The Impact of Open Access on the Current Landscape of Scholarly Communication

Daniel Gelaw Alemneh
University of North Texas
Daniel.Alemneh@unt.edu

Jimma University
July 7, 2015
OUTLINE

Background

Open Access and Scholarly Communication

Stakeholders Role and Policy Frameworks

Technological Infrastructure

Challenges and Opportunities

Africa-Ethiopia Context

Summary
BACKGROUND: OPEN ACCESS AND SCHOLARLY COMMUNICATION
Higher education institutions and academic libraries worldwide are undergoing transformation in the current digital and open environment.
The Open Access movement is transforming scholarly communication.

While the notion of Open Access to scholarly information is not new, various factors, including local and national mandates for sharing the products of (funded) research drive scholars to rethink traditional scholarship models.
Open Access: Provision of unrestricted online access to results/outputs of research & development such as publications, reports, journal articles, and data, through self-archiving and open access publications.
OPEN ACCESS . . .

- Facilitate depositing various output (in different formats) in the institutions’ scholarly works repositories.

- Encourage utilizing Creative Commons licenses

- Promote New Distribution Models
  - SPARC is an international alliance of academic and research libraries working to create a more open system of scholarly communication.
Understanding basic rights to:

- Distribute
- Reproduce
- Create derivatives
- Display
- Perform copyrighted works
Creative Commons Licenses

- **Attribution**: CC BY
  - The most accommodating as long as they credit you
  - Recommended for maximum dissemination and use

- **Attribution-ShareAlike**: CC BY-SA
  - New creations under the identical terms

- **Attribution-NoDerivs**: CC BY-ND
  - Passed along unchanged and in whole

- **Attribution-NonCommercial**: CC BY-NC
  - Let others build upon your work non-commercially

- **Attribution-NonCommercial-ShareAlike**: CC BY-NC-SA
  - Attribution + NonCommercial + ShareAlike

- **Attribution-NonCommercial-NoDerivs**: CC BY-NC-ND
  - The most restrictive of our six main licenses.
Availability of Peer-Reviewed Papers in Open Access

BASIC ASSUMPTIONS ABOUT OPEN ACCESS

Open Access leads to:

- Generation of more new ideas & discoveries
- Wider availability and accessibility of those ideas & discoveries
- Increased use of results of research & development
- Translation of research results (into practice)
- Improved education, economy, welfare, etc.
Repository by Continent

Source: (Pinfield et al., 2014: http://eprints.whiterose.ac.uk/76839/15/worro_76839.pdf)
Repository by Type

Source: (Pinfield et al., 2014: http://eprints.whiterose.ac.uk/76839/15/wrro_76839.pdf)
STAKEHOLDERS AND POLICY FRAMEWORK
Open Access Declarations:
- The Budapest Open Access Initiative
  (Feb. 14, 2002)
- The Bethesda Statement on Open Access Publishing
  (Apr. 11, 2003)
- The Berlin Declaration on Open Access
  (Oct. 22, 2003)
- The Lyon Declaration on Access to Information and Development
  (Aug. 2014)
Open access has reached a 'tipping point' as more and more countries and funding agencies have mandated OA for scientific publications that are produced with funding from them:

- International organizations – UNESCO, World Bank
- Governments – US (OSTP), EU (Horizon 2020), UK
- Funding agencies – NIH, NSF
- Institutions (academic, etc.) - several
- Publishers – CHORUS
OPEN ACCESS (OA) POLICIES

Right policy and mandate encourage participation

- Guidelines
- Tools
- Enforcement mechanisms

• Encourage the provision of open access
  - Voluntary
  - Mandatory

• Address the routes
  - Green
  - Gold
  - Hybrid

• Specify the type of repository
  - Central
  - Disciplinary
  - Institutional
Registries such as ROARMAP (Registry of Open Access Repositories Mandatory Archiving Policies) can play a huge role by serving as:

- Repositories and clearing houses for open access policies
- Catalysts for creating a standard/uniform open access policy that applies across institutions, businesses, publishers, states, countries, and internationally
OPEN ACCESS & INSTITUTIONAL INITIATIVES

Open access is a set of principles about author rights and public access that guide scholarly communications strategies.

Principles of OA include:

- Scholars should be able to retain the rights of their work
- Access to scholarship should be free
- Public access to scholarship is good for scholars/society
- Transparency in research helps ensure good scholarship and maintain public trust
Open Access Policy of Jimma University (Draft)
Open Access Policy

of

Jimma University Institutional Repository

Draft

Office of the Vice President for Research and Community Services

Prepared by:

- Publication and Extension Office
- Jimma University Library System
- JU ICT Development Office
INSTITUTIONAL REPOSITORIES

Institutional Repository store, manage, provide access, facilitate use, re-use, and preservation

Stages in IR development:
- Interest in OA grows in early stages
- Policy development
- IR development

IR Provisions
- Pre/post prints, final versions
- Articles, papers, books, chapters, reviews, presentations, reports, posters, patents, performances (audio/video)
- Metrics, usage statistics, impact factors, creative license
Individual commitments:

- I support the Open Access movement and will endeavor to ensure that all of my research is available online, free of charge, to readers in all nations. As a humanist, I believe I have a responsibility to make my scholarship available as widely as possible, and to advocate on behalf of others who wish to share their work beyond the academy.

