission remains the same:

Scientific libraries must preserve research output and provide access to it.

https://secure.flickr.com/photos/nostri-imago/3137422976/ – CC-BY by flickr user nostri-imago



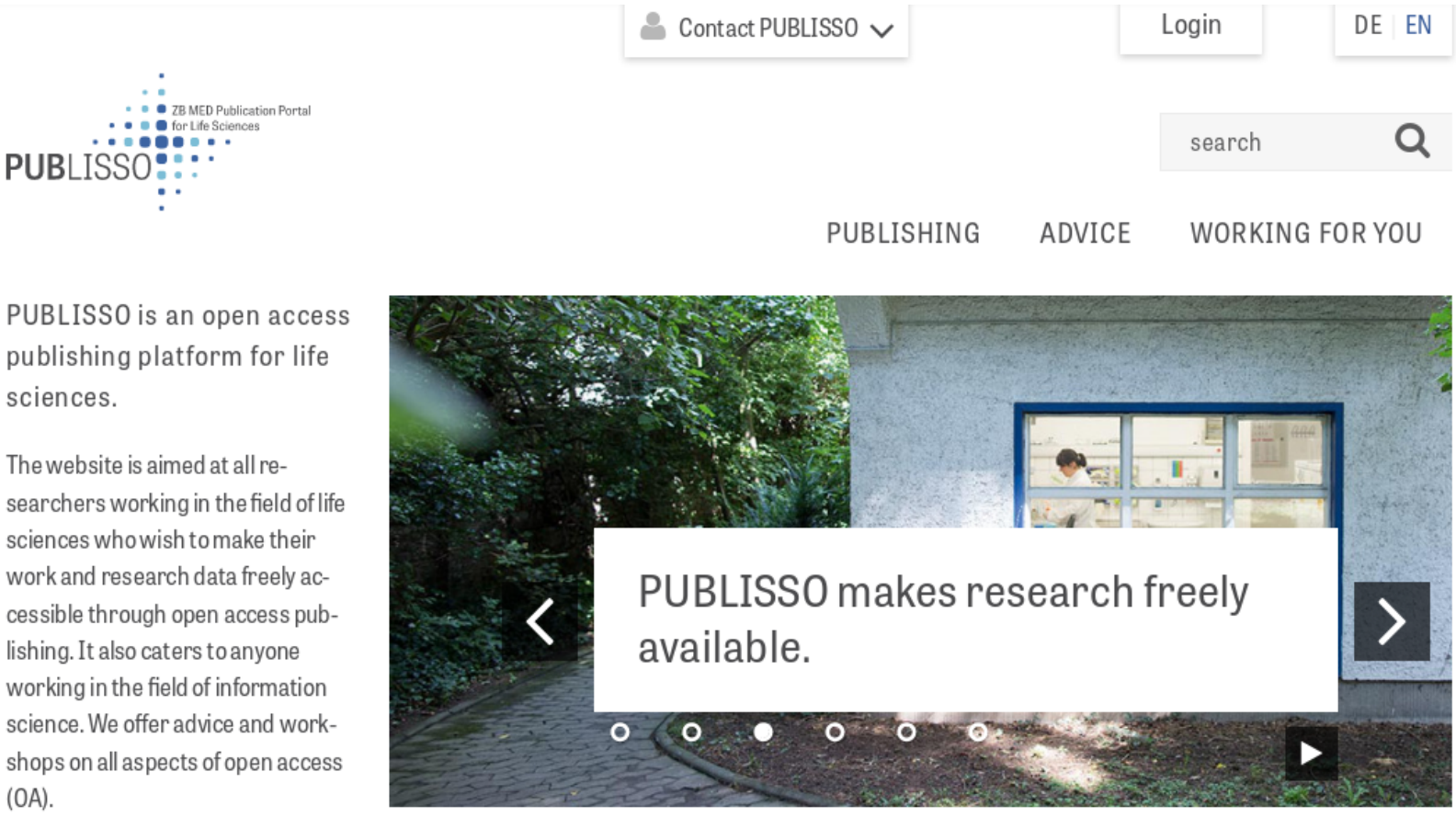
https://www.flickr.com/photos/yorkjason/3265889476/ – CC-BY by flickr user yorkjason



Help scientific communites to flip their journals to open access or start new open access journals following the the Fair Open Access Principles.*

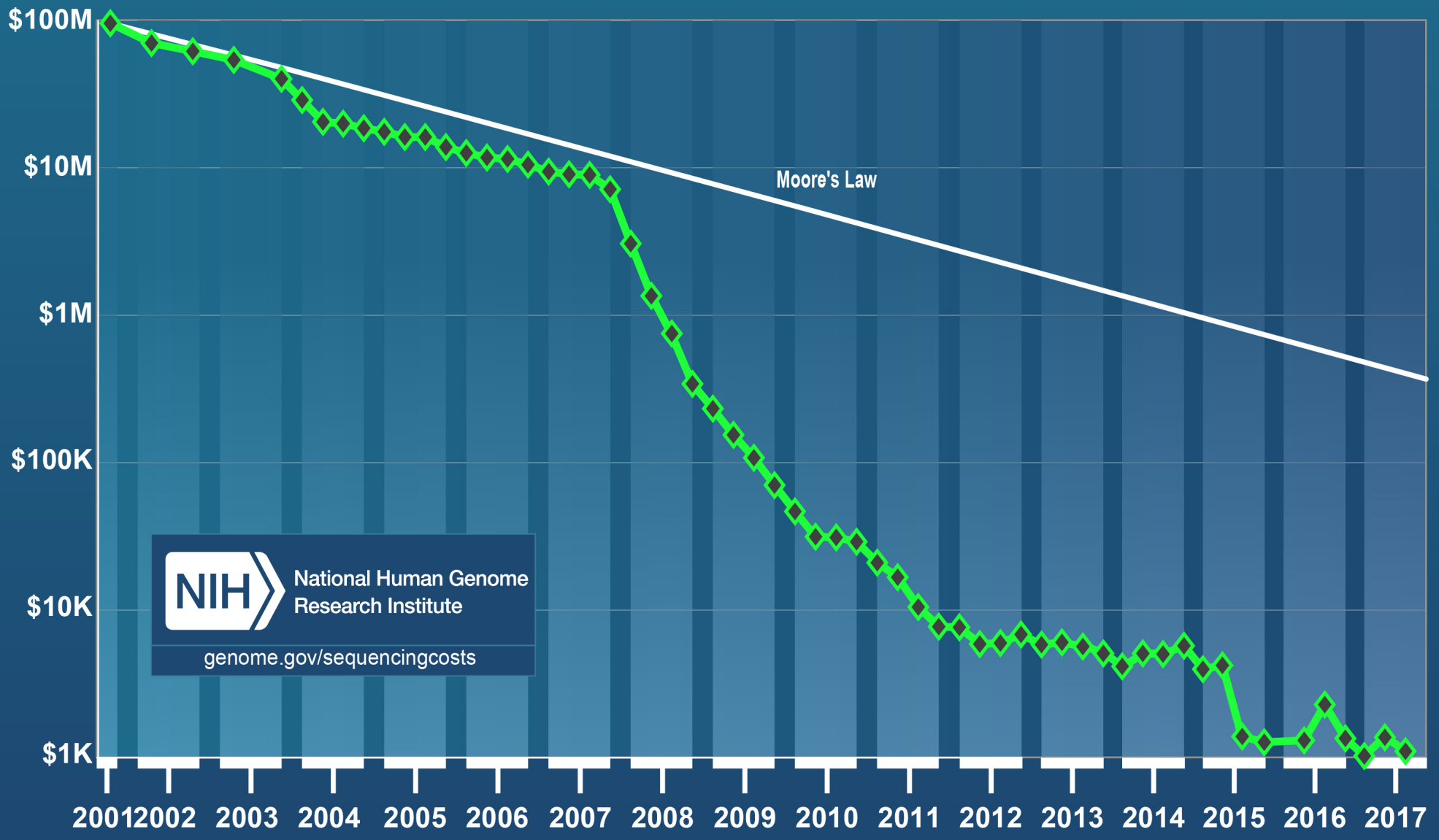
* https://www.fairopenaccess.org

https://www.flickr.com/photos/yorkjason/3265889476/ – CC-BY by flickr user yorkjason



