



ILLUMINATING OPEN SCIENCE

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OPEN SCIENCE IS POWERFUL BECAUSE IT UNIFIES US.

FACILITATES RESEARCH TRANSPARENCY AND REPRODUCIBILITY

ADDRESSES LARGE SOCIETAL ISSUES

COUNTERS MISINFORMATION

BRINGS AGENCY TO THOSE WHO NEED IT MOST

LEADS TO PUBLIC UNDERSTANDING OF SCIENCE

“Sometimes we do things that are not maximally efficient because they have human value”

Gould, S. J. (2002)

VIEWING FROM THE RESEARCH DATA PERSPECTIVE

Purdue University's Research Data Repository or PURR

Open repositories fuel open science by providing access to open data and related research materials



A support network with both human and technological infrastructure



A campus research core



Supports Purdue researchers with Data handling, management, sharing, and preservation



An online platform to publish and share openly



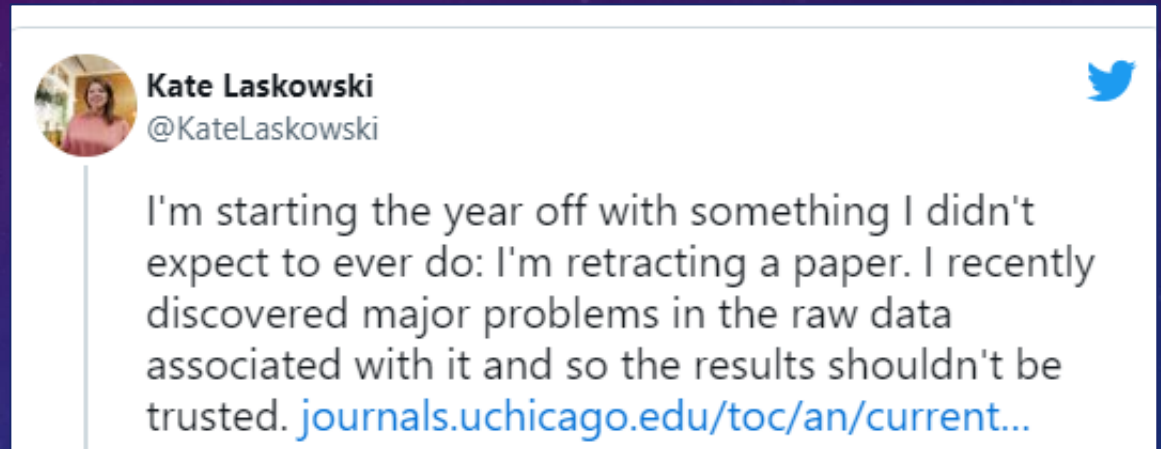
Devoted data stewards focused on research data integrity and reproducibility

RESEARCH REPRODUCIBILITY & OPEN DATA

honesty, rigor, transparency, respect

Why reproducibility?

