Towards improved access to scientific information: The Case for Transforming Scholarly Communication Model in the African Region

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Purpose of the paper

To examine the challenges facing scholarly communication in the African region with view to initiating dialogue towards its transformation to a model which can:

- Bring down costs,
- Improve access, dissemination and sharing of scientific information among researchers and other key stakeholders.
Objectives of the Paper

- **Review current challenges** facing existing scholarly communication in the Africa region

- **Investigate how emerging practices and tools** can lead to improved access, dissemination and sharing of scientific information

- **Concretize emerging/ tools/trends in information generation**, dissemination, access into a new model of scholarly communication

- **Make recommendations on a way forward**
Basic argument/proposal/thesis

- Adoption of emerging practices /tools such as:
  - Open access and open access publishing and archiving
  - Library consortia access to scientific information,
  - Digital library concepts
  - Virtual communities and sharing
  - Digital curation through digital knowledge repositories, Use of social media and networking

- Improve access, dissemination and sharing of scientific information among researchers and other key stakeholders.

- We need to invest resources in implementing, promoting, supporting and encouraging these practices in our institutions
Outline of paper

1. Background: Key concept of scholarly communication
2. Role of scholarly communication in scholarship and research
3. Crises in scholarly communication and case for transformation
4. New model of scholarly communication: Tools/elements and the opportunities
5. Challenges in the transformation process
6. Conclusion and recommendations
Background

Scholarly communication: A Definition:

- “The system through which research and other scholarly writings are
  - Created,
  - Evaluated for quality,
  - Disseminated to the scholarly community and other consumers, and preserved for future use.

Scholarly communication: A Definition

The traditional process of scholarly communication consists of several groups of players with different roles such as:-

- Research funding agencies
- Researchers, specialists and practitioners
- Research institutions & networks e.g. Universities, NRENS, and research centres
- Publishers
- Librarians
- Consumers / Users
Background: Why think about scholarly communication

- The critical role of scholarly communication centres around the fact that scientific information is the most critical resource as well as product of in research and innovation.

i. Setting the right agenda:
ii. Further research initiatives and generation of further knowledge and innovation
iii. Improved quality and transparency in research activities
iv. Adoption /Application of research innovations
v. Setting appropriate policies, development programmes and their implementation
vi. Realization of sustainable development and a brighter future for communities.
Background: Why think about scholarly communication

Therefore an efficient scholarly communication which is key to:

- **Setting the right agenda:** Relevance of research to local communities
- **Further research initiatives** and generation of further knowledge and innovation
- **Improved quality and transparency** in research activities
- **Adoption of research innovations** towards improvements in areas such as business, health, agriculture, education and training.
- **Setting appropriate sectoral and national policies**, development programmes and their implementation
- **Realization of sustainable development** and a brighter future for communities.
The problem: Scholarly communication Processes

Discover Knowledge gaps/Research problems (e.g. literature reviews, Who sets the research agenda)

Archiving and Curation for re-use or reference(formulae, research content, models, records, data sets from practice, big data)

Knowledge generation/Research process (field, and laboratory research,)

Adoption /Application of solution(innovations, products, services, projects, policies, models)

Dissemination and access to findings/models (conferences, publishing journals, books, proceedings, theses and dissertations)
The Problem Characteristics of existing scholarly communication

- Foreign sources & control of research agenda
- Traditional Print publishing (print journals, books, proceedings)
- Institutional/personal subscriptions/purchase to scientific information
- Lack of application of ICT tools in research
- Poor non-existent curation of data
- Face-to-face conferencing
The problem: Crises in scholarly communication and in Africa

- Evidence indicates that scientists, research institutions and communities in many parts of the developing countries including the African region have limited access to this vital commodity.

- The overarching problem are model of scholarly communication in Africa today that engender:
  - Inadequate funding for research
  - Low publishing levels among scholars and researchers
  - High cost of publishing,
  - Low intra-Africa collaboration and information exchange among key stakeholders,
  - Low impact of research in solving local problems, national policy and development.
Crisis of scholarly communication in Africa: Fact sheet

There are signs that the research output by African researchers is increasing the current statistics are unacceptable by any standard: In 2012:

- The number of research papers published in scientific journals with at least one African author 52,000).
- Sub-Saharan Africa’s contribution to global research output was 0.72% in 2012.
- Research in the physical sciences, technology, engineering and mathematics accounted for only 29% of all research in Sub-Saharan Africa excluding South Africa”.
Crisis of scholarly communication in Africa: Fact sheet

- The quality of STEM research, as measured by relative citation impact, was 32% below the global average.