https://publisso.de/

Cost per Genome



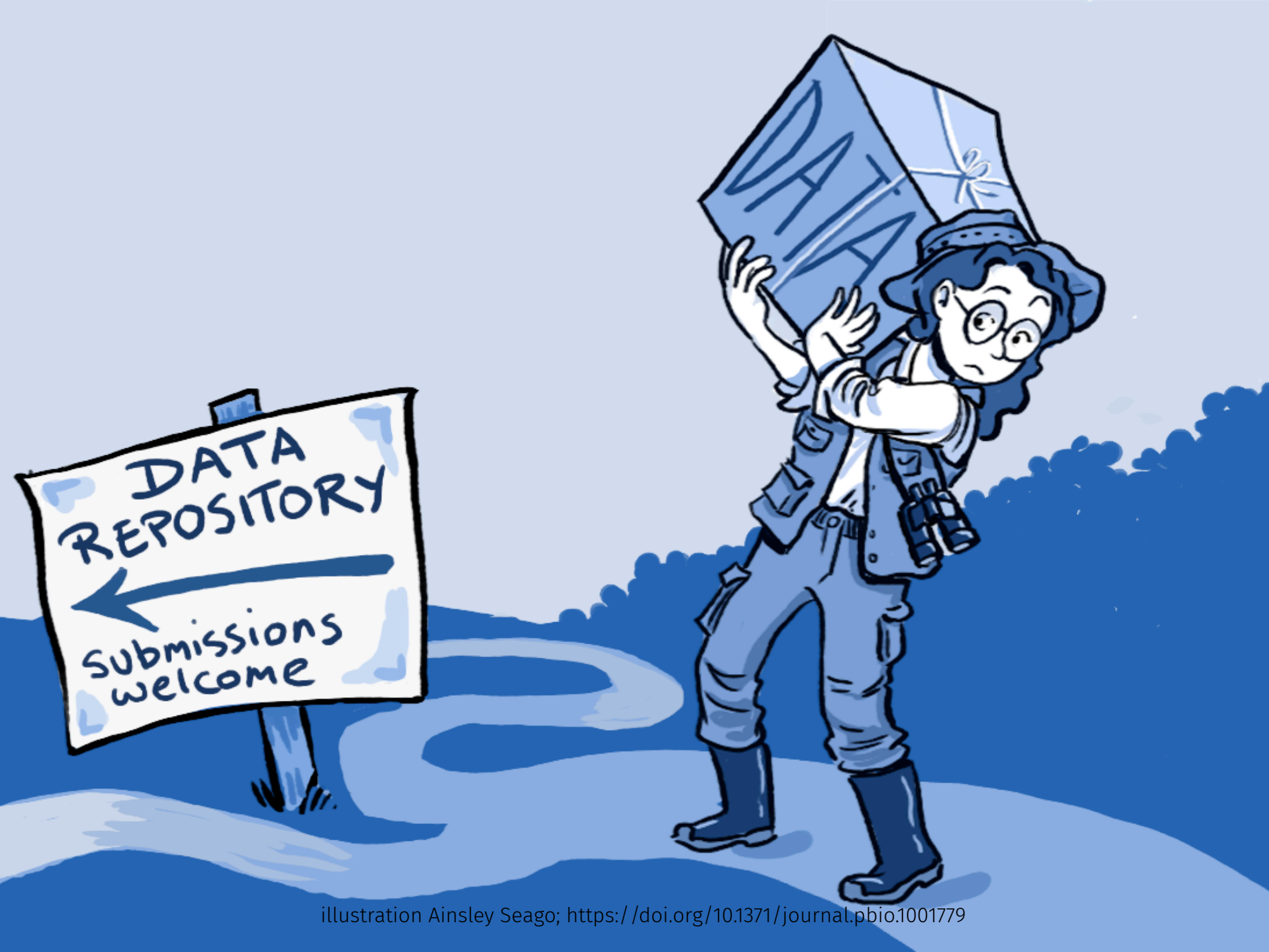
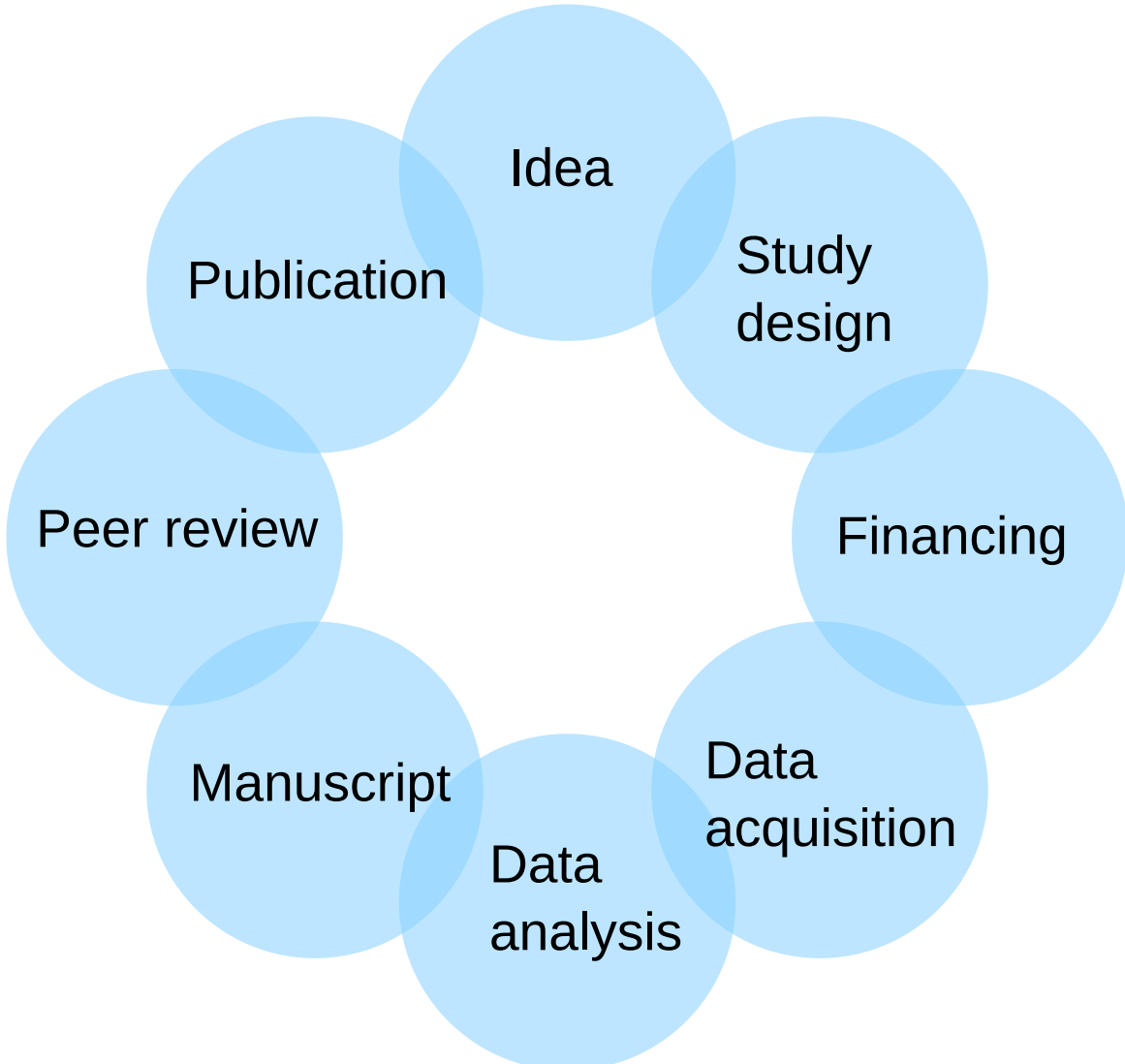
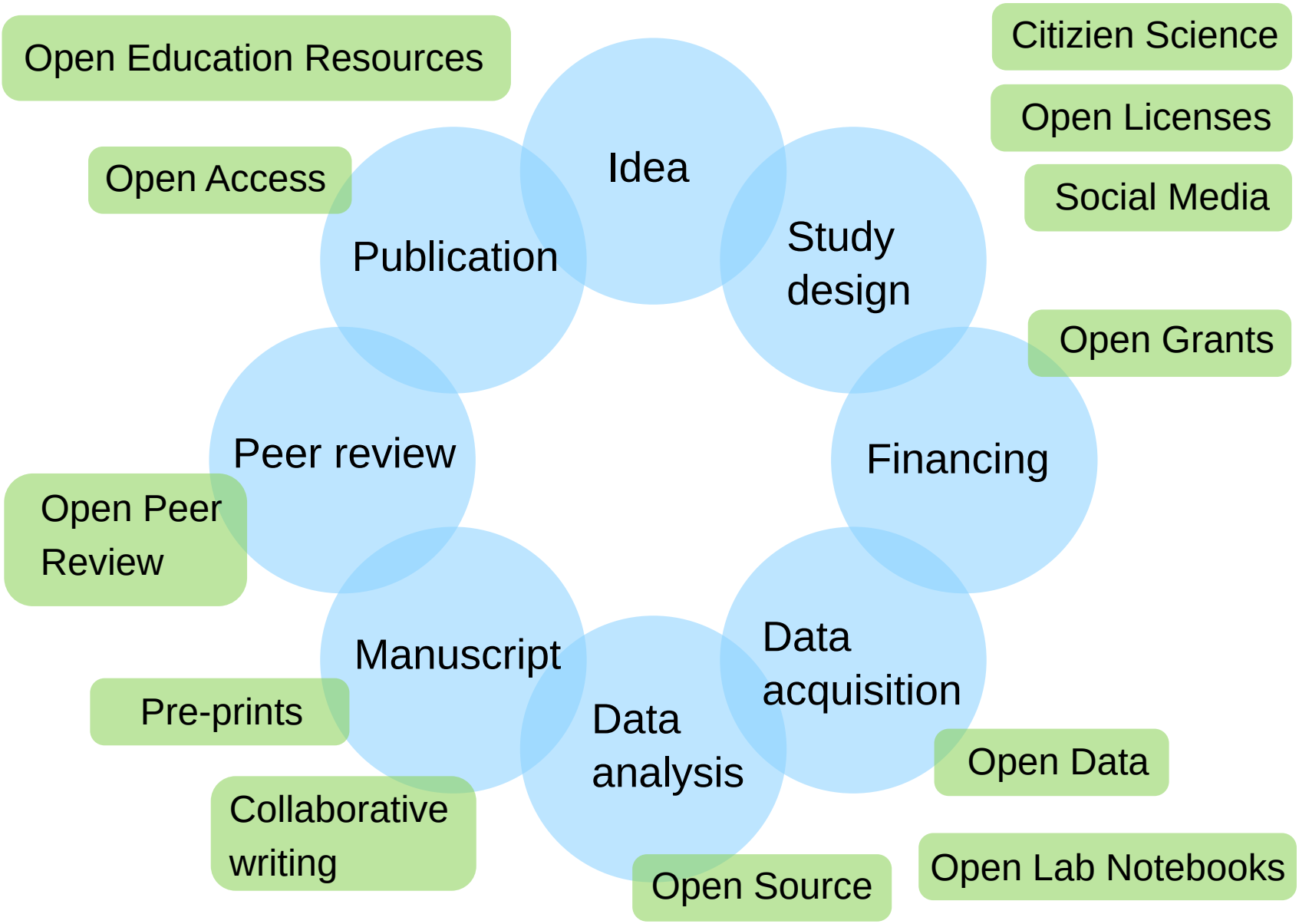


