Science communication and collaboration for Open Science:

Tools and Platforms for Internationalising Nigerian Research

Presented at the 2020 Eko konnect Users Conference, Ikeja, Lagos, Nigeria.

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Presentation outline

- Concepts
  - Science Communication (Science In-reach)
  - Open science
  - Internationalisation and other Issues with African research
- Way Forward for Nigeria
- Platforms and Tools for Collaboration and Visibility
  - Open Journal System
  - Open Science Framework

Science Communication

- Science communication (SciCom) is defined as the use of appropriate skills, media, activities, and dialogue to produce one or more of the following personal responses to science (the AEIOU vowel analogy): Awareness, Enjoyment, Interest, Opinion-forming, and Understanding.
  - Burns et al (2003)
- "It is the practice of informing, educating, sharing wonderment, and raising awareness of science-related topics"
  - Science Communication (Wikipedia)

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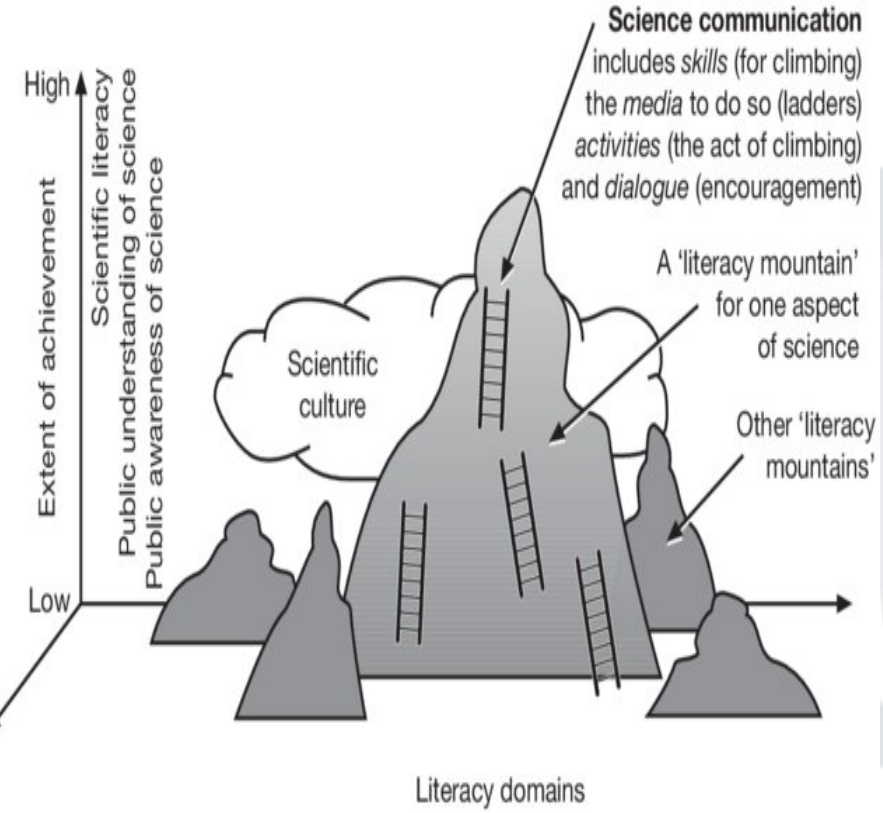
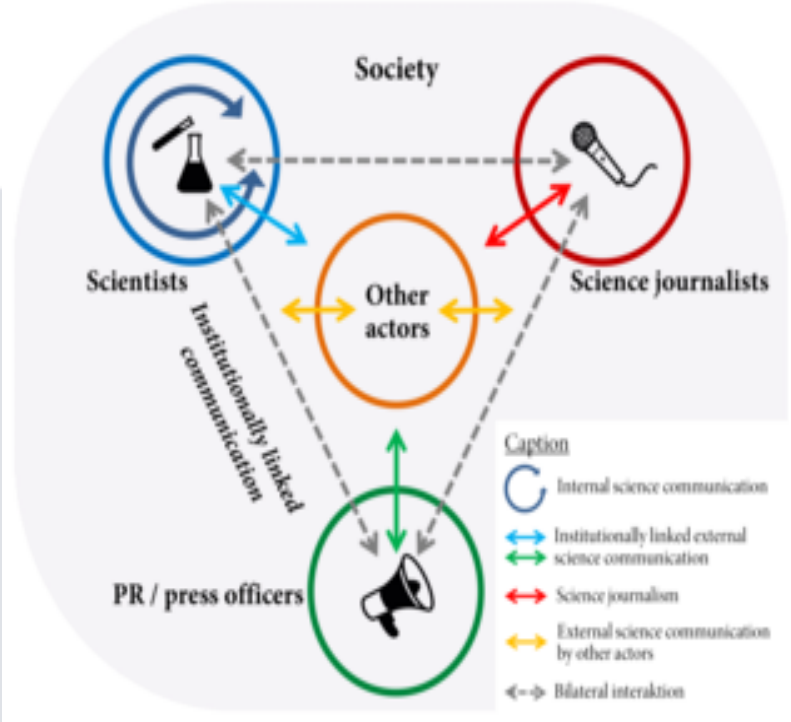
SciCom Illustrated



Burns et al
(2003)



Carsten Könneker
(2016)

Types of SciCom

Two Types:

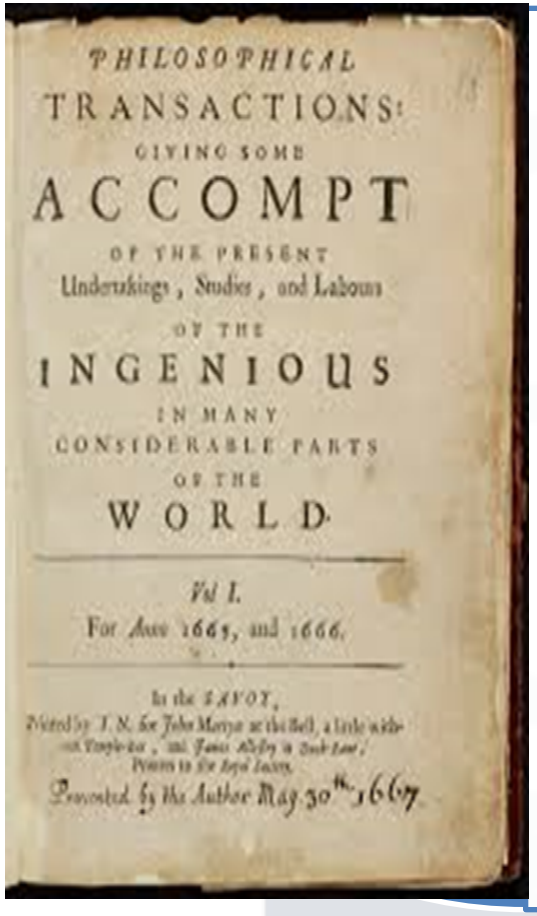
- Science Outreach (Scientists to non-experts)
- *Science *Inreach* (experts to experts e.g. Scholcomm

Science Inreach (Scholarly Communications)

- Scholcomm is the system through which research and other **scholarly** writings are created, evaluated for quality, disseminated to the **scholarly** community, and preserved for future use.
- It involves the creation, publication, dissemination and discovery of academic research, primarily in ***peer-reviewed journals** and books.

– *ACRL*

On Journal: the 17th Century Creation


PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.
Vol I.
For Anno 1665, and 1666.
In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane, Printers to the Royal Society.
Presented by the Author May 30th 1667.

Four key functions of the Journal:

- **1. registration** (attribution, time-stamping authors' contributions to establish precedence),
- **2. certification** (peer review, "stamps of approval."),
- **3. dissemination** (distribution, access),
- **4. preservation** (scholarly memory and permanent archiving for later use).
- - *Expert Group to the European Commission (2019)*

Important Dates on the Scholarly Publishing Timeline

- **1323**: Compagnie du Gai Sçavoir, the oldest learned society on record, is founded in Toulouse, France.
- **1660**: The Royal Society of London is founded.
- **1665**: *Journal des Sçavans* and *Philosophical Transactions of the Royal Society of London* are first published. Each journal used some form of peer review, although not exactly like today's version. *Philosophical Transactions* published famous scientists such as Newton, Hooke, van Leeuwenhoek, Faraday, and Darwin.
- **1731**: *Medical Essays and Observations*, the first fully peer-reviewed journal, is launched by the Royal Society of Edinburgh.
- **1743**: The American Philosophical Society, the first scholarly society in what is now the US, is created.
- **1848**: The American Association for the Advancement of Science is founded. AAAS publishes the journal *Science* and is the largest general scientific society in the world.
- **1869**: *Nature* publishes its first issue.
- **1880**: *Science* publishes its first issue.
- **1947**: Elsevier, the longtime publishing giant, launches its first international journal, *Biochimica et Biophysica Acta*.
  - **Ben Mudrak**

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Key Dates in Scholcomm

1665-1945
- Paper journals
- Scientific publishing by learned societies
- Publishers were only means of printing and distribution

1945-1970
- Professionalism and rapid growth of science
- Commercial publishers gained dominance as powerful actors in scientific publishing

1970-1995
- Serials Crisis consolidating the financial powers of commercial publishers
- Transition to online journals from 1993

2002
- *Open Access* as a term was coined

OA and Call for Journal Revolution

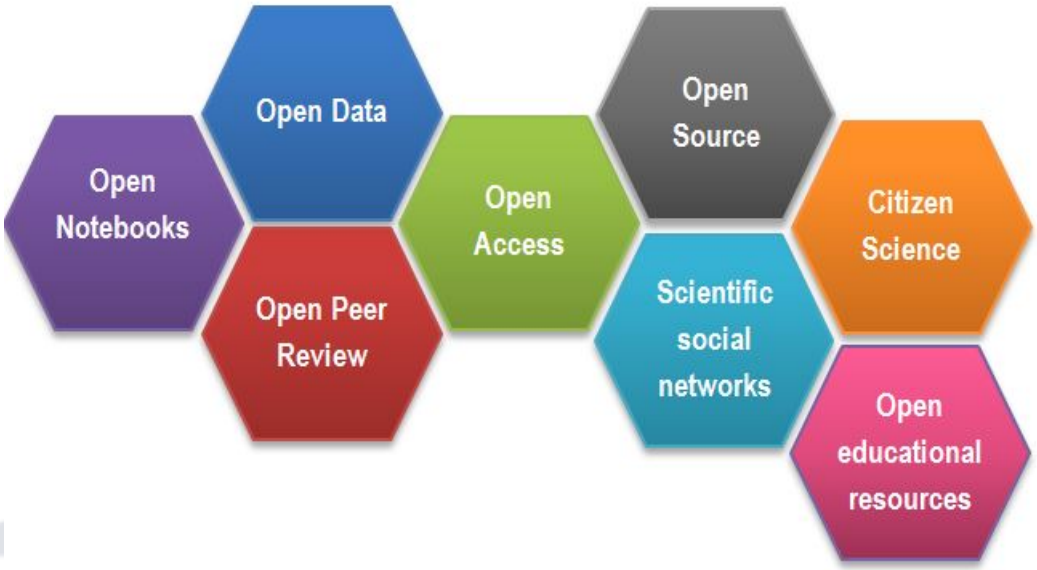
"The journal is built around the delivery of ink and paper by horses and boats. Today, we have better ink and faster horses, but no fundamental change."

