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MAKING OPEN ACCESS WORK FOR AUTHORS, INSTITUTIONS AND PUBLISHERS

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*A Report on an Open Access Roundtable Hosted by
Copyright Clearance Center, Inc.*

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FOREWORD

Several years ago, funders issued new open access (OA) mandates, or began enforcing existing ones, requiring free access to the published output of research they funded. Today failure to comply means researchers, their institutions and ultimately publishers are putting their future funding at risk. Understandably, the scientific, technical, medical and scholarly ecosystem have scrambled to set up policies, procedures and infrastructure to comply with these mandates, which are in a state of constant evolution.

Today, the payment and management of article processing charges, or APCs, are often fractured and inefficient because while funders provide money for research and the payment of APCs, they do not fund the creation of the necessary infrastructure to effectively meet their mandates at the industry level.

To address the gap, many publishers turned to Copyright Clearance Center (CCC) for help since CCC has been assisting publishers in collecting author charges for almost a decade. CCC's response was to assess the expanding market needs and quickly launch a next-generation open access platform that automates the collection of APCs and other author charges.

During CCC's work with the OA stakeholders, it became clear that open dialogue among publishers, institutions and their vendors is essential to creating an efficient ecosystem for open access publishing. To foster dialogue, CCC brought publishers and institutions together for an October 2014 roundtable discussion to share their experiences and talk about potential solutions for addressing the pain points in paying and managing APCs. The interim results of these discussions are published in this report.

I would like to thank all the participants for generously giving a day of their time to these roundtable discussions. I would also like to extend a special thank you to Rob Johnson for skillfully facilitating the roundtable and developing this report.

We look forward to hearing your feedback.

Sincerely,

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Defining and Managing Author Identity at American Chemical Society

American Chemical Society (ACS) is a medium-sized publisher with a global footprint, and has offered a hybrid open access option on all of its subscription journals for the last five years. Initially, take-up of this option was slow, explained Brandon Nordin, Vice President, Marketing, Sales and Web Development, but ACS has seen its number of APC transactions double in the last two years. This brings with it a challenge of scalability in systems and process: “We have something that is sufficient to our needs,” stated Brandon, “but it is not designed around data portability and transformation.”

Improving processes for author identification is crucial to ACS’s aim of delivering a streamlined submission process, and accommodating the “author as customer.” “Libraries and publishers haven’t had a culture of identification,” noted Brandon, “and when we’re just talking about a manuscript submission system, it’s really not critical. But when there are payments attached, when there are privacy implications, it becomes much more important.”

ACS is tackling this by partnering with CCC to handle its transaction processing for APCs (“So we don’t have to reinvent that wheel as well”), exploring the role of identifiers such as ORCID, FundRef and Ringgold, and developing much closer links between its functional teams. “This has been a pretty intense learning curve for the whole organization, so getting your operations and finance staff involved early is really important,” stressed Brandon. He advised publishers to think holistically, seek input from multiple stakeholders and resist manual exception handling in order to make a successful transition to OA, concluding, “It’s about flexible evolution, not perfection.”

1. EXECUTIVE SUMMARY

1.1. Background

This report arises from a roundtable event hosted by Copyright Clearance Center (CCC) at University College London on 6 October 2014. The roundtable brought together representatives from academic institutions, publishers and vendors to discuss the challenge of “making open access work.” Recent policy changes in the United Kingdom are driving a rapid increase in the number of article processing charges, or APCs, being paid to publishers in order to make articles open access. The attendees gathered to discuss the challenges faced by their organizations as APC volumes rise, and to explore the role that third-party vendors such as CCC can play in helping to address these.

1.2. Challenges and Opportunities in APC Management

Discussions during the course of the day covered a wide range of issues. Institutions and publishers offered a range of different perspectives, but there was a striking commonality in the challenges faced, and a high degree of consensus on what is needed to address them:

- **Author engagement** – Author engagement is crucial to the success of open access, but the complexity of the process at present means many need support at an early stage. This requires a fundamental shift from a two-way relationship between author and publisher, to a three- or four-way relationship that also involves the institution and potentially an external funder.
- **Streamlining the APC process** – Workflows for handling APCs remain unstable, with institutions and publishers both grappling with the need to constantly adapt processes and systems as volumes rise. Greater consistency and automation is needed if efficiencies are to be achieved.
- **Copyright and licensing** – Authors lack familiarity with the range of licensing options available and the licensing requirements of funders. Direct engagement between publishers and institutional administrators can help address this in the short term, but in the long term authors must be equipped to make informed licensing choices that take account of funder mandates.
- **Management and billing of APCs** – The payment of individual APC invoices is not a sustainable solution for either institutions or publishers, but some institutions have concerns over a loss of transparency where alternative models are used. The complex relationships among APC pricing, subscription revenues, licensing, and embargo periods remain a subject for debate.
- **Standards and interoperability** – The need to improve sharing of information through development of common vocabularies and data standards was universally agreed. Identification of suitable persistent identifiers is part of the solution, but even where these exist low levels of uptake remain a concern.