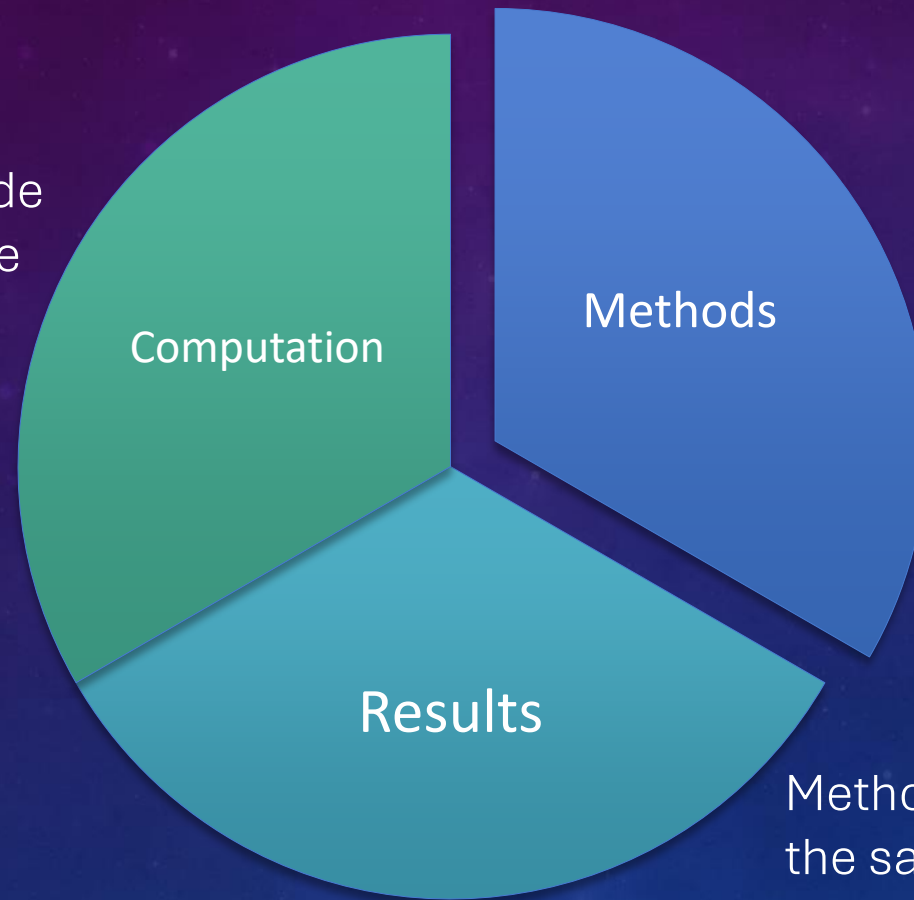
- Reliable results
- Agency and access
- Facilitating credibility and extending ideas and findings
- *Public trust in science*



<http://retractionwatch.com/2020/01/20/im-starting-the-year-off-with-something-i-didnt-expect-to-ever-do-im-retracting-a-paper/>

