

# **Open Science Facilitation - Libraries as Essential Enablers**

By

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# Introduction

- **Open science** is the making of scientific research and its procedures open. This includes publications, data, physical samples, and software as well as its dissemination accessible to all strata of society. It is:
- Transparent and accessible
- Shared and developed through collaborative networks
- It includes practices like: publishing open research, campaigning for open access, Encouraging scientists to practice open note-book science such as: openly sharing data and code, broader dissemination and engagement in science and Generally making it easier to publish, access and communicate scientific knowledge.

# Introduction

- Open Science has emerged as a paradigm that promotes transparency, collaboration, and accessibility in research. It emphasises sharing research outputs, data, and methodologies openly to accelerate scientific progress.
- Although it is obvious that the ultimate objective of open science is to increase research output by dismantling obstacles and fostering collaborative research, there is no single universal definition of open science (Stefka, 2020).



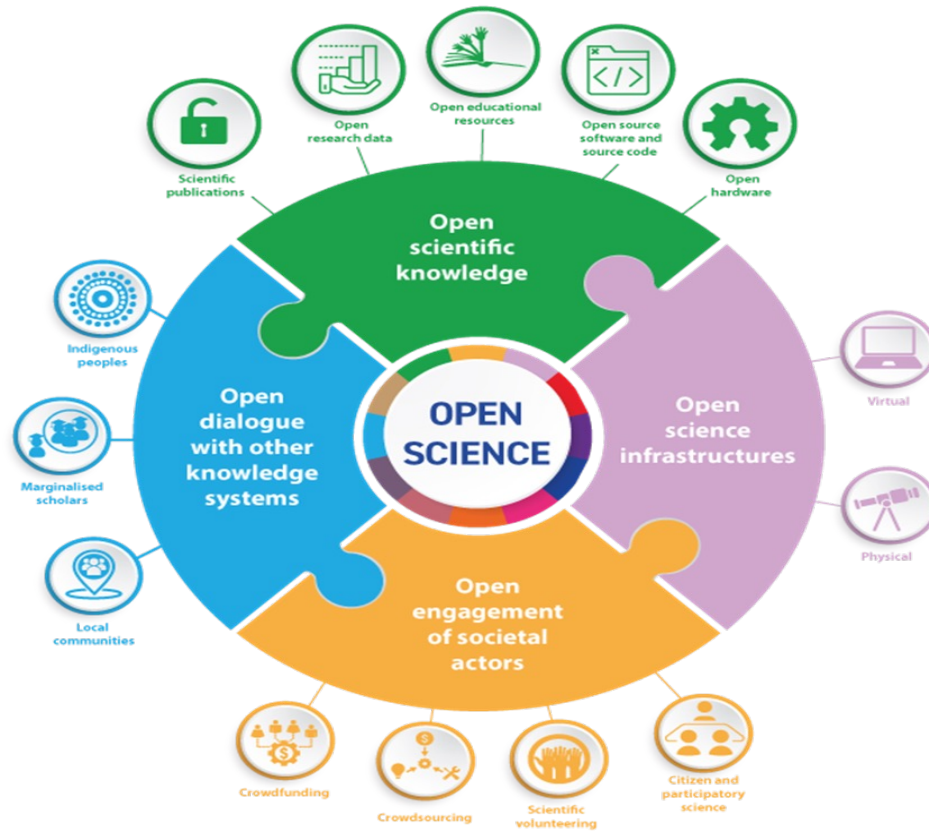
# Introduction

- The existing body of literature revealed that open science focuses on four thematic areas: [open access](#), [research data management](#), [open educational sources](#) , and [citizen science](#) (Liu & Liu, 2023).
- This ubiquitous evolution can be linked to the emergence of digital technologies and the paradigm shift in the research process, with the increasing need for interdisciplinary and collaborative researches.

# Introduction

- Librarians play a pivotal role in locating, evaluating, organising and disseminating information; thus, libraries are an appropriate setting for the idea of openness since they strive to assist patrons in obtaining information resources in a variety of formats and make its content accessible to everybody (Osuigwe & Levey, 2023).
- Libraries, as hubs of knowledge, information, and expertise, play a crucial role in facilitating Open Science practices. They provide the necessary resources, infrastructure, and guidance to researchers, educators, and the general public to embrace and implement Open Science principles.

