

Pay It Forward:

Investigating a Sustainable Model of Open Access Article
Processing Charges for Large North American Research
Institutions

Ivy Anderson
California Digital Library

Berlin12
December 8-9, 2015

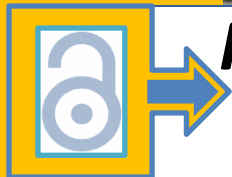


Themes from yesterday

“Breaking things down to the institutional level”

Need for market mechanisms to contain costs

Economic analysis, understanding of behavior and motivation, need for incentive structures...



Pay It Forward: A grant from the Andrew W. Mellon Foundation

Key Question:

Can a large-scale conversion to open access scholarly journal publishing funded via APCs be viable and financially sustainable for large North American research-intensive institutions?

18-month project, January 2015 – June 2016
Led by the University of California, Davis and the California Digital Library



Why this project, why now?

Increasing disconnect between European and North American approaches to open access

North America

- 
- **Tri-Agency Open Access Policy**
 - **NIH Open Access Policy**
 - **OSTP Directive**
 - **Faculty OA Policies**
 - **FASTR**

Europe

- 
- **Finch Report**
 - **Horizon 20/20**
 - **APC Offset Agreements**

[Learn more](#)
[DEPOSIT](#)
[WAIVER](#)
[FAQ](#)

UC Faculty Adopt Open Access Policy

Charting a new direction
in scholarly communication

[» Learn more](#)

Popular Research This Month

1. Green Marketing: A Study of Consumer Per...
2. How Languages are Learned
3. Debunking the Effects of

Open Access Policy for the Academic Senate of the University of California

Adopted 7/24/2013

Also available as a [PDF](#).

Preamble

Faculty began asking: ***“Does this mean I have to pay to publish?”*** and ***“Will the library pay?”***

Our Libraries wanted to understand how gold OA would impact our budgets if we were to subsidize publication

Grant of License and Limitations

Each Faculty member grants to the University of California a nonexclusive, irrevocable, worldwide license to exercise any and all rights under copyright

Home

UC Open Access Policy

- Deposit Your Work
- Get a Waiver/Embargo
- Implementation Plan
- Policy FAQ
- Policy History
- Policy Text**
- Publishers Contacted
- OA Policy Contacts
- Get the Word Out!

Scholarly Publishing

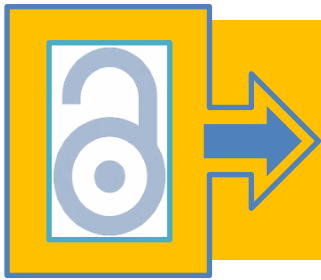
- Copyright & Licensing
- Data Publication
- Digital Humanities
- Funding & Support
- Metrics & Identifiers
- Open Access

- Author-Archived
- Publisher-Hosted
- Dissertations
- OA E-Print

Local drivers:

UC Faculty Open
Access Policy

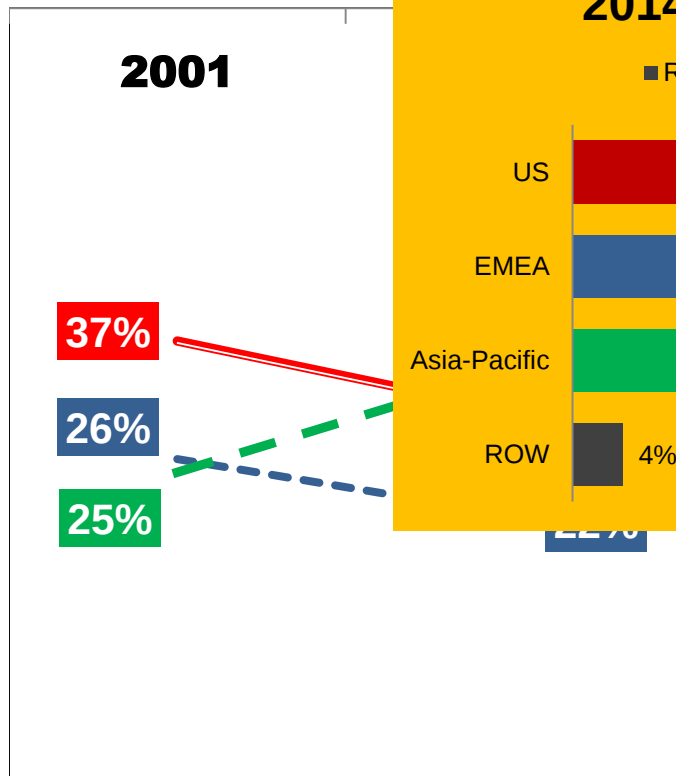
Campus Open
Access Fund Pilots



Global Context

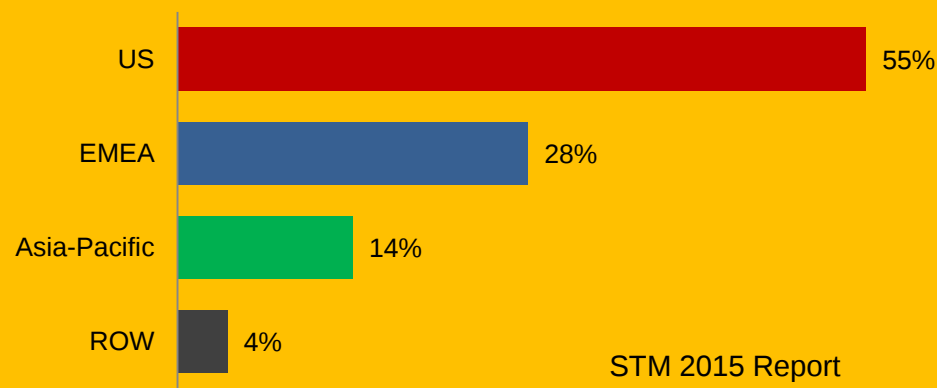
Global R&D Share

2015 STM Report



2014 STM Revenue Share

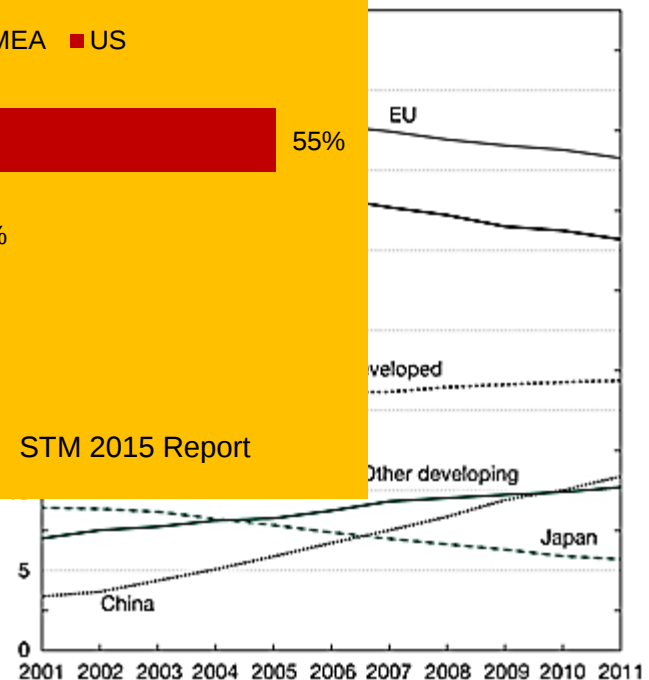
■ ROW ■ Asia-Pacific ■ EMEA ■ US



STM 2015 Report

S&E Global Article Share

STM 2014



“The cumulative effect of sustained above-global-average growth in R&D spending in emerging economies has been a profound shift in the global make-up of research.”

(STM Report, 2015)



Project Design

Qualitative Analysis

University Partners:

University of California

Harvard University

Ohio State University

University of British Columbia

Academic Author Surveys

Publisher Survey

Project Components

Library Subscription Expenditures

University Publishing Output & Potential APCs

Industry Partners:

Assoc of Learned & Professional Society Publishers (ALPSP)

Thomson Reuters (Web of Science)

Elsevier (Scopus)

Quantitative Analysis: Five-Year Period, 2009-2013



Core Project Team

- **MacKenzie Smith**, UC Davis (*Co-PI*)
- **Ivy Anderson**, CDL (*Co-PI and Quantitative Lead*)
- **Greg Tananbaum**, ScholarNext (*Project Manager*)
- **Mathew Willmott**, CDL (*Data Analyst*)

Project Consultants

- **Greg Tananbaum**, ScholarNext (*Publisher surveys and costs*)
- **Carol Tenopir**, University of Tennessee (*User studies*)
- **David Solomon**, Michigan State University &
- **Bo-Christer Bjork**, Hanken School of Economics (*APC research, Scenario modeling*)
- **Mark McCabe**, Boston University & SKEMA Business School (*Scenario modeling, economic analysis*)





Project Deliverables

- A publicly accessible financial model that depicts what the emerging APC model would cost large research institutions under a variety of rigorously-modeled scenarios
- A replicable methodology that that others can apply in a local context
 - What level of APC is realistic and sustainable in a given discipline?
 - How might costs be distributed among institutions, research funders, and other players?