– Priem & Hemminger (2012)

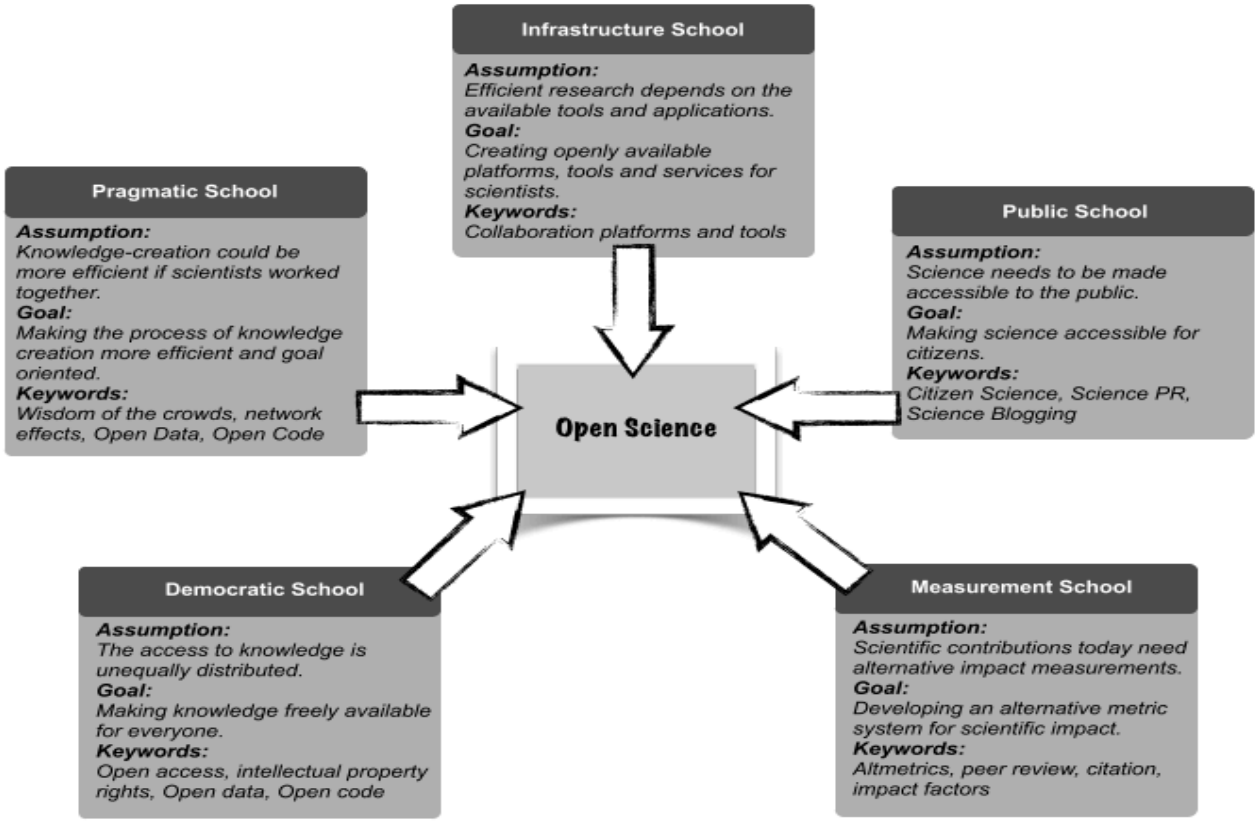
Beyond Open Access: Open Science

- Open science (OS) encompasses unhindered access to scientific articles, access to data from public research, and collaborative research enabled by ICT tools and incentives.
  - OECD

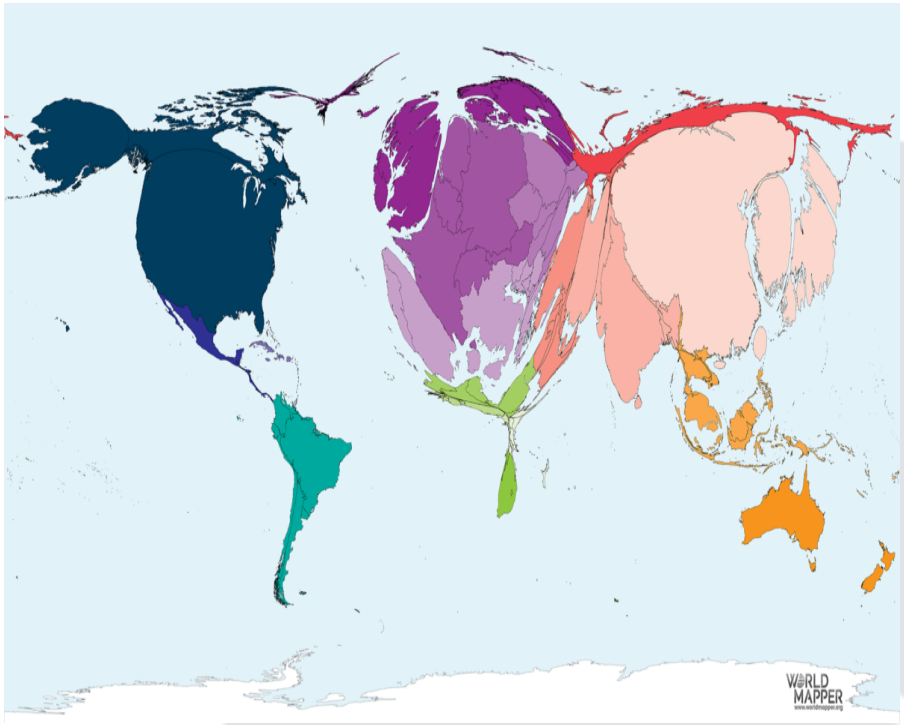
OS Components



Open Science Schools of Thought



African Research in Scholcomm



- *Science Papers Published 2016 - World Mapper*

- "Africa generates less than 1% of the world's research"- *Duermeijer et al (2018)*
- Causes:
  - self inflicted e.g. "Lack of sustainable local journals",
  - external factor e.g. high rejection rate by international journals. Mohai (2012).
  - Invisible research due largely to the print nature of local journals and unindexed online journals
  - High cost of publication in Indexed journals

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Common Thoughts on African Research in the Scholcomm Sector

- There has been limited independent scholarly publishing in Africa, given that much of its research output has been the result of foreign aid and foreign agencies with their own agenda and publication and distribution facilities (Mkandawire, 2005: 35) in Collyer 2018.
- "Locally generated research and knowledge is key to addressing local issues in a contextually relevant way. **Thousands of journals are published in the developing world but many are not widely known in their countries or beyond."**
  - (INASP & AJOL, 2017)

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The Devil Here, the Deep Blue Sea There

Baptism of Obligation

Why Africans feel obliged to publish in foreign journals?

1. the publish abroad/offshore syndrome
2. the publish or perish syndrome
3. high mortality rate of African journals

Ubiquitination of Colonialism

Reasons African researchers find it hard to publish in international peer-reviewed journals according to Tarkang & Bain (2019):

1. high rejection rate for manuscripts from Africa
2. financial constraints
3. Systemic bias
3. turnaround time for peer-review in top quality journals

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Enemy of oneself: A case in Africa

Practice:

- The South African government, through the Department of Education, pays its universities a substantial subsidy for each journal article published. ✓
- But in journals indexed in the Social Sciences Citation Index (SSCI) or Science Citation Index (SCI) ✗

Outcome: dominance of international mechanism of evaluation for local research.

> *"This system encourages scholars to address issues of 'international' rather than local relevance, and seek publication in international rather than locally accredited publications"* (Collyer, 2018).

Internationalisation and the Horror of its Misconception

(Omobowale, 2010; Omobowale et al., 2013). The context of 'international publishing' in Nigeria is a dimension of peripheral scholarship which seeks to 'confirm' the intellectual worth of scholars through publication in journals domiciled in developed countries. The social reality of 'international publishing' seemingly 'justifies' scholars opting for paid journals as 'soft' channels of international dissemination (Omobowale, 2010; Omobowale et al., 2013).

- "The pressure to publish in international journals and the relatively undeveloped nature of a research culture in Africa have meant many African academics have fallen victim to the rise of 'predatory' journals, where high costs are charged for publication in 'fake' journals that have little or no editorial review and on websites that are generally inaccessible and poorly managed" (Omobowale et al., 2014).

Omobowale et al, (2013)

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And the resultant consequence?

- Prevalence of Predatory (Deceptive) publishing and/or ***vague notion of Internationalisation***

Credit: guinlist.wordpress.com

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‘Publish and Perish’- Impact of Deceptive Publishing

- Publish or perish resulting in publish and perish
- Lots of unsuspecting scholars going this path both wittingly (publish or perish) and unwittingly (ignorance)

Perishing with your publication:

- Papers screened off at tenure assessment
- Papers not indexed, thus no metric
- Funders doubts, funding denial
- Reputation damage
- Don’t cite**new- WAME

“Institutions need to refrain from raising unrealistic promotion expectations that drive authors into making unwise decisions.”

- *Raju, Nyahodza & Claassen (2019)*

“good publishers can publish bad work and bad publishers can publish good work.” Kravjar and Hladík (2016)

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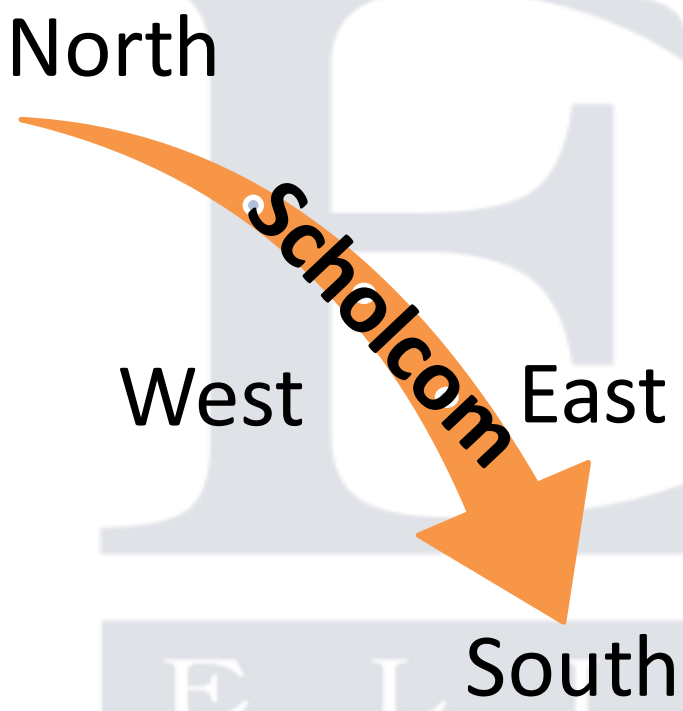
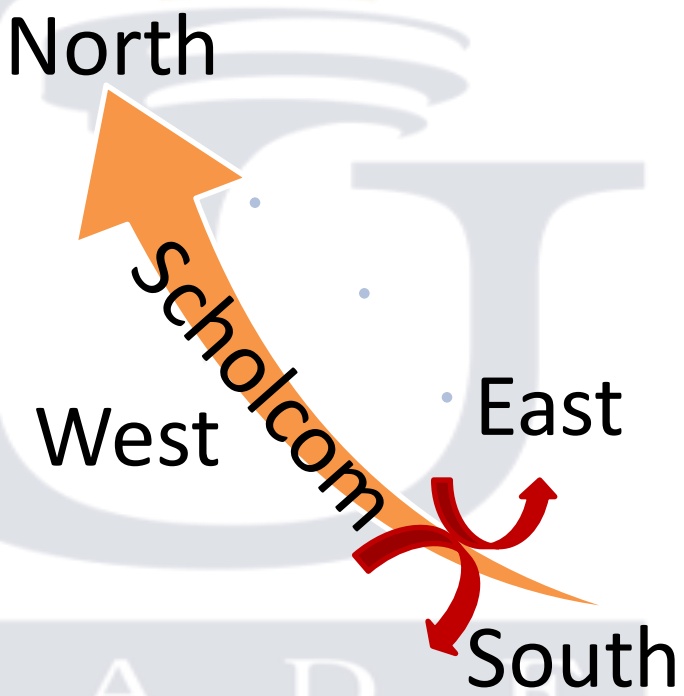
Renegotiating the Scholcomm compass

Historically



***Internationalisation* (AJOL's) Goal**



Adegbilero-Iwari (2019)

- International is local
- Local is international
- It is a matter of where you stand to view it

Credit: Amazon.com

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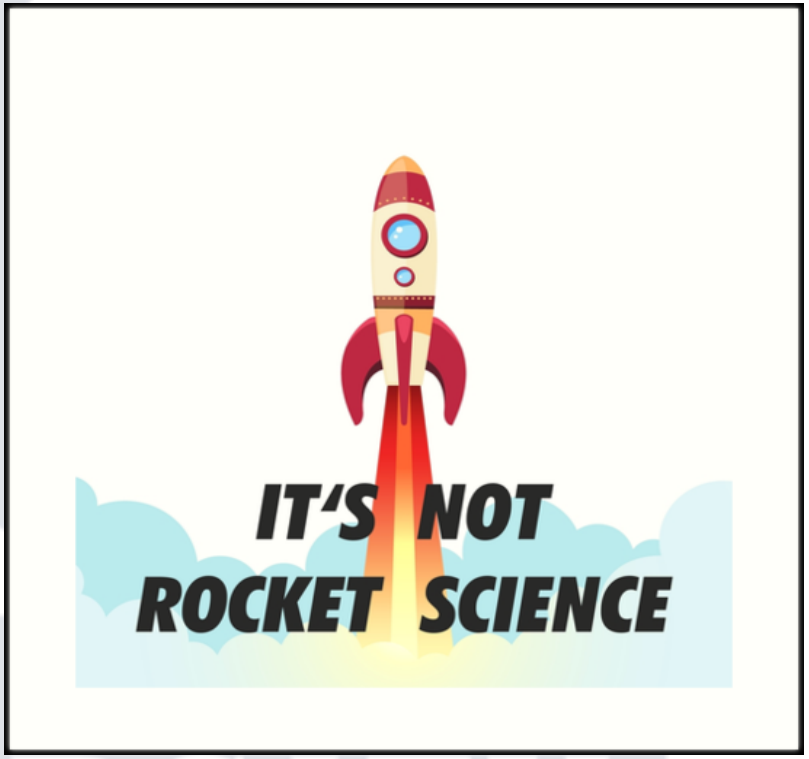
Redefining Internationalisation

- Internationalisation shouldn't be about publishing in exotic/offshore venues but leveraging technology to circulate/distribute indigenous/local venues.
- With technology, local is global and vice-versa
- ICT should normally level the opportunities



https://www.redbubble.com/

A case of Latindex

- Latin America's equivalent of WoS
- For inclusion, journals must have

"been existent for at least one year, at least two-thirds of the editorial body must be external to the publishing institution, and, to limit endogeny, at least 50% of the papers must be from external authors."

