

# The Societal Impact of Open Access to Research

**ElHassan ElSabry**

Doctoral Candidate

Science, Technology & Innovation Policy Program  
National Graduate Institute for Policy Studies (GRIPS)

*OAI10-CERN Workshop on Innovations in Scholarly Communication*

*June 22, 2017*



# Benefits of Open Access

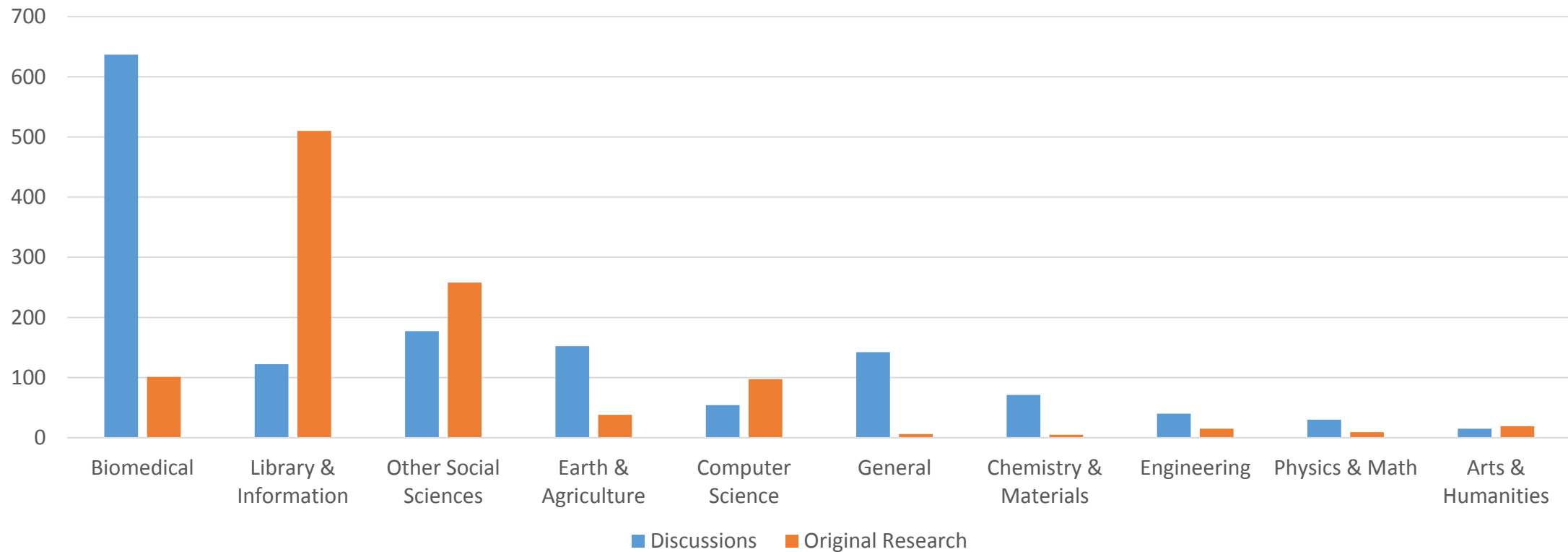
- Benefits to the Academic Community
  - e.g. citation advantage
- Economic Efficiency
- Societal Benefits
  - not systematically studied

# Research Gap

- “little is known about the impact that free scholarly research literature might have on the knowledge and interests of laypeople” (Zuccala, 2010)
- “almost no studies have evaluated whether free access to the scientific literature has had an impact [...] in non-research contexts” (Davis & Walters, 2011)
- the societal impact of open access “still needs to be systematically investigated and documented” (Pinfield, 2015)
- “a gap between the hypothetical societal good of open access and the minutiae of usage and interest measurements” (Bankier & Chatterji, 2016)