Project Timeline

Phase 1: January-March

- Finalize data specifications, begin data gathering
- Conduct focus groups
- Develop publisher survey

Phase 2: April-June

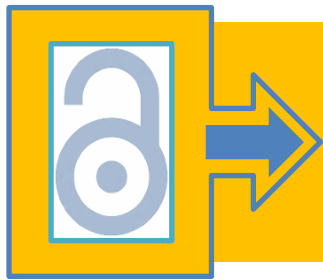
- Collect and refine data
- Conduct user surveys
- Conduct publisher survey
- Perform publishing cost analysis

Phase 3: July-December

- Complete survey analysis
- Complete financial and bibliometric data analysis
- Build and refine models

Phase 4: January-June

- Review and refine model
- Prepare documentation
- Write up findings



Preliminary Findings

Author Studies
(Carol Tenopir)



Concerns

Library role

- True believers, skeptics, most people somewhere in the middle
- Many senior faculty already post green versions in a repository or personal website
- Support for OA as readers and as a moral good, but most have access to what they need now
- Arts, Humanities, & Social Sciences faculty are less supportive of OA

- Where funding will come from
- Richer nations may dominate publication
- Potential for APC price increases
- Predatory / vanity publishing
- Lack of transparency – ‘publishing is broken’
- APCs are too high – publishers charge what the market will bear

- Negotiating Institutional publishing licenses
- Coordinating/administrative





Faculty Ambivalence

- If they have a repository (green) why do they need gold?
- There is a confusing lack of transparency in APCs.
- Quality may still be costly.
- Figuring out a model will take time.
- We have to evaluate the impact on readers and authors and different fields separately.
- We have privilege of access so perhaps we aren't the best judges of this issue.



Importance of Factors When Selecting Where to Publish*

1. Quality and reputation of journal
2. Fit with scope of journal
3. Audience
4. Impact Factor
5. Likelihood of acceptance
6. Time from submission to publication
7. Editor or editorial board
8. Open Access

*Listed highest to lowest



Implications



Quality of a journal matters, but quality is often defined by traditional attitudes from the past.

For OA to be widely accepted, there may need to be a cultural shift.



Preliminary Findings

APCs

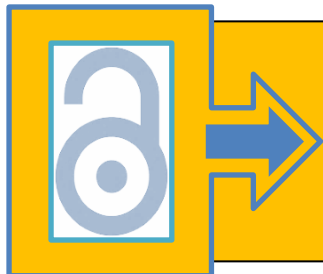
(“Ground Up” Costs: Greg Tananbaum)

(APC Research: Dave Solomon)



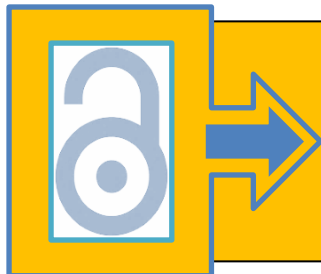
Ground Up Cost Per Article: Data Sources

- Literature Review
- 990 Tax Forms
- ALPSP Survey
- Industry Input



Ground Up Cost Per Article: Findings

Source	Median Cost-Per-Article (CPA)	Notes
Literature Review	\$2,508	Normalized to include no surplus.
990 Tax Forms	\$2,266	No surplus.
ALPSP Survey	\$1,712	Based on \$2,140 median APC for 12 ALPSP survey respondents that indicated their APC pricing was based on a cost recovery model, <i>including indirect costs and surplus</i> . 20% removed as surplus, using Jisc and CEPA estimates.
Industry Sources	Range: \$500 - \$1275	APC-supported journals not tied to legacy infrastructure



APC Prices: Mapped to Partner Data

APC in USD

Discipline including Arts and Humanities	Mean	N	Std. Deviation
Arts and Humanities	1,273.26	19	354.76
Multidisciplinary	1,345.83	522	50.39
Mathematics	1,209.79	24	69.60
Clinical Medicine	1,753.60	3,456	466.20
Biomedical Research Disciplines	1,830.36	5,511	552.38
Life Sciences	1,789.30	2,286	552.35
Chemistry	1,712.00	189	308.93
Physics and Astronomy	1,327.90	139	84.72
Engineering	1,900.44	436	453.47
Earth Science	1,599.72	664	331.82
Business and economics	1,350.00	11	0.00
Psychiatry/Psychology	1,787.35	373	433.94
Social Science	1,940.57	726	460.28
Total	1,775.07	14,356	510.65

PIF partner author publications in WoS 2009-2013 merged with APC prices from:
Morrison et al. Publications 2015, 3(1), 1-16; doi:10.3390/publications3010001

Includes 59% of the partner authored publications tagged as OA.