  – *Collyer (2018)*

- This is the way to internationalise
- Africa Index???

Other cases leveraging technology

- Some of the national/regional initiatives are government supported while others are institutionally initiated:
- SciELO- Brazilian Ministry of Science and Technology
- SciELO SA- Academy of Science South Africa
- PKP- SFU and Stanford University with the support of Canadian government
- AOSP- South African Ministry of Science
- AJOL- INASP-initiated
- ScienceAfrique (new for Francophone Africa region

Nigeria???

- No initiatives due to what I call government apathy towards scholcomm and lack of collaboration by universities.
- The nearest is journal/book publishing support by TETFund for print books.
- Such support should be articulated towards internationalisation leveraging digital infrastructure for online publications.

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Way Forward for Nigeria

- Government ministries/agencies e.g. TETFund backed hosting infrastructure for internationalisation
- Government backed Open Science initiatives and policies
- Rejigging the Library structure for scholcomm librarianship

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"We may never win the war against a system that renders our achievements invisible to Western science, but we can make a difference by making use of the technologies, resources and avenues open to us."

Professor Tawana Kupe, Vice-chancellor and Principal, University of Pretoria

Internet as the Ideal

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Free and open-source journal management software

- Ambra. Formerly part of Topaz (below), but forked.
- Annotum. A WordPress theme for a JATS-based workflow.
- CLEO Various tools related to revues.org and Lodel (see Lodel below) can be found in this site. In French.
- DiVA. From the the Electronic Publishing Centre at Uppsala University Library.
- DPubS. From Cornell University Library and Pennsylvania State University Libraries and Press.
- E-Journal. From Drupal.
- ePublishing Toolkit. From the Max Planck Gesellschaft.
- GAPworks. From German Academic Publishers (GAP).
- HyperJournal. From the University of Pisa.
- Janeway. Janeway is a journal management system developed by the Centre for Technology and Publishing and the Open Library of Humanities at Birkbeck, University of London.
- Lodel. Lodel is the publishing software behind Revues.org.
- OpenACS
- **Open Journal Systems. From the Public Knowledge Project.**
- PeerLibrary. UC Berkeley
- SOPS. From SciX.
- Topaz. From the Public Library of Science. Also see Ambra, above
  - Open Access Directory (2018)

Open Journal Systems

Open Journal Systems (OJS) is a journal management and publishing system that has been developed by the Public Knowledge Project through its federally funded efforts to expand and improve access to research.

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Features of OJS

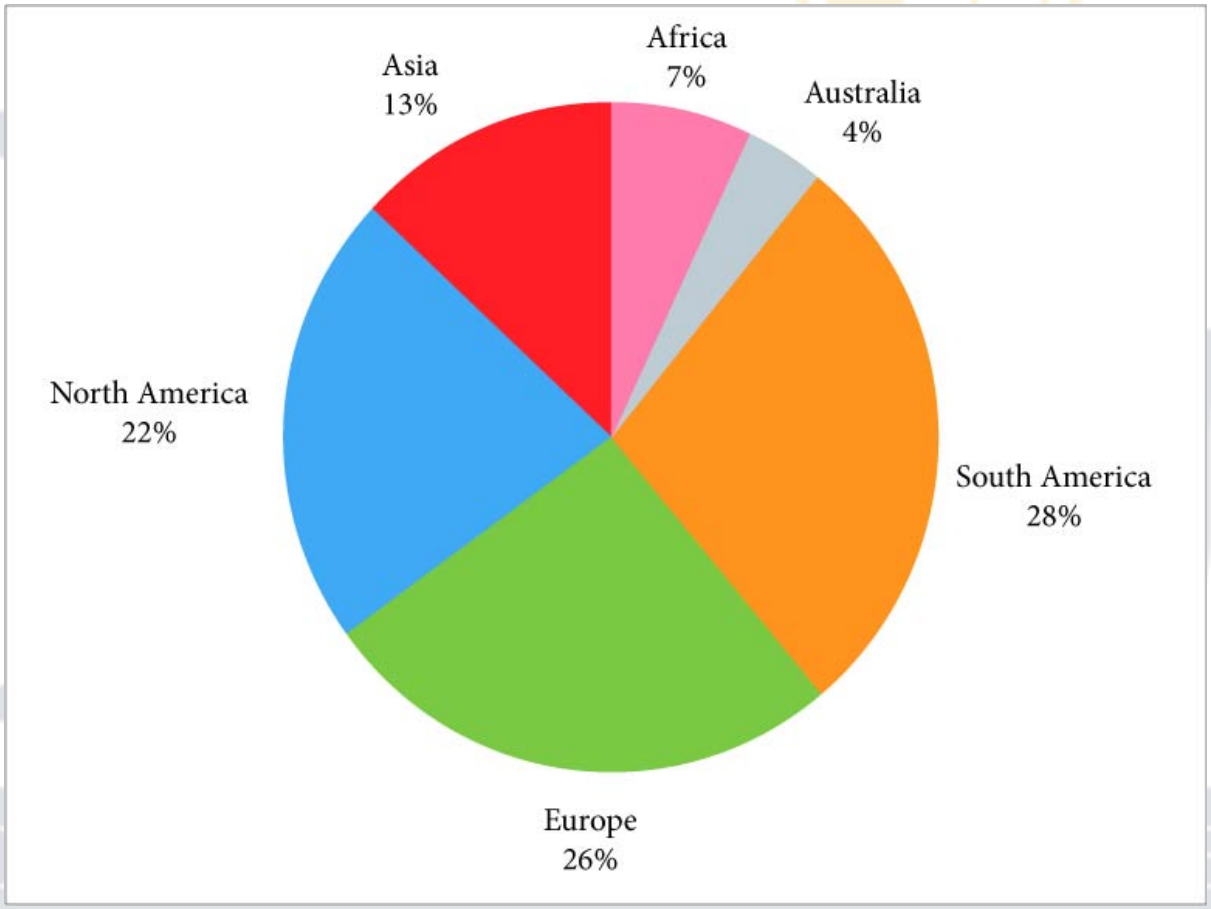
- OJS is installed locally and locally controlled.
- Editors configure requirements, sections, review process, etc.
- Online submission and management of all content.
- Subscription module with delayed open access options.
- Comprehensive indexing of content part of global system.
- Reading Tools for content, based on field and editors' choice.
- Email notification and commenting ability for readers.
- Complete context-sensitive online Help support.

OJS Growth

The number of journals employing OJS has been growing at a rate of 81% per year on average since the software was launched in 2002

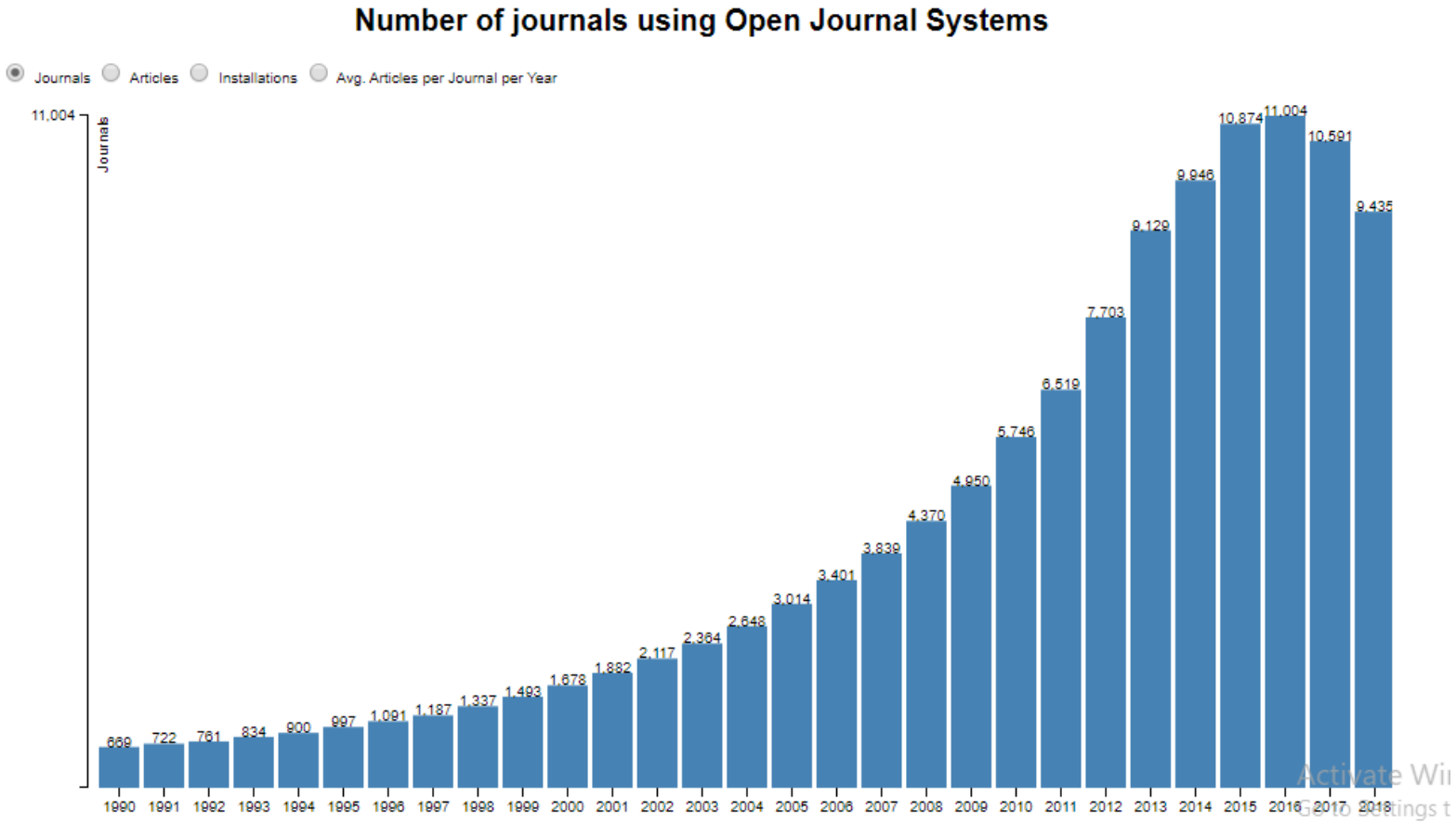
– Edgar & Willinsky (2010).