Author Engagement at University College London

With nearly 5,000 staff and post-doctoral researchers producing at least 9,000 publications a year, getting the message out to authors at University College London (UCL) is “a big ask,” explained Catherine Sharp, the University’s Open Access Funding Manager. “The challenge has to do with the timing, because we need to engage them at the point of acceptance,” she noted. This means getting the right information from authors at the right time, so that the University can support them through the process. Strong leadership on open access from the University’s Vice Provost for Research helps but, even when authors contact the University’s open access funding team early on, they struggle to provide the right information. “It’s not as simple as just asking the author,” stressed Catherine, “there are inconsistencies among what we are told, what publishers are told, and what appears in the paper.” The intention is to try to make the process as simple for authors as possible — but in such a rapidly evolving environment new requirements tend to introduce increasing complexity. For UCL, addressing this effectively means developing much closer relationships with the other stakeholders in the process, particularly publishers and third-party vendors who can supply the data needed to make the process run smoothly.

- **Reporting and compliance** – Achieving compliance with funder requirements places a significant burden on institutional administrators, and results in growing demands for information from publishers.

Further details on each of these areas can be found in Section 3, and an overview of suggested solutions is provided in Section 4.

1.3. Conclusion

The current approach to APC management is highly fragmented and undermined by differences of approach between nations and academic disciplines, inefficiencies in process and scarcity of resources. Opportunities exist to overcome many of these issues through improvements in data-sharing and development of common identifiers and vocabularies, but these must be placed in the context of broader trends and continuing uncertainties over the future of academic publishing.

The roundtable was characterized by a shared desire among the attendees to make APCs work better, despite the uncertainties of the external environment. The need to work collaboratively towards a common goal is encapsulated in the following statement that was agreed to at the close of the event.

A Future Narrative for Open Access

We should work towards simplifying and standardizing processes to move towards a sustainable and scalable OA ecosystem which preserves academic freedom and author choice in publishing and makes the research as valuable as possible for the end user.

“Unsticking” the Open Access Workflow — University of Huddersfield

Graham Stone is Information Resources Manager at the University of Huddersfield and co-author, with Jill Emery of Portland State University, of Open Access Workflows for Academic Librarians (OAWAL), an openly accessible wiki/blog site for librarians working on the management of open access workflows. “The sticking point is keeping track of what’s going on,” he explained. “As soon you come up with what you think is a workflow, something else happens and you need to change it.” The picture is further complicated by the interaction of multiple funder mandates which may place different or even conflicting requirements upon authors.

For institutions, there is a need for much greater consistency in the process: “At the moment we’re not clear what we’ve bought, and often licenses are wrong — you literally have to check everything two or three times,” Graham noted. Other sticking points include value for money, with institutions seeking to monitor their “total cost of ownership” across both subscriptions and APCs, and frequent issues with authors providing the wrong information to publishers.

The solutions lie in earlier engagement with authors, Graham suggested, coupled with automated deposit of manuscripts for green OA, and standardization in the gold OA process. “Institutions all need uniform information to report to funders,” he noted, “so it would be great if we were all working to the same format.”

2. INTRODUCTION

2.1. Open Access – The UK and International Context

Recent policy changes in support of open access introduced by many of the United Kingdom’s research funders mean there is a pressing need to find more efficient ways to make research publications freely available. As a result of these policies, particularly those of the Wellcome Trust¹ and Research Councils UK², there has been a rapid increase in the volume of publications made open access through payment of an APC, which is often referred to as the “gold route.” More recently, it was announced that the UK’s Research Excellence Framework (REF) will require peer-reviewed journal publications and conference proceedings accepted from 1st April 2016 to be open access³. The REF policy leaves it to institutions’ discretion whether to make a publication open access immediately through payment of an APC, or simply to deposit it in an institutional or subject repository at minimal cost, also known as the “green route.” In the latter case, an embargo may apply, meaning the publication is not freely available to read for a period of time (typically 6-24 months) after its initial publication.

