e-Research Infrastructures and Scientific Communication

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Outline

- Background
- Emergent Patterns in Scientific and Scholarly Communication
- Levels and Components of Infrastructures and e-Research
  - Tools versus Resources
- Shared access initiatives in – and for – developing countries
- Conclusion

Background (1)

- Increasing role of/policy towards Infrastructures for e-Research
- Networks of tools and data shared by communities of researchers
- Niche system within scientific communication, or more a move to broadly integrated knowledge production, dissemination, and access system?
- Integration vs. fragmentation

Background (2)

- Emerging challenges
  - Extent of openness(?), with varied implementation
  - Untangling interrelated social, institutional and technical networks
  - Blurring of distinction between primary resources, tools, and secondary resources
- Key challenges focused on intersection of openness, e-Research, and e-infrastructures

Emergent Patterns in Scientific & Scholarly Communication

- Increasing importance of processing, storage, and dissemination of data, in some fields
  - Data: simulated, in-silico, synthetic
  - Recognition of data as valid scientific outputs
- Traditional gatekeepers play differential role
- Fragmented communication system in relation to e-Research
- Alternative models of dissemination by-pass traditional models
- Stratification in openness: governance and practice

Levels & Components of Infrastructures and e-Research

- Research policy
- Organizational and technical forces
- Everyday practices of researchers
- Openness
  - various parts of the digital infrastructure and the tools connected to it, should be able to interrelate in a flexible and seamless way
  - difficult to achieve in practice
  - forms of openness still fluid due to its nascent nature

Tools versus Resources (1)

- cf. fluid knowledge and static structures
- *Tools* - means for generating and processing data and information
- *Resources* – intermediary layer providing access to data and information that has been processed
- Both produced and used at various levels of e-Research systems, but;
- Increasingly traditional distinction becoming blurred

Tools versus Resources (2)

- Subject to incremental improvement
- Neither completely fluid or static
- Both can be "open" or "closed"
  - input and output (resources)
  - development and access (tools)
- Both parts of larger institutional and organizational infrastructures,
  - requiring funding and skills
- Brings us to problematic for developing countries

Shared Access Initiatives in – and for – developing countries (1)

- Two levels of participation
  - network (cyberinfrastructure, e-Science, e-infrastructure)
  - scientific communication
- Participation in GRID or high-performance computing initiatives exception cf. rule
- Mostly nascent national research and education networks (NRENs) across Africa
- DCs mostly not at cutting-edge in uses of truly advanced networks

Shared Access Initiatives in – and for – developing countries (2)

- Disparity between DC participation (e.g.Latin America vis-a-vis Africa)

  – Interconnection does occur, but...

- Participation in GRID or high-performance computing initiatives exception cf. rule

  – Mostly nascent national research and education networks (NRENs) across Africa

- DCs mostly not at cutting-edge in uses of truly advanced networks

  – BELIEF, 6DISS, EGEE initiatives to bridge this gap

- Open Access journals and self-archiving via institutional repositories (IRs)

- Access to journals: initiatives mostly limited to expansion of extant journal stables into DCs

- Institutional repositories: proxy for DC institutions to help themselves e.g.

- 627 organisations in OpenDOAR
  - 1% (6 sites) African continent,
  - 1% (4 sites) in Central America,
  - 4% (22) in South America, and
  - 6% (40) in Asia

Shared Access Initiatives in – and for – developing countries (4)

- Worrying: as much as e-Research takes off in the developed world...

- A parallel, slow and uneven adoption, or even at times non-adoption, for the developing world can be predicted.

- Challenge: consideration of how the developing world may be kept in line with e-Research developments in the developed world.

Conclusion

- Growing diversity of practices in scientific and scholarly communication

- e-Research systems add a layer of complexity

- Making open systems extend to DCs involves a range of issues

- Need to combine a variety of disciplinary perspectives to recognise limits of congealing system

  – Sociology of S&T, Info Science, Research Policy + Development and Area Studies

Thank You

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