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ACM Publications Finances

OVER THE PAST YEAR, ACM has developed and started promoting the ACM Open business model, a model we expect to lead to full open access for ACM publications. As part of these discussions with our institutional subscribers, we were asked for a clearer picture of the finances of ACM's publications program. We know that members have also often asked questions about both the costs and revenues associated with our publications. We are writing this article to share what we have found with ACM's membership.

Why this article? As far as we know, this is the first time ACM has reported this level of detailed and comprehensive cross-departmental financial information relating to publications revenues and expenses to our entire membership. ACM keeps detailed financial records as a non-profit, however, we have historically reported financials by department in our annual reports. Over the past year, it has become

increasingly important to identify all of the costs related to our publications, not just in our publications department, but across all ACM departments involved with and expenses related to ACM publications, such as information services and technology, marketing, finance, membership, legal, office space, travel, utilities, and management, and to report these expenses in a clear and transparent way for our membership and institutional Digital Library customers.

To build a more comprehensive view of publications finances, we worked together with ACM's finance staff, its COO, and with the leaders of the various units of ACM that overlap publishing. We should note that any financial reporting involves certain assumptions and decision-making. We outline some of the most important ones here:

- We chose to look at the 2019 calendar year rather than an ACM fiscal year (which starts July 1) because most of our revenue comes from institutional subscriptions (mostly from university libraries) that run on calendar years. Our reporting to these subscribers involves counts of publications on a calendar year basis, so we had those figures to work from.

- We chose to lump together “small items”—typically revenue and expense items under \$5000—so as to help us better focus on the big picture.

- We had to develop a cost base and rate allocation for ACM's indirect expenses (also known as overhead). This effort involved tallying all expenses not directly in the budgets of core business units (e.g., HR, space, utilities, marketing and communications, management, etc.) and allocating these appropriately across the core business units. This allocation was a best-effort estimate that will likely be refined over time.

- We chose not to allocate membership fee funds to publications; we know that it is common to consider a part of membership as a “subscription fee” (e.g., to *Communications of the ACM*), but ACM's membership dues are set independently of publication costs and have therefore been held level even as we've invested substantial new resources into CACM.

- While we have total revenue and

expense figures, we had to make a decision on the level of detail to which we wanted to break these down. We chose to focus our per-article analysis on the three core lines of publications (journals, magazines, and conference proceedings). ACM has many smaller lines of business (ACM Books, the International Conference Proceedings Series (ICPS), partnership publishing and hosting arrangements with various societies and other organizations, and many others), but we knew it would take substantial time to tease apart the costs for these programs (most of which are often handled by the same staff and systems as our core lines), and decided to aggregate these smaller lines together for reporting. Similarly, we did not allocate any costs to maintaining the archive of past articles, instead dividing those costs among the current year's published works (as this is the model our subscribers use, and will be the model that future open access models will use for financing publications).

- Where we have indicated expenses related to direct and overhead staff in terms of full time equivalents (FTEs), please note these expenses include benefits and staff related expenses, such as healthcare, insurance, retirement benefits, etc. and should not be interpreted as purely compensation.

- Finally, given the goal of understanding our costs and how they relate to a transition to the ACM Open model, we limited our per-article analyses to full-length articles (full research papers in conference and journals, full-sized articles in magazines) rather than allocate costs to poster abstracts, panel abstracts, job board postings, books, and other types of content in ACM's various publications.

To put it succinctly, the data below represent our best effort to get a picture of publications revenues and expenses. We recognize that the data are imperfect, in part because they were never collected and tagged with the intent of supporting these analyses. We expect that future years' reports will be increasingly robust as we are able to better allocate expenditures to their function at the time of expense.

ACM Financials At A Glance

As Table 1 shows, ACM had 2019 publications revenue of almost \$24 million and expenses of \$23.3 million, for a net surplus of just under \$700 thousand (all figures U.S. dollars). The lion's share of ACM's income comes from subscriptions; just over \$22 million from institutional subscriptions from 2,700 university libraries (which often subscribe through consortia that negotiate pricing together), 100 corporations, individual ACM member subscriptions, and individual publication subscriptions. ACM has approximately \$1.2 million in advertising revenue, primarily through the sale of classified advertising on ACM's Job Board and Magazines. There is some additional revenue associated

