

# Agricultural Productivity Program for Southern Africa (APPSA)

## Knowledge Management and Communication in Research & Development Projects

*Dr. Gracian Chimwaza,  
ITOCA - Information Training & Outreach Centre  
for Africa*



Government of Malawi



Government of Mozambique



Government of Zambia

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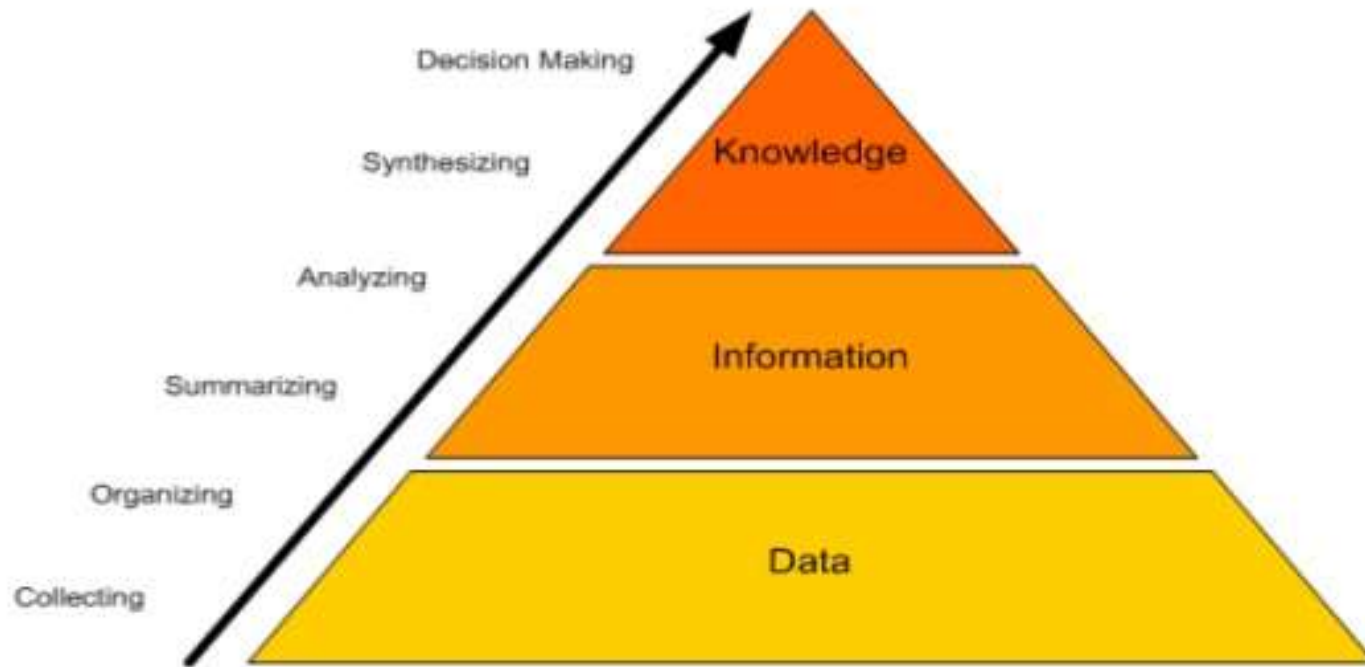
# Knowledge Management (KM)

- The process of **creating, sharing, using and managing the knowledge** and information of an organization/programme
- It refers to a **multidisciplinary approach** to achieving organizational objectives **by making the best use of knowledge**
- **Systematic approach** – that promotes a **culture of learning and a continuous process**

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# What is Knowledge Management?

Knowledge management (or “KM”) is the management of knowledge within organizations



