ACM OPEN:
A Transformative Model for Open Access

For Presentation at the OA2020 US Working Group's Fifth Community of Practice Event

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Association for Computing Machinery

Advancing Computing as a Science & Profession

Open Access & ACM Open

Vision: To Sustainably Transition ACM Publications to complete OA research publishing within 5 years

Model Development: Close Collaboration with CDL, MIT, CMU, Minnesota, & ISU between 2018-2020

Level of Commitment: High / All In / All ACM Research-focused Publications in ACM Digital Library

Model Goal: Significantly and accelerate readership, citation, impact, & innovation in Computing field

Methodology: Heavily data-driven approach to model development and implementation

Financial Viability of Model: 100% Sustainable if Critical Mass of Institutions Join

Likelihood of Success: Ask me tomorrow, next month, next year, etc.

Collaborative Approach - Principles

Sustainability: Need sufficient income to cover expenses

Transparency: Share expenses, revenues, progress, publish results, etc.

Fairness / Equity: Make sure model makes sense and is fair. For example, if price goes up for some, make sure price goes down for others based on a fair rationale

Consistency: Globally, pricing, contractual terms, etc.

Strong Value Proposition: Should be obvious to all stakeholders. Look at metrics like cost-per-published article, competition's pricing, benefits for authors, compliance with institution and funder mandates, etc.

Trust Between Collaborators

Must be developed over time, but demonstrating willingness to compromise and to be totally transparent with data underlying model

The ACM Model

- Variation on "Read + Publish" model that commercial publishers introduced
- Universities pay to "bundle" access and OA publication fees in a single license paid by the institution
- Key difference is that ACM's model is "unlimited read + unlimited publish" compared to APC model from other publishers and societies
- Tier-based Model with 10 Tiers determined by average # of corresponding authored articles published over past 3 years.
- Model pricing is done to "rebalance" revenues to align with expenses, which is necessary as more articles are published Open Access in the DL
- Model is currently optional, but when critical mass is reached will "flip" to default option
- On average, ACM Open institutions will p
- ⅓ of institutions (Tiers 1-9) will pay more and ⅔ will pay significantly less over time
- Reduces reliance / risk on long tail of 1,700 institutions with low usage & publication activity
- Basic terms are:
  - Institutions enter into 3-5+ year Agreements
  - Fixed annual price for length of Agreement
  - Tiering and price based on publication history
  - No fees for authors
  - Compliant with all funder mandates
  - Re-tiering at end of Agreement for next period
  - Creative Commons for Article Sharing is default

Tiers Level	Article Output Range	Tier Pricing ($)	# Institutions	Cumulative Revenue ($)
1	75+	$100,000	22	$2,200,000
2	60-74	$75,000	18	$3,550,000
3	40-59	$60,000	55	$6,850,000
4	30-39	$45,000	40	$8,695,000
5	20-29	$35,000	88	$11,775,000
6	16-19	$25,000	76	$13,675,000
7	12-15	$17,500	109	$15,582,500
8	8-11	$12,500	188	$17,932,500
9	4-7	$10,000	426	$22,192,500
10	0-3	$2,500*	~1,677	Unknown
Totals	21,602 in 2019		~2,700	Not Less than $22M

2018 Publication & Financial Data Analysis

Accurate Data Collection & Analysis is Single Most Critical Aspect of Model Development