APCs

from European Funding Agencies

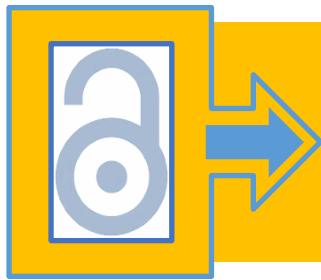
- Data sources
 - United Kingdom Universities
 - Wellcome Trust
 - German Universities and Foundations
 - Austrian Science Fund (FWF)
- Matched with WoS metadata based on DOI(85%)
- Limited to articles and proceedings
- Only full OA journals (no hybrid payments)
- VAT was included if applicable
- Currency conversion to USD
 - GBP 1.60
 - EUR 1.30



Weighted Average APC Payment

APCs in USD	Weighted	
Discipline	Average	Total N
Arts and Humanities		
Multidisciplinary	1,812.98	76
Mathematics	905.60	5
Clinical Medicine	1,880.89	673
Biomedical Research Disciplines	2,036.35	1,450
Life Sciences	1,885.75	703
Chemistry	2,383.47	51
Physics and Astronomy	1,889.14	192
Engineering	1,684.52	104
Earth Science	1,580.45	173
Business and economics	1,415.65	4
Psychiatry/Psychology	1,646.72	256
Social Science	1,812.62	147
Total	1,907.43	3,834