Distribution of journals using OJS by continent (N=987)



Source: Edgar & Willinsky (2010)

Usage stats

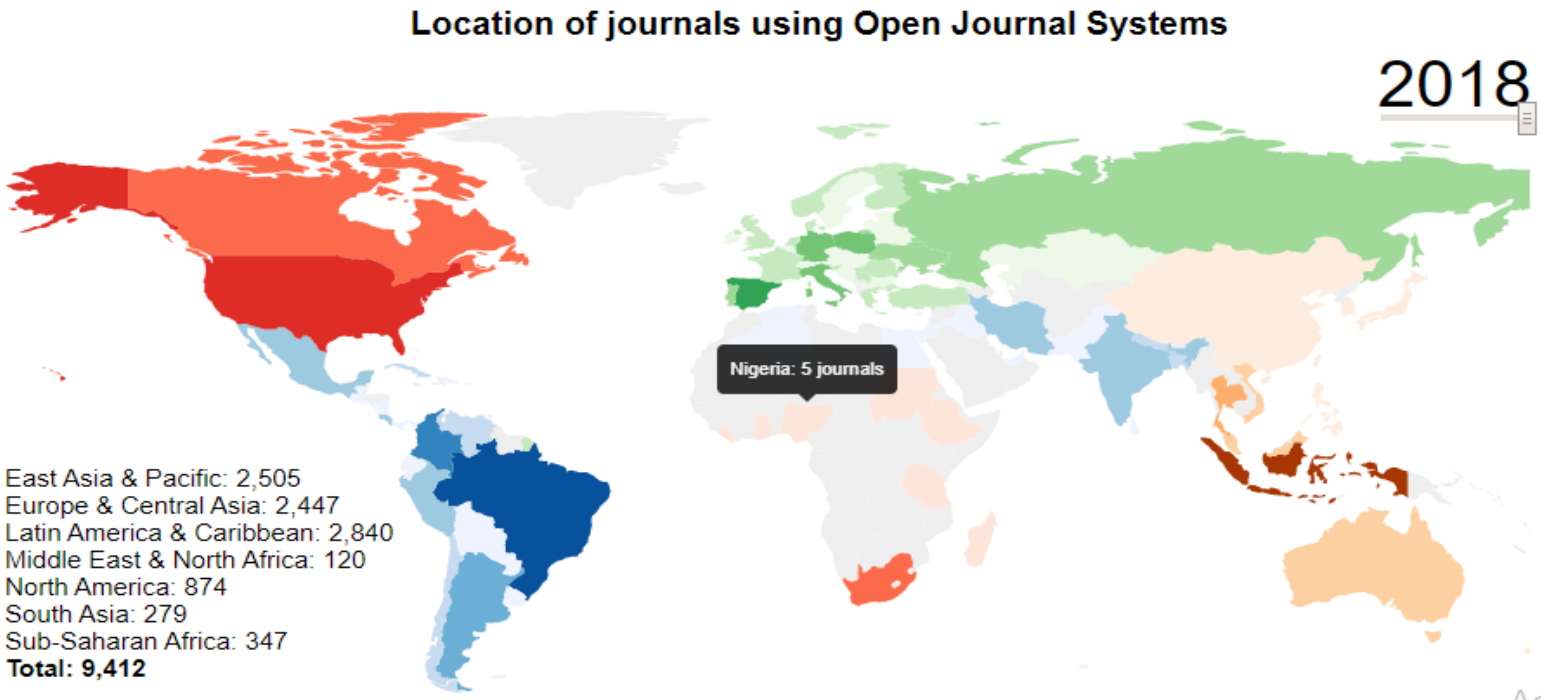


Notes: This map shows the journals using Open Journal Systems (OJS) available online sometime in the last 30 days. Each year ONLY shows journals with *content* published in that year. The numbers *do not* represent the rate of adoption of OJS (many journals only upload back issues without publishing ANY current content, skip a year, or go offline).

OJS: Map of growth through the years

- https://pkp.sfu.ca/ojs/ojs-usage/ojs-map/

OJS Map



Activate Windo
Go to Settings to act

Virtual Research Environments/Platforms

- Online systems helping researchers collaborate.
- Features usually include **collaboration support** (Web forums and wikis), **document hosting**, and some discipline-specific tools, such as data analysis, visualisation, or simulation management.

VREs defined

According to JISC:

- VRE is a set of online tools and other network resources and technologies interoperating with each other to support or enhance the processes of a wide range of research practitioners within and across disciplinary and institutional boundaries.

» UK Joint Information Systems Committee (JISC)

Examples

- HubZero, developed by Purdue University
- EVER-EST, a VRE for research on Earth-science,
- VRE4EIC, supporting a multi-disciplinary approach to research on climate change and energy sustainability
- ***OSF,** developed and managed by Center for Open Science

The Open Science Framework

- developed and maintained by the Center for Open Science (COS)
- The core mission of COS is to increase
  - openness,
  - integrity, and
  - reproducibility of research

The OSF con’td

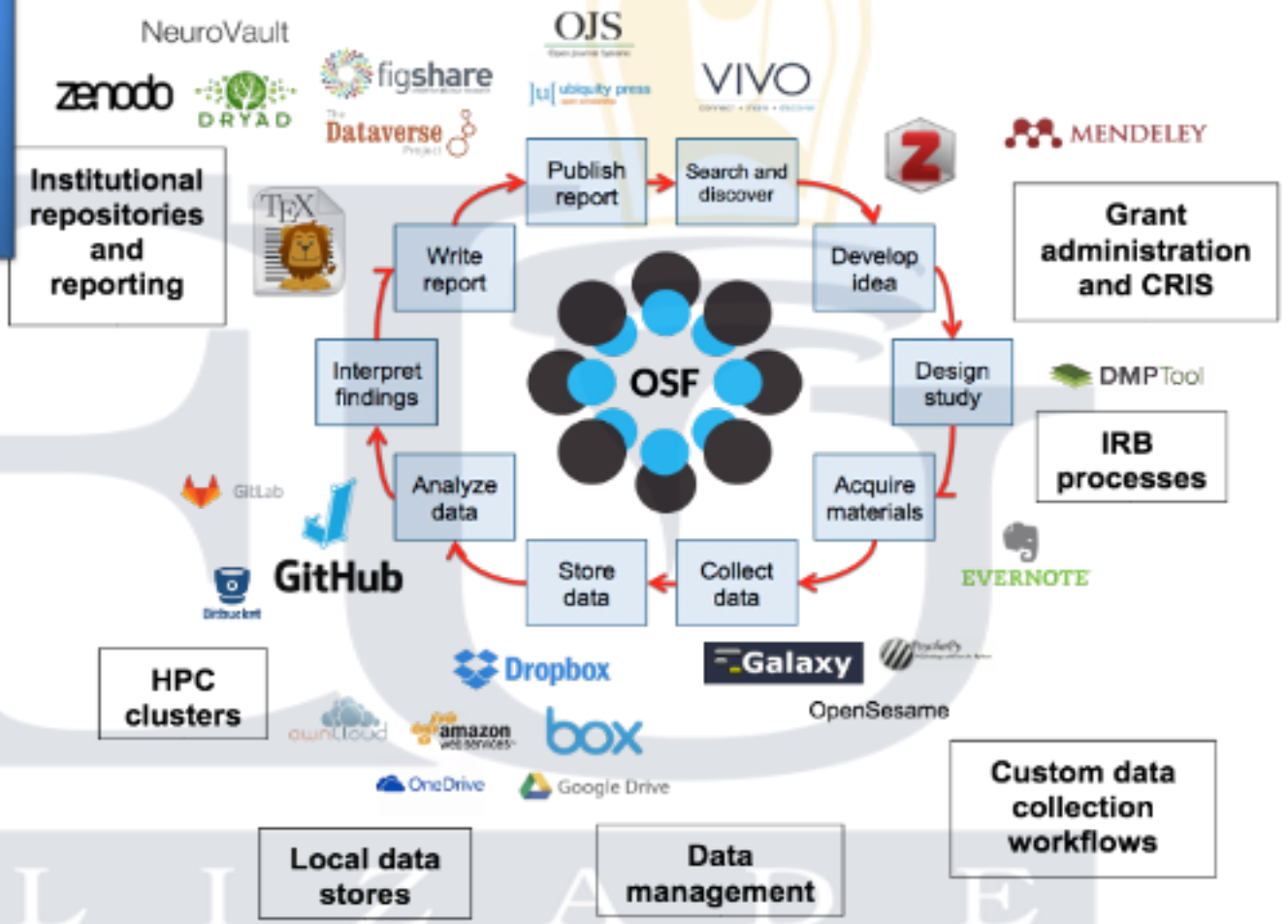
- OSF provides free and open source project management support for researchers across the entire research lifecycle
- It is a collaboration tool
- A workflow system which enables connections to the many services researchers already use to streamline their process and increase efficiency
- A flexible repository that can store and archive research data, protocols, and materials

The OSF does:

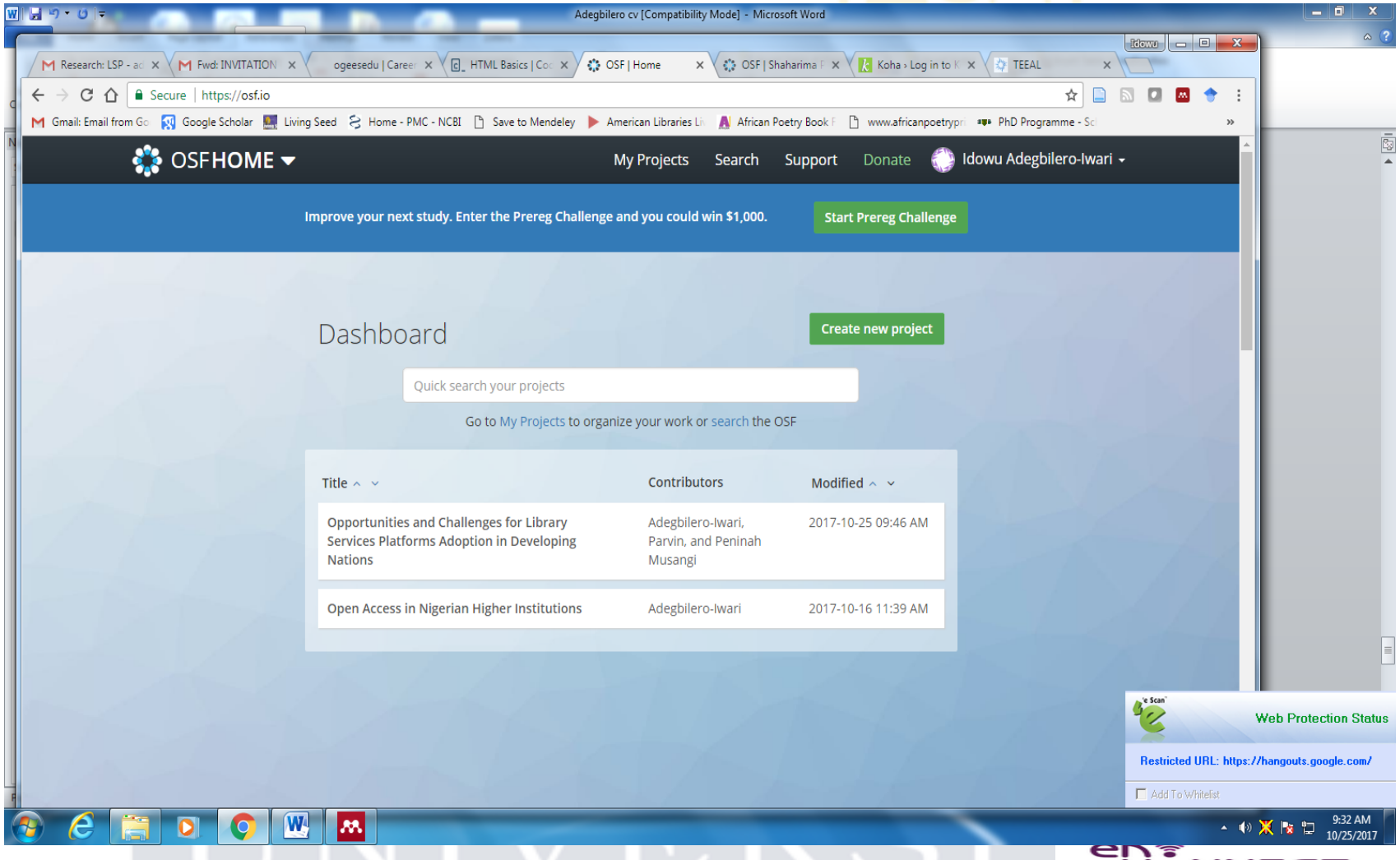
- Organize Your Projects.
- Manage complex projects easily
- Document your process.
- Add components or folders easily.
- Version Control
- Register your work
- Share your work easily
- Connect other tools as Add-ons
- Project analytics

The OSF, Research Lifecycle and Online tools

OSF supports the entire research lifecycle. Provides opportunity to connect online research tools