Tiering is based on Avg of Corresponding Authored Articles

Country	Institution	Y2015	Y2016	Y2017	F	G	2017-2019	Tier	Price
	TOTALS BY YEAR	*13,981*	*15,923*	*17,780*	*19,946*		*19,054*		
China	Tsinghua University	92	116	166	228	243	212	1	$100,000
United States	Carnegie Mellon University	212	182	186	215	223	208	1	$100,000
United States	University of Washington, Seattle	103	124	143	157	153	151	1	$100,000
United States	Georgia Institute of Technology	124	131	135	134	140	136	1	$100,000
United States	University of Illinois at Urbana-Champaign	98	110	119	126	132	126	1	$100,000
China	Chinese Academy of Sciences	55	68	93	155	124	124	1	$100,000
United States	University of Michigan, Ann Arbor	93	87	124	96	136	119	1	$100,000
United States	Stanford University	106	105	122	91	120	111	1	$100,000
China	Shanghai Jiaotong University	49	63	71	109	138	106	1	$100,000
United States	Massachusetts Institute of Technology	92	99	102	97	106	102	1	$100,000
China	Peking University	48	64	85	105	110	100	1	$100,000
China	National University of Defense Technology China	20	32	74	124	95	98	1	$100,000
Switzerland	Swiss Federal Institute of Technology, Zurich	102	85	94	94	104	97	1	$100,000
United States	Purdue University	71	87	101	72	87	87	1	$100,000
Germany	Technical University of Munich	38	73	71	101	89	87	1	$100,000
United States	University of California, Berkeley	98	66	83	75	92	83	1	$100,000
United States	Cornell University	67	67	66	69	104	80	1	$100,000
South Korea	Korea Advanced Institute of Science & Technology	53	89	77	86		78	1	$100,000
China	Beihang University	20	28	53	109		76	1	$100,000
Canada	University of Waterloo	65	80	87	69	71	76	1	$100,000
United States	University of California, San Diego	52	51	57	73	94	75	1	$100,000
United States	University of Maryland	69	73	79		72	75	1	$100,000
United States	Virginia Tech	57	51	69		84	74	2	$75,000
United States	University of Texas at Austin	59	61	74		81	74	2	$75,000
Singapore	Nanyang Technological University	53	77	84		67	74	2	$75,000
U.K.	University College London	60	77		74	66	72	2	$75,000
Netherlands	Delft University of Technology	31	61		103	61	72	2	$75,000
Canada	University of Toronto					87	71	2	$75,000
United States	University of Southern California					72	70	2	$75,000
United States	Northeastern University					83	70	2	$75,000
United States	University of California System					68	69	2	$75,000
Japan	University of Tokyo					68	68	2	$75,000
China	University of Electronic Science and Technology of China					80	67	2	$75,000
China	Beijing University of Posts and Telecommunications	11	22	48	77	77	67	2	$75,000
Singapore	National University of Singapore	74	70	74	62	63	66	2	$75,000
United States	Arizona State University	53	48	54	69	71	65	2	$75,000
China	University of Science and Technology of China	27	35	40	63	92	65	2	$75,000

Based on Model Pricing & Structure, Avg Per Article Price is $475 - $1,400 (including unlimited Read)

If Top 100 institutions publish 31% of articles, same group should generate 31% of income

Top # Inst. By Article Output 2018	# of Articles (cumulative)	% of 2018 Published Research Articles (Expenses)	% of 2018 DL License Revenue (~$20M)
Top 100	6,031	31%	5%
Top 250	9,717	49%	11%
Top 500	12,850	65%	18%
Top 1,000	15,736	80%	32%
Top 2,700	19,700	100%	100%

When 75-80+% of articles OA in the ACM DL, will 1,700 subscribers keep "subscribing or paying"?

68% of Subscription Revenues Come from Long Tail that does not Publish!

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Long Term Sustainability

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Top # Inst. By Article Output 2019	# Articles (cumulative)	% of 2019 Published Research Articles (Expenses)	% of Future Revenue (~$23M)
Top 100	6,898	34.12%	30.1%
Top 250	11,058	53.3%	54.7%
Top 500	14,947	69.2%	71.2%
Top 1000	18,132	86.17%	95.42%
Total	20,215	100%	100%

Why Model Works for ACM

- Research Community and ACM Membership is demanding Open Access. This model enables ACM to provide OA at Scale in reasonable time frame
- Assuming ACM can reach critical mass of institutions and articles, model is financially sustainable for ACM
- Reduces Financial Reliance on Small Institutions that Tend to Cancel Over Time
- Whether model will work for other publishers will depend on a variety of factors, including:
  - The Will and ability for Publishers to commit to Model at Scale
  - Financial goals for organization (i.e.- For Profit, Non-Profit, etc.)
  - Ability to base model and pricing on reliable and accurate data
  - Reputation of publications
  - Ability to provide strong value proposition to institutions and authorship

Why Model Works for Libraries?

