Globalization of Science
Open Glocal Science and the Higher Education

Isidro F. Aguillo
IREG Honorary Medal
Editor Ranking Webometrics
isidro.aguillo@csic.es
Topics

Open (Science)

(Global) Higher Education

Glocal: Global + Local
GLOBAL
OPEN KNOWLEDGE
EC “Open Science”

**EUROPEAN OPEN SCIENCE CLOUD**

- **OSS Software**
- **Methods**
- **Tools**
- **OSS Software**
- **Methods**
- **Tools**

**SHARING**

- **FAIR**
- **Open Data**
- **Pre-prints**
- **Open Access Documents**

**ACCESS**

- **Repositories**
- **ACADEMIA**
- **OpenAIRE**
- **Open Peer-review**

**IMPACT**

- **Better Metrics**
- **SDGs**
- **Better Metrics**
- **SDGs**

**RESPONSIBLE R&I**

- **Ethics**
- **Gender Equality**
- **Governance**
- **Open Access**
- **Public Engagement**
- **Science Education**

**SOFTWARE**

- **GitHub**
- **Zenodo**
- **Figshare**

**SUPPORT**

- **Replicate Reproduce Reuse**
- **Cooperation**
- **Policies**
- **Educación**
- **Tehnology**

**RESOURCES**

- **Publicaciones**
- **Social Networks**

**RESOURCES**

- **Publicaciones**
- **Social Networks**

**RESOURCES**

- **Publicaciones**
- **Social Networks**
True “Open Science”
Academia central role

More Knowledge
* HEIs main role is still the knowledge production and transfer

Quality driven
* HEIs are an archipelago (islands) of quality in the new digital world

Seeking impact
* HEIs should search impact beyond the closed academic environment
GLOBAL HIGHER EDUCATION
### RANKING WEB OF UNIVERSITIES

<table>
<thead>
<tr>
<th>Ranking</th>
<th>University</th>
<th>Det.</th>
<th>Country</th>
<th>Impact Rank</th>
<th>Openness Rank</th>
<th>Excellence Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Harvard University</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Stanford University</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Massachusetts Institute of Technology</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>1</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>University of California Berkeley</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>4</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>University of Michigan</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>9</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>University of Oxford</td>
<td>🇬🇧</td>
<td>🇬🇧</td>
<td>15</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>University of Washington</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>6</td>
<td>64</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>Columbia University New York</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td>8</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>9</td>
<td>Cornell University</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>University of Cambridge</td>
<td>🇬🇧</td>
<td>🇬🇧</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>University of Pennsylvania</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Johns Hopkins University</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>University of California Los Angeles UCLA</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Yale University</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>UCL University College London</td>
<td>🇬🇧</td>
<td>🇬🇧</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>University of California San Diego</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>University of Toronto</td>
<td>🇨🇦</td>
<td>🇨🇦</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>University of Wisconsin Madison</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>University of Minnesota System</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Duke University</td>
<td>🇺🇸</td>
<td>🇺🇸</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **+31 000 HEIs since 2004**

**RATIO 1:1**

**50% IMPACT**
- Visibility
- Linking Networks

**50% ACTIVITY**
- Openness Profiles
- Excellence Papers
Global South View

Country
Top 1000

July 2021
Not only Research Mission

Research-intensive Universities

• 1 000 mostly Global North

Professional-oriented Higher Education Institutions

• 30 000+ worldwide

- Technology & Engineering
- Medicine
- Pharmaceutics
- Life Sciences
- Veterinary & Animal Husbandry
- Agriculture
- Forestry
- Computing & Informatics
- Pedagogy

- Economy
- Business & Management MBA
- Accounting
- Banking
- Law Schools
- Liberal Arts
- Fine Arts
- Performing Arts
- Journalism
- Media, Radio & TV
- LIS