Table 1.
ACM Publications Financials:
At A Glance

Calendar Year 2019

Income	
Digital Library: Consortia, Corporates, & Govt Licenses	20,270,144
Digital Library: Articles Pay Per View	91,705
Institutional Membership Dues	313,376
Subscription Revenue (including SIGs); A la Carte Subscriptions	883,907
SIG Hardcopy Magazine Subscriptions (<i>Interactions/Inroads</i>)	119,892
Digital SIG Master Package	179,563
Advertising, including SIGs	1,240,972
ICPS Proceedings: Non-ACM Conference Publication Fees	362,883
Open Access Revenue (APCs)	177,400
All Other Publications Revenue: ACM Books, etc.	352,884
Total Income	23,992,725
Expenses	
Journals	3,966,813
Magazines	5,519,977
ACM Conference Proceedings	5,541,257
ICPS, Books, Hosted Content	215,535
Digital Library	5,098,668
Cost of Sales (Agents, etc.)	2,747,357
Publications Board	211,615
Total Expenses	23,301,223
Total ACM Publications Net	691,503

with book sales, with fees we collect for certain purposes (e.g., ICPS publication fees), etc. The \$177K of revenue listed from open access article processing charges is less than 25% of the total paid by authors; our anti-double dipping policy results in crediting most of our received APC revenue back to our subscribers.

We divide expenses into the key publication lines (journal, magazine, proceedings), other publications, the costs of operating and serving the ACM Digital Library, cost of sales, and the costs of the ACM Publications Board. We break down the four largest expenses in the next section; only the smaller ones are discussed here.

- **Cost of Sales**—ACM has a small staff (4 FTE) selling subscriptions to approximately 2800 universities and companies around the world. Rather than hire a large worldwide sales staff, we contract with various sales agents with expertise in selling scholarly publication subscriptions to libraries in different regions of the world.

- **ICPS, Books, Hosted Content**—We know that this figure is an underestimate of true costs. First, in 2019 we had been in a contract where expenses associated with ACM Books were covered by a partner prior to distributing revenue (that is no longer our business model). Second, as noted above, we have not yet adequately allocated staff time and share of resources to these activities. Expect this category to show an increased share of costs (and somewhat increased total costs) in future years.

- **Publications Board**—The volunteer management expense that includes meetings and projects in areas including: developing and reviewing new publication proposals; regular review of publications and their editors; editorial searches; handling accusations of plagiarism and other publications misconduct; technology and practice advances to promote data deposit, artifact review, reproducibility and replicability; efforts to increase the reviewer volunteer pool; and other projects designed to ensure the long-term health of publications. All positions are volunteer, but funds are expended on meetings, workshops, and contracts for services (e.g., conducting surveys).

ACM Financials: Deeper Dive

Table 2 shows cost breakdowns for the main expense categories; we review each of them here. We note that these expenses are those allocated specifically to individual categories of publication (including their share of ACM's overall indirect/overhead costs). Costs associated with the ACM Digital Library and subscription sales are broken out separately.

Journals. ACM published approximately 2,700 journal articles in approximately 59 journals last year with total journal-specific expenses of \$3.96M. The expenses break down into:

- **Submissions**—\$190K for subscriptions to submission and journal management software.

- **Production**—\$1.2M for composition and copyediting (about 75% of the total), plagiarism detection software, DOI and copyright registration, etc.

- **Printing and Distribution**—\$170K (some of this represents individual subscribers who still prefer paper journals; others are for archival copies in certain libraries or library systems).

- **Direct and Support Staff**—\$1M for 6.46 FTE including journal managers, acquisitions editors, production staff, and others who directly support ACM's journals. We should note that staff costs are not simply salaries, but the full cost of positions including medical benefits, social security taxes, retirement, and other benefit costs.

- **Overhead Staff and Expenses**—\$1.37M including rent, utilities, outside legal and accounting costs, and 4.87 FTE of in-house management, marketing, accounting, HR, legal, and other functions.

Magazines. ACM Publishes seven magazines, including *Communications of the ACM*, *Interactions*, *XRDS*, *InRoads*, *Ubiquity*, *eLearn*, and *Queue*, which together published 675 articles in 2019. The total cost of publishing these magazines is approximately \$5.5M, which is a significant expense in the context of ACM's overall publications budget. The expenses break down into:

- **Production**—\$1.28M includes a bit over \$500K for freelance articles (CACM) and contractors (*Queue*); over \$300K in graphic art and design; \$100K in contracted editorial support, and additional funds for soft-

ware, copyediting, website contractors, travel, and other publication support (plagiarism detection, DOI registration, etc.).

- **Printing & Distribution**—\$1.4M, most of which is associated with printing and mailing 60,000 copies of *Communications of the ACM* each month to over a hundred countries worldwide.

- **Direct and Support Staff**—\$1.3M for 8.65 FTE including magazine editorial managers, business staff, production staff, and others who directly support ACM's magazines.

- **Overhead Staff and Expenses**—\$1.37M including rent, utilities, outside legal and accounting costs, and 6.52 FTE of in-house management, marketing, accounting, HR, legal, and other functions.

