

# **Introduction to Digital libraries in an African context**

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4th CERN-UNESCO school on Digital libraries,  
28 November-2 December 2016  
Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana

# Definitions

## □ "Digital library"

- term which is used to describe distributed access to collections of digital information
  - is a collection of material **organized for access for a specific purpose**, by the users of the electronic documents
  - the material is in **digital form**: consist of or incorporate various media (photographs, video, sound recordings, text and page images); native or converted (data) in digital form for use in a **computer**
  - the access is provided through search engines using **metadata** (bibliographic and descriptive information about the contents), making the information accessible for use.
- can be also called "**Repository**"

# Characteristics

## □ "Digital library"

- it can be **accessed remotely** (key aspect), usually through a web browser
- the users for whom it is intended are a defined **community** or **group of communities** that may be scattered around the world, or may be in the same geographical location
- can be of various type

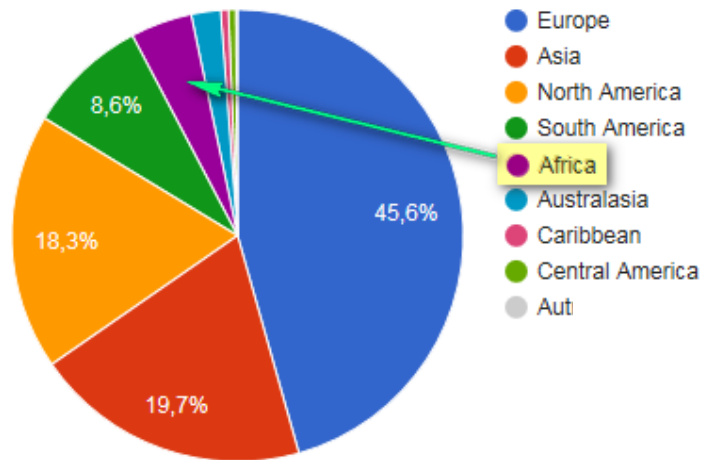
Institutional	An institutional or departmental repository
Disciplinary	A cross-institutional subject repository
Aggregating	An archive aggregating data from several subsidiary repositories
Governmental	A repository for governmental data

# Challenge 1: Dissemination & Access

- ❑ because of lack of Physical libraries, digital libraries must be built to increase **access to information & knowledge**. It's cheaper to build a digital library than a physical one 😊 → Another advantage is **Portability**.
- ❑ the availability of the African content is still very low in the World Digital ecosystem and the World Knowledge economy
  - Scientific knowledge and Scientific Information
  - Cultural heritage
  - Governmental publications...
- ❑ even the dissemination towards our own communities and users is very low

# Presence in OpenDoar

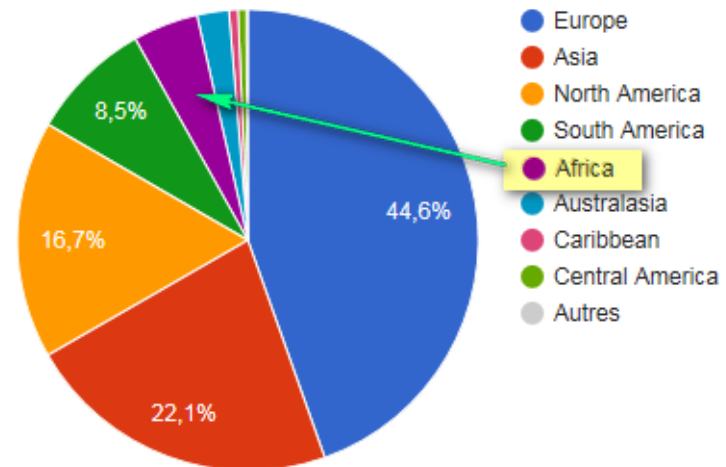
Proportion of Repositories by Continent - Worldwide