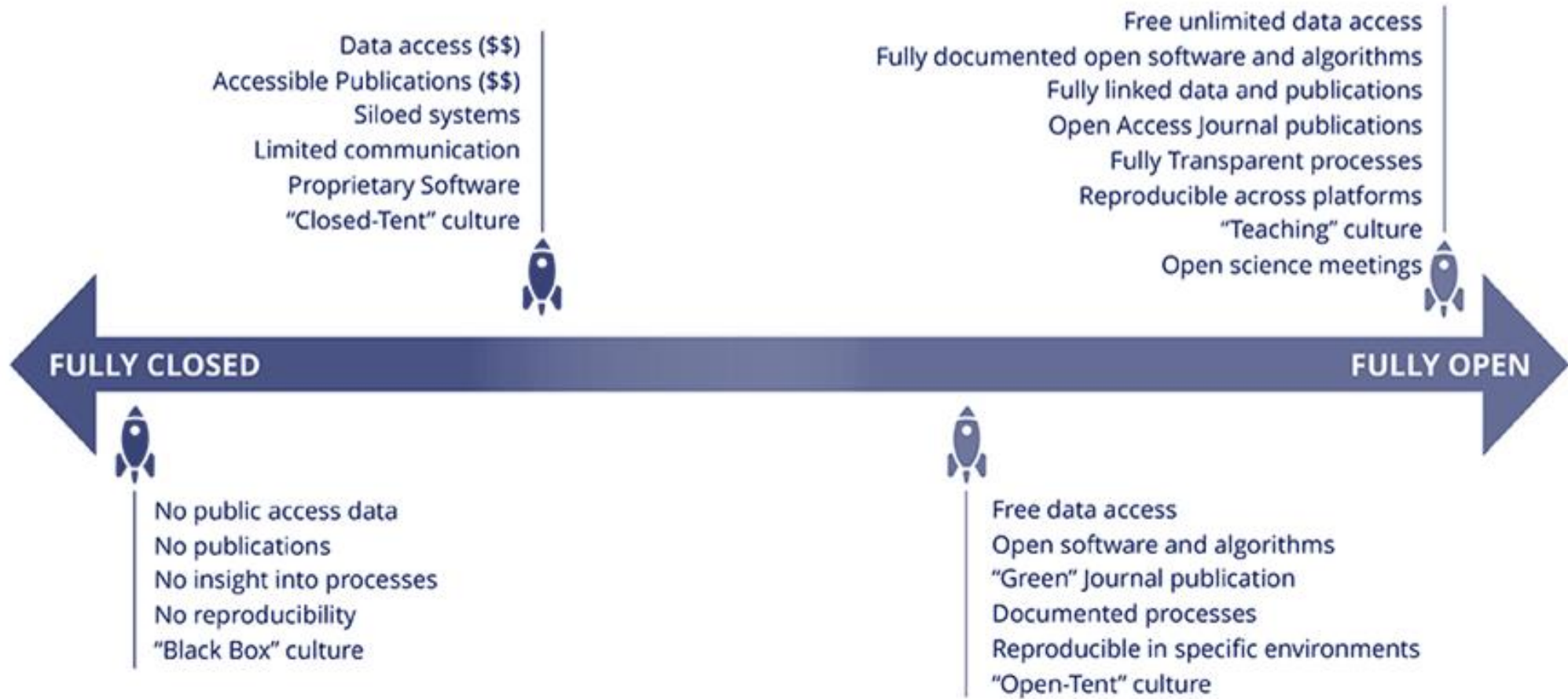
TYPES OF REPRODUCIBILITY

We can take the code and data and get the same numbers as they did.



I can rerun this exactly the same way they did.

Methods and analysis are the same, collect new data, and achieve the same conclusion



Open science, as depicted on the right side of the continuum, encourages the open sharing of data, information, and knowledge within the scientific community to accelerate scientific research and understanding. Image credit: NASA Earth Science Data Systems (ESDS).

BUSTING MYTHS AND MISCONCEPTIONS

MYTH	ACTUALLY
Open access journals are all predatory or low quality	Many OA Journals are peer-reviewed, highly cited and well respected
If I share my data before publication I'll get "scooped"	There are many ways to avoid getting scooped such as preregistration and DOIs
It takes too much time and it costs too much	Your future self will thank you for taking the time - a little bit of expense ensures long term savings
My study has insignificant results – it isn't worth sharing	Sharing failed experiments opens up new growth opportunities

US OFFICE OF SCIENCE AND TECHNOLOGY POLICY

“OSTP Memos”

2013

Holdren Memo

Increasing access to
the results of
federally funded
research

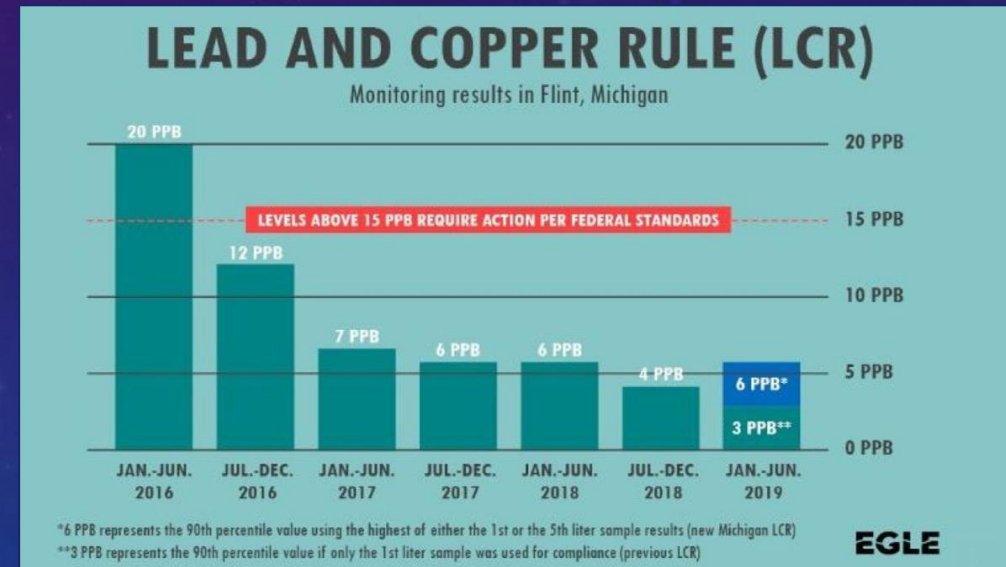
2022

Nelson Memo

Ensuring free,
immediate, and
equitable access to
federally funded
research

DATA AND ENVIRONMENTAL JUSTICE

“YOU HAVE NO real way of knowing if your town, your family, or your children face the kind of water contamination that exposed everyone in Flint, Michigan to lead poisoning. Not because Flint is an outlier--it may, in fact, be the norm---but because no one has enough data to say for sure.”