Magazines are labor intensive, requiring significant hands-on editorial and graphic design work, as well as the real-world cost of printing and distributing four of these magazines that exist in both print and digital formats. At the same time, magazine content is by far the most widely read content ACM publishes, and the predominant venue for reaching our practitioner members. Based on DL download records, our seven magazines accounted for 33% of all downloads in 2019 (with our journal articles accounting for 11% and ACM conference papers for 49%; the rest are downloads of ICPS papers and other content). A slightly different analysis looks at usage. We have 9582 magazine article downloads in 2019 for each new article published (of course some of those downloads are from old articles, and some of this year's articles will be downloaded in the future). Comparable numbers for journal and conference articles are 778 and 703 respectively. And these figures arguably understate the impact of magazines given that they ignore the copies read in print.

We also note that the largest part of the cost of our magazine program is *Communications of the ACM*. Printing and mailing costs alone are approximately \$1.4M per year. At the same time, membership surveys have shown that receiving CACM, and in particular *receiving it in print* is important to our members.

Table 2.
ACM Publications Financials:
The Deeper Dive
 Calendar Year 2019

Income	
Publications & Advertising	23,872,833
Revenue from Other Sources	119,892
Total Income	23,992,725
Expenses	
Journals	
Submissions	190,567
Production	1,233,073
Printing & Distribution	170,668
Direct and Support Staff	1,002,078
Overhead Staff and Expenses	1,370,427
Journals Total	3,966,813
Magazines	
Production	1,279,533
Printing & Distribution	1,404,663
Direct and Support Staff	1,292,344
Overhead Staff and Expenses	1,543,437
Magazines Total	5,519,977
ACM Proceedings	
Production	4,775,040
Direct and Support Staff	295,890
Overhead Staff and Expenses	470,326
ACM Proceedings Total	5,541,257
Hosted Content	
Production	54,691
Direct and Support Staff	61,222
Overhead Staff and Expenses	99,622
Hosted Content Total	215,535
Digital Library	
Infrastructure	2,646,617
Value Added Services	520,240
Content Preservation	18,181
Direct and Support Staff	898,833
Overhead Staff and Expenses	1,014,797
Digital Library Total	5,098,668
Cost of Sales/Agents	2,747,357
Publications Board/Volunteers	211,615
Total Expenses	23,301,223
Total ACM Publications Net	691,503

Conference Proceedings. Conferences are one of ACM's largest activities with ~200 events each year; conference proceedings included 13,511 papers in 2019 plus many more abstracts, videos, and other materials. Unlike journals and magazines, the cost of conferences is mostly borne outside the publications budget by ACM's Special Interest Groups (SIGs). The ACM Council (ACM's Board of Directors) decided years ago to distribute part of ACM's DL subscription revenues to the SIGs to compensate them for the cost of producing the content that fills the DL, and to compensate them as well for the loss of revenue from subscription packages for conference proceedings. The publications expenses we report include this distribution, though we do not attempt to break down how SIGs actually spend that distribution. The expenses associated with conference proceedings break down into:

- **Production**—\$4.78M includes \$3.5 million distributed to the SIGs; just under \$600K for conference reviewing software systems (we support several of the most popular ones for our conferences); \$660K for services that compile and produce proceedings; and just under \$40K on plagiarism detection, DOI registration, and other publications support. We have invested heavily in improving tools to reduce the cost of proceedings production and expect to see that cost continue to decline in future years.

- **Direct & Support Staff**—\$296K for 2.26 FTE, primarily focused on production and rights management for proceedings.

- **Overhead Staff and Expenses**—\$470K including rent, utilities, outside legal and accounting costs, and 1.7 FTE of in-house management, marketing, accounting, HR, legal, and other functions. The low level of overhead staff represents avoiding duplication of overhead staff already covered as part of the SIG operations budget.

Digital Library. ACM's Digital Library is the vehicle through which ACM's published content is distributed worldwide, and also includes a set of services to ensure indexing, content preservation, etc. In 2019, we replaced our aging home-grown in-

frastructure (official cut-over was the start of 2020). These changes have been accompanied by other improvements for mobile access, accessibility by users with disabilities, search, and other features. The expenses associated with the DL break down into:

- **Infrastructure**—\$2.65M includes \$1.3M for the DL platform itself (partly ongoing, partly capital investment); \$730K for the data center and core database systems; \$217K for email distribution, commenting, and notification systems; \$176K for statistics and analytics; \$144K for the content delivery network, caching, and security; and various other smaller amounts for components that enable the core functionality.

- **Value Added Services**—\$520K includes a variety of metadata services (to regularize, link references, provide useful exports, etc.) totaling \$288K, plus profiling and a variety of other services targeted at libraries, external indexers, and individual users.

- **Content Preservation**—\$18K includes service contracts to keep DL content available in the event of disruptions to ACM or its servers. This is an anomalously low annual figure due to timing of payments and is more typically closer to \$35K.

- **Direct & Support Staff**—\$899K for 3.65 FTE, primarily technical staff developing and supporting DL operations.