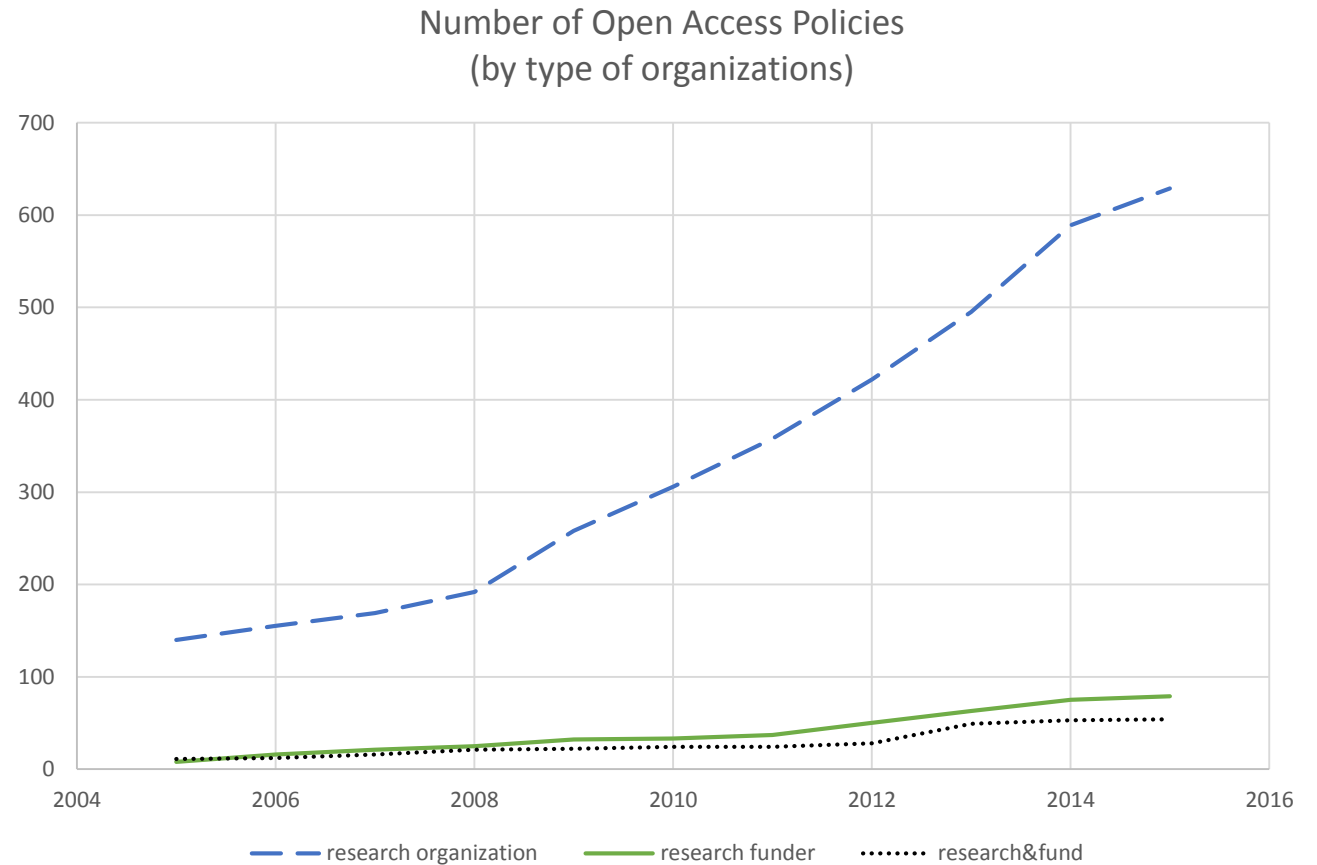
# Discussion about OA vs. Original Research

Discussion = 1440  
Original Research = 1058



# Research Significance

- rising interest among policy makers
- open access as an **academic** versus a **social issue**



# Main Question

*What groups of people outside the academic community benefit (or would potentially benefit) from open access to scholarly research?*

- *Who is claimed to be a beneficiary of open access? (ELPUB2017 paper)*
- *What evidence is available to support those claims?*
- *What do we know from other relevant fields of research?*

