

Strengthening National Systems – Innovating with Openness

By Prof. Osman Sankoh COR, UNIMTECH, Kissy Dockyard, Freetown

Mr. Chairman, Ladies and Gentlemen,

It is an honor to stand before you today to talk on a topic of paramount importance: "Strengthening National Systems - Innovating with Openness."

When I was contacted to give the talk, I asked which order would it be.

"The last speaker of the first session," said Dr Songu excitedly.

He didn't know I was very unhappy with the information.

To speak after dignitaries such as diplomats, ministers, heads of UNESCO and RAIC, is to be put under pressure to repeat and or summarise what they would have said before you.

Well, the good thing about it is that, the audience is clever enough to know the predicament I am in and will therefore forgive me.

Mr Chairman, Ladies and Gentlemen:

In an era characterised by rapid technological advancements and interconnectedness, the role of open science in bolstering our national systems cannot be overemphasised.

The title of my talk given by the organisers forced me to make two assumptions:

One, that the 'national systems' in question are the soft and hard infrastructure that make open-science thrive; and Two, 'innovating with openness', is about using open-science for innovating within the national systems.

As have been said by the previous speakers, and now put in my own words for emphasis, open science embodies a fundamental shift in the way we conduct research, collaborate, and share knowledge.

Open science entails transparent access to data, methodologies, and findings, transcending geographic boundaries and fostering a culture of inclusivity.

By harnessing the power of open science, we not only enrich the quality of our research but also empower our national systems to address challenges with agility and precision.

Mr Chairman, Ladies and Gentlemen:

Innovation lies at the heart of open-science. By adopting open practices, we unlock countless possibilities.

Innovation in open science refers to the creative and transformative advancements that push the boundaries of how research is conducted, shared, and applied within an open and collaborative framework.

It involves developing new approaches, tools, and methodologies that enhance the effectiveness, efficiency, and impact of open-science practices.

The question is: what do we innovate and how do we go about doing that?

A comprehensive national open-science infrastructure – permit me to call this soft and hard infrastructure – consists of a variety of interconnected components and resources that support the implementation of open-science practices at a national level.

This infrastructure aims to facilitate collaboration, transparency, and accessibility in research and innovation.

Mr Chairman, Ladies and Gentlemen:

I will now mention some of the key components that need to be innovatively developed, where they do not exist, and strengthened, where they already exist, to achieve a transformative impact of open science in Sierra Leone:

Open Repositories and Platforms:

We need centralised repositories for research data, publications, and other research outputs, where researchers can deposit, access, and share their work openly.

We need platforms for preprints, allowing researchers to share preliminary findings and receive feedback before formal publication.

Data Management Services:

We need services and tools to help researchers properly manage, store, document, and share research data in accordance with open-science principles.

There should be guidance on data format standards, metadata creation, and data preservation.

We need to provide researchers with guidance and support for proper data management practices, including data documentation, metadata standards, and data preservation.

Open Access Publishing:

We need support for open access publishing models, including open access journals and hybrid journals, which allow research findings to be freely accessible to the public.

Research Collaboration Tools

We need to create online collaboration platforms that facilitate real-time collaboration among researchers, enabling them to work together on projects, share resources, and co-author documents.

We need to foster collaborations between research institutions, government agencies, industry partners, and civil society to collectively support and advance open-science initiatives.

Data Analytics and Visualisation Tools:

We need to provide tools for analyzing and visualizing research data, enabling researchers to extract insights and communicate findings effectively.

Open Educational Resources (OERs):

We need to create platforms for creating, sharing, and accessing open educational resources that promote open and collaborative learning experiences.

We should allocate resources to develop and maintain open repositories, data management systems, collaborative platforms, and other necessary tools for researchers to share and access information.

Metadata and Interoperability Standards:

We need to adopt standardised metadata formats and interoperability protocols to ensure that research data and publications can be easily discovered, accessed, and reused.

Training and Capacity Building Programmes:

We should provide workshops, training materials, and resources that educate researchers, educators, and students about open-science practices, data management, and related skills.

Policy and Public Engagement Initiatives:

We need national policies that promote and mandate open-science practices, as well as advocacy efforts to raise awareness and foster a culture of openness.

We need to engage in outreach activities to engage the public in science, including science communication platforms, citizen science projects, and initiatives that promote science literacy.

Those activities should include advocacy campaigns, conferences, and seminars.

Ethics and Privacy Guidelines:

We need to develop frameworks and guidelines for ethical conduct in open-science, addressing issues such as data privacy, informed consent, and responsible research practices.

Funding and Support:

We need to attract financial support and grants for researchers and institutions that adopt open-science practices, ensuring that necessary resources are available for open-science initiatives.

Monitoring and Evaluation:

We must consider important mechanisms for monitoring the impact and effectiveness of the national open-science infrastructure, including metrics related to research output, data reuse, citation rates, collaboration, public engagement and knowledge dissemination.

This will allow us to regularly assess the effectiveness of the national open-science infrastructure, gather feedback from stakeholders, and adapt strategies based on evolving trends and needs.

International Collaboration:

We will need to participate in international networks and collaborations to share best practices, learn from other countries' experiences, and contribute to the global open-science movement.

Mr Chairman, Ladies and Gentlemen:

You definitely observed my emphasis on WE, WE, WE... Who are the WE?

All of us! The Government, the Universities and other stakeholders and us, the researchers.

We each must play a role to make this work.

There is another important question to answer: How open should open-science be?

The degree of openness in open-science can vary depending on the context, the type of research, and the ethical considerations involved.

While the ultimate goal is to maximise transparency and accessibility, there are certain factors to consider when determining how "open" open-science should be, for example, Data Sharing; Publication Access; Intellectual Property; Ethical Considerations; and Transparency in Research Process.

Unfortunately there will not be enough time today to discuss all of these factors.

Mr Chairman, Ladies and Gentlemen:

In conclusion, strengthening national systems requires an ecosystem where knowledge flows freely and barriers to entry are largely diminished.

Open-science provides us with this ecosystem by promoting the democratisation of information.

Whether it is scientific articles, datasets, or software tools, open access empowers not only researchers but also educators, policymakers, and citizens.

It is essential to recognise that the journey towards fully embracing open-science will not be devoid of challenges.

Striking a balance between openness and protecting intellectual property, ensuring data privacy, and addressing issues of equity and representation are some of the hurdles we must navigate.

By actively engaging with these challenges, we can refine our approach and build a more inclusive and equitable open-science landscape.

This journey unquestionably requires collaboration, perseverance, and a collective commitment to knowledge dissemination.

As we embark on this voyage, let us embrace innovation as a beacon guiding us towards a future where our national systems are fortified by the transformative power of open science.

Thank you.