- I pledge that I:
  - will not give free labor, including editing, peer review, or consulting to closed access, or Gold OA journals.
  - will blog my work and post preprints whenever possible.
  - will publish only in Green OA or wholly OA journals.
  - will withdraw as an author if coauthors refuse to be open.
  - will work to educate my students and colleagues on the principles & value of Open Access for research, teaching, and learning in the humanities.
  - will support experimental modes of publishing and scholarly communication, including open peer review.
  - will advocate for the principles of Open Data as defined in the Denton Declaration.
Institutional, multi-institutional, sub-institutional, and thesis mandates within the ERA and in selected countries

Stakeholders Roles and Levels of Influence

- Institutional
  - Funding
  - Require
  - Infrastructure
  - Compliance
  - Repositories
- State
  - Funding & budget support
  - Require
  - Compliance
  - Infrastructure
- Country
  - Funding & budget support
  - R&D Policies
  - Require
  - Compliance
  - Larger/Wider scale
  - Infrastructure
- Regional
  - R&D collaboration and consortium
  - Larger/Wider scale
  - Infrastructure
- International
  - Declarations & Statements
  - Support
  - Encourage

Stakeholders Roles and Levels of Influence
Mandates and Policies by governments and funding agencies generally have a much wider coverage than institution-specific policies as they often introduce meaningful incentives and sanctions:

- “...they are often more likely to create significant levels of change in author behavior” (Pinfield et al., 2014)
RIGHT POLICIES MATTER

Compliance Rate of Investigators Funded by the NIH

Voluntary (2004–2007) 5%
Mandate (2008–2013) 80%

http://www.sparc.arl.org/resource/emerging-open-access-policy-framework-us
TECHNOLOGICAL INFRASTRUCTURE
Technological Infrastructure

• A goal towards a global:
  – Research communication Infrastructure
  – Network of Interoperable digital archives
  – Content network framework
  – A federated system of national, regional, and global network of digital archives
At the Heart of Global Research and Education Networking

GÉANT and partner networks enabling user collaboration across the globe

September 2014

connect • communicate • collaborate

GÉANT is co-funded by the European Union within its 7th RTD Framework Programme.

This document has been produced with the financial assistance of the European Union. The contents of this document are the sole responsibility of DANTE and can under no circumstances be regarded as reflecting the position of the European Union.
Technological Infrastructure...

• Significant progress has been made in increasing the total number of NRENs, regional NRENs and countries with a NREN.

• Bandwidth has also increased considerably from megabit capacity to gigabit capacity.
  – Progress was particularly noteworthy in Africa.
  – Africans now have access to not just one but several regional NRENs, including AfricaConnect, UbuntuNet and WACREN.
Technological Infrastructure...

- Submission system
- Crawling
- Indexing
- Preservation
- Archiving
- Harvesting
- Mirroring
- Search interfaces
Technological Infrastructure...

- OAI–Compliant Solutions
- Web Services and API technologies
- URI
- FTP
- Servers, repository systems, high speed Internet
CHALLENGES AND OPPORTUNITIES
CHALLENGES AND OPPORTUNITIES FOR DEVELOPING COUNTRIES

• To enhance the development of a global information society, increased attention has been given to the importance of addressing the digital divide.

• ICT enable economic growth and have strategic spillover effects on other sectors.

• Similarly, OA empower people and help create greater access to information for all.