- Tourism & Hospitality
- Culinary
- Languages
- Fashion
- Nursing
- Community colleges
- Religion
- Indigenous
- Diplomacy
- Military
- Police
- …
But they are also Research Performers

6647 HEIs > 0
GLOBAL
GLOCAL
Aims
Global Science: Better sources

- Google Scholar: 400 M
- Lens: 240 M
- Dimensions: 120 M
- WoS/Scopus: 80-100 M
Glocal in the Web

Google Trends | Explore

- glocal
  Search term

Worldwide | Past 5 years | All categories | Web Search

Interest over time

Nov 6, 2016 | May 6, 2018 | Nov 3, 2019 | May 2, 2021

Interest by region

1. Nepal 100
2. India 57
3. Italy 41
4. Switzerland 29
5. Hong Kong 27
Glocal in the Web of Science

2,080 publications selected from Web of Science Core Collection

- 176 Linguistics
- 149 Anthropology
- 103 Language Linguistics
- 64 Engineering Electrical Electronic
- 62 Social Sciences Interdisciplin
- 54 Management
- 53 Communication
- 171 Cultural Studies
- 142 Pharmacology Pharmacy
- 79 Biochemistry Molecular Biology
- 53 Materials Science Multidisciplinary
- 46 Computer Science Information Systems
- 46 Hospital Leisure Sport Tourism
- 45 Literature
- 166 Art
- 106 Education Educational Research
- 74 Business
- 71 Environmental Studies
- 51 Environmental Sciences
- 50 Sociology
- 48 Multidisciplinary Sciences
- 44 Computer Science Theory
- 43 Chemistry Medicinal
- 43 Humanities Multidisciplinary
Models

GLOCAL I
- Local issues
- From a global perspective

GLOCAL II
- Filling gaps
- For other needs
<table>
<thead>
<tr>
<th>LEADER</th>
<th>TOPIC PRIORITY</th>
<th>REASON FOR COOPERATION</th>
<th>PARTNER</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOBAL SOUTH</td>
<td>Mainly North</td>
<td>Facilities located in the North, Facilities located in the South, Research object in the North, Research object in the South, Funding provided by the North, Funding provided by the South</td>
<td>GLOBAL NORTH</td>
<td>Temporary mobility, Permanent mobility, Co-authorship</td>
</tr>
<tr>
<td>GLOBAL NORTH</td>
<td>Mainly North</td>
<td>Local data provided by South, Facilities located in the South, Research object in the South</td>
<td>GLOBAL SOUTH</td>
<td>Knowledge Transfer</td>
</tr>
<tr>
<td></td>
<td>Mainly South</td>
<td>Local data provided by South, Research object in the South, Facilities located in the South, Facilities located in the North</td>
<td>GLOBAL SOUTH</td>
<td>Local development</td>
</tr>
<tr>
<td>GLOBAL SOUTH</td>
<td>Regional South</td>
<td>Local challenges, Global challenges</td>
<td>Regional South</td>
<td>Cooperation</td>
</tr>
<tr>
<td></td>
<td>Global South</td>
<td>Local challenges, Global challenges</td>
<td>Regional South</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GLOBAL SOUTH</td>
<td></td>
</tr>
</tbody>
</table>

¿GLOCAL Research?
A few suggestions

For the GLOBAL NORTH

• Publish in OA Global South Journals
• Share your Open data, tools and methods
• Open your academic job offers
• Support mobility from Global South
• Develop joint projects with large consortia
• Promote multilingualism
• Non-profit Branches

For the GLOBAL SOUTH

• Local problems are more global than expected
• Check all the literature. English too
• Check for sustainability
• Reject voluntary based solutions
• Merge Open infrastructures
• Add culture diversity & Community Development
• Strength Research Capacity
Summarizing

OPEN is beyond sharing knowledge inside Academia.

World-Class status is not describing the whole HE World.

SDGs actions by Academia need an hybrid GLOCAL approach.
Questions?

Thank you!