# Collecting & Synthesizing Literature on Societal Benefits

- **Method:**
  - eyeball search (papers collected in a previous study)
  - relevant keyword search (Scopus & Google Scholar)
  - citation tracking (forward and backward)
- **Data:**
  - 54 publication discussing societal benefits
- **Main Finding:**
  - most studies are about industry researchers and medical practitioners

# Breakdown of Studies on Societal Benefits

Property	Category	Count
<b>Publication Year</b>	2001 - 2005	5
	2006 - 2010	11
	2011 - 2015	29
	2016 - ...	8
<b>Document Type</b>	journal / conference paper	30
	dissertation / book chapter	3
	report	12
	opinion article (in academic journal)	8
<b>Methodology</b>	multiple methodologies	8
	theoretical analysis (including review studies)	8
	survey	10
	interviews / focus group	3
	bibliometric analysis	8
	experiment	2
	case study	3
	anecdotal evidence	11



# Open Access Beneficiaries

Beneficiary Group	Available “Studies”
Industrial R&D	10
Medical Practice	10
Patients	5
Policymakers	5
Individuals	3
Unaffiliated researchers	3
Nonprofit Organizations	2
Students	2
Legal Practice	2
Society in general / laypeople	13

# OA & Society in General / Laypeople 1

## Large-scale studies:

- “The Public Impact of Latin America’s Approach to Open Access” Alperin 2015
  - demographic data of on readers on articles on SciELO & RedALyC
  - 44.5% students – 20% university employees (including faculty) – 35% unaffiliated with university
  - 40% public sector employees - 40% from the private sector - 20% nonprofits
- “Citizens Demand for open access to Academic Papers” Sato et al
  - survey of 800 Japanese adults
  - 55% claimed that open access is useful or slightly useful to them
  - “satisfying curiosity” and “research articles being a credible source of information”
  - “the gap between academic research and daily life” and “the difficulty to comprehend academic jargon”

# OA & Society in General / Laypeople 2

- focus group of 23 Dutch citizens (Zuccala)
- 80% of respondents to a US poll agreed that medical research should be free (Harris Interactive)
- links from hobby blogs & patient pages to papers in Kyoto University IR (Sato & Itsumura)
- Links to OA papers from 100 random Wikipedia articles (Willinsky)
- OA journals 47% more likely to be cited by Wikipedia (Teplitskiy et al)

# OA & Society in General / Laypeople 3

- discussion and examples of societal impact (Tennant et al)
- example cases (*bepress*)
  - “100 Stories of Impact” report
  - 34 stories of non-academic readers
  - only 16 were not about open access to research papers

# OA & Researchers in Industry 1

- “spillover effects in all sectors of society” which drive “economic, social and technological progress” – European SMEs (Piccara)
- Crisis US biotech SMEs (Lyman)
- 3 company surveys in the UK 1 in Denmark & 1 in Japan
- (prc,JISC,RIN) 1,130 respondents
  - compare access between: universities and colleges, medical schools and health providers, industry and commerce, and research institutes
  - easy access 94% universities, 86% large, 71% SMEs
  - dependence on personal subscriptions

# OA & Researchers in Industry 2

- (prc,JISC,RIN) 2,645 respondents
  - easy access 78% large, 69% SMEs
  - recent unsolved access problem 44% universities, 86% companies
- (JISC) 44 interviews, 9 case studies
  - no cases of systematic usage of OA
  - (ir)relevance of academic research to industry
- (Houghton et al) 98 responses , 23 interviews
  - 64% of those in research roles need access
  - OA in third place as a means of access

# OA & Researchers in Industry 3

- (Abe et al) 2 surveys
  - budgetary constraints as a reason for not using electronic journals
  - those with 100 or more titles increased
- Pay-per-view
  - a way to cope with lack of access
  - issues with credit card payment
  - 55% of DeepDyve users from organizations with less than 100 employees