For publishers, the shift towards open access publication in the UK is part of a global transition which presents both challenges and opportunities. National governments, research funders and international bodies such as the European Commission are progressively introducing open access mandates, but are doing so at different rates and with varying preferences for green or gold open access. Some see the recent developments in the UK as a precursor to a wider shift towards immediate open access publication founded on payment of APCs, while others expect traditional subscription publishing, supplemented by green open access, to remain the dominant model. In the meantime, publishers need to balance the needs of authors and institutions in the UK (accounting for some 6% of the world’s scholarly output⁴) with the disparate requirements of their customers in the rest of the world.

¹ See <http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Open-access/index.htm>

² See <http://www.rcuk.ac.uk/research/openaccess/>

³ See <http://www.hefce.ac.uk/whatwedo/rsrch/rinfrastruct/oa/policy/>. The REF is used to assess research quality at UK academic institutions, and informs the allocation of some £1.5bn (\$2.4bn) in block grant research funding for research.

⁴ Elsevier (2013), International Comparative Performance of the UK Research Base, available at: <https://www.gov.uk/government/publications/performance-of-the-uk-research-base-international-comparison-2013>

Manuscript Submission for Open Access — Aries Systems

Aries Systems is a Boston-based software company specializing in journal manuscript workflow — online submission, peer review and manuscript production. Aries Systems' products are used by nearly 6,000 journals worldwide to handle millions of manuscript submissions each year. In 2013, Aries announced the integration of CCC's RightsLink for Open Access into its Editorial Manager manuscript management platform to provide seamless Article Processing Charge (APC) management.

"The challenge for publishers is that the open access process takes place in the workflow," explained Richard Wynne, Aries' Vice President of Sales and Marketing. "Their whole infrastructure has been based around the idea that 'we do something, then we charge for it' rather than 'we do a bit, then we charge; we do a bit more, then we charge again.'" Through its integration with RightsLink, Aries is able to offer a centrally managed solution that minimizes friction costs, is scalable and parameter-driven, and preserves impartiality in the peer review process, regardless of whether there is an APC payment or not. "The advantage we have as a peer review system is that we have a choke point," commented Richard. "If the author wants to get published, we can demand certain metadata at that choke point." This metadata is then re-used throughout the process, and shared with both the publisher and CCC to minimize the amount of information that must be collected from the author or his or her institution. The data collected by Aries also includes many of the fields required by institutions for the purposes of funder compliance reporting. As many of the institutional representatives noted, the potential for this to be passed back to institutions in the future represents a valuable opportunity to cut down the time and effort needed to meet funder requirements.

2.2. Making APCs Work

The debate over the future of open access continues, but in the United Kingdom and beyond, authors, institutions and publishers are grappling with the need to make many thousands of articles open access in the here and now. CCC convened the roundtable discussion with the intentions of exploring the practical implications of managing open access at this scale and of establishing what could be done to make the process work better for all parties.

The morning discussion focused on the experiences of seven UK academic institutions and on the role that third-party vendors could play in helping to meet their needs. For the afternoon, the group was joined by representatives from three academic publishers (American Chemical Society, Nature Publishing Group, and the Institute of Electrical and Electronics Engineers) and Jisc⁵, a not-for-profit organization that works on behalf of UK educational institutions to promote the use of information and communications technology (ICT) in teaching and research. This provided an opportunity for the various stakeholders present to exchange ideas and discuss the key challenges, technologies and trends likely to determine the future development of open access.

2.3. Acknowledgments and Disclaimer

This report on the event was prepared by Rob Johnson on behalf of CCC. Rob is Founder and Director of Research Consulting, an independent consultancy specializing in research management and open access publishing.

The author has sought to reflect the views expressed in the course of the day as accurately as possible, but these should not be taken as representative of the opinions of CCC, Research Consulting or any other organization represented at the event. Attendees' participation in the event does not constitute an endorsement of CCC, Aries Systems, or any specific platform or solution for the management of APCs. The full list of delegates can be found in Appendix 1.

⁵ Jisc operates a number of tools and services designed to enable UK academic institutions to manage, share and access research outputs more openly and cost-effectively. For information see <http://jisc.ac.uk/open-access>.