Open Science Framework



OSF

VREs and the Open Era ed - Microsoft PowerPoint
OSF | Home
https://osf.io
OSFHOME
Search
Support
Donate
Sign Up
Sign In
Open Science Framework
A scholarly commons to connect the entire research cycle
FREE AND OPEN SOURCE. START NOW.
Full Name
Contact Email
Confirm Email
Password (Must be 8 to 255 characters)
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Show all
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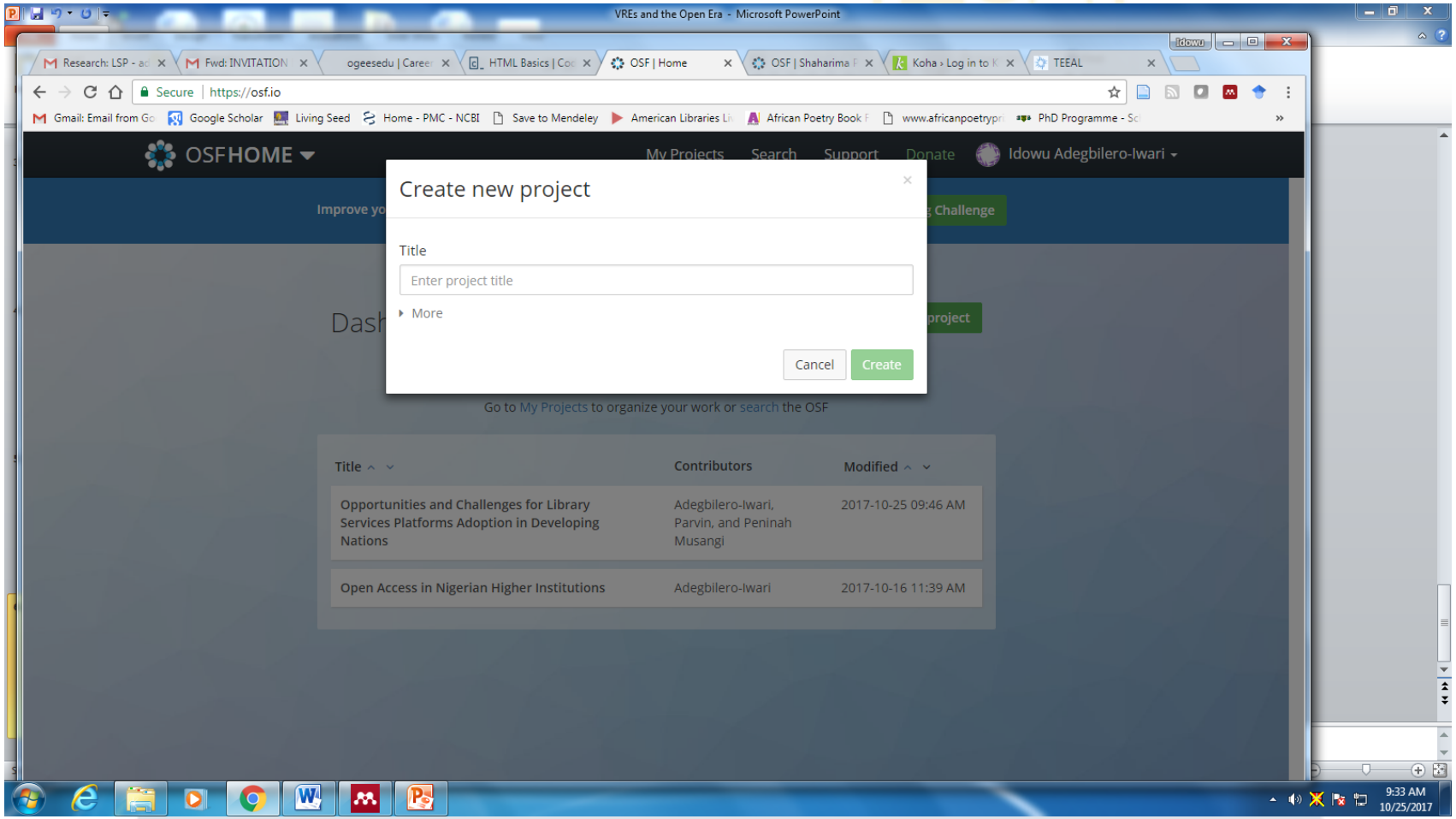
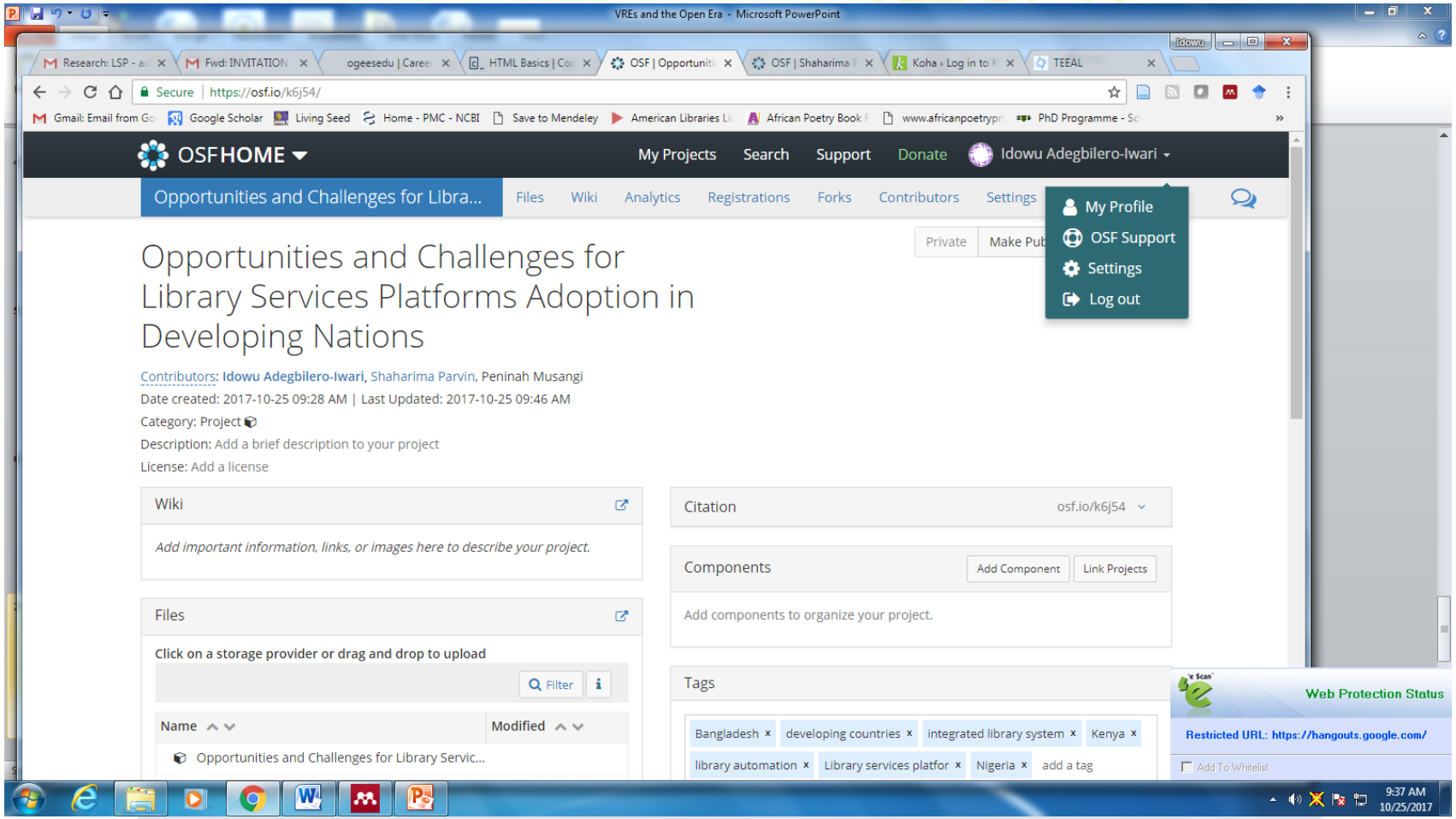
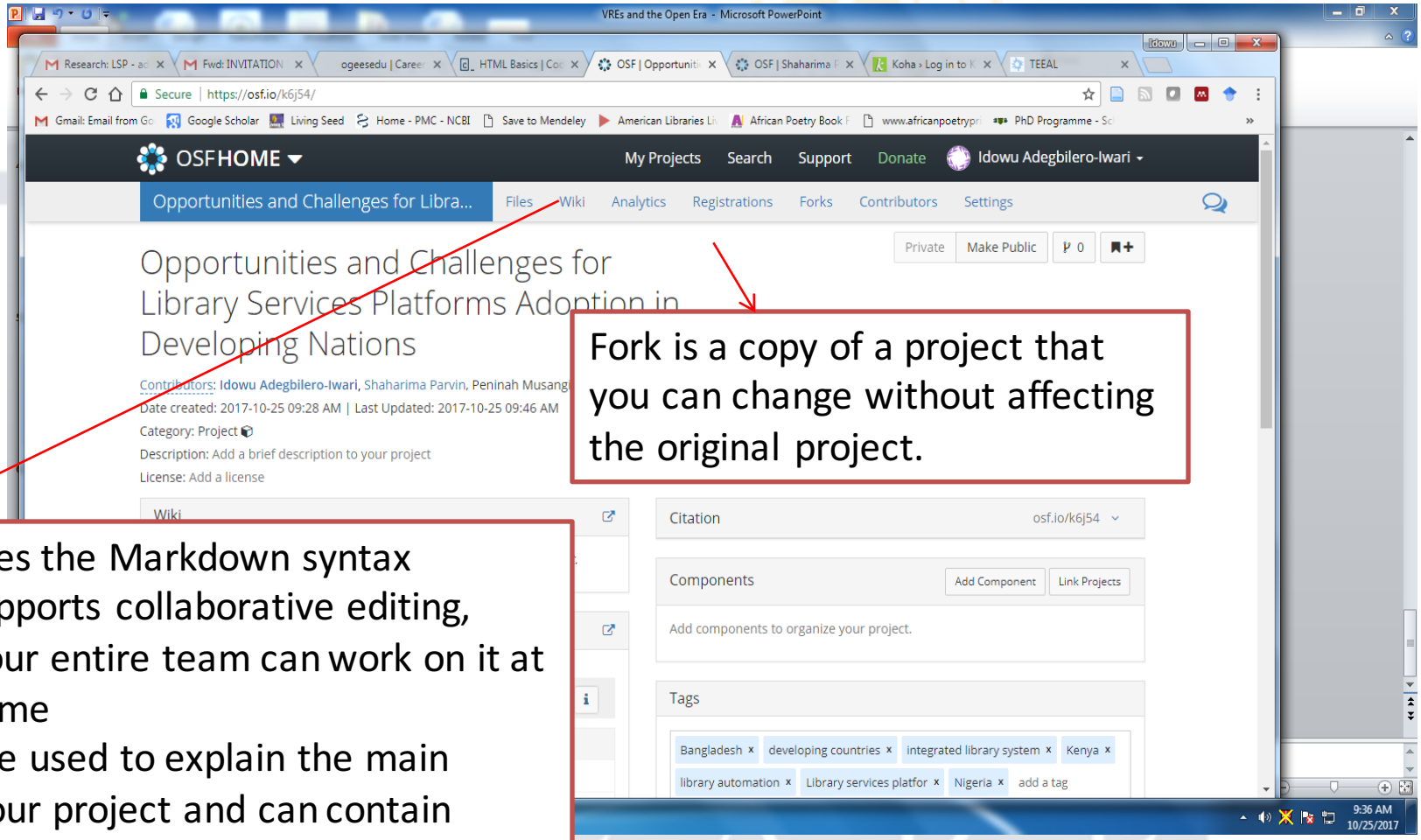
Starting a project