# OA & Researchers in Industry 3

- (Bryan & Ozcan)
  - 3 million patent applications with 130,000 articles from 43 journals
  - OA articles received 28-59% more patent citations
- (myself 😊 )
  - 1,104 patents (about 30,000 citations) matched with company financial data
  - smaller companies use OA more than large ones



# OA & Medical Practitioners 1

- many might not be aware of available opportunities
- review study by Spedding
- (O'Keeffe et al)
  - 90 US health personnel
  - primary research their least favorite
- (Lawton & Flynn)
  - lack of awareness about OA among Irish practitioners (80% expressed interest)
  - over half of repository users are practitioners (not researchers)
- (Andrews)
  - 33% family doctors claimed cost to be a barrier

# OA & Medical Practitioners 2

- (Hardisty and Haaga )
  - those given full-text link twice more likely to read
- (Moorhead et al)
  - 336 US practitioners (including a control group)
  - practitioners consult the full text of the articles when given the chance
  - 49.9% of the articles consulted by physicians were published within the

# OA & Medical Practitioners 3

- (Maggio et al)
  - web log data of over 5000 health personnel working in the Stanford University Hospitals
  - 20% of the research papers consulted in 2011 were published in 2011
  
- (Maggio et al)
  - while 50% of the news stories about cancer papers were published within 2 weeks of publishing the research paper
  - 25% within one day only

# OA & Legal Practice

- (Danner)
  - legal scholarship is more important for practitioners in civil law countries
- (Scherlen & Robinson)
  - arguing for OA using social justice theory

# OA & Policymakers

- earliest two studies (Willinsky) ... 2003 & 2004
  - 29 interviews ... insights evidence-based policymaking
  - pilot of the “Research Support Tool” with 13 Canadian policymakers
- (Nwagwu & Iheanetu )
  - availability of journals was not a good predictor of their usage
  - journal usage correlates with policymakers’ educational qualification
- (JISC)
  - 17% cost savings (one tenth .. time saving)
  - a discussion of indirect benefits

# OA & NGOs

- (JISC)
  - survey of 101 British charities , 10 case studies
  - 78% used government report most often , 14% research papers
  - 80% cited high cost as barrier
  - majority used research papers – 95% claimed more access, more usage
  - structure of academic disciplines
- (Moorhead et al)
  - 92 researchers from US nonprofits
  - 67% of those given access used it
  - 2.2 articles/week
- role of NPO associations

# OA & Patients

- PXE International (Sharon Terry)
- one third of the 104 members of the Alliance of Taxpayer Access are patient groups