- **Overhead Staff and Expenses**—\$1.01M including rent, utilities, outside legal and accounting costs, and 1.7 FTE of in-house management, marketing, accounting, HR, legal, and other functions.

Analysis: Per-Article Cost

Table 3 shows the per-article cost of publishing ACM content. For this purpose we include Digital Library costs and Cost of Sales divided evenly per article (including distributing these costs to the more than 9,000 articles from other sources, predominantly ICPS). We did not allocate Publications Board costs across the categories because we did not feel we yet had an accurate basis on which to do so. If allocated evenly, it would add \$8 per article. We believe, however, that we spend more than half our time and effort on journals which would

Table 3.
ACM Publications Financials: Article-Level Expenses
 Calendar Year 2019

Expenses at the Article level	Magazines	Journals	ACM Proceedings	Digital Library and Cost of Sales
2019 Cost	\$5,519,977	\$3,966,813	\$5,541,257	\$7,846,025
# of articles/published works	675	2,693	13,511	26,224
Publishing cost per article	\$8,178	\$1,473	\$410	\$299
DL cost per article	\$299	\$299	\$299	
Total cost per article	\$8,477	\$1,772	\$709	

make the total closer to \$4 for non-journal articles and \$40 per journal article. We make the following observations:

- As expected, magazine articles are by far the most expensive to produce and publish and conference proceedings articles are the cheapest (mostly due to lack of copy-editing and typesetting, and due to the lower level of staff support).

- These figures represent cost. It would take a separate analysis to accurately represent value. As noted earlier, magazine articles get substantially higher usage per article. Journal articles tend to be longer (and have more content per article). Proceedings articles overall represent the largest percentage of digital library downloads (though less than half). We hope to explore the cost/value relationship in a future article.

- The cost per proceedings article (\$709) is very close to ACM's open access article processing charge for ACM member conference papers. We recognize, however, that pricing should probably consider both costs and revenues associated with each article.

Looking Forward: What Changes Lie Ahead?

We foresee a few changes with expenses and substantial model changes associated with revenue. On the expense side, most are changes associated with our new Digital Library infrastructure, with the scale of production, and with expanded services and publication types:

- Looking at total costs and staffing in relation to ACM's total number of articles published, we find that ACM is an efficient publisher; our staffing levels per article are significantly

lower than those we know from peer societies and commercial publishers. We are publishing increasing numbers of articles in journals, in proceedings, and in our auxiliary products (including ICPS and hosted content). While costs do increase somewhat with volume, we have previously seen economies of scale with production increases and expect to do so into the future.

- The last two years and the present year reflect the costs of migration to a new commercial digital library platform. In addition to start-up costs, we are seeing significant transition costs associated with converting content to new formats, reviewing and fixing metadata, and other changes that will improve the quality and accessibility of the digital library. As this project winds down, we hope to see savings associated with a stable DL.

- One area where significant investment is needed is in preserving digital research artifacts (e.g., code and data) and presentation artifacts (e.g., slides, video presentations) alongside publications. We are exploring a variety of solutions and vendors but with the expectation that core DL costs will increase as we both increase the media content and the capacity to preserve and make useful code and data within the DL. These efforts are led by volunteer committees committed to better supporting our mission within reasonable costs.

- One additional area where we have been investing is in publications designed to bridge research and practice. These "*Research and Practice*" journals (the first two are *Digital Threats: Research and Practice* and *Digital Government: Research and Practice*) will have production costs

somewhere in between journals and magazines as we find the appropriate level of support to help authors bridge the two communities. We hope to see more such R&P publications as warranted.

Revenues. On the revenue side, we are preparing for much bigger changes. While this article is not focused on the ACM Open model per se (we will be writing more about that in the future), we wanted to share its key features:

- ACM Open shifts the basis for digital library subscription from readership-based to authorship-based. Today's subscriptions are largely based on the size of an institution and the number of computer science researchers, professionals, and students who may be accessing content. ACM Open changes that basis to the number of articles published by authors at that institution. Indeed, a key feature of the ACM Open model is that "subscribers" are not paying for their own access to the DL, but instead for the entire world to access the works they have published.

- We are working with high-publication universities right now (many have already committed) to lead the transition to this "Publish and Read" model of subscription. As the high-publication institutions sign up, we will be able to drop prices lower and lower for institutions with few publications, and eventually to flip the entire digital library to open access (where author institutions underwrite open access for all readers). Our goal is to make the flip within five years, but this will depend heavily on how quickly universities adopt ACM's new model.

- Financially, we've designed this model to produce the same revenue, though that revenue will come from a smaller number of authoring institutions. We have also been able to build that model in a manner that provides average per-article subscription fees well below our current individual APC rates.

We hope you have found this article informative. We are committed to providing such information annually and we welcome your feedback, including suggestions for information to include in future reports. Please send your feedback to <acmfeedback@acm.org>