Embracing open access at Nature Communications

Launched in 2010 as a “born hybrid” OA journal, Nature Communications became a fully open access journal in October 2014, offering a CC BY license by default. Ros Pyne, Research and Development Manager at Nature Publishing Group, explained that this reflected the growing convergence on CC BY as the “gold standard” license for open access publishing. While industry bodies and funders are driving this trend, NPG had also found that authors’ understanding of licensing was very low: “When we altered the order of our licenses, we found they just picked the middle one. It seems like a lot of authors either don’t know or don’t mind what license is applied.” A 3-month pilot of CC BY as the default license across three titles, including Nature Communications, found that only 3% of authors requested alternative licenses. Meanwhile, requests to switch licenses post-publication were very rare, with the only examples coming from libraries and research offices at institutions in the UK.

“We concluded that not offering CC BY by default is still pushing our authors down a particular route, so we made a call that we wanted to get behind CC BY,” said Ros. This support for CC BY also extends to APC pricing: “We looked at the landscape and realized that differentiating our pricing was very out of line with what other publishers are doing. We felt we could not support CC BY and be charging more for it.”

3. CHALLENGES AND OPPORTUNITIES IN APC MANAGEMENT

In the course of the day, each attendee gave a brief presentation on a particular aspect of open access or APC management, and attendees collectively discussed a range of challenges and opportunities.

3.1. Author Engagement

There was mutual recognition amongst the attendees that author engagement is crucial to the success of open access. Institutional representatives commented on the importance of research funder policies in “changing the game” for open access in the United Kingdom, but expressed frustration at the number of different policies with which authors must contend. Authors and institutions find themselves navigating a complex and ever-changing web of funder mandates, while struggling to map these onto an equally varied set of publisher policies. This complexity, plus disciplinary differences, inhibits attempts to communicate a simple message to authors. Meanwhile, communications efforts and back-office support must be developed in parallel to ensure institutional processes can cope with rising demand.

The complex funder policy environment was of similar concern to publishers, who are seeking to maintain author choice while facilitating compliance with institutional and funder policies. In many cases, publishers had found that authors were unclear on funder and institutional requirements. This results in university administrators seeking to amend licenses post-transaction, or requiring reissue of invoices to reflect key information such as the university name and address before payment can be made.

The group agreed that successful engagement of authors requires a fundamental shift from a two-way relationship between author and publisher, to a three- or four-way relationship that also involves the institution and potentially an external funder. The institutional involvement must occur much earlier in the editorial process than has historically been the case if authors are to be supported effectively. The role of funders at this stage of the process lies primarily in clearly communicating their requirements of authors and institutions, and in helping to develop the infrastructure that is necessary to deliver against their mandates.

Copyright and licensing at Imperial College London

With over 10,000 publications per annum, many of them subject to RCUK's open access policy, the administrative burden of open access presents a significant challenge for Imperial College London. "We have to make this as smooth as possible," stressed Torstein Reimer, Open Access Project Manager. "Our aim is to make sure our academics are aware of what they can and cannot do, so they can get more control over their output." In order to facilitate the green route to OA, the College is looking into promotion of the SPARC addendum (available at www.sparc.arl.org) and other approaches to make repository deposits easier. In the meantime, significant effort is focused on ensuring articles published through the gold route are made available under a CC BY license. This can often require multiple interactions among the College, the author and the publisher (the College found an average of 8 was typical) before articles are made available in a form that meets funder requirements. "The scale at which we are operating has some implications for how we address these issues," acknowledged Torsten, "but the problems are the same for all institutions."

3.2. Streamlining the APC Process

The process, or workflow, by which APCs are managed typically involves multiple points of interaction among authors, institutions and publishers. Few of the participants felt they had established stable APC workflows, with efforts to do so frequently upset by new developments in the external environment. Challenges noted around APC workflows included:

- **Initiation** – Views differed on whether the APC workflow should begin at manuscript submission or acceptance — or even earlier — and what information could (or should) be shared at each stage. Well-funded research-intensive institutions are often content to be notified only at acceptance, but institutions with limited APC funding may need visibility earlier in the process in order to manage demand effectively. In all cases, though, earlier issuance of Digital Object Identifiers (DOIs) for articles would be particularly beneficial to institutions.
- **Scalability** – Many of the parties present acknowledged that their current workflows were not scalable and would need to evolve as volumes increased.
- **New relationships among internal departments** – Relationships among libraries, research offices and finance staff in institutions are still evolving as APC processes bring these functions into much closer contact. For publishers, production and editorial teams now must develop much stronger links with the publisher's finance and operations functions than was required under a subscription model.
- **Information systems** – Existing library, research management, finance and manuscript submission/production systems must be adapted to meet needs for which they were not designed. For institutions there is extensive reliance on spreadsheets or bespoke databases to fill the gaps. This can lead to human errors and inconsistencies in tracked and reported information, and is extremely inefficient. For publishers, traditional B2B systems are not optimized around article-level transactions, leading to different systems holding different pieces of data.