# OA & Unaffiliated Researchers

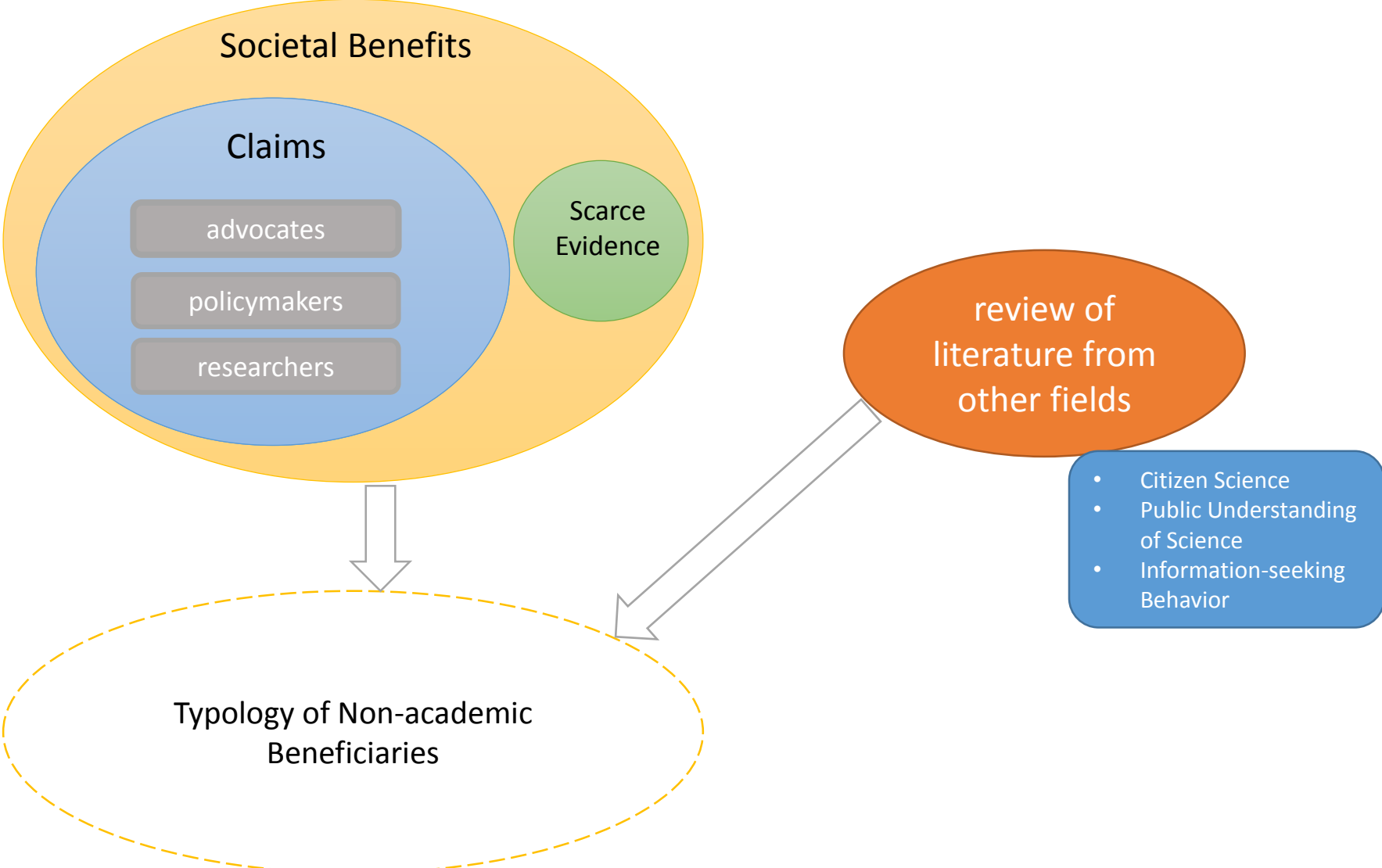
- someone with an interest and can spare enough time (whether related to or separate from their daily job)
- a professional (normally affiliated) researcher in transition
- affiliated but has reasons not to mention affiliation
  - governmental research units
  - consultants
- publishing from time to time after retirement
- requests handled by the document supply service of the British Library
  - 16% individuals
  - 55% from academic sector
  - 17% from professional sources
  - 11% from businesses)