Total = 3242 repositories

OpenDOAR - 07-Nov-2016

Proportion of Repository Organisations by Continent - Worldwide

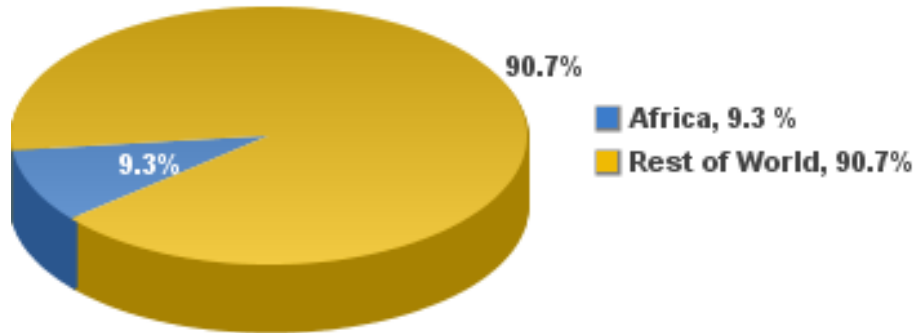


Total = 2732 organisations

OpenDOAR - 07-Nov-2016

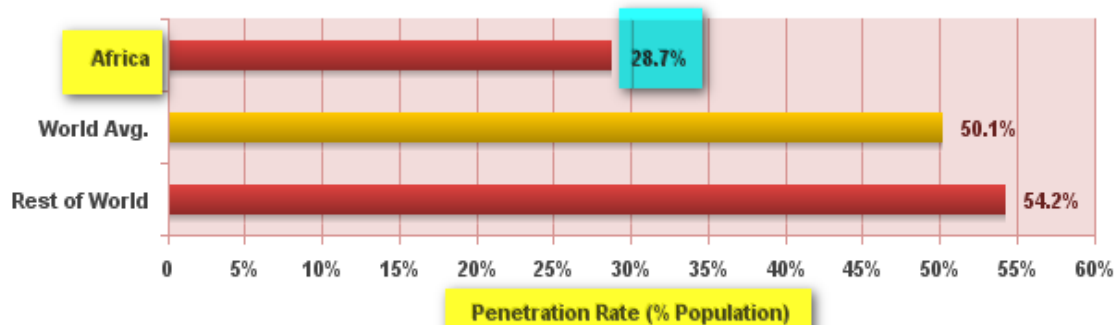
# Some dissemination limiting factors

## Internet Users in Africa June 2016



Source: Internet World Stats - [www.internetworldstats.com](http://www.internetworldstats.com)  
340,783,342 estimated Internet users in Africa in June 30, 2016 with a 28.7 % penetration and 9.3% of total world users.  
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## Internet Penetration in Africa June 30, 2016



Source: Internet World Stats - [www.internetworldstats.com/stats1.htm](http://www.internetworldstats.com/stats1.htm)  
340,783,342 estimated Internet users in Africa in June 30, 2016 and  
3,675,824,813 Internet users in the World in June 30, 2016  
Copyright © 2016, Miniwatts Marketing Group

- Our actions as librarians, while building Digital libraries, must take in account these facts.
- We must think about strategies aiming to reach our communities and allow them to improve their access (remotely) to information and knowledge including those in local languages

# Challenge 2: Preservation

**Content:** backbone of the digital Library

- ❑ **cultural heritage** remains undocumented due to a lack of capacity to record, transfer and disseminate information
- ❑ **Indigenous knowledge**, (indigenous portal): stored in people's minds and passed on through generations by word of mouth rather than in written form, it is vulnerable to rapid change ([Greyling ; Zulu, 2010](#))
- ❑ **Involve communities** in content creation and content development
- ❑ **Interaction** between the library, the community and the technology used → Multimedia documents (Documentaries, audio, ...)

# Challenge 2: Preservation (2)

**Textual content:** more easy to identify and to collect

- ❑ **Academic and Research publications:** theses and dissertations, research outputs, articles, conference papers,...
- ❑ **Official publications:** development plans, policy documents,...
- ❑ **NGOs and other International organizations publications:** reports, studies,...