Puja Shrivastav

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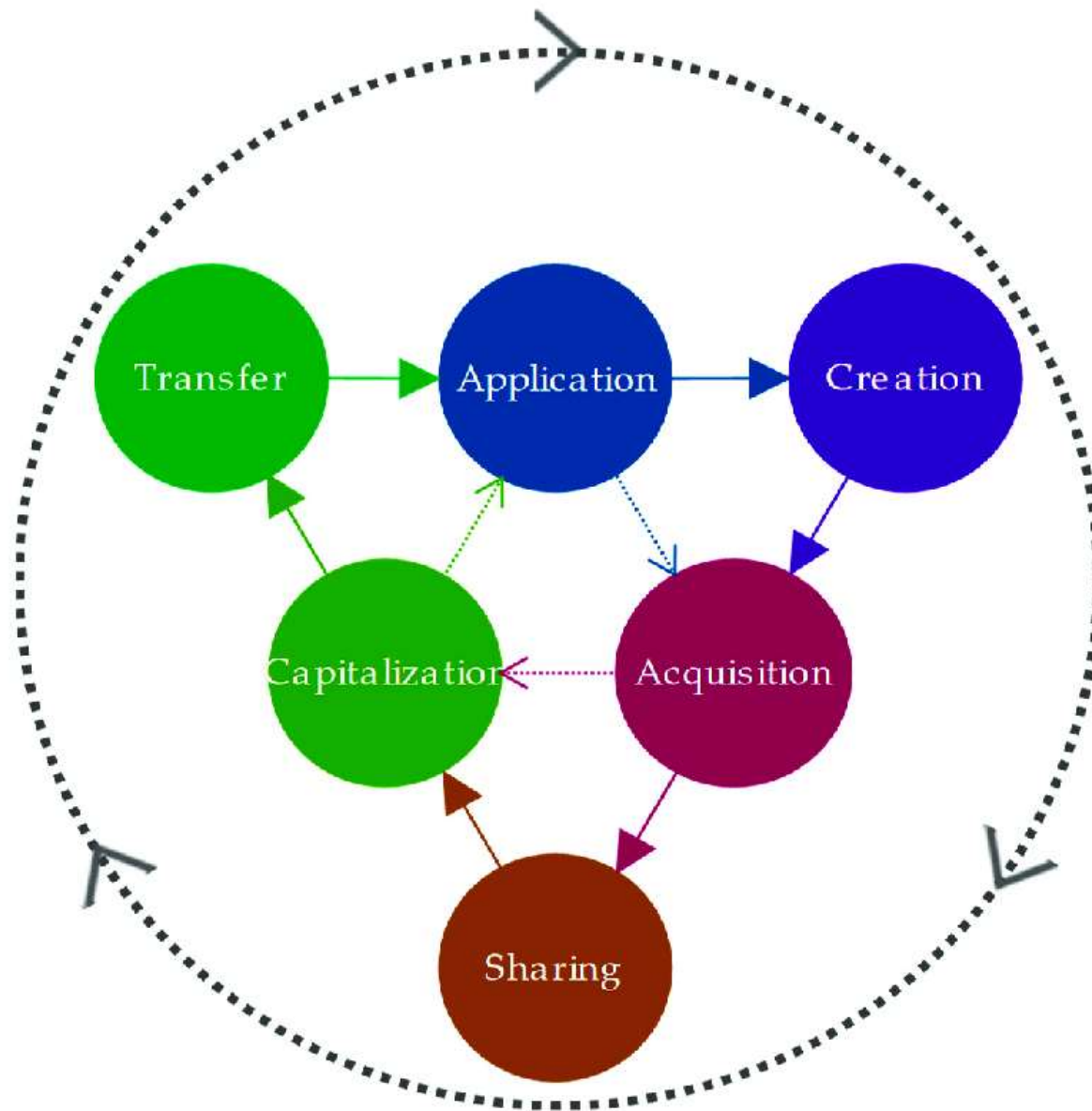
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