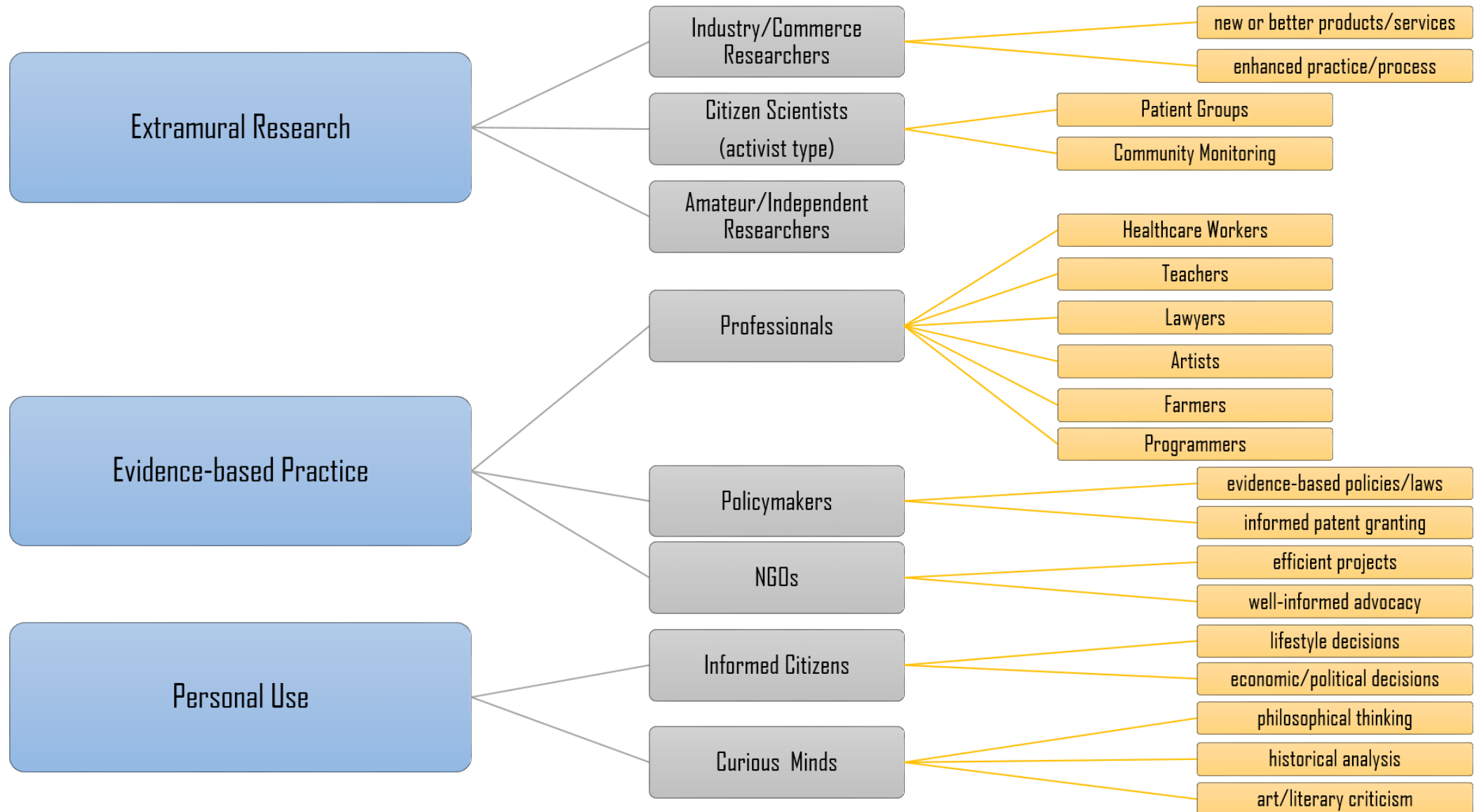
# OA & Individual Enrichment

- open access political science journal will enhance public engagement with the discipline (Smith)
- importance of open access to philosophical literature based on Derrida's notion of the right to philosophy (Willinsky)
- correlating citations & reviews on Goodreads (Zuccala)

# Typology of OA Users



# Typology of OA Users



## Conclusion: What Impact does Open Access have on Society?

- **Industry** ... OA is very useful, serious crisis for SMEs
- **medical practice** ... services built using (e.g. clinical guidelines)
- **unaffiliated researchers** ... lack of understanding of the phenomenon
- **legal practice** ... judges but not lawyers, more in civil law countries
- **policymakers** ... those in research units/technical positions
- **NGO** ... slightly useful, perhaps more important for unions
- **patient groups** ... more systematic research needed (individual vs group)
- **laypeople** ... only speculations (except for rare disease patients/families)

## Conclusion: Policy Implications

- more groups should be on the table
- more research than talk, i.e. more funding should target studies about open access
- companies participating in national site licenses
  - 15-17% of subscription revenue from corporations
  - SMEs and NGOs taking part through their unions
- one to one partnerships (between journals and beneficiary entities)
  - “adopting” journals
  - e.g. *Health Policy* & European Observatory on Health Systems and Policies
- all of this in parallel with discussions on extensive profits of publishers

Thank You