illustration Ainsley Seago; https://doi.org/10.1371/journal.pbio.1001779


Idea
Study design
Financing
Data acquisition
Data analysis
Manuscript
Peer review
Publication


Open Education Resources
Idea
Citizien Science
Open Licenses
Social Media
Open Access
Publication
Study design
Open Grants
Peer review
Financing
Open Peer Review
Manuscript
Data acquisition
Pre-prints
Data analysis
Open Data
Collaborative writing
Open Source
Open Lab Notebooks

Not trivial!

Numerous different file formats, licences, privacy issues, legal requirements, provenance and interaction between different items …

https://www.flickr.com/photos/heydrienne/22078028/ – CC-BY by flick user heydrienne

Currently my favorite example ...

Science ⇄ Technology

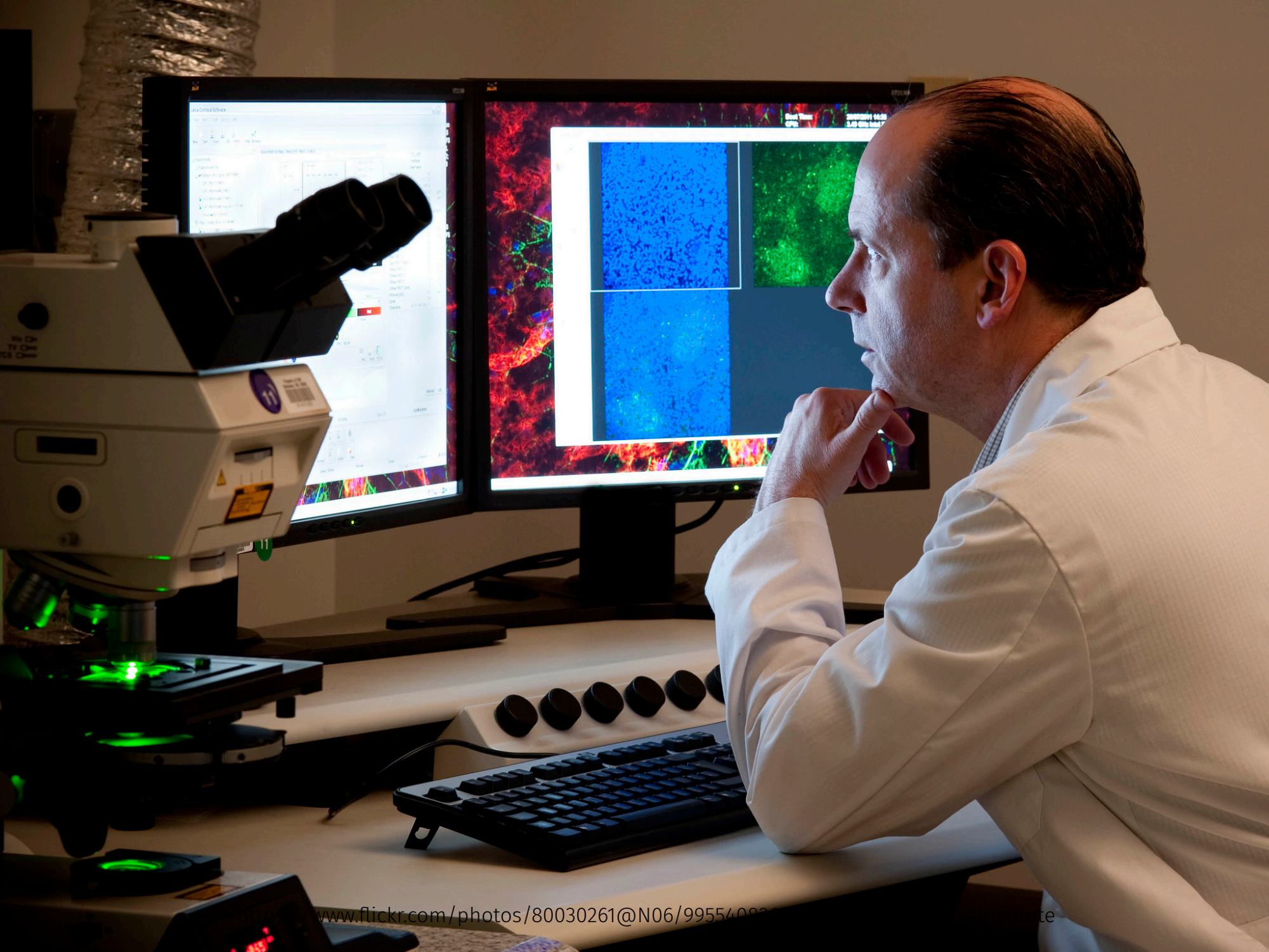
https://commons.wikimedia.org/wiki/File:Bertini_fresco_of_Galileo_Galilei_and_Doge_of_Venice.jpg - PD

https://commons.wikimedia.org/wiki/File:Leeuwenhoek_simple_microscope_(copy),_Leyden,_1901-1930_Wellcome_L0057739.jpg - CC-B