A Project sample



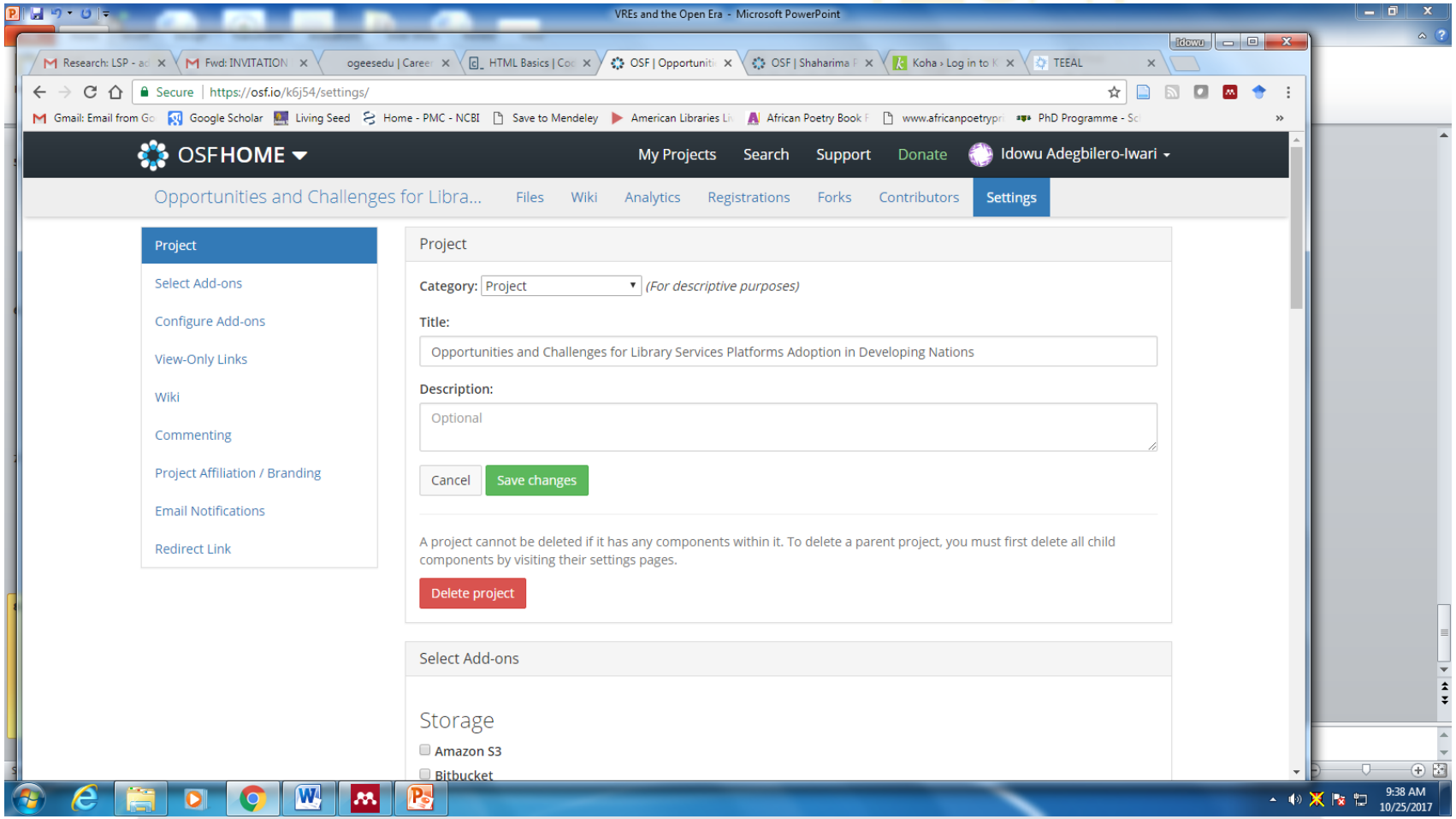
Parts of an OSF Project



Fork is a copy of a project that you can change without affecting the original project.

The wiki uses the Markdown syntax
The wiki supports collaborative editing, meaning your entire team can work on it at the same time
Wikis can be used to explain the main points of your project and can contain information like lab notes, contact information, or more in-depth details about your project

Settings


VREs and the Open Era - Microsoft PowerPoint
Secure https://osf.io/k6j54/settings/
OSF HOME
My Projects
Search
Support
Donate
Idowu Adegbilero-Iwari
Opportunities and Challenges for Libra...
Files
Wiki
Analytics
Registrations
Forks
Contributors
Settings
Project
Select Add-ons
Configure Add-ons
View-Only Links
Wiki
Commenting
Project Affiliation / Branding
Email Notifications
Redirect Link
Project
Category: Project (For descriptive purposes)
Title:
Opportunities and Challenges for Library Services Platforms Adoption in Developing Nations
Description:
Optional
Cancel
Save changes
A project cannot be deleted if it has any components within it. To delete a parent project, you must first delete all child components by visiting their settings pages.
Delete project
Select Add-ons
Storage
Amazon S3
Bitbucket
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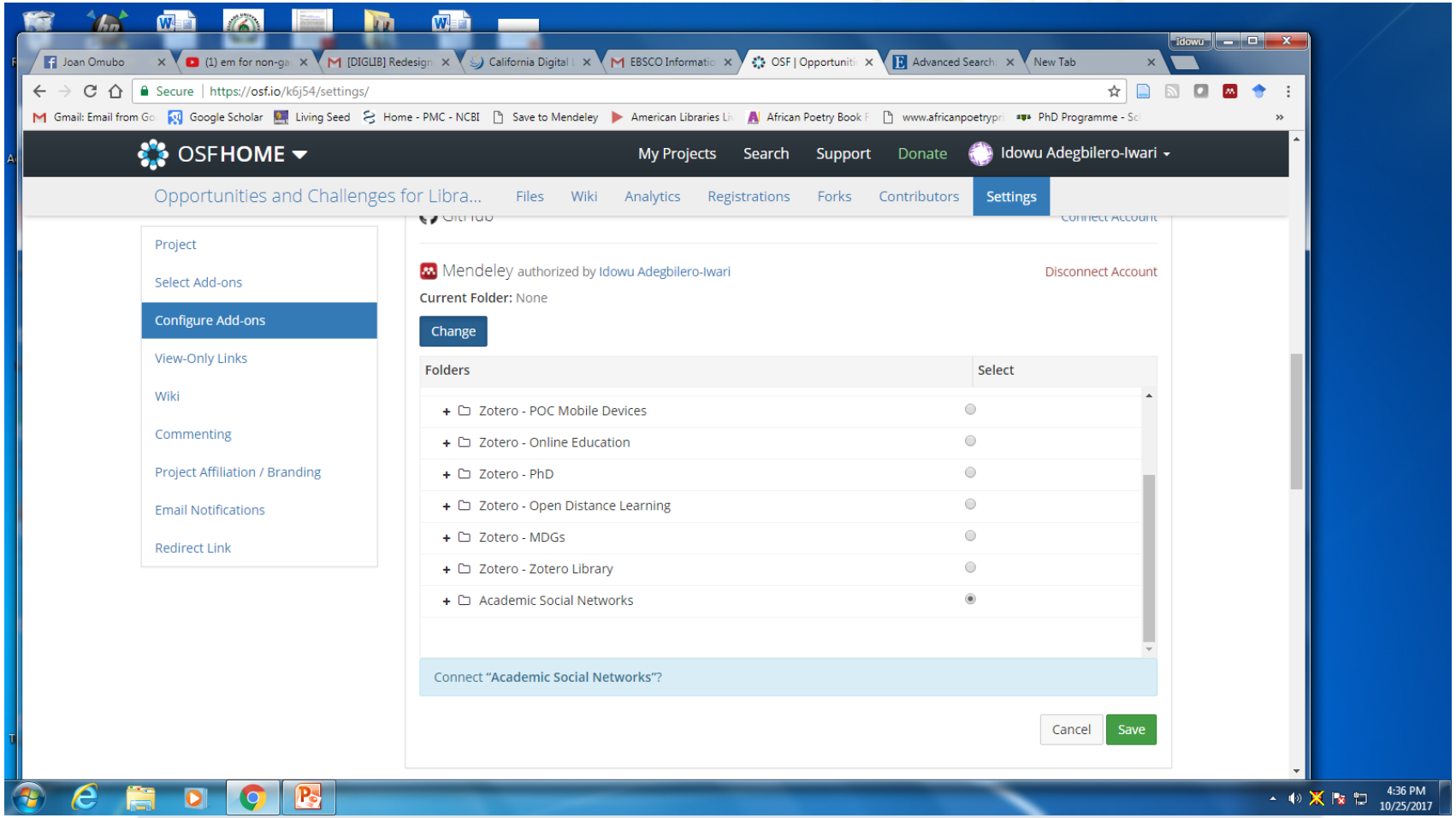
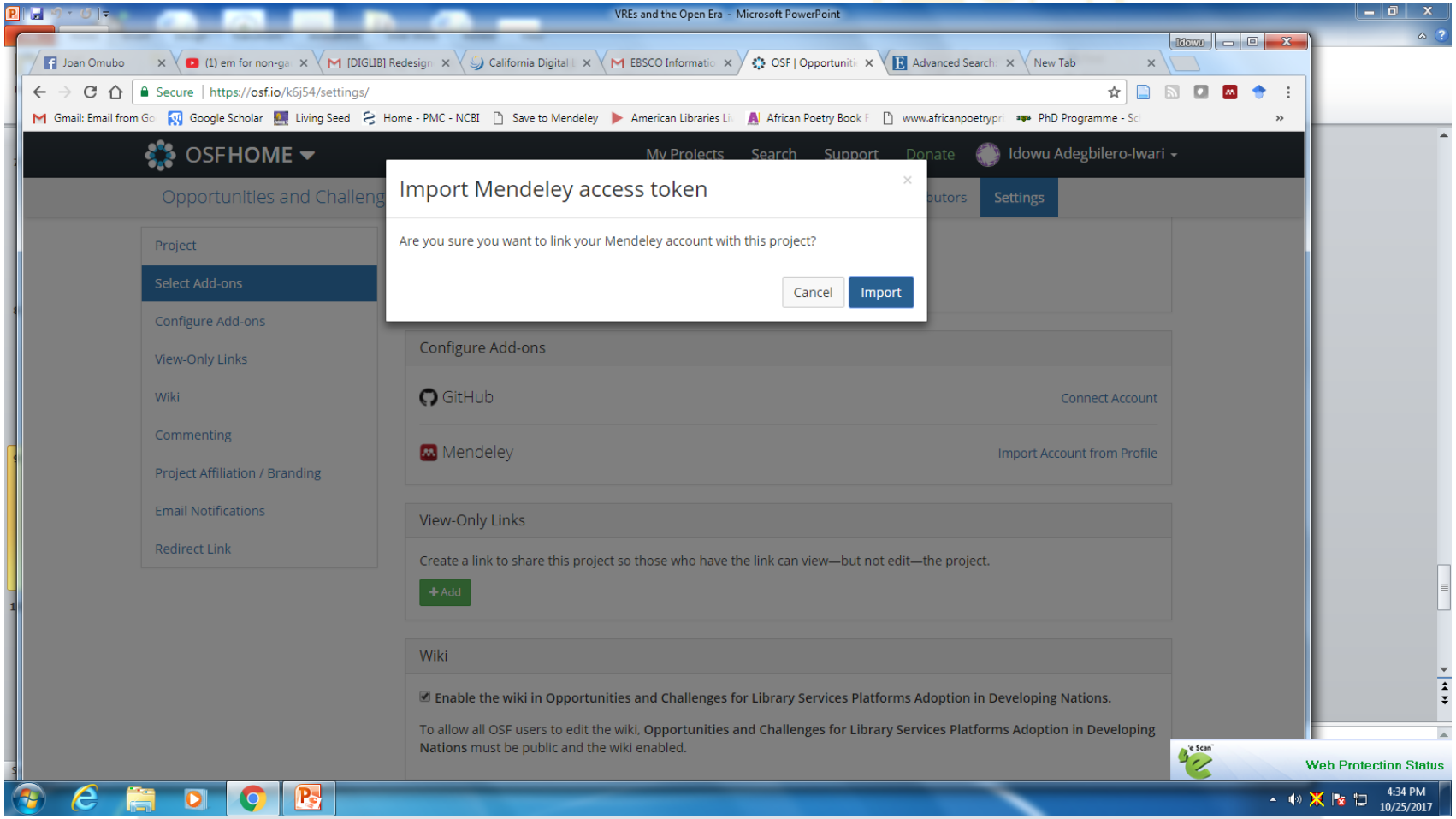
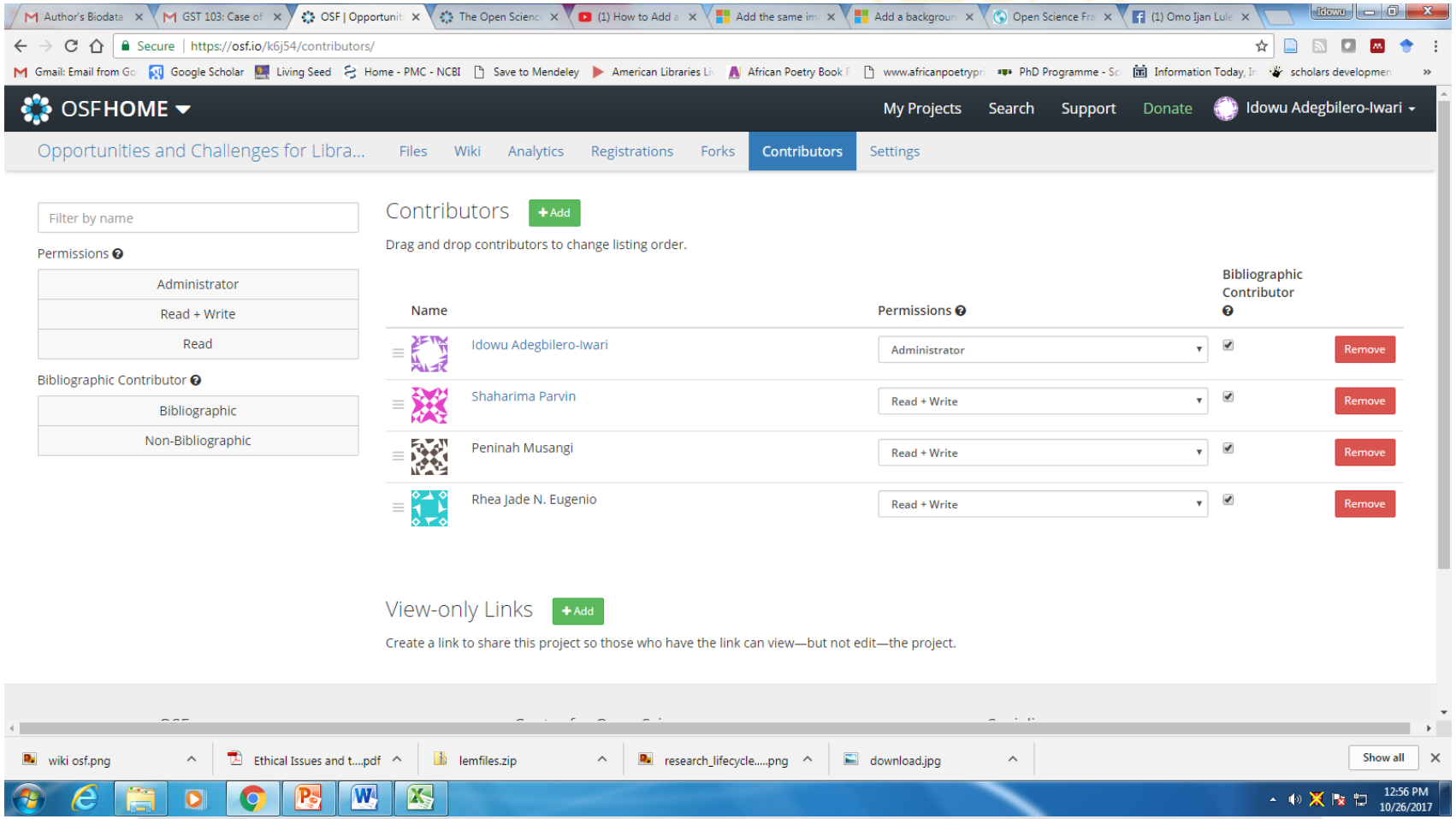
Adding an external service