Weighted Average
across European
payment databases

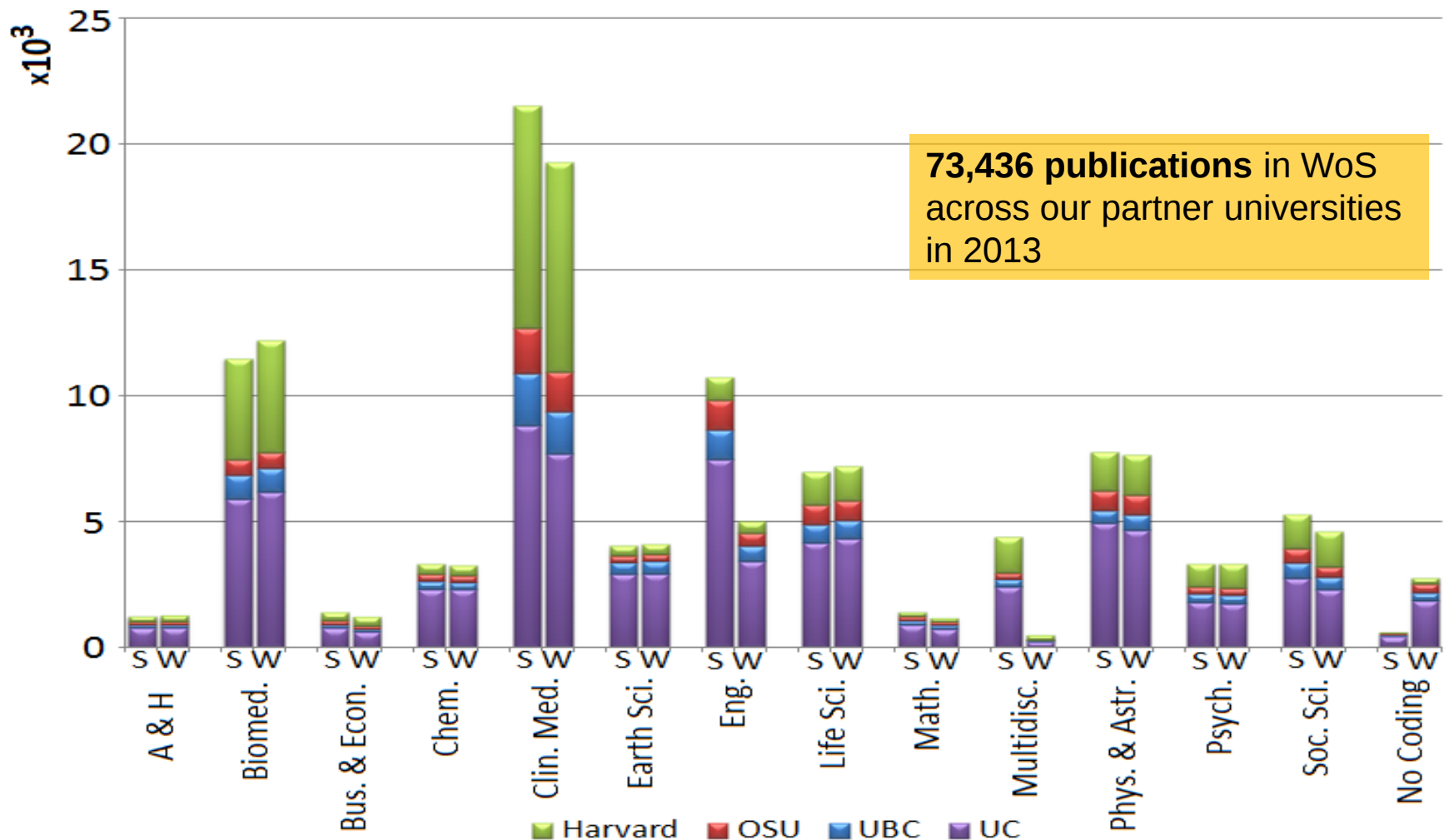


Preliminary Findings

Break-Even Scenarios for Partner Libraries
(Mark McCabe, Mat Willmott)



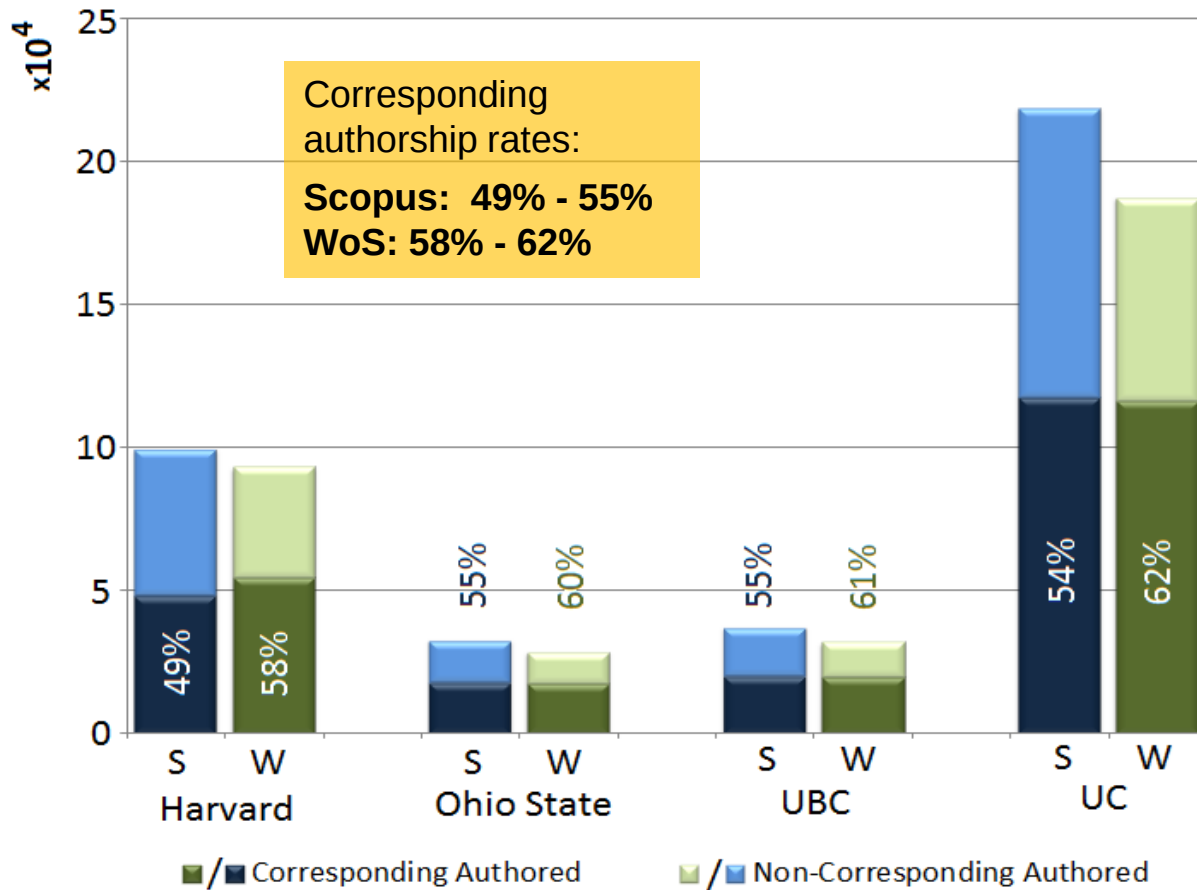
Bibliometric data – summary statistics



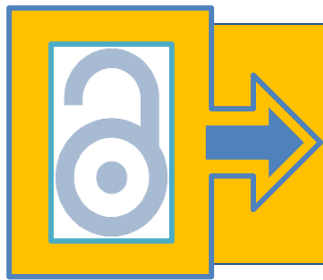
Documents by discipline, 2013



Bibliometric data – summary statistics



Documents by partner institution



Break-Even Points: Definition and Methods

Break-Even Point: the average APC which an institution would be able to support from its library subscription budget, given its publication output.