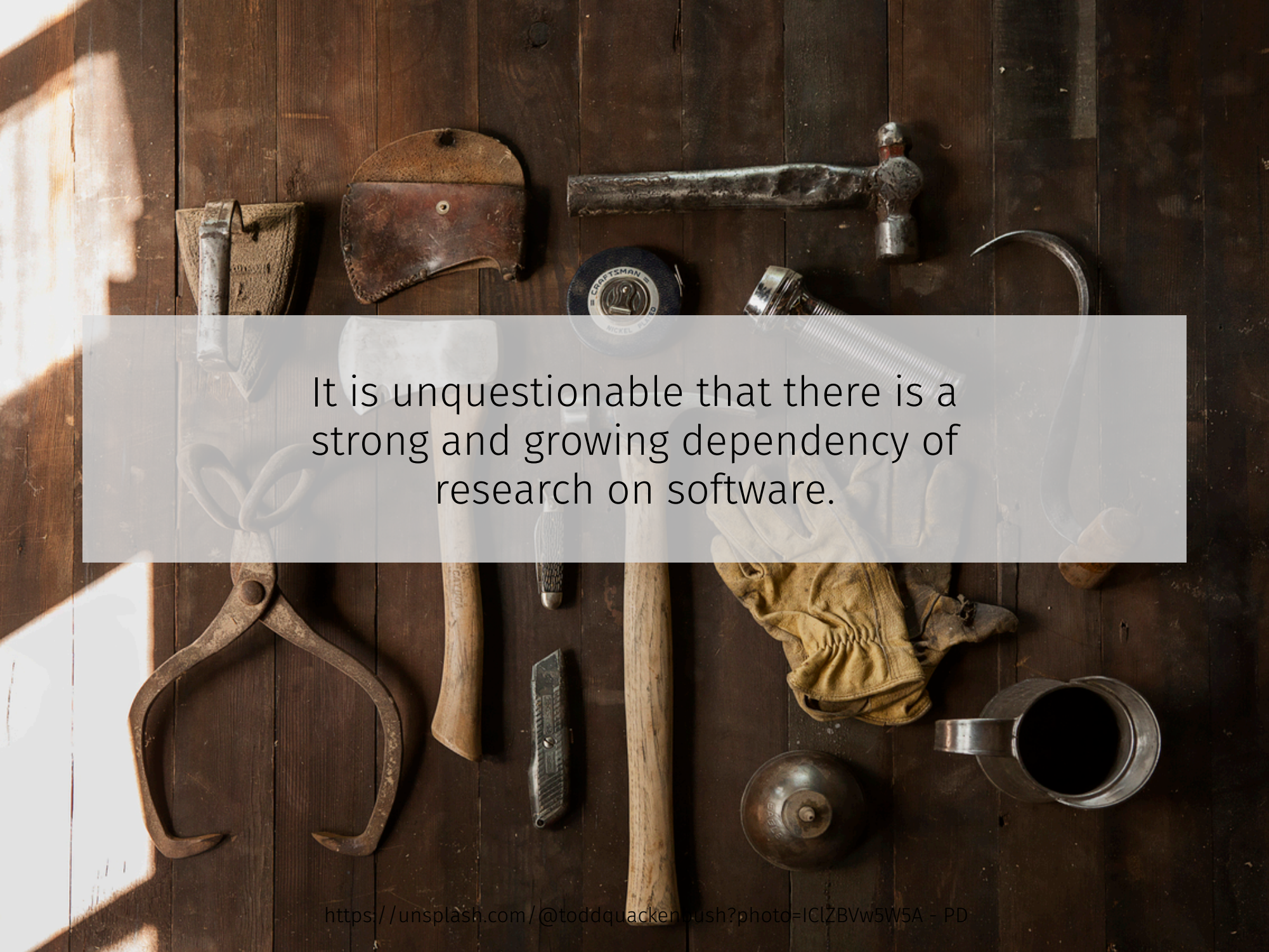
https://unsplash.com/@toddquackenbush?photo=IClZBVw5W5A - PD

Software
- an ubiquitous research tool

https://unsplash.com/@toddquackenbush?photo=IClZBVw5W5A - PD

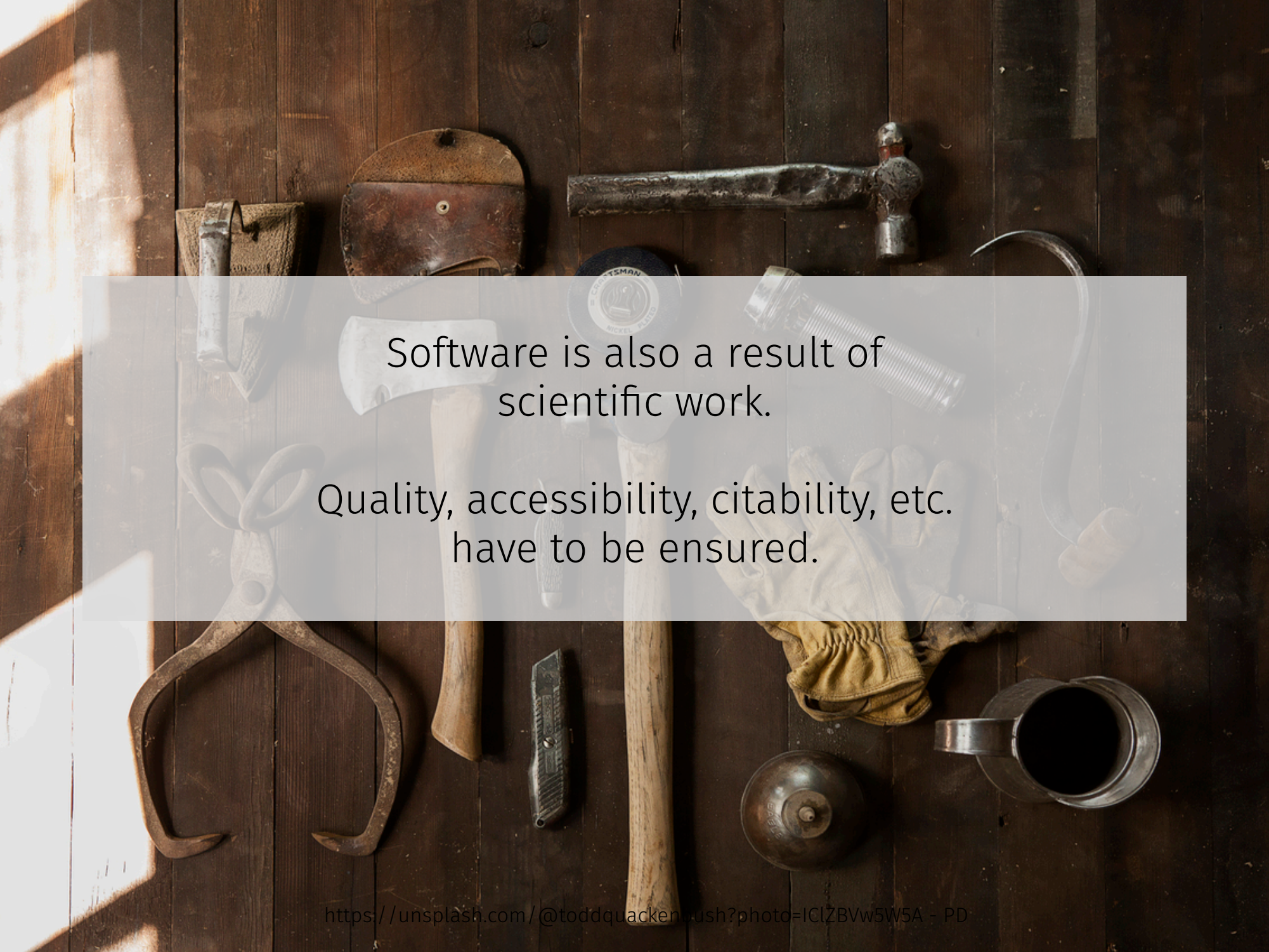

www.flickr.com/photos/80030261@N06/

photos/80030261@N06/9955408263 - CC-By by Wiki Commons User EduVolunteer



It is unquestionable that there is a strong and growing dependency of research on software.