• In a world that links knowledge with economic growth, building an indigenous knowledge base and the ability to publish and disseminate local/national or regional research outputs critically important.
## R&D Expenditure (2012-2014)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDP (Bil. US$)</td>
<td>R&amp;D</td>
<td>GERD*</td>
<td>GDP</td>
</tr>
<tr>
<td></td>
<td>PPP</td>
<td>as % GDP</td>
<td>PPP</td>
<td>PPP</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>United States</td>
<td>15,540</td>
<td>2.8%</td>
<td>16,195</td>
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<tr>
<td>2</td>
<td>China</td>
<td>12,610</td>
<td>1.8%</td>
<td>13,568</td>
</tr>
<tr>
<td>3</td>
<td>Japan</td>
<td>4,704</td>
<td>3.4%</td>
<td>4,798</td>
</tr>
<tr>
<td>4</td>
<td>Germany</td>
<td>3,250</td>
<td>2.8%</td>
<td>3,266</td>
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<tr>
<td>5</td>
<td>South Korea</td>
<td>1,640</td>
<td>3.6%</td>
<td>1,686</td>
</tr>
<tr>
<td>6</td>
<td>France</td>
<td>2,291</td>
<td>2.3%</td>
<td>2,296</td>
</tr>
<tr>
<td>7</td>
<td>United Kingdom</td>
<td>2,375</td>
<td>1.8%</td>
<td>2,408</td>
</tr>
<tr>
<td>8</td>
<td>India</td>
<td>4,761</td>
<td>0.9%</td>
<td>4,942</td>
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<tr>
<td>9</td>
<td>Russia</td>
<td>2,555</td>
<td>1.5%</td>
<td>2,593</td>
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<tr>
<td>10</td>
<td>Brazil</td>
<td>2,394</td>
<td>1.3%</td>
<td>2,454</td>
</tr>
<tr>
<td>11</td>
<td>Canada</td>
<td>1,513</td>
<td>1.9%</td>
<td>1,537</td>
</tr>
<tr>
<td>12</td>
<td>Australia</td>
<td>987</td>
<td>2.3%</td>
<td>1,012</td>
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<tr>
<td>13</td>
<td>Taiwan</td>
<td>918</td>
<td>2.3%</td>
<td>938</td>
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<tr>
<td>14</td>
<td>Italy</td>
<td>1,863</td>
<td>1.3%</td>
<td>1,829</td>
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<tr>
<td>15</td>
<td>Spain</td>
<td>1,434</td>
<td>1.3%</td>
<td>1,415</td>
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<tr>
<td>16</td>
<td>Netherlands</td>
<td>719</td>
<td>2.0%</td>
<td>710</td>
</tr>
<tr>
<td>17</td>
<td>Sweden</td>
<td>399</td>
<td>3.4%</td>
<td>403</td>
</tr>
<tr>
<td>18</td>
<td>Israel</td>
<td>253</td>
<td>4.3%</td>
<td>263</td>
</tr>
<tr>
<td>19</td>
<td>Switzerland</td>
<td>369</td>
<td>2.9%</td>
<td>375</td>
</tr>
<tr>
<td>20</td>
<td>Turkey</td>
<td>1,142</td>
<td>0.9%</td>
<td>1,185</td>
</tr>
<tr>
<td>21</td>
<td>Austria</td>
<td>365</td>
<td>2.8%</td>
<td>366</td>
</tr>
<tr>
<td>22</td>
<td>Singapore</td>
<td>332</td>
<td>2.6%</td>
<td>344</td>
</tr>
<tr>
<td>23</td>
<td>Belgium</td>
<td>427</td>
<td>2.0%</td>
<td>427</td>
</tr>
<tr>
<td>24</td>
<td>Iran</td>
<td>1,016</td>
<td>0.8%</td>
<td>1,001</td>
</tr>
<tr>
<td>25</td>
<td>Mexico</td>
<td>1,788</td>
<td>0.5%</td>
<td>1,809</td>
</tr>
<tr>
<td>26</td>
<td>Finland</td>
<td>201</td>
<td>3.8%</td>
<td>200</td>
</tr>
<tr>
<td>27</td>
<td>Poland</td>
<td>814</td>
<td>0.8%</td>
<td>825</td>
</tr>
<tr>
<td>28</td>
<td>Denmark</td>
<td>214</td>
<td>3.1%</td>
<td>214</td>
</tr>
<tr>
<td>29</td>
<td>South Africa</td>
<td>592</td>
<td>1.0%</td>
<td>604</td>
</tr>
<tr>
<td>30</td>
<td>Qatar</td>
<td>191</td>
<td>2.8%</td>
<td>201</td>
</tr>
<tr>
<td>31</td>
<td>Czech Republic</td>
<td>292</td>
<td>1.8%</td>
<td>291</td>
</tr>
<tr>
<td>32</td>
<td>Argentina</td>
<td>755</td>
<td>0.6%</td>
<td>781</td>
</tr>
<tr>
<td>33</td>
<td>Norway</td>
<td>282</td>
<td>1.7%</td>
<td>287</td>
</tr>
<tr>
<td>34</td>
<td>Malaysia</td>
<td>507</td>
<td>0.8%</td>
<td>531</td>
</tr>
<tr>
<td>35</td>
<td>Pakistan</td>
<td>524</td>
<td>0.7%</td>
<td>543</td>
</tr>
<tr>
<td>36</td>
<td>Portugal</td>
<td>251</td>
<td>1.5%</td>
<td>246</td>
</tr>
<tr>
<td>37</td>
<td>Ireland</td>
<td>195</td>
<td>1.8%</td>
<td>196</td>
</tr>
<tr>
<td>38</td>
<td>Saudi Arabia</td>
<td>922</td>
<td>0.3%</td>
<td>955</td>
</tr>
<tr>
<td>39</td>
<td>Ukraine</td>
<td>341</td>
<td>0.9%</td>
<td>341</td>
</tr>
<tr>
<td>40</td>
<td>Indonesia</td>
<td>1,237</td>
<td>0.1%</td>
<td>1,303</td>
</tr>
</tbody>
</table>