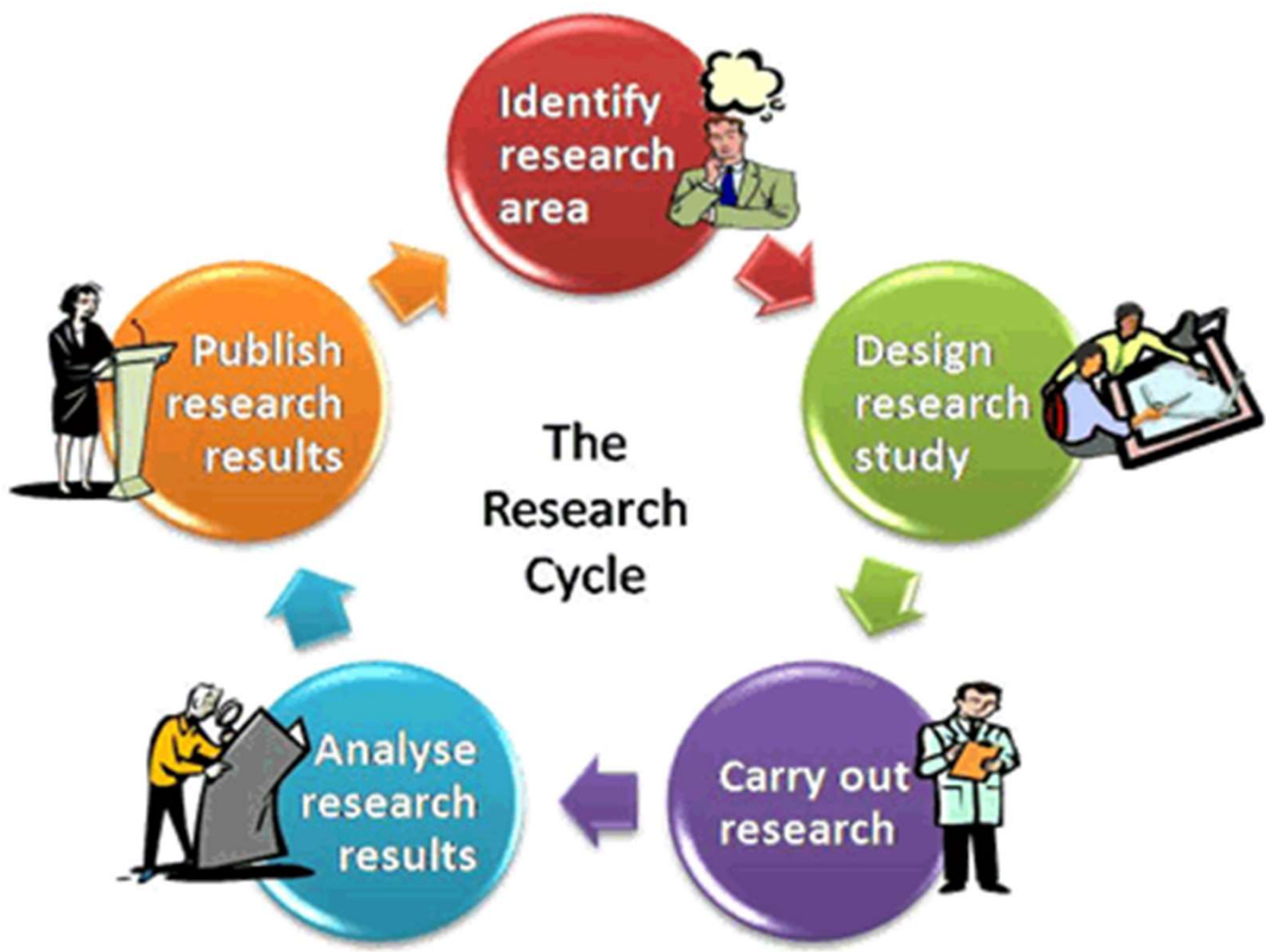
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# SCIENTIFIC AND KNOWLEDGE GAP

- **Researchers: Total world share (Source: UNESCO<sup>1</sup>)**

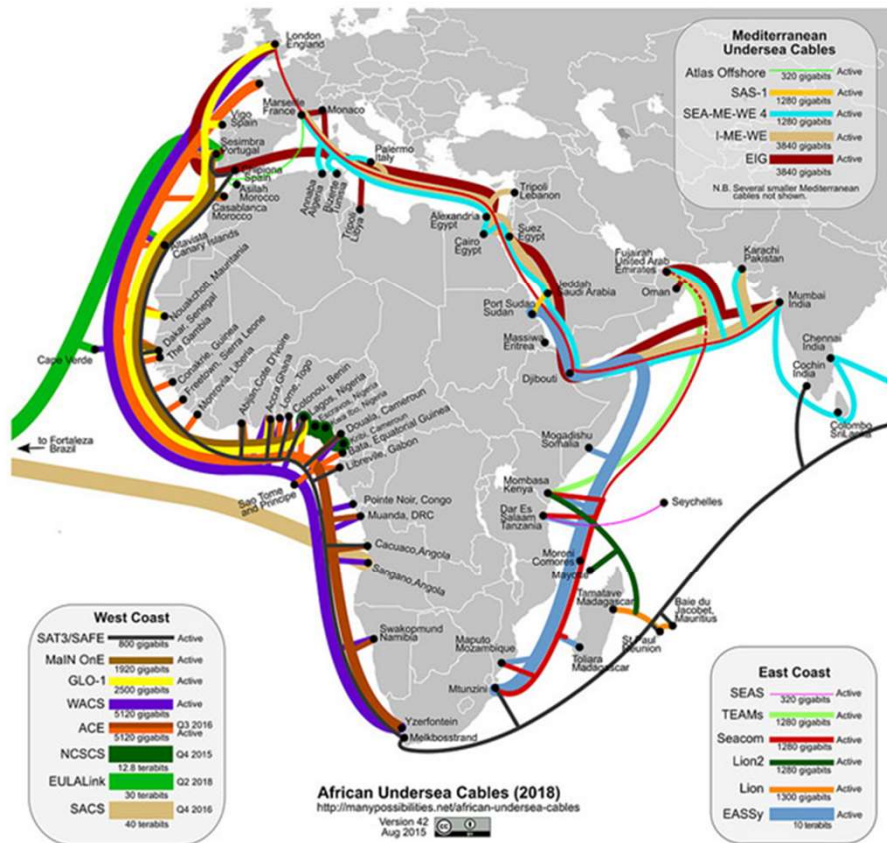
Africa	2.2%
Canada	1.9%
USA	20.0%
Asia	40.9%

- **Patent application share (Source: WIPO<sup>2</sup>)**

Developed Countries	74.1 %
Rest of the World	25.9 %

# AFRICAN AGRICULTURAL RESEARCH OUTPUT LANDSCAPE

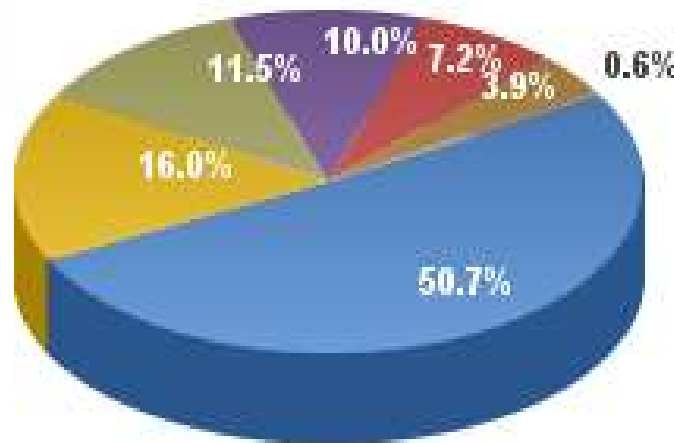
- **ACCESS ISSUES**
- **INFRASTRUCTURE:** IT/Internet connectivity
  - ✓ Initiatives to address high bandwidth costs
- **CONTENT:** Digital collections growing
  - ✓ Initiatives to improve access
- **SKILLS AND AWARENESS ISSUES**
  - ✓ Information competence skills
  - ✓ Low uptake and usage issues
  - ✓ Scientific writing + publishing skills



## INTERNET BROADBAND EXPANSION

- Undersea Cable Expansion
- Over 10 Tb + growing
- Inland connections still to come
- Last mile challenges
- government, pvt, agents, NRENs,

### Internet Users in the World by Regions- November 2019

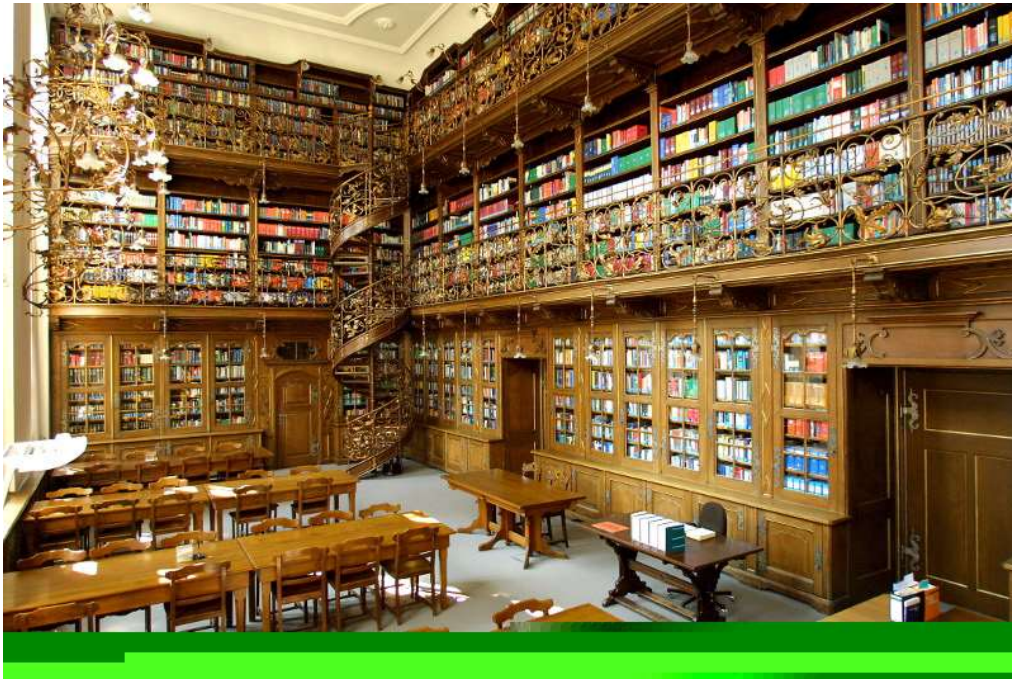


- Asia 50.7%
- Europe 16.0%
- Africa. 11.5%
- Lat Am / Carib. 10.0%
- North America 7.2%
- Middle East 3.9%
- Oceania / Australia 0.6%



## CONTENT ISSUES

- The **most up-to-date research knowledge** found in digital collections, databases ( e-journals, e-books, IR)
- Subscriptions **increasing at 11-16% annually<sup>3</sup>**
- **Limited access** to the world's published knowledge results in
  - Duplication of efforts
  - Limits in innovation and diminished ROI
- **Offline access** to literature is still necessary for some institutions due to **limited Internet**



## FROM CLASSICAL REFERENCE LIBRARY TO DIGITAL



# EFFORTS TO IMPROVE CONTENT ACCESS

## OA initiatives

AGRIS

AgriKnowledge.org

*Institutional  
Repositories*

OER's

DOAJ  
DIRECTORY OF  
OPEN ACCESS  
JOURNALS

PLOS

Open  
DOAR



## Bridging solutions (not OA)



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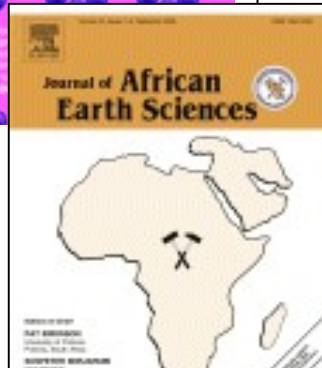
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# The world's leading primary research and review journals are still behind "pay walls"



# Research Outputs Communication

- Publications
  - Online portals/databases
    - e.g. CCARDESA SAAIKS Knowledge Hub, Knowledge products
  - Print
- Meetings (F2F, Blended, Online)
  - Conferences
  - Seminars
  - Workshops

# 200+ R+D scientists trained in specialised Workshops

Country	Course	No. Trained
<i>Lusaka-Sep2017:</i>	Statistical planning and analysis	29
<i>Lilongwe-Sep 2017:</i>	Information repackaging for specific target audiences (knowledge translation)	40
<i>Kabwe-Sep 2017:</i>	Development of Scientific products	35
<i>Maputo-Sep 2017:</i>	Statistical planning and analysis	34
<i>Maputo-Sep 2017:</i>	Development of Scientific products	36
<i>Salima-Oct 2017:</i>	Proposal development and resource mobilization	31

# CCARDESA/APPSA

## Conferences

- 1<sup>st</sup> Ag Science Week in SA: : “Agricultural Productivity Innovations; Agri business; Trade and Markets 20-24 JUNE 2017, Malawi
- High Level Regional Policy Multi-Stakeholder Dialogue - Maputo, Mozambique - November 2018
- AFAAS Agricultural Extension Week - Durban, South Africa - November 2017
- Regional Conference on Climate Smart Agriculture - Johannesburg, South Africa - August 2016
- Botswana Youth Agribusiness Forum - Gaborone, Botswana – November
- Global Climate Smart Agriculture Conference - Johannesburg, South Africa - November 2017

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## Workshops

- Climate Finance and Proposal Writing Training - Gaborone, Botswana - December 2018
- ICKM Community of Practice Training Workshop - Johannesburg, South Africa - October 2018
- Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Réduit, Mauritius - June 2018
- Dry Season Management Workshop - Gaborone, Botswana - May 2017
- Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Harare, Zimbabwe - September 2017
- Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Ongwediva, Namibia - September 2017
- Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Cape Town, South Africa - October 2016
- Skills Training - Manzini, Eswatini May 2016



# Research Output Quality

- **Open data and Open Science Underpinning KM & Communication**
- **Systematic Reviews enhancing evidence based research**



# What is Open Data and Open Science?

## Why Open Data and Open science?

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# Open Science

“The conduction of science in a way that others can **collaborate** and **contribute**, where **research data, lab notes** and other **research processes** are **freely available**, with terms that allow **reuse, redistribution** and **reproduction** of the research”

FOSTER Project - <https://www.fosteropenscience.eu/foster-taxonomy/open-science-definition>

# Open Science entails...

- **Transparency** in methodology and collection of data
- **Availability** and **re-use** of scientific data
- **Public accessibility** to scientific communication
- Using **digital tools** to facilitate **scientific collaboration** and **sharing of data**

# Why Open Science?

- Improve efficiency in science
- **Increase transparency and quality** in the research validation process
- Speed the **transfer of knowledge**
- Increase knowledge spill-overs to the economy
- Address local & global challenges more effectively
- Promote citizens' engagement in science and research

UK eInformation Group



Poster by participants at the Forum on Open Data and Open Science in Agriculture in Kenya, 2015

## Research Data

- "information, in particular facts or numbers, collected to be examined and considered and as a basis for reasoning, discussion, or calculation"

*European Union Commission*

# Research Data - Examples

- Statistics
- Results of experiments
- Measurements
- Observations resulting from fieldwork
- Survey results
- Interview recordings
- Images



A lab technician testing and registering data collected on soil samples at the Sokoine University of Agriculture. Photo credit: ©FAO/Simon Maina

# Open Data

- “Primary scientific data should be **available to anyone without restrictions** from copyright, patents, or other mechanisms of control”
- Open Data also applies to opening up of government data.
- In Africa: Ghana, Kenya, Rwanda, South Africa, Burkina Faso, Tanzania are among countries implementing Open Data initiatives. [Opendatabarometer.org](http://opendatabarometer.org)

OpenScience.org



# Open Data...

- Data must first be both “**technically open**” and “**legally open**.”
  - Technically open: available in a machine-readable standard format (usually accessed on the web).
  - Legally open: explicitly licensed to allow commercial and non-commercial use and re-use without restrictions.
- Data also must also be of good quality





# gODAN

Global Open Data  
for Agriculture & Nutrition



# CIARD



Open Agricultural Knowledge for Development

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## Systematic Reviews enhancing evidence based research



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# What is a systematic review (SR)?

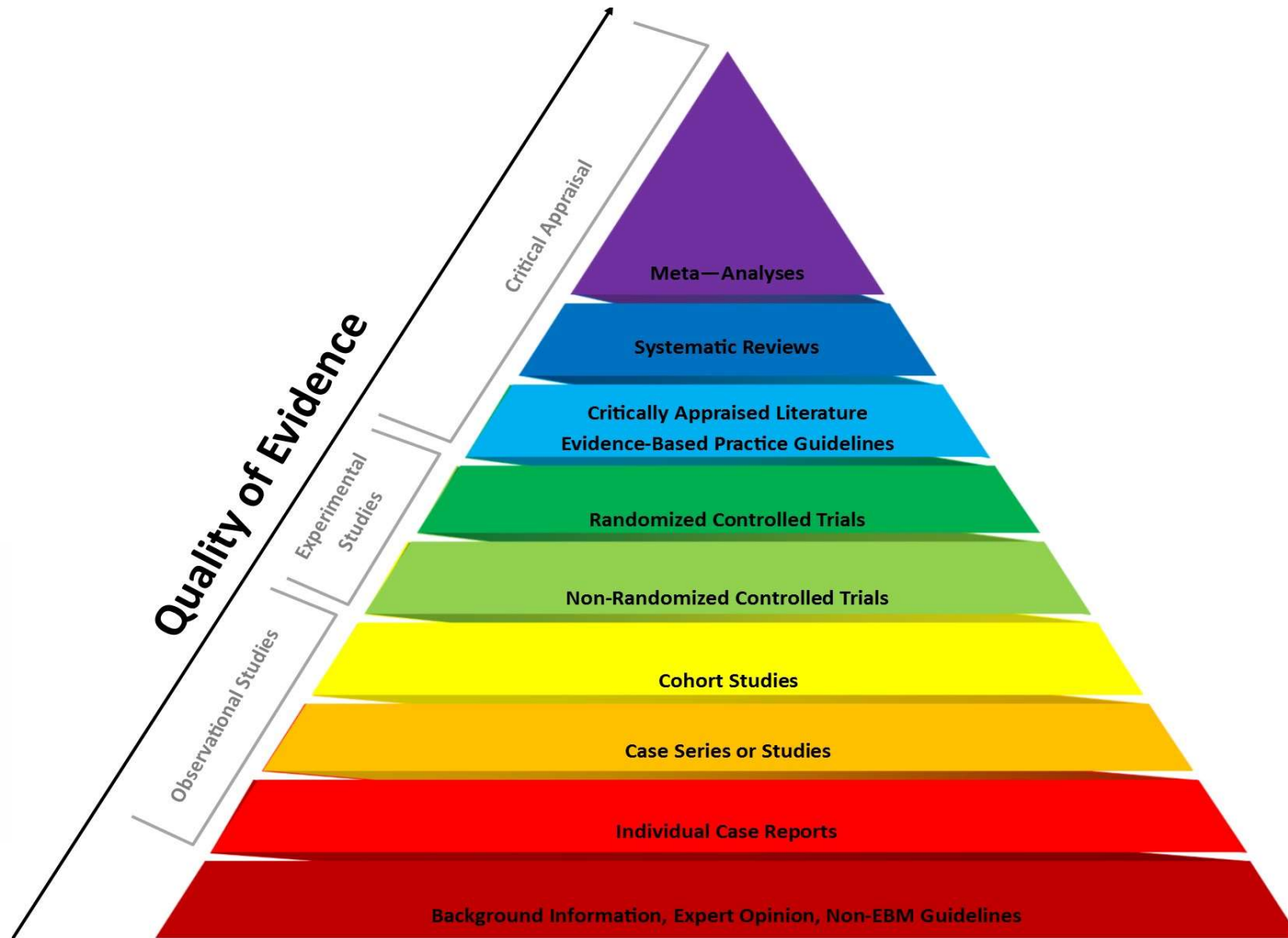
- “...a scientific **investigation that focuses on a specific question** and uses explicit, **pre-specified scientific methods** to identify, select, assess, and **summarize the findings** of similar but separate studies.”
- SR gleaning experiences from **health and bio sciences disciplines**
- **SR** require more time & effort than literature review conducted on primary agricultural research.

# Critical components

- A **methodical, comprehensive literature synthesis** focused on a well-formulated research question
- Identifies and synthesizes ***all* of the available literature on particular topic**
- Is conducted in an **unbiased, reproducible way**
- Identifies gaps in research
- Provides **evidence for practice and policy-making**

**What authors DO**





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<https://www.cebi.ox.ac.uk/for-practitioners/how-to-use-evidence.html>

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# Takeaways

- **Research output quality, access and user skills** need to be addressed if produced knowledge and technologies are to be managed & communicated effectively in African R + D institutions
- **Open Data and Open Science** is underpinning research and will benefit R +D practice going forward
- **Evidence based decision** making depends on research quality data and analysis



# Food System Vision Prize



20  
50

# Food System Vision Prize

*Envisioning Regenerative and Nourishing  
Food Futures for 2050*



The  
ROCKEFELLER  
FOUNDATION

SECONDMUSE

openIDEO



The  
ROCKEFELLER  
FOUNDATION

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What's in it for you?

**\$2M will be distributed to the Top Visionaries, who will be eligible to receive a prize of \$200,000 each.**

For more information:

<https://www.foodsystemvisionprize.org/>

*Thank You!*

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