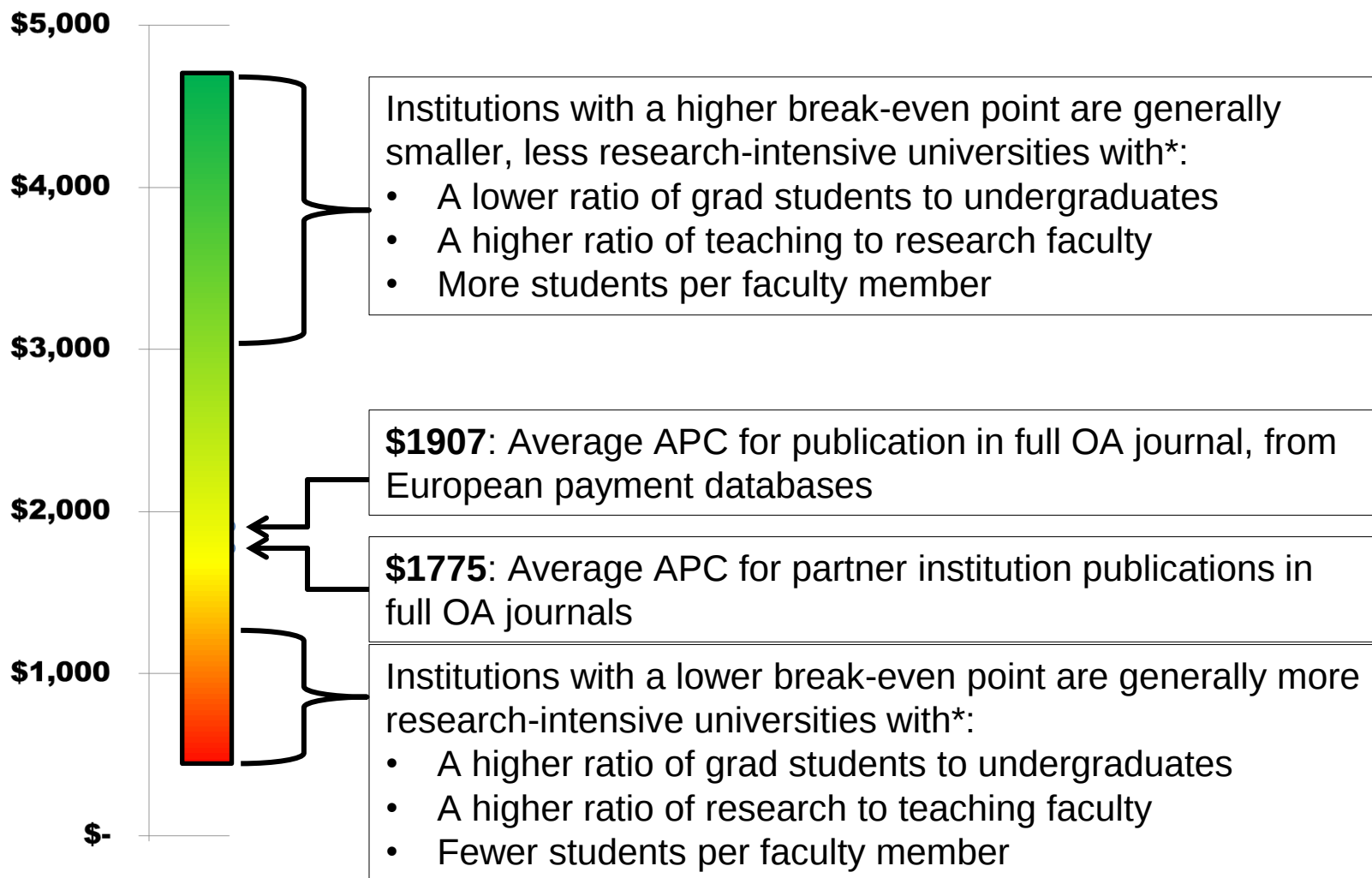
- A **high** break-even point means that the institution could support publication even if the average APC is quite high (represented in **green** in the following charts)
-

- A **low** break-even point means that the institution could only support publication if the average APC is very low (represented in **red** in the following charts)
-

Break-even points were calculated for each partner institution, assuming that the institution is responsible for payment of an APC if the corresponding author is from that institution.