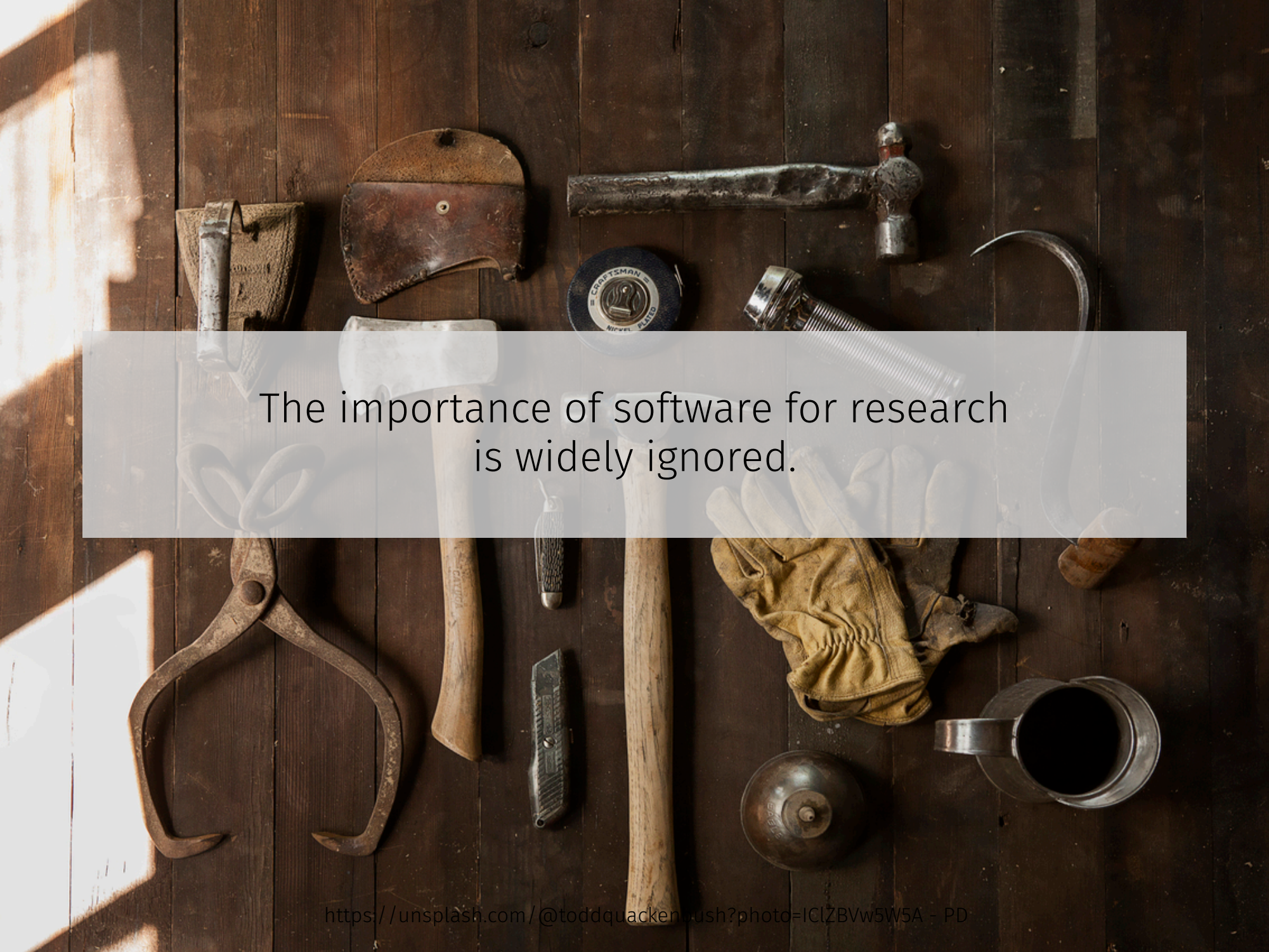
https://unsplash.com/@toddquackenbush?photo=IClZBVw5W5A - PD



Software is also a result of scientific work.

Quality, accessibility, citability, etc. have to be ensured.

https://unsplash.com/@toddquackenbush?photo=IClZBVw5W5A - PD



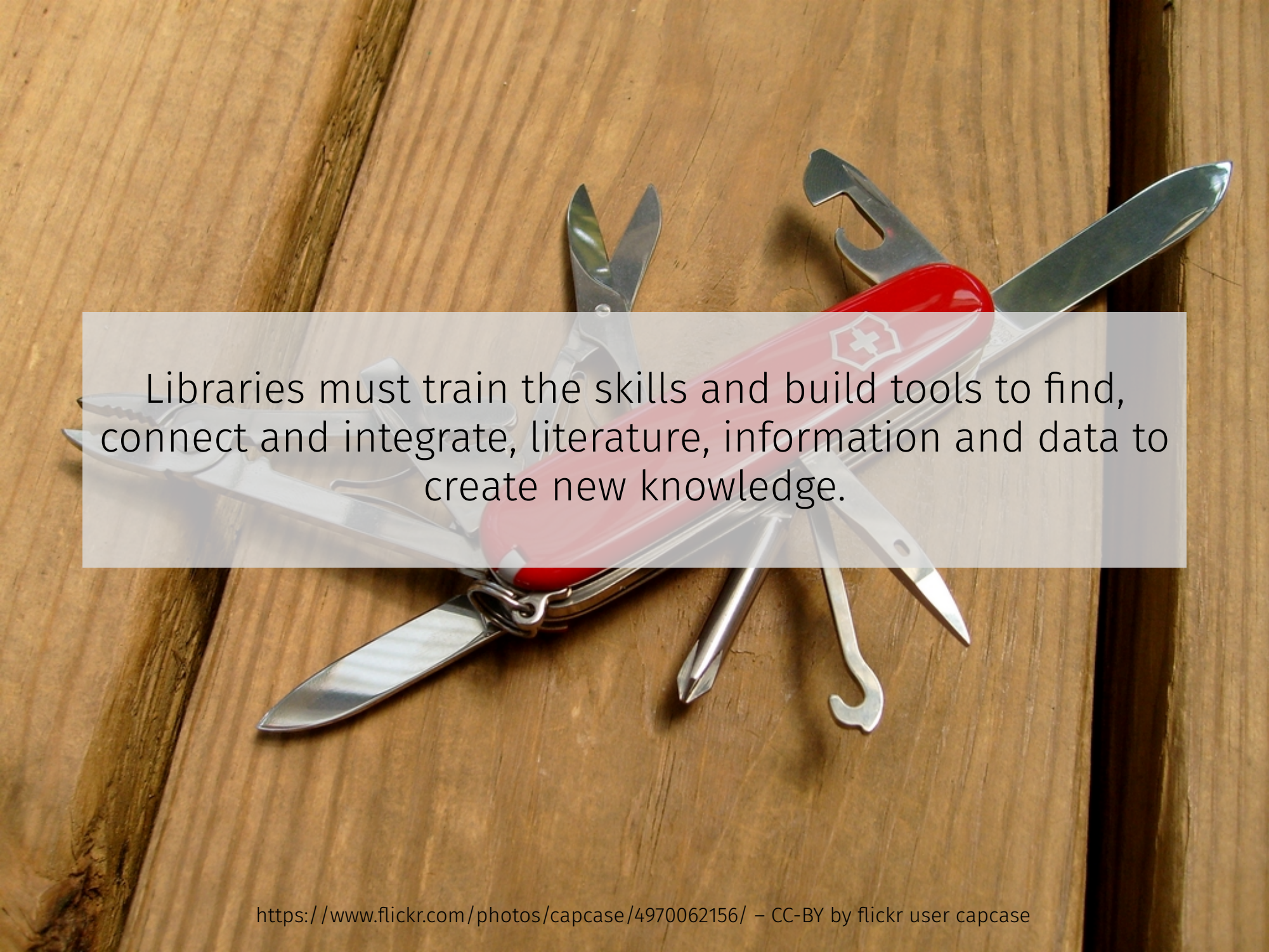
https://unsplash.com/@toddquackenbush?photo=IClZBVw5W5A - PD

https://doi.org/10.5281/zenodo.1172988

Ultimate access creates new problems:

Increased effort to find and process information.