Financing Gold Open Access — University of Kent

Simon Kerridge, Chair of the UK Association of Research Managers and Administrators (ARMA) and Director of Research Services at the University of Kent, articulated a question many UK institutions are grappling with: “Should we invest in APCs over and above the funds we received from RCUK and the Wellcome Trust?” As a smaller research-led institution, it would cost the University of Kent some £250k to make its high-quality publications open access, with no guarantee the University would see a corresponding reduction in subscriptions. “Are we going to fund everything?” asked Simon, “‘Probably not’ is the answer.” Yet choosing to only fund gold OA for the highest quality articles requires institutions to make an assessment of each article in order to decide where best to invest. This is possible, he said, “but only if you start early enough in the process.”

Simon noted a range of other challenges in the financing of gold OA (“Who pays for APCs on multi-authored papers? Do we split it evenly? Is it the lead author? Is it the corresponding author? What if it is multi-funded?”), before concluding: “We need to identify the friction points and apply some oil.” Doing this effectively requires an open dialogue between the different stakeholders in the scholarly communications process. There is a risk of initiative overload with the multitude of different fora in the open access field, but the need for clearer workflows, better descriptive frameworks and a trusted approach to affirming compliance is clear.

3.3. Copyright and Licensing

Many research funders in the United Kingdom, notably Research Councils UK and the Wellcome Trust, require articles to be made available under a CC BY license⁶ when an APC is paid. Achieving compliance with this requirement was a significant issue for institutions, due to low levels of author awareness about licensing and difficulties encountered in making retrospective amendments to licenses.

More generally, the interpretation of publisher policies on copyright and licensing was noted as one of the most time-consuming activities for institutional administrators, with many expressing a desire for greater standardization and the use of common terminology in this regard.

From a publisher perspective, the difficulty of meeting specific national requirements while operating in a global marketplace was clear. As little as 5 or 6% of their content comes from the UK, and publishers stressed that it was very unusual to receive requests to change licenses post-publication from other parts of the world. Legacy systems can make it difficult for publishers to accommodate these requests, requiring costly and time-consuming manual workarounds.

The key for both institutions and publishers lies in improving author awareness of the implications of their license choice. While some issues stem from a lack of understanding of funder requirements, these often reflect a broader uncertainty about licensing within the author community, resulting in a tendency to err towards the most conservative choice. In the interim, earlier engagement between administrators and publishers could assist with this, but the longer term goal must be for authors to be empowered to make informed licensing choices, taking account of funder mandates where appropriate.

⁶ The Creative Commons CC BY license is the most permissive of the six main licenses created by the Creative Commons project; it allows others to distribute, remix, tweak, and build upon the original work, including commercially, provided the author is credited. For more information on CC licenses, please refer to <https://creativecommons.org/licenses/>.

Gold OA in a Global Marketplace — Institute of Electrical and Electronics Engineers (IEEE)

IEEE adopted a hybrid option for all its journals in 2011, and currently offers six fully open access journals, with three more due to launch in the near future. Publishing in disciplinary areas that typically lack a strong culture of open access publishing, the majority of IEEE's open access articles are in hybrid rather than gold OA journals.

“Most of our authors are making payment themselves, rather than via deposit accounts for institutions or funders,” said Karen Hawkins, Senior Director, Product Design, at IEEE. “What we find is authors are not always clear on funder requirements and the license that they want, and so we know that we need to make the process more institution-friendly.” Karen recognized that early engagement with institutions is crucial to achieving this: “Authors are not necessarily well-informed on licensing, but administrators are, so if we went to them upfront that would help the process run more smoothly.”

As a global publisher, IEEE must also consider the needs of UK institutions within a worldwide market where growth in gold OA remains unclear. “Most of our articles have a half-life of about three years,” said Karen, “so we're not sure where this is all headed policy-wise. We have to look at the acceptance of gold OA and the APC model alongside green OA mandates in the US, China and elsewhere.”

3.4. Management and Billing of APCs

As the volume of APCs continues to rise, there was recognition that manually processing individual invoices for each article is not a sustainable model for either institutions