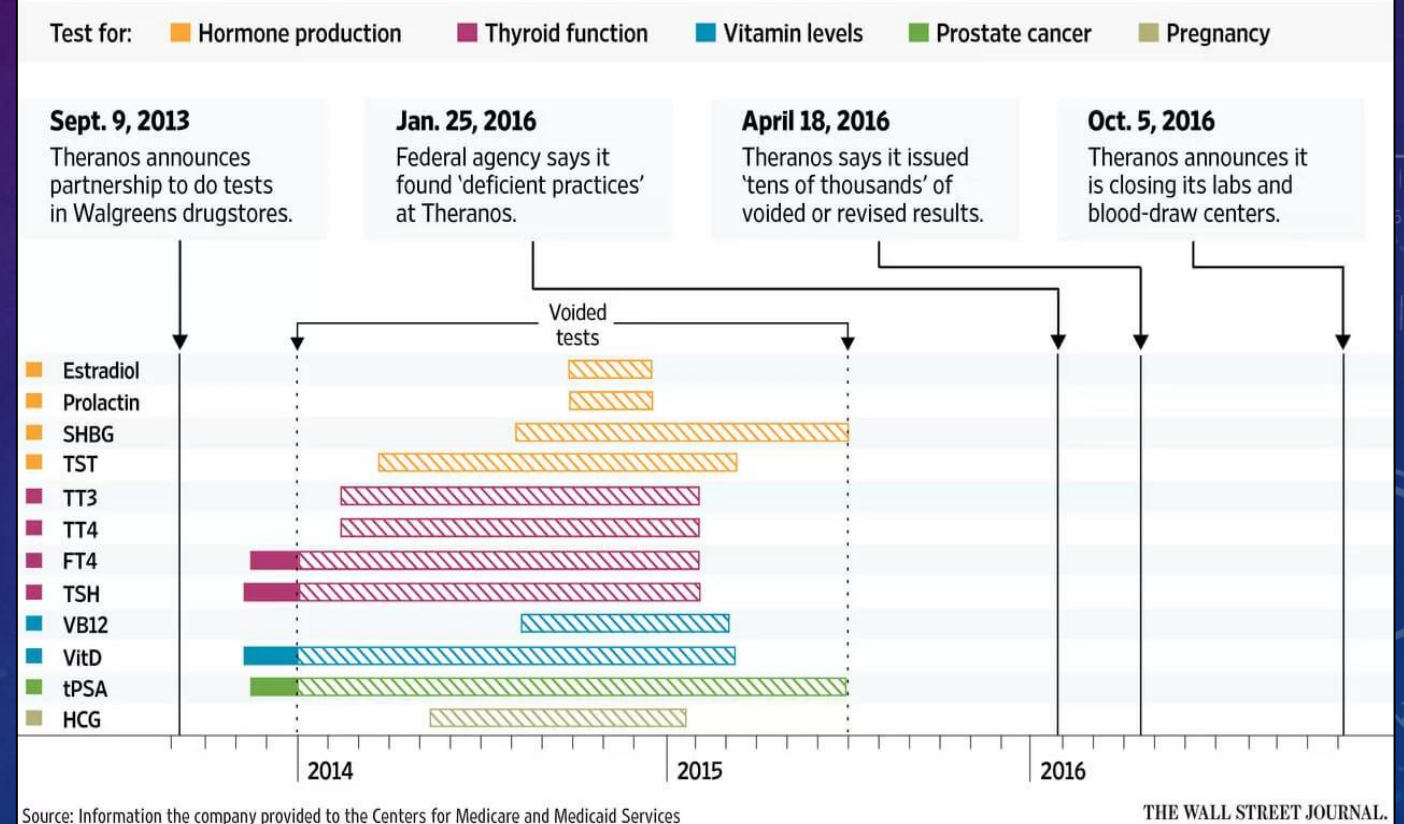


Theranos

“It was very concerning in a research context because once that translates to a patient setting, it’s giving you a good indication that the system isn’t working reliably enough to feel confident and comfortable in running patient samples”