# UNESCO pillar of open science (2021)



# Pivotal Role Libraries can play in Promoting and Facilitating Open Science

## Open Science Awareness and Education

- Libraries can serve as educators by organising workshops, webinars, and training sessions to increase awareness about Open Science practices. They can educate researchers about open access publishing, data sharing and privacy issues, open licensing, copyright issues and the benefits of making research outputs openly available.



# Data Management and Sharing

- Libraries can provide guidance on proper data management practices, helping researchers organise, store, and share their data effectively. They can also assist in creating data management plans that adhere to Open Science standards and funding agency requirements. This will lead to improved data management and preservation practices, leading to more reproducible and reliable research.
- An area of emphasis for awareness and advocacy is the challenge of data privacy especially personal data of individuals, organisations or security. Helping researchers and authors understand that not all data can be opened for everyone or adopting strategies like anonymisation of data at the beginning of research studies will go a long way to allay the fears around open science practices.

# Open Access Repositories

- Libraries can establish and manage institutional repositories where researchers can deposit and share their research publications, datasets, preprints, and other scholarly works. These repositories provide wide accessibility to research outputs and enhance visibility of research outputs thereby contributing to global knowledge dissemination.

# Collaborative Spaces and Open Research Communities

- Libraries can create or coordinate research communities that promote interdisciplinary collaboration and knowledge exchange. These spaces can facilitate open discussions, workshops, and hackathons focused on Open Science topics. Which will strengthen collaboration and interdisciplinary interactions within the research community?

# Advocacy and Policy Support

- Libraries can advocate for Open Science principles at institutional and national levels.
- They can collaborate with policymakers like the National Universities Commission and research funders like TETFUND to develop Open Science policies for public funded research outputs.
- For instance, all TETFUND sponsored research outputs including data should be uploaded to the institutional repositories of the lecturers or researchers at the end of their research cycle.
- This will encourage transparency, collaboration and entrench open science principles among researchers.

# Open Educational Resources (OER)

- Libraries can create, curate and provide access to open educational resources, textbooks, and learning materials, contributing to affordable and equitable education.
- This can be done in conjunction with the university management and faculty members

# Regional collaboration and integration

- university libraries in Africa should get integrated to smoothen resource sharing and remove all borders to accessing knowledge in the continent of Africa. This will help to promote the idea of African research to address African problems and develop to an information system.
- Opening up African journals by encouraging coordinated online access within and outside Africa. This will improve scholarship and collaborated research.

# Implementation Strategies Libraries can adopt to Effectively Facilitate Open Science

- **Collaborate with** researchers, faculty, and students to understand their needs and tailor library services accordingly. For instance, librarians can join research teams and take up the role of curation and dissemination of data sets
- **Establish communication** channels to keep the community informed about Open Science developments and resources.

- **Develop partnerships with** research institutions, local publishers, funding agencies, and open Science advocates to advocate and create a supportive ecosystem leveraging open systems. For instance, local journal publishers can take advantage of the Open Journal System (<https://openjournalsystems.com/>), an open source and free software for the management of peer-reviewed journals to have online presence for the many local journals in Nigeria that are only available in print. Libraries can also build publishing infrastructure and take up publishing leveraging these open infrastructures.



- **Invest in capacity building** activities for library staff to become proficient in Open Science practices and technologies. Librarians should be trained to understand the different components of openness and how openness can be used to ensure better access to information and qualitative researches and education.
- **Continuously evaluate** the impact of library-led Open Science initiatives and adapt strategies with new initiatives.

# Conclusion

- Libraries are essential enablers of Open Science, and have the potential to transform the research landscape by promoting transparency, collaboration, and accessibility.
- By providing education, resources and support, libraries can empower researchers to embrace Open Science principles and contribute to the advancement of knowledge for the benefit of society at large.

# References

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*THANK YOU*