### Subtotal (Top 40)

<p>|      | GDP (Bil. US$)   | R&amp;D  | GERD* | GDP  | R&amp;D  | GERD* |
|------|------------------|------|------|------|------|------|------|
|      | PPP              | as % GDP | PPP| PPP | as % GDP | PPP| PPP | as % GDP | PPP| PPP | as % GDP |</p>
<table>
<thead>
<tr>
<th></th>
<th>PPP</th>
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<th>PPP</th>
<th>PPP</th>
<th>PPP</th>
<th>PPP</th>
<th>PPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal (Top 40)</td>
<td>73,36</td>
<td>2.0%</td>
<td>1,478</td>
<td>2.0%</td>
<td>75,338</td>
<td>2.0%</td>
<td>1,518</td>
</tr>
<tr>
<td>Rest of World</td>
<td>10,071</td>
<td>0.4%</td>
<td>39</td>
<td>0.4%</td>
<td>10,413</td>
<td>0.4%</td>
<td>40</td>
</tr>
<tr>
<td>Global Spending</td>
<td>83,43</td>
<td>1.8%</td>
<td>1,517</td>
<td>1.8%</td>
<td>85,751</td>
<td>1.8%</td>
<td>1,558</td>
</tr>
</tbody>
</table>
Total investments in R&D (as a percentage of GDP) will stay relatively steady throughout the world in 2014.

<table>
<thead>
<tr>
<th>Region</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>2.5%</td>
<td>2.4%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Asia</td>
<td>1.8%</td>
<td>1.9%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Europe</td>
<td>1.9%</td>
<td>1.9%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Rest of World</td>
<td>0.9%</td>
<td>0.9%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

But GDP growth in Asia will continue to drive higher absolute levels of gross expenditures on R&D.

Source: Forecast of Global Research and Development Funding.  
Linkage Between R&D and National Priorities

Long-Term Outlook for R&D Expenditures

Even if the historic stability of the U.S. and European commitment to research intensity (i.e., spending as a percent of GDP) continues, growth in China's economy is likely to propel it to the top position in absolute R&D spending by the early 2020s.

Source: Battelle and R&D Magazine
Despite the powerful connectivity, developing countries continue to lag behind in access to scientific information and knowledge:

- Open access would help to narrow the gap.

As academic institutions and research centers around the world become increasingly interconnected, attention should now turn to content creation.

National academic networks (such as EthERNet) can play significant roles in generating and sharing scientific knowledge.
UNT ETDs Users from around the Global

(About 0.5% users from Ethiopia)
In 2008, the United Nations Economic Commission for Africa (UNECA) initiated a project to develop an institutional repository (IR) that would provide an online mechanism for collecting, preserving and disseminating all UNECA information resources in a digital format.

- Today, the wealth of knowledge generated by UNECA since 1958 is well organized, preserved and widely accessible worldwide over the Internet, (with on average 200,000 hits and 100,000 documents downloaded per month by users from all over the globe): http://repository.uneca.org/.
Open access collections are more inclusive than non-open access:

- Their coverage tends to be multidisciplinary and international
- Enhance collaboration with the global research community
- By ensuring authors' rights, open access contents help to combat plagiarism
SUMMARY

OA has greater impact in developing countries:

- They provide more visibility for authors from developing countries than they would have gotten (as significant number of journals from developing countries are not indexed in traditional databases)
SUMMARY

For open access to take off and flourish, especially in developing countries, institutions & governments need to:

- Invest in R&D and open access infrastructure
- Create or formulate open access mandates and policies
- Encourage all stakeholders to ensure compliance and policies implementations.
- Encourage a cultural change in academic & scientific communities (collaboration & sharing)
As rightly recommended by WSIS 2014, global multi-stakeholder partnerships need to be intensified:

- “The role of scientists and academics is essential in the endeavor to share the benefits of technology and innovation. Open access to data and knowledge is a key means and a conducive policy environment for sharing scientific knowledge would be fundamental.”
Our UNT, Jimma and Mettu Universities partnership to enhance institutional and digital repositories development is part and parcel of such initiatives.
WE WOULD LIKE TO THANK THE SUPPORT OF THE U.S. DEPARTMENT OF STATE (VIA THE EMBASSY OF THE UNITED STATES OF AMERICA IN ETHIOPIA):

HTTP://ETHIOPIA.USEMBASSY.GOV/PR_045.HTML


THANK YOU!

Daniel Gelaw Alemneh
University of North Texas
Daniel.Alemneh@unt.edu