The Short, Troubled Life of Edison Blood Tests

Theranos voided the results of almost every blood test ever done on patients with its Edison machines. It stopped doing most of the tests more than a year before throwing out the results and notifying patients and doctors.



FACILITATING OPEN SCIENCE AND REPRODUCIBILITY



Image from the Center for Open Science: <https://www.cos.io/>

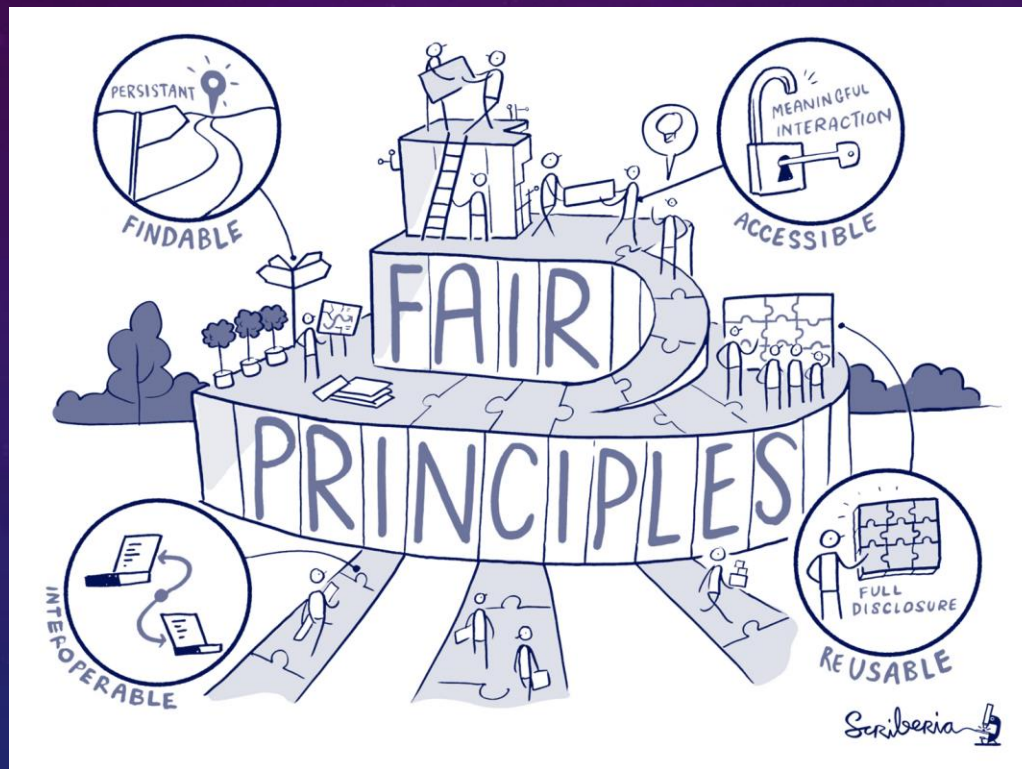
SHIFTS TOWARD INCLUSIVITY



Ricardo Levins Moralis <https://www.rlmartstudio.com/>

LIBRARIES AND INFORMATION PROFESSIONALS CAN AND DO MAKE A DIFFERENCE

BEING FAIR



Findable **A**ccessible **I**nteroperable **R**e-useable

AND CARE-ing



COLLECTIVE BENEFIT | AUTHORITY TO CONTROL
RESPONSIBILITY | ETHICS

www.gida-global.org/care

AS DATA STEWARDS AND RESEARCH SERVICE PROVIDERS

PROMOTING AN UNDERSTANDING ON THE INTERCONNECTION BETWEEN INTERDISCIPLINARY RESEARCH AND SOLUTIONS TO LARGE SCALE WORLD ISSUES

RAISING AWARENESS ABOUT ETHICAL CONSIDERATIONS FOR GOVERNANCE OF DATA AND EQUITABLE REPRESENTATION

Tell the data stories.