Break-Even Points: Library funding pays for all articles

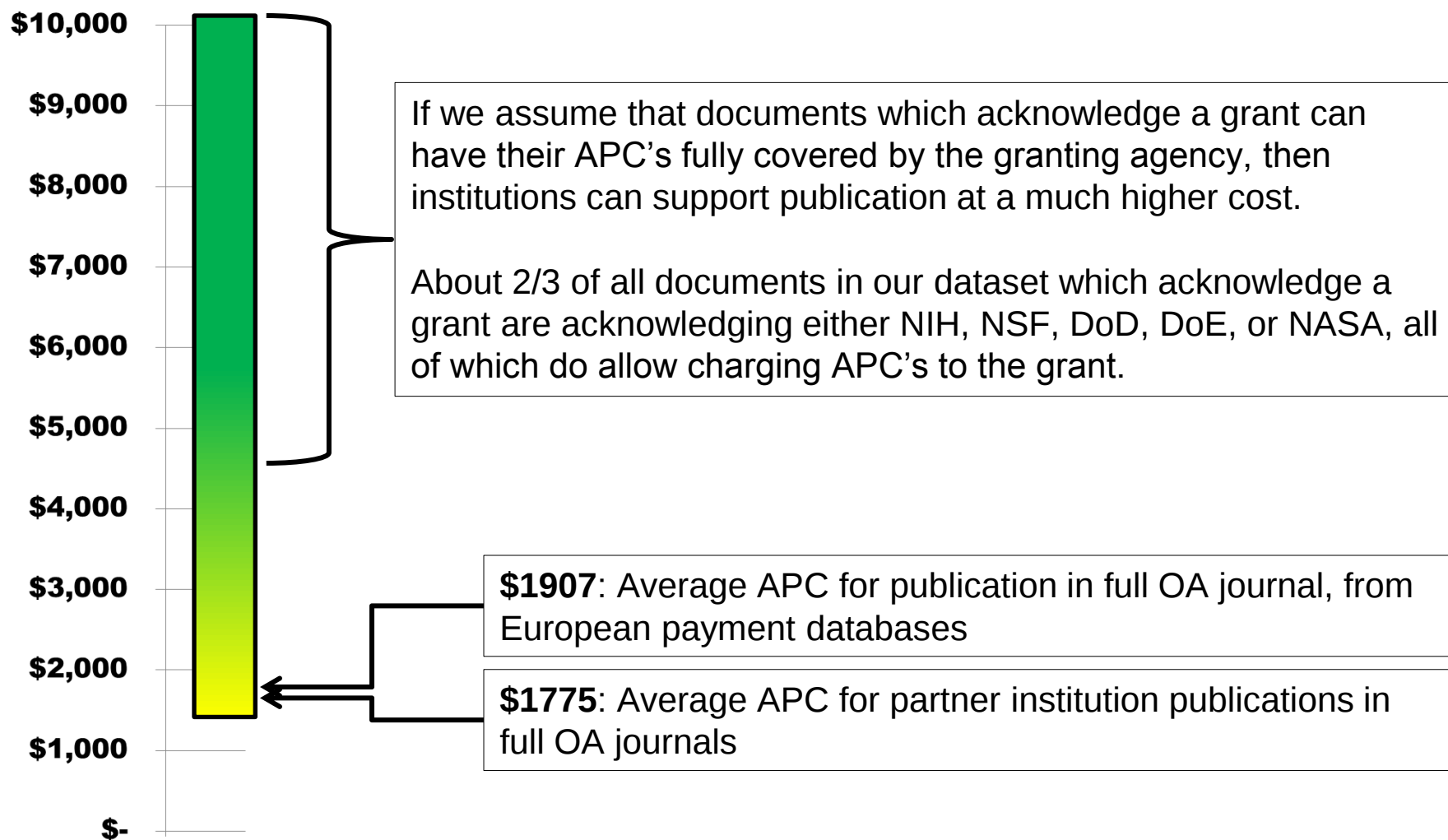


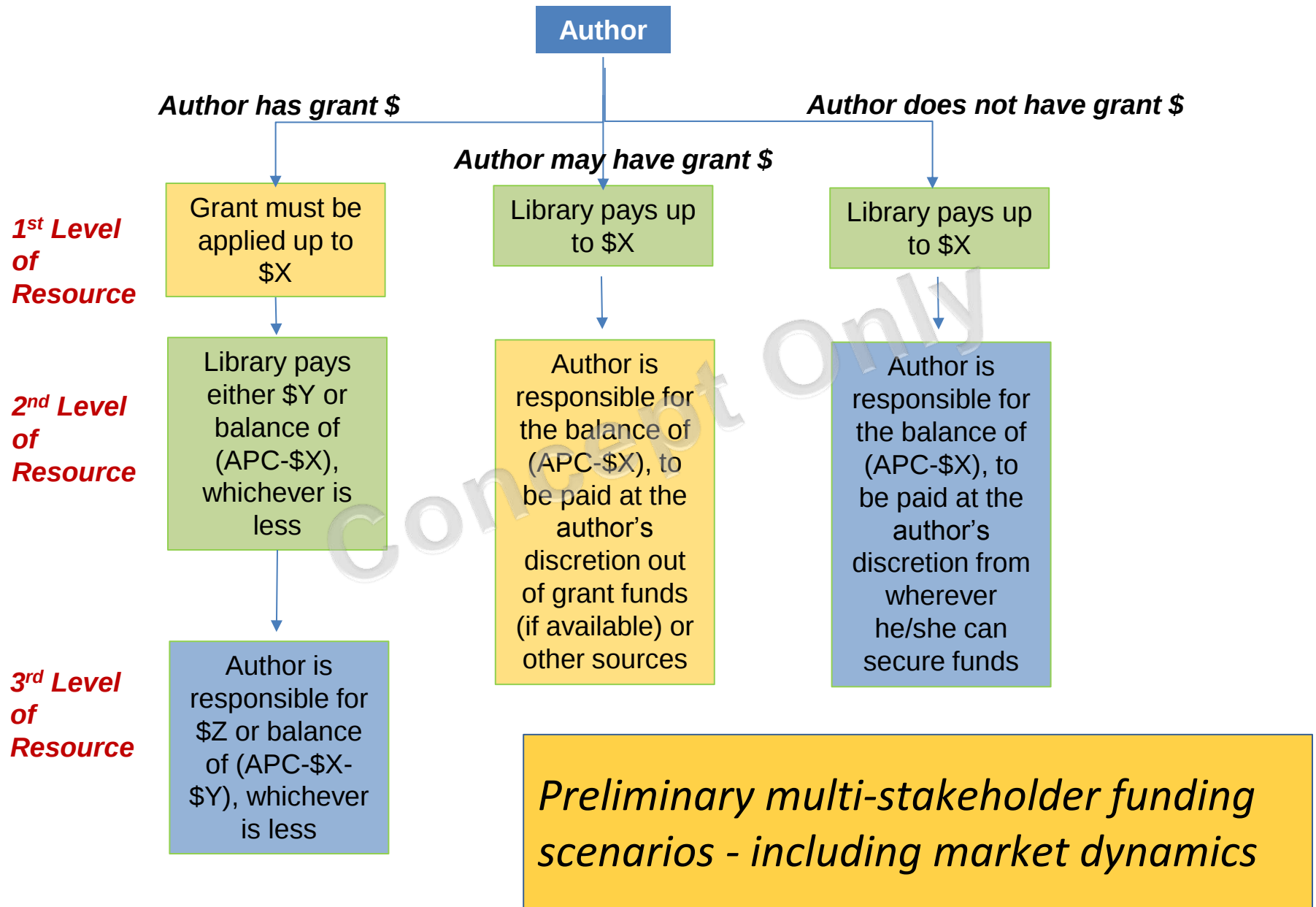
*: Demographic data from IPEDS, <http://nces.ed.gov/ipeds/>

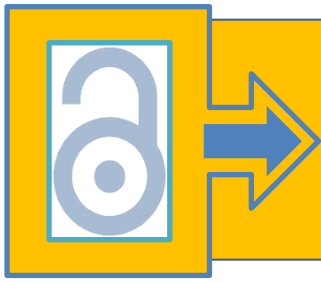


Break-Even Points:

Excluding articles with grant funding







Remaining Tasks

- Refine Data
 - Library Expenditure Data
 - APCs
 - Publication data (incl. WoS and Scopus differences)
 - Project growth over time
- Develop funding scenarios to encourage market dynamics
 - Role of authors and granting agencies
- Build and populate calculation tool
- Write final report
 - Will share all data that's publicly shareable