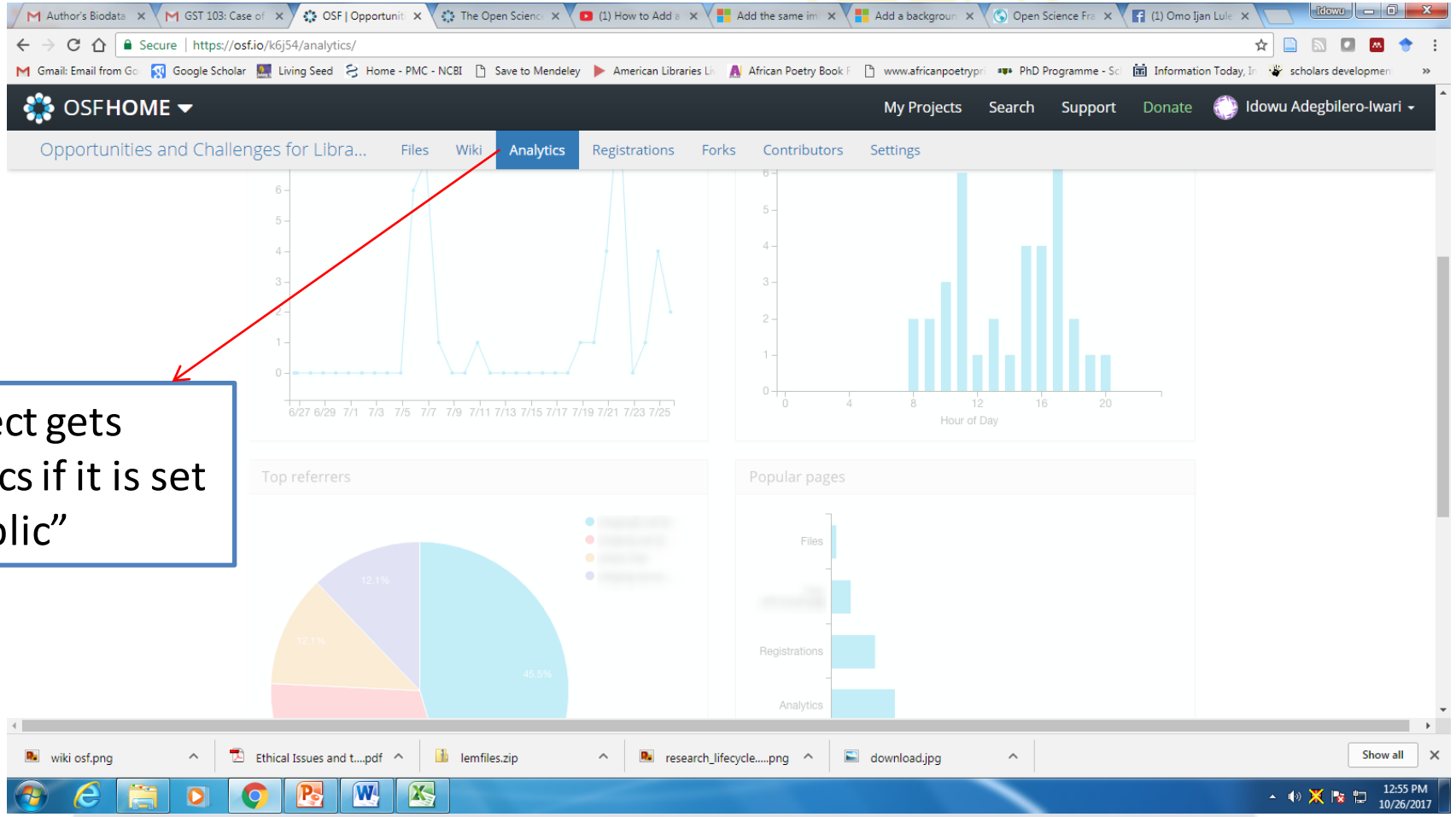
Adding an external service



Contributors

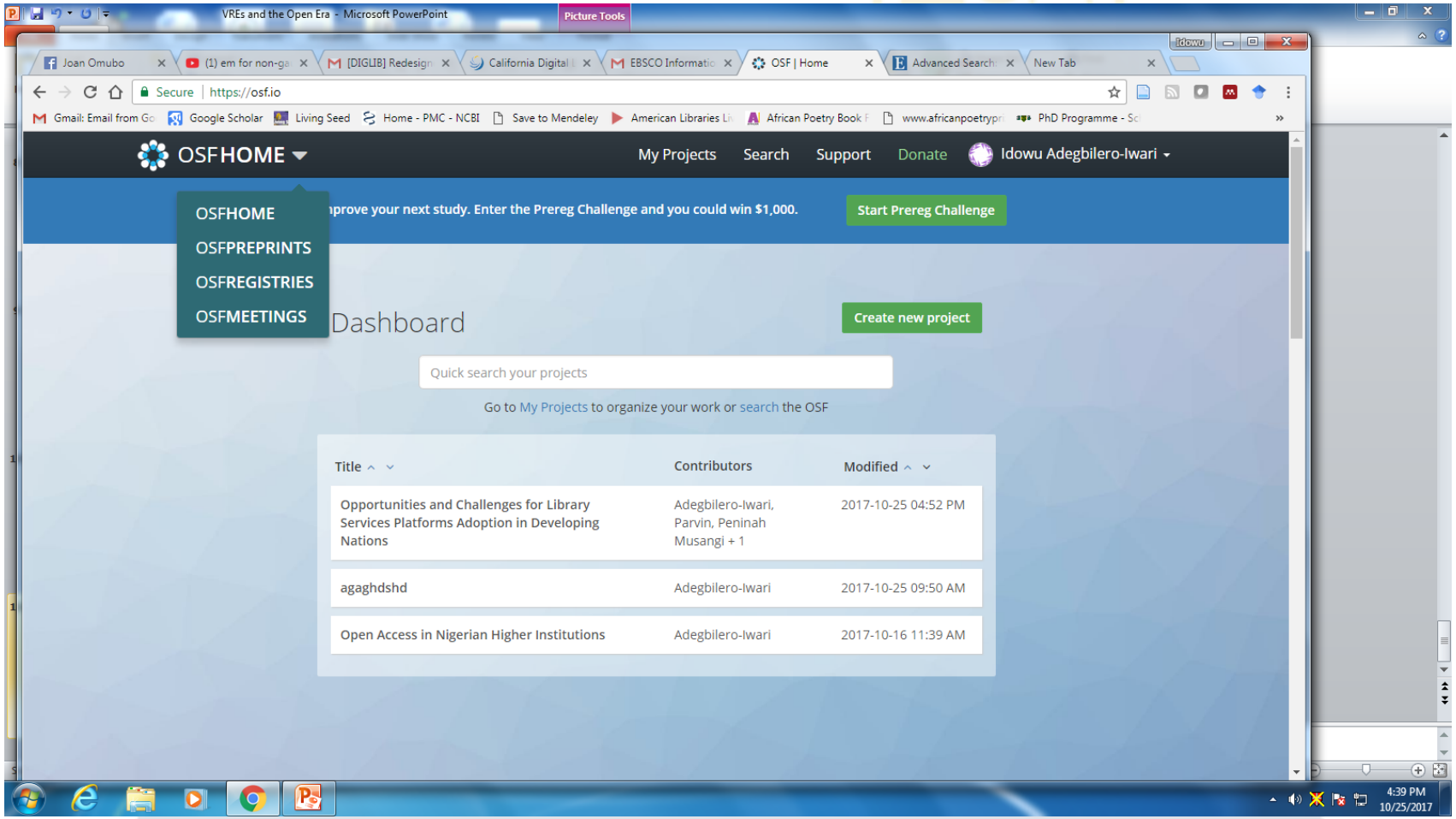


Analytics

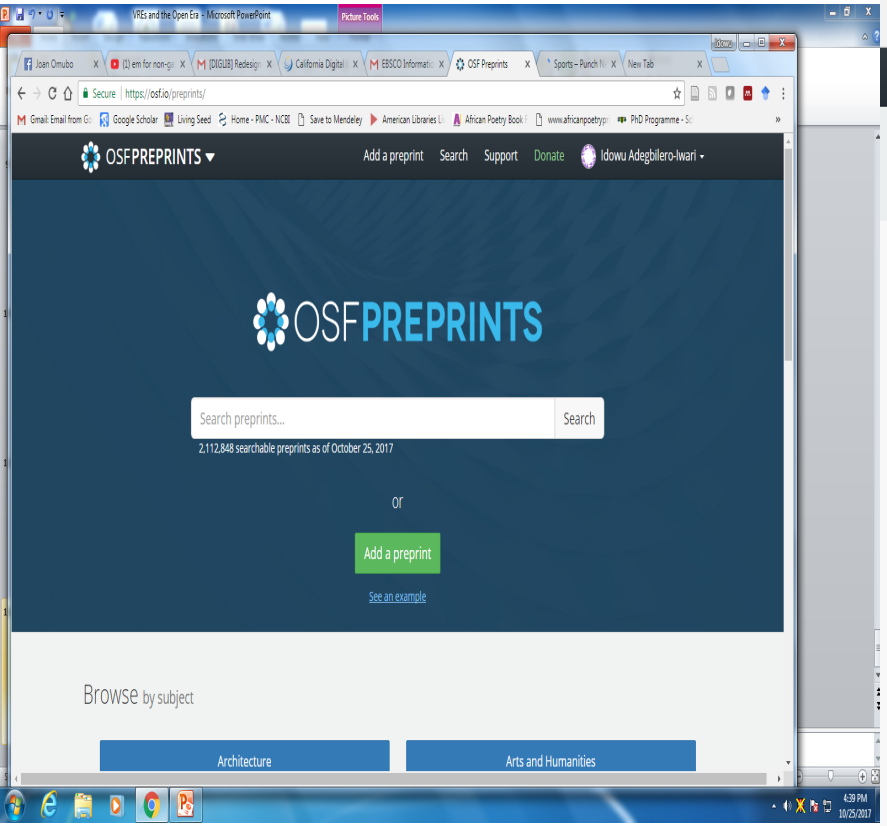


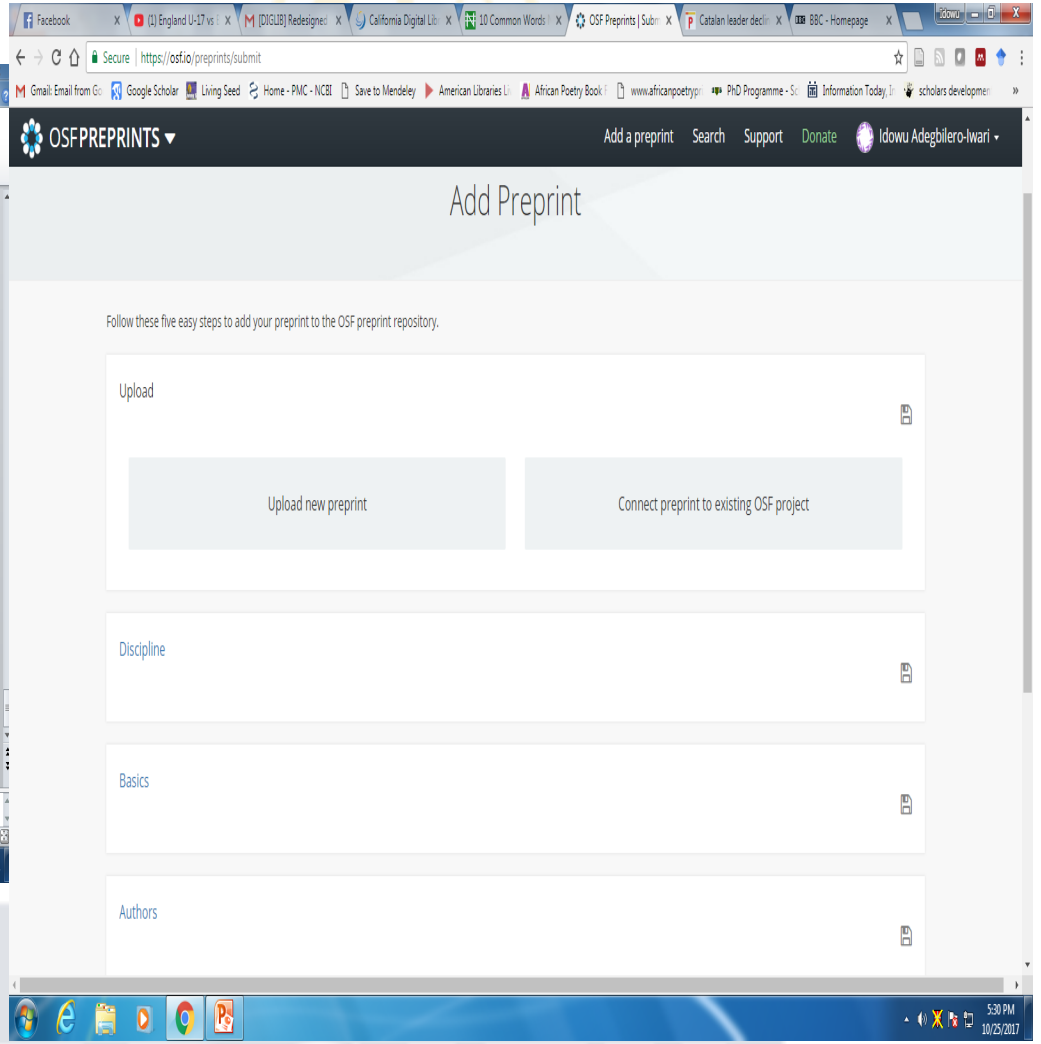