- Value proposition for model extends beyond libraries….goal is for model to work for libraries, authors, researchers utilizing publications, funders of research, etc.
- Model introduces a level of predictability into budgeting process for universities, as prices are fixed during entire term of Agreements with unlimited "Read" and unlimited "Publication".
- Financial Value Proposition for Institutions that Want to Support OA is very high. Avg Cost per article published is Very Low Compared to APC Pricing by Commercial Publishers and other large Non-Profit Societies
- Eliminates All Costs Associated with OA Publication for Authors
- Still Too Early to Know if Model Works for Universities at Scale, but Ticks All Boxes and Transition is Going Well, even During Pandemic

ACM OPEN Progress: Current Licensees

- ✓ Aston University – UK
- ✓ Avans Hogeschool – Netherlands
- ✓ Bauhaus University Weimar – Germany
- ✓ California Institute of Tech – USA
- ✓ Cambridge University – UK
- ✓ Cape Peninsula University of Technology – South Africa
- ✓ Carnegie Mellon University – USA
- ✓ Council for Scientific and Industrial Research – South Africa
- ✓ CWI Amsterdam – Netherlands
- ✓ Dublin City University – Ireland
- ✓ Durban University of Technology – South Africa
- ✓ Heinrich Heine University of Duesseldorf – Germany
- ✓ Hogeschool van Amsterdam – Netherlands
- ✓ Illinois Institute of Technology – USA
- ✓ Ilmenau University of Technology – Germany
- ✓ Iowa State University – USA
- ✓ Kansas State University – USA
- ✓ King Abdullah University of S&T – Saudi Arabia
- ✓ Lawrence Berkeley Lab – USA
- ✓ Lawrence Livermore Lab – USA
- ✓ Leiden University – Netherlands
- ✓ MIT – USA
- ✓ Max Planck Society – Germany
- ✓ Maynooth University – Ireland
- ✓ National University of Ireland
- ✓ National University of Singapore
- ✓ Open University of the Netherlands
- ✓ Purdue University – USA
- ✓ Radboud University – Netherlands
- ✓ Rhodes University – South Africa
- ✓ Rotterdam U. Applied Sci. – Netherlands
- ✓ Saxion U. Applied Sci. – Netherlands
- ✓ Technical U. of Delft – Netherlands
- ✓ Technical U. of Dublin - Ireland
- ✓ Technical U. of Eindhoven – Netherlands
- ✓ The Hague U. Applied Sci. – Netherlands
- ✓ Tilburg University – Netherlands
- ✓ Trinity College, Dublin – Ireland
- ✓ Tokyo University of Science – Japan
- ✓ Tshwane U. of Tech – South Africa

ACM OPEN Progress: Current Licensees

- ✓ UC Berkeley – USA
- ✓ UC Davis – USA
- ✓ UC Irvine – USA
- ✓ UC Los Angeles – USA
- ✓ UC Merced – USA
- ✓ UC Riverside – USA
- ✓ UC San Diego – USA
- ✓ UC San Francisco – USA
- ✓ UC Santa Barbara – USA
- ✓ UC Santa Cruz – USA
- ✓ University College Cork – Ireland
- ✓ University College Dublin – Ireland
- ✓ University of Cape Town – South Africa
- ✓ University of Fort Hare – South Africa
- ✓ University of Groningen – Netherlands
- ✓ University of Iowa – USA
- ✓ University of Johannesburg – South Africa
- ✓ University of Konstanz – Germany
- ✓ University of KwaZulu-Natal – South Africa
- ✓ University of Limerick – Ireland
- ✓ University of Mannheim – Germany
- ✓ University of Namibia
- ✓ University of Pretoria – South Africa
- ✓ University of Potsdam – Germany
- ✓ University of South Africa
- ✓ University of Southern California – USA
- ✓ University of Stellenbosch – South Africa
- ✓ University of the Western Cape – South Africa
- ✓ University of Twente – Netherlands
- ✓ University of Ulster – Ireland
- ✓ University of Witwatersrand – South Africa
- ✓ Vrije Universitet Amsterdam – Netherlands
- ✓ Washington State University – USA
- ✓ Washington University in St. Louis - USA

Major Lessons Learned

- **Generating Accurate and Reliable Publication Data is Hard**….Really Really Hard. Manage Expectations that data is not perfect and will improve over time.
- **Don't Develop Model in a Vacuum**….talk to universities, authors, researchers, and take their input seriously. We did this, which I believe was critical to get us where we are today.
- **Commit and Think Big.** Lots of models out there being tested with one title, a series, or a subset of publications, but not across entire program. If the goal is to benefit broader research community and society in general, develop model that works across entire research publication list.
- **Don't Underestimate Complexity of Author Workflows.** Will take time to develop workflows, rights assignment process, etc.
- **Keep it Simple and Don't Overpromise on Bells & Whistles**. Complex reporting systems, automated deposits with complex meta-data feeds, etc.
- **Invest in Adequate Additional Resources & Staff.** Full transition will take years and you will need to keep staff focused on existing subscription renewals and process.