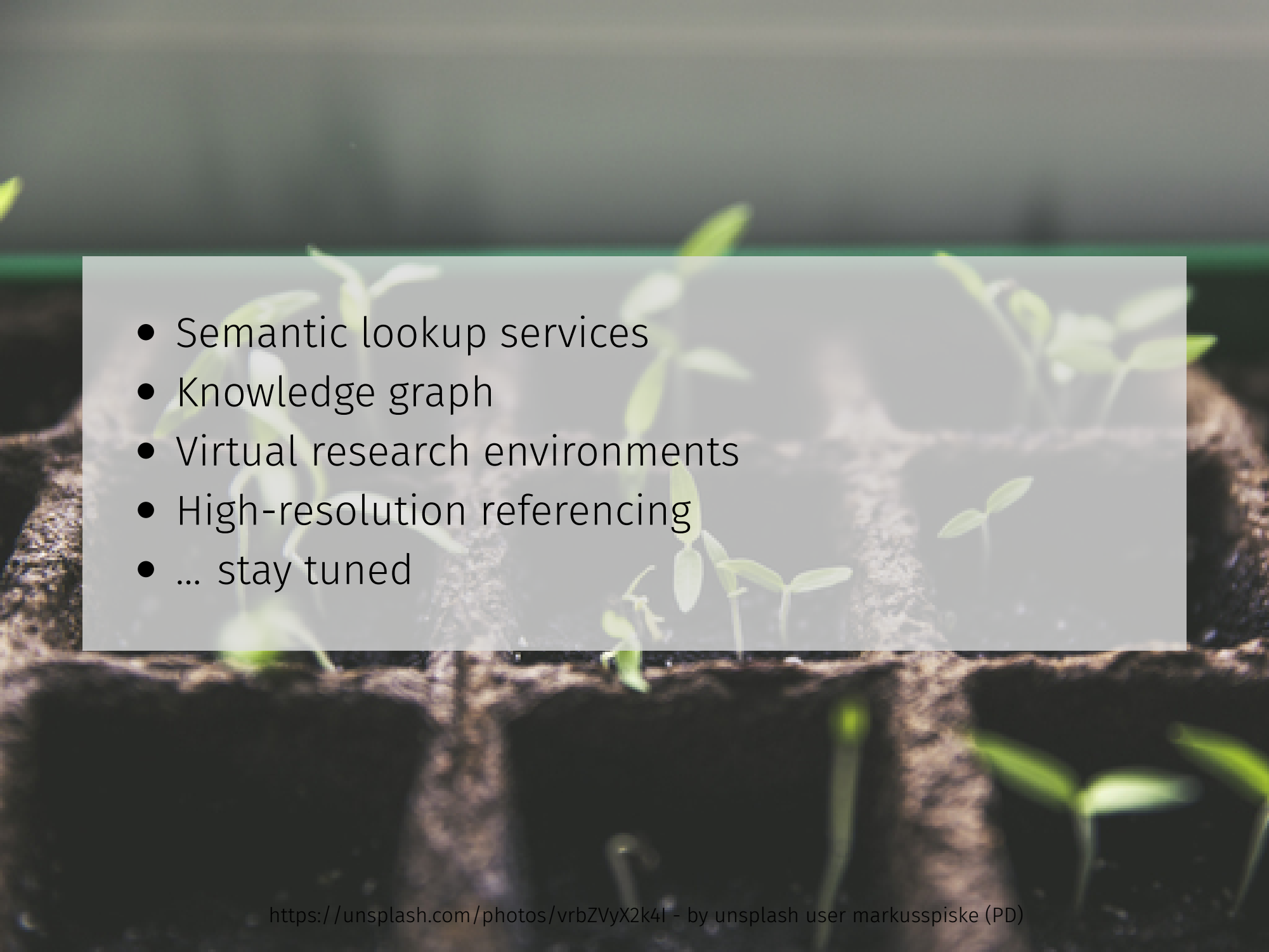
https://www.flickr.com/photos/wheatfields/3921008904/ – CC-BY by flick user wheatfields



Libraries must train the skills and build tools to find, connect and integrate, literature, information and data to create new knowledge.

https://www.flickr.com/photos/capcase/4970062156/ – CC-BY by flickr user capcase

https://www.flickr.com/photos/capcase/4970062156/ – CC-BY by flickr user capcase



- Semantic lookup services
- Knowledge graph
- Virtual research environments
- High-resolution referencing
- … stay tuned

https://unsplash.com/photos/vrbZVyX2k4I - by unsplash user markusspiske (PD)

https://www.pexels.com/photo/people-coffee-meeting-team-7096/ - CC0

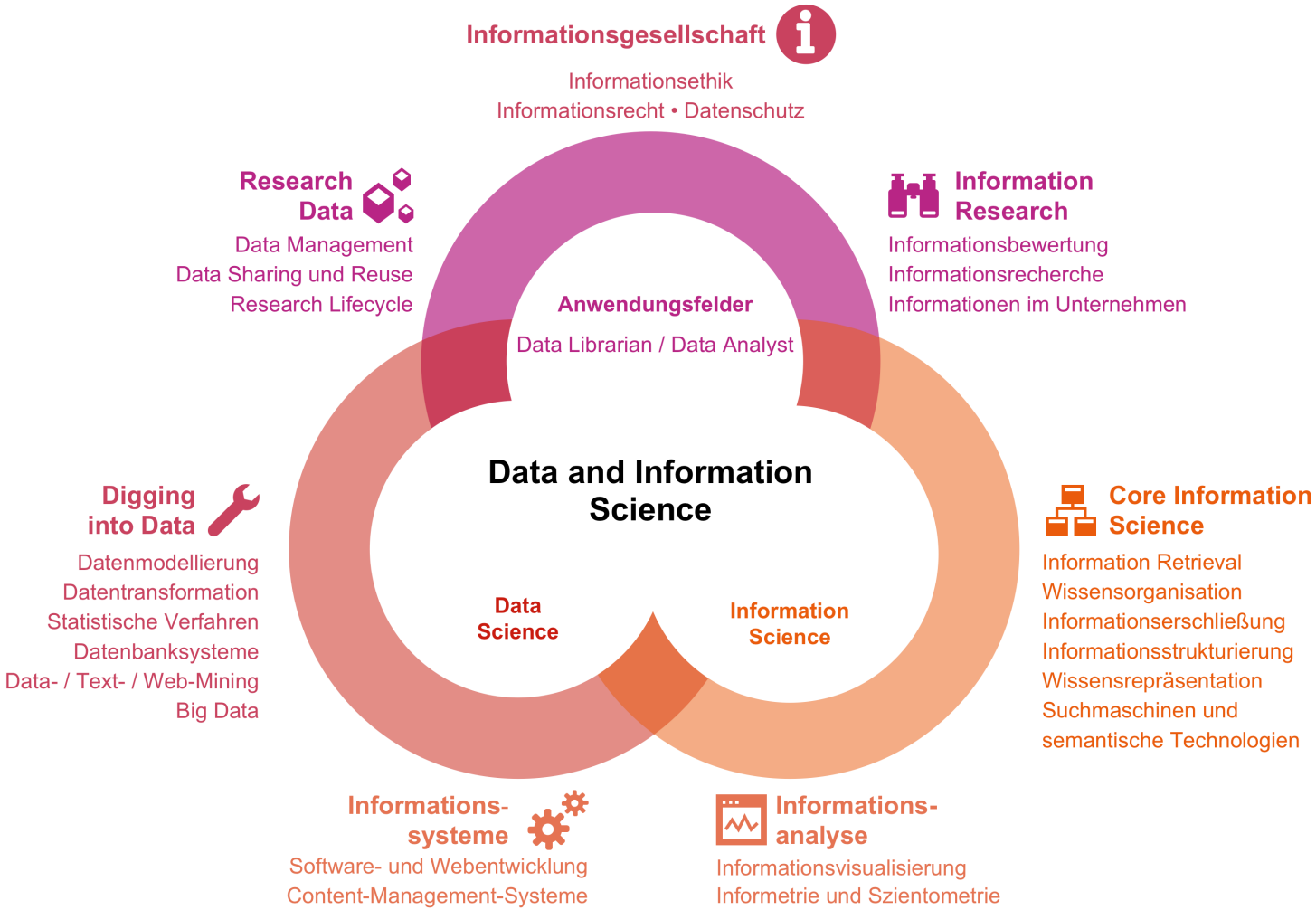
We are facing a huge skill gap.