A project gets analytics if it is set as “Public”

The rest of OSF

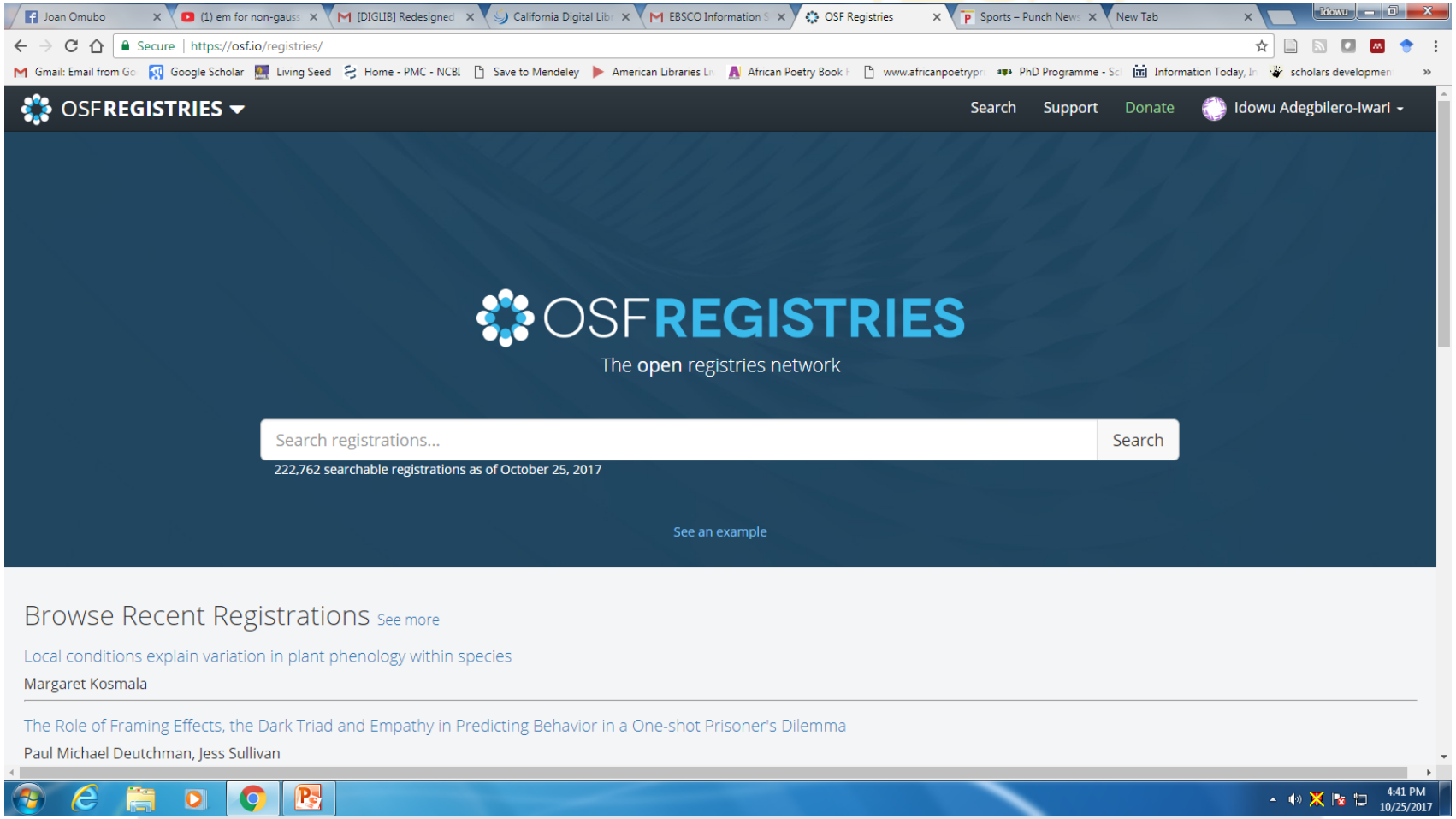


OSF Preprints

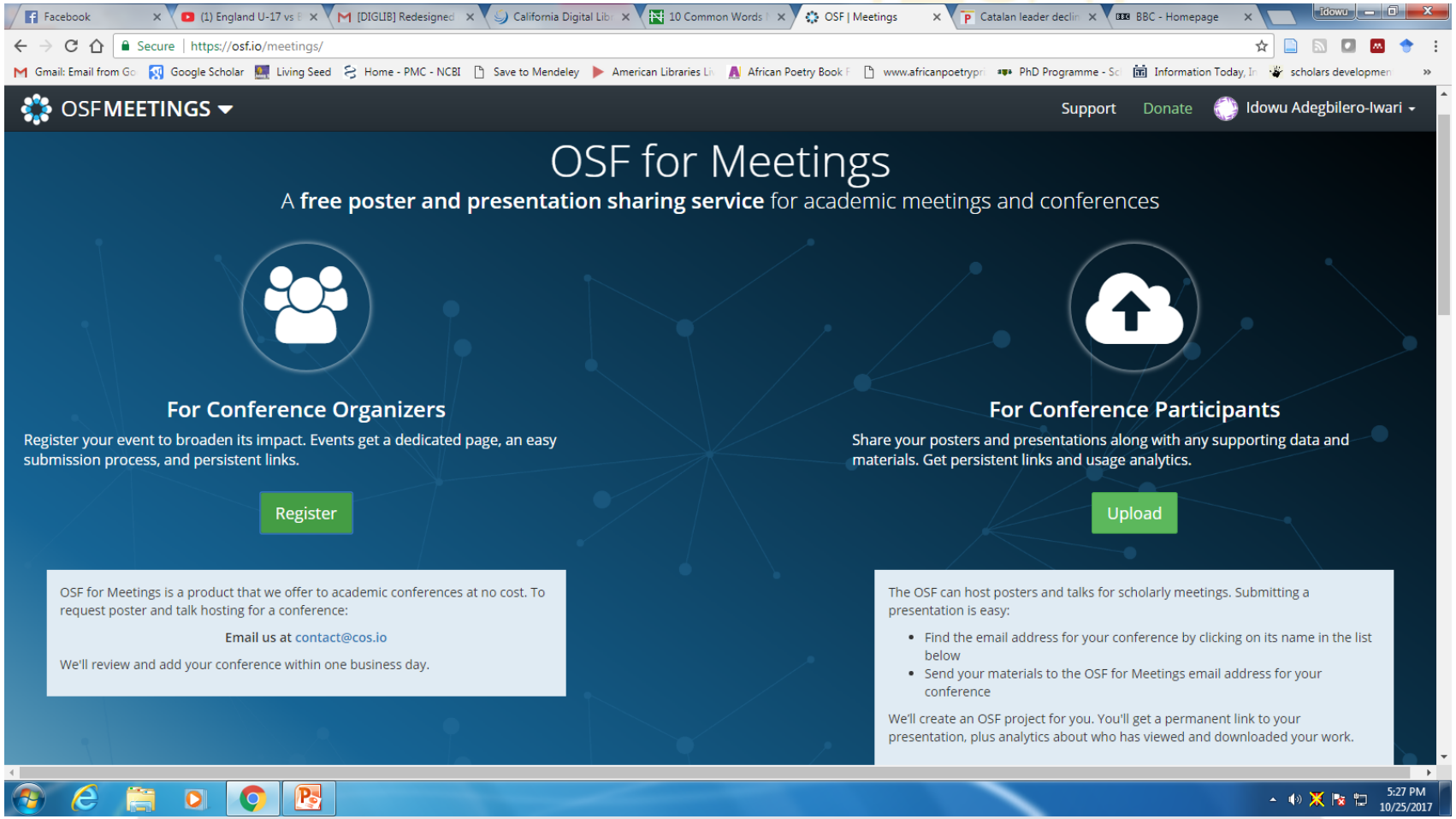




OSF Registries



OSF for Meetings



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