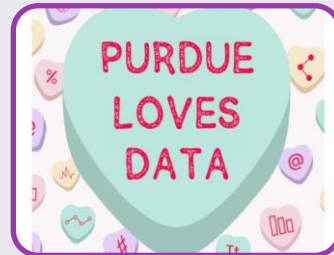
ENGAGEMENT AND IMPLEMENTATION



Speaker series
that feature
researchers



Providing
avenues for
doing open
science



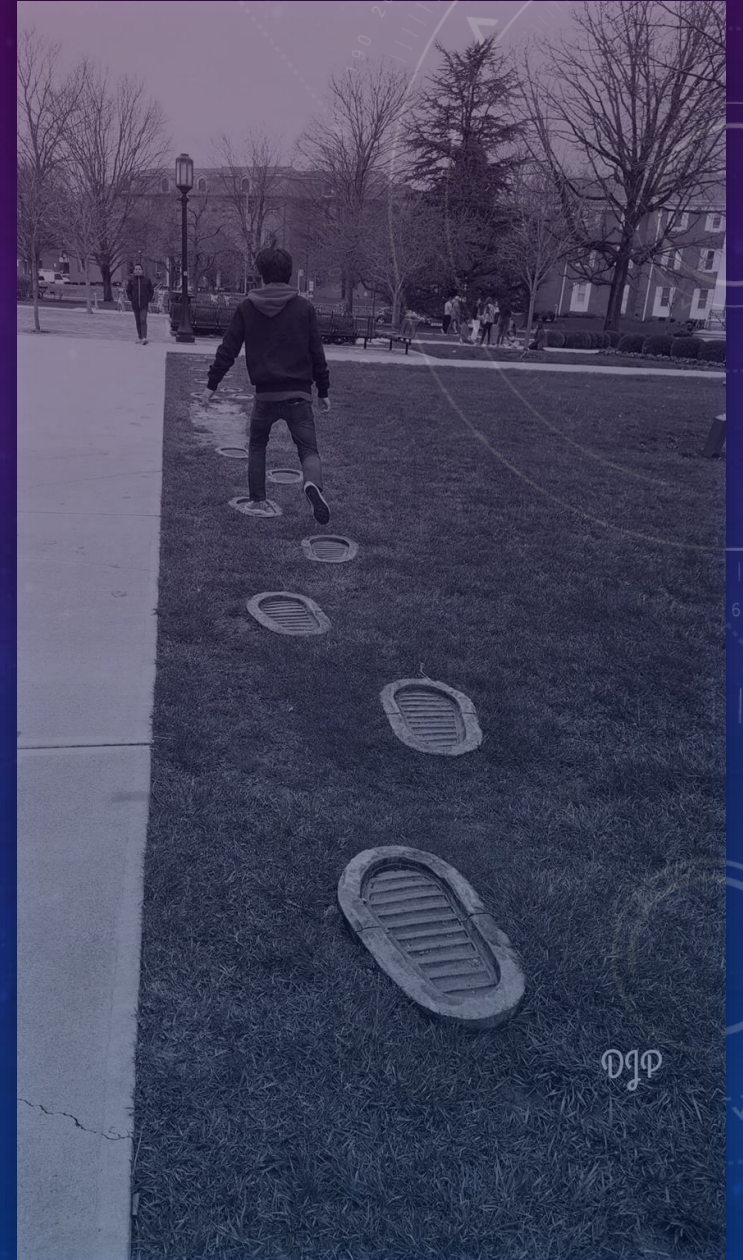
Holding
events for
Love Data
week and
Open Access
week



Providing info
and access to
open
publishing
open licenses,
persistent
identifiers

LEADING BY EXAMPLE

- ✓ Publishing in Open Access Journals
- ✓ Providing open resources along with proprietary materials
- ✓ Sharing your data
- ✓ Using Open Source Software and Tools



THANK YOU!

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