- 79% of all research in East Africa and 70% in Southern Africa outside South Africa was produced through international collaboration.

- Sub-Saharan Africa where there are about 80 researchers per million in the population while the global average stands at 1,081 researchers per million people. Most of these are not active.
Methodology: Addressing the problem

- This paper is based on literature review undertaken to achieve the stated objectives.

- A meta-review search in relevant web portals and databases was carried to retrieve literature on relevant thematic areas:
  - Challenge existing scholarly communication models in the Africa region
  - Emerging practices and tools in scholarly communication and the opportunities they present to the research community

- An analytical literature review which included identification of categories, groups, parts and types of relationships....These give rise to the various categorized presented in this paper.
The solution: The New Model of scholarly communication: Key elements

- This problem of poor access is attributable largely to the problems facing scholarly communication.
- This new model will involve adoption of emerging practices such as:
  - Open access and open access publishing and archiving
  - Information sharing through Library consortia access to scientific information,
  - Digital library concepts
  - Virtual communities and sharing
  - Digital curation through digital knowledge repositories,
  - Use of social media and networking
Information access through consortia access to scientific information (Benefits)

- **Economies of Scale**
  - The volume of purchasing demand amalgamated by a consortium provides more resources for individual members.

- **Economies of Process**
  - Shared negotiations/acquisition /contracting avoids redundancy & leads to reduced transaction costs
Open access publishing on scholarly communication

- Reduces the costs of article purchase or journal subscription for institutions.
- More access to results of scholarly research
- New ideas can be dispersed more rapidly and widely, which serves as an impetus for new research studies
- Researchers and institutions have broad access to the most recent scientific ideas.
Digital curation through institutional knowledge repositories, multimedia content preservation

- Considerable amounts of funds spent in research in the region
- Yet the research data resulting from this considerable investment is lost by the end of research projects or visible as they might be.
- For full benefit of the research data that is produced, institutions must establish data curation/archiving processes to safeguard/preserve data for future use.
Digital curation through digital knowledge repositories, multimedia content creation

- Allows continued access to data despite short-term funding or institutional changes
- Encouraging re-use of data
- Facilitate sharing to maximize the impact of research
- Leads more transparency and accountability which inspires confidence among the research funding bodies
- Reduces duplication of effort in research data creation by enhances the long-term value of existing data & making it available for further high quality research.
Benefits of Social media and networking scholarly communication

- Allows users to easily review, exchange views, experiences and comments more easily
- Ensures better flow and dissemination of information
- Users are able to get tailored information to fit personal needs, interests and preferences
- Supports collaboration across space and time
Virtual communities and exchange/conferencing: Benefits

Definition:

- Individuals whose members are dispersed geographically yet function as a unit through use of cyberinfrastructures
- More timely sharing/dissemination and access to information
- Incorporate more researchers and other stakeholders
- Improved collaboration among researchers
Proposed Model of Emerging Scholarly Communication in Africa

Model of Emerging Scholarly Communication

TOOLS

- Open access & Publishing
- Library Consortia Access
- Digital Libraries
- Virtual Communities & conferencing
- Social media & networking
- Digital Curation

PROCESSES

- Discovery of ideas & knowledge gaps
- Generation of new knowledge
- Dissemination & access
- Application and adoption
- Data curation & re-use

PILLARS

- Collaboration
- Sustainability
- Technology infrastructures
- Capacity building

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Challenges in transformation of scholarly communication

- **Financial requirements**
  - Costs of processes such as publishing ICTs, relevant manpower & capacity building to implement new models (librarians, ICT, publishing, media specialists)

- **Sustainability**
  - Whether open access models can sustainably support the research publication infrastructure in the long term remains to be seen.

- **Change management issues**
  - It will take effort to convince various of the benefits of the new mode

- **Limited research funding in the region**
  - More research output required to justify establishment of more local journals
Challenges of new scholarly communication model

- **Risk of lowered quality control**
  - Models such open access may discourage journals from publish more articles.
  - Revenue comes from publication fees, journals may be encouraged to publish more articles, with a negative impact on overall quality.

- **Copyright /Intellectual Property Rights Issues**
  - As we shift from print to electronic form, the legal framework for their use changes from copyright law to contract law
Recommendations

- **Collaboration and pulling of resources together** among research institutions in the scholarly communication value chain: establish digital libraries, digital curation, strengthen library consortia, implement local Open access publishing efforts,

- **Need for continuous capacity building among key players**: ICT personnel, researchers, librarians, and end users, etc.

- **Advocacy efforts required for new model**: digital curation, open access,
Thank you so much for listening!