https://www.flickr.com/photos/konradfoerstner/29662963497 – CC-BY by flickr user konradfoerstner

Shifting to Data Savvy: The Future of Data Science In Libraries

Burton, Matt and Lyon, Liz and Erdmann, Chris and Tijerina, Bonnie (2018)
Shifting to Data Savvy: The Future of Data Science In Libraries. Project Report.
University of Pittsburgh, Pittsburgh, PA; https://d-scholarship.pitt.edu/id/eprint/33891

New Bachelor at TH Köln: *Data and Information Science*

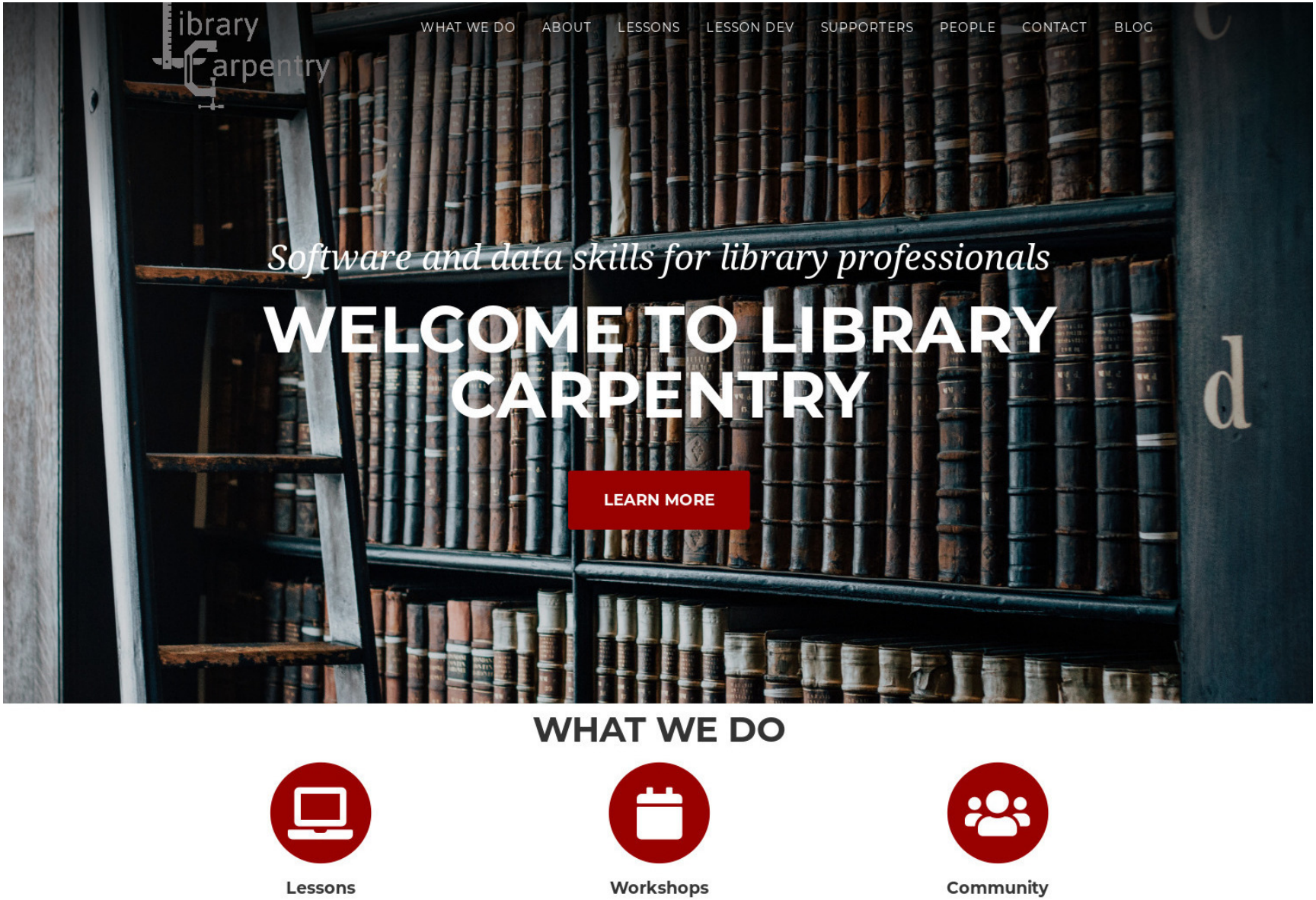


copyright - TH Köln, IWS / Philipp Schaer

Currently under contruction at the ZBIW of the TH Köln:

Certificate course *Data Librarian*

https://www.everystockphoto.com/photo.php?imageId=2381033 – The Library of Congress



https://librarycarpentry.org/

Data intro for librarians

An introduction to data structures, regular expressions, and computing terms

Unix Shell

An introduction to command line interfaces and task automation using the Unix shell

OpenRefine

An introduction to cleaning up and enhancing a dataset using OpenRefine

Git Intro for Librarians

An introduction to version control using Git and GitHub for collaboration

SQL for Librarians

An introduction to relational database management using the SQLite tool

Webscraping

An introduction to extracting structured data from websites using a range of tools

Tidy data for librarians

An introduction to good data organisation, which is the foundation of much of our day-to-day work in libraries.

