Open future of academic research and communication

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Introductory remarks

- OA: a legal and technical reality today, vast opportunities on offer to be recognised.

- Question no longer ‘if’ but ‘how’

- The internet revolution disrupted the established models for scholarly communication and dissemination

- OA: also a social challenge
  - As for all revolutions, the interests of gatekeepers are revealed and put in doubt. Both knowledge producers and gatekeepers— the publishers and scientists— are forced to rethink their roles
Few more remarks

• All stakeholders involved:
  – funding bodies must ensure that deposit obligations are not just imposed but also honoured

• OA: not only covering scientific articles but also research data

• OA: new information and knowledge applied in new ways - a key to innovation
Open Access (Open Models): mission, I

• an instrument for enhancing access to scientific knowledge

• a global public good

• an instrument to stimulate the growth and quality of global science

• an instrument for realizing the rights to share in scientific advancement and its benefits, to education and to information

(Universal Declaration of Human Rights: from articles 27, 26 & 19)
Open Models: few more references

• *NaturePG, Jan ’11*, launching OA journal *Scientific Reports* with donations to CC for every single publication there

• 2011: several national commiteees of UNESCO acknowledge multifold recommendations for mandatory support of Open Models in publishing and scientific data:
  – OA
  – FOSS (Free and Open Software)
  – OERs (Open Educational Resources)

• (no success so far in IFAP, PL)
Open Models: mission, II

UNESCO:

• use OA to advance (...) the quality of education, public health and economic progress

• permanent access is an important component of increasing and diffusing knowledge by creating the possibility of re-use, re-analysis, inter-comparison and combining of publications and data, thus increasing productivity and new insights
Interoperability of data and publications

- **Deposition of research datasets** of crucial importance to the progress of science (EU eIRG report, Dec., 2008)

- **Publishers enable linking** articles to datasets in external repositories (ex.: SciVerse of Elsevier, DataCite)

- **STM’s Eefke Smit** (Dlib, 2011):
  Abelard and Héloïse: Why Data and Publications Belong Together
Open knowledge

• Knowledge as a public good:
  – non-rivalrous (undiminished by consumption)
  – and non-excludable

• 2009: Nobel Prize for economics to Elinor Ostrom
  – (...) Ostrom's lifework has focused on showing that commons need not be tragic, even when they consist of rivalrous and depletable resources like fish stocks or woodlands, and need not be privatized to be well-managed. She has also written extensively on knowledge commons, which are not rivalrous or depletable.
  – Elinor Ostrom has demonstrated how common property can be successfully managed by user associations

• **Joseph Stiglitz**: acknowledgment of the very special role of openness in the knowledge economy, its culture and implications for democratic processes
Internet revolution

Driver of revolutionary transformation of entire academic landscape towards Open Science:

• Scholarly communication
• Complete scientific chain
• Education
• Democratic symmetrization of academic relations
• Transparency:
  – all stages
  – regulatory actions on rules of content modification
  – reviews, evaluations, comments,…
Open Science: scales and territories

• Global & local virtual communities:
  • unstructured forms of collaborations (Open Discovery)
• e-Science
• Research data as new infrastructure
• Next generations of research infrastructures (e-infrastructures)
• New paradigms in academic evaluation:
  • role of visibility in the net space
  • bibliometry complemented by webometry
Open Science: trends

Publication:
• an element of a complex dynamical system of knowledge enrichment:
  – research,
  – diffusion,
  – interaction,
  – education
  – ...

Knowledge as research infrastructure:
• diverse middleware:
  – networked environments,
  – grids,
  – clouds,
  – ... galaxies (forthcoming)
Data as an Infrastructure

From: EC, eInfrastructure, 2008
Knowledge: a good

- Public good vs. private property

- New positioning in globalized economy (knowledge economy)

- Traditional IPR handling subject to fundamental revision:
  - Patenting - losing momentum as a seemingly perfect protection (as compared to culmination days of an eruption of commercial hopes in biology and life sciences)
Emerging open developments

• **Publication mandates** approved on not only institutional but also national and international levels:
  - single countries, EU, ...
• **Global research data infrastructure** (being founded)
• **Clouds of knowledge** founded
• **Open innovation**: independent knowledge (and research) communities
• **Synergy**: from knowledge as open public good to commercial value as a complementary asset
Business-oriented models in science

- Direction in part currently losing momentum
- **Poland: low output despite bold declarations**
- **Structural (constitutive) difference:**
  - Commercial models implicitly assume linear nature of knowledge reception
  - Open models assume nonlinearity of the research chain:
    - Critical phenomena, phase transitions
    - Implication: higher process robustness
- Commercial success realistic first after passing over a critical threshold level
Public vs. private dimension

• Dissemination and promotion of knowledge as central mission of universities – orthogonal to knowledge privatisation

• Different measures applied to private and public knowledge:
  – Private goods: Number of patents, other forms of IPR units
  – Public goods: academic evaluation
Poland: status and local developments

• WBN (BWN):
  – Partial openness (entire academic community, incl. students)
  – *Open Choice* (freedom of OA publishing): Springer, ...

• Development of IT platforms and repository systems:
  – SyNaT (strategic program of NCBiR)

• Lack of local legal regulations supporting open models

• Missing practical rule:
  – Publicly funded research → public access to publishing outputs
Free online access to peer-reviewed scientific publications has emerged as a potent ingredient of this process of sharing. This is because knowledge grows when shared. Thus wider participation means better science.

This principle is widely accepted in the scientific community, although many individual scientists are still slow to put it in practice.

I like to see open access as an opportunity. It is an opportunity to enhance communication within the scientific community, and especially across disciplines. It is also an opportunity to disseminate the results of research more efficiently. Isn't it an excellent example of Information and Communication Technologies in the service of scientific progress?

Neelie Kroes, EC Vice-Chair, in charge of the Digital Agenda
Final remarks

- Stakeholders: new assignments
- Deep transformation of economic rules (costs)
- Libraries: driving role in the transformation
- Technological convergence and interoperability: key features
- Thus:

**Future of science is open**