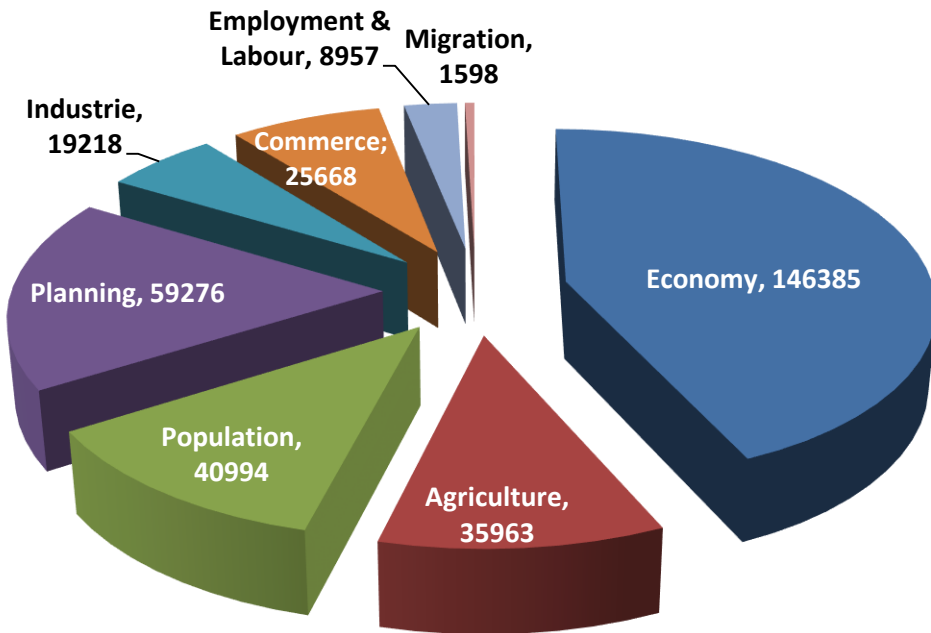
essential component of a Digital library

More on preservation: <http://handbook.dpconline.org/>  
(**Digital preservation handbook**)

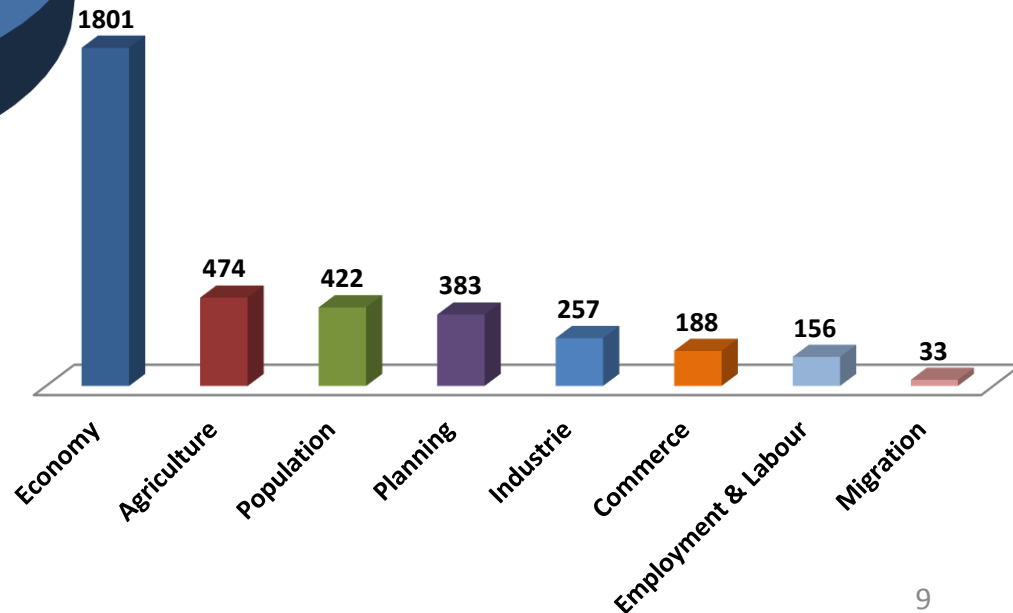


# Some facts of a Current digitization project

Number of pages per subject



Number of titles per subject



Publication period: 1960-2009,  
regarding 49 African countries

# The ultimate challenge:

## ***DEVELOPMENT***

- ❑ Preservation and Access to information and knowledge via the Digital library must be linked to the local and national agenda of Development
- ❑ Current governants must have access and refer to the previous governmental publications as basis for the new development plans to avoid them "**reinventing the wheel**" or "**going in circles**"
- ❑ Students must have access to knowledge created by the past and build new knowledge based on them
- ❑ Local communities must be aware of the Development agenda, to self-appropriate it and take the best way forward. **Up-Down** approach
- ❑ Politicians and officials “need to learn from local communities to enrich the development process”. **Bottom-Up** approach

→ **Libraries are the natural hubs to find and to refer to all these contents (Knowledges), especially via Digital libraries and portals that can be acceded from everywhere and in variety of formats including those that are suitable for illiterate people.**

# Technological issues

are a big part of this CERN-UNESCO school and relate to:

- ❑ **Software:** a huge number of Open source systems are available for **free** (Dspace, Greenstone, Invenio, Eprints...) to manage content description and dissemination.
- ❑ **Infrastructure:** must be improved at an acceptable level that can:
  - allow storage and access the digital content (Server capacity)
  - distance dissemination (Internet speed, bandwidth)
- ❑ **Training skills:**
  - for a daily management of data and content (Librarians)
  - for maintenance of equipments and network installations (IT managers)

# Technological Issues (2)

Relating to **local languages**:

- ❑ “There is **great diversity** in Africa, and there are many different native people groups. Many of these people groups have their own languages, and there are well over a thousand languages recognized on the African continent. Because of this, the African continent has the **highest level of multilingualism in the world**” (<http://www.whatarethe7continents.com/africa-continent/>)
- ❑ The **challenge** is to **integrate** these languages in the wide use of a number of cultural heritage **metadata schemas**, implicating the development of interoperability techniques that facilitate **unified access** to cultural resources in Africa. (e.g. of these techniques is the Ontology-Based Integration). See also: <https://www.ics.forth.gr/publications/871-871-1-PB-1.pdf>
- ❑ **What is an ontology?** : see more at <https://marinemetadata.org/guides/vocabs/ont/definition>

# Economical, Legal, Social issues

- ❑ **Budget:** it is costly to build and maintain a Digital library, even if the software is free. Funding from national or institutional budget ; collaboration and cooperation through and with international partners and funders (ADLSN, BLDS, etc.) are possible ways.
- ❑ **Copyright** matters are a big issue for Libraries. In any case refer to the national laws and international conventions and treaties. Online course available that addresses this issue with several case studies: <https://cyber.harvard.edu/research/copyrightforlibrarians>
- ❑ **Marketing** digital libraries is crucial to reach the potential users. (Web referencement, presentations, articles in specialised reviews and journals,...)

# Trends that Create Opportunities For 21st Century Libraries

TREND	Opportunity
Greater participation in open government	Be the objective, knowledgeable place for public discussion and issue analysis
Digitized books and other materials	Create new perspectives for readers – even new knowledge – through mashups
An economy dominated by knowledge-based services & intangible products	Provide the cost-effective lifelong learning and package the knowledge that people need to make a living in this economy
Innovation is the competitive edge in a knowledge economy	Provide the place where innovators can collaborate
Billions of people produce and consume content – the “prosumer”	Provide the platform, the tools and the skills for people to create their best content
High-quality visual conversations enhances the impact of the net	Establish a network of expert reference librarians with the full communications that people expect in face-to-face conversation
The internet is everywhere	Be able to have the library and library services everywhere
Machine intelligence and machine assistance to human intelligence	Develop non-commercial, semantically aware knowledge tools for people

⇒ To inspire African Librarians in building Digital libraries

# Impact

## Resulting of past CERN-UNESCO Schools: Rabat (2010), Dakar (2011), Geneva (2011, 2012)

**IDEP DOCUMENT SERVER** English Français Guest :: Login

Search Personalize Help OAI-PMH Interface External Resources

### Focus on latest document submissions:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17



**Developing Countries and World Trade: Performance and Prospects**  
Akyuz, Yilmaz

Increased participation in world trade is conventionally seen as the key to economic growth and development. Yet, as this book shows through its detailed examination of world trade patterns over the last 20 years, while developing country exports have grown faster than the world average, the rich co [...]

28 oct 2016, 10:36:16

### Recent keywords:



### Search 19,206 records for:

any field Search Browse

[Search Tips](#) :: [Advanced Search](#)

### Narrow by collection:

- Books & Theses** (19,135)
  - Books (19,055)
  - Theses (80)
- Periodicals** (8)
- Articles & Conference Papers** (53)
  - Articles (49)
  - Conference Papers (4)
- Multimedia** (10)
  - Videos (6)
  - Pictures (4)

### Focus on:

- Fulltext** (4,682)
- Documentaries** (4)

<http://www.unidep.org/library/>  
**Since 2012**

# Impact (2):

## **Invenio software adopted**

- ❑ **Virtual Library project** of 8 main academic libraries of the UEMOA (West African Economic and Monetary Union): Invenio workshops in Senegal, Benin (2014) and deployment in 2015
- ❑ **USAID/ERA (Education and Research in Agriculture) project** for Agricultural libraries in Senegal: Invenio Workshop (2015)
- ❑ **Network of National Archives, Libraries and Museums of Central Africa** (10 countries): Invenio presentation & workshop (2015, 2016)





***Thank you!***

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