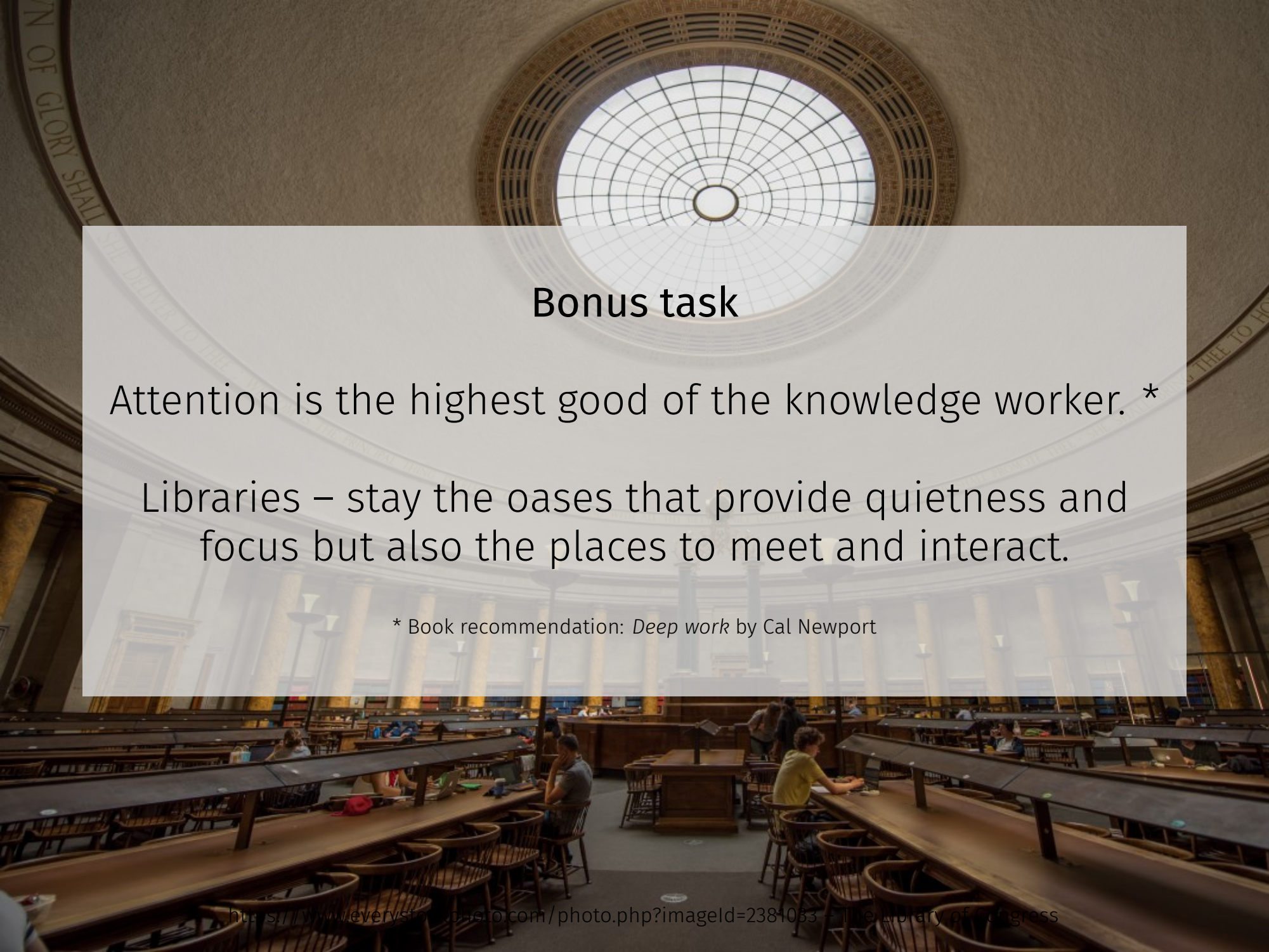
Introduction to Python

An introduction to Python, a general purpose programming language

Data Intro for Archivists

An introduction to data structures, regular expressions, and computing terms for archivists

https://librarycarpentry.org/



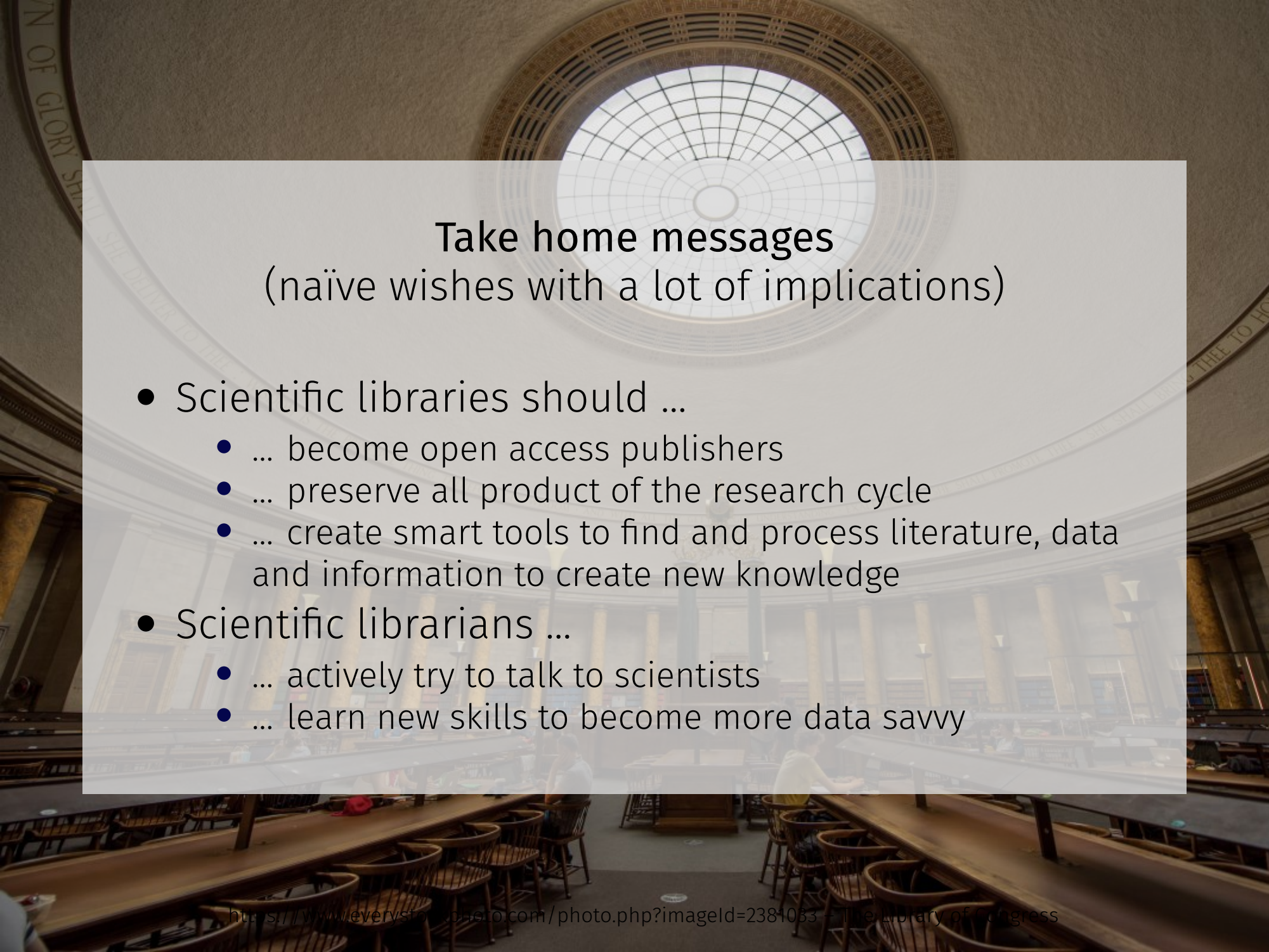
Bonus task

Attention is the highest good of the knowledge worker. *

Libraries – stay the oases that provide quietness and focus but also the places to meet and interact.

* Book recommendation: *Deep work* by Cal Newport

https://www.everystockphoto.com/photo.php?imageId=2381033 – The Library of Congress



Take home messages
(naïve wishes with a lot of implications)

- Scientific libraries should ...
  - ... become open access publishers
  - ... preserve all product of the research cycle
  - ... create smart tools to find and process literature, data and information to create new knowledge
- Scientific librarians ...
  - ... actively try to talk to scientists
  - ... learn new skills to become more data savvy

https://www.everystockphoto.com/photo.php?imageId=2381033 – The Library of Congress

Acknowledgements

- Dietrich Rebholz-Schuhmann
- Christoper Poley
- Michael Lackhoff
- Barbara Weidlich-Völckers
- Michael Bischoff
- Marlene Pietrzik
- Jana Pössel
- Bettina Kulmmer
- Silvia Di Giogio
- Ursula Arning
- Ursula Georgy
- Marvin Lanczek
- Konstanze Sigel
- Philipp Schaer
- Chris Erdmann
- Matthias Katerbow
- Georg Feulner
- Dietrich Nelle
- … many more

https://www.flickr.com/photos/nateone/3768979925/ – CC-BY by flick user nateone

What are your questions?

konrad.foerstner.org / @konradfoerstner

zbmed.de / @ZB_MED

th-koeln.de / @th_koeln

ZB MED Information Centre for Life Sciences

Technology
Arts Sciences
TH Köln

https://www.flickr.com/photos/nateone/3768979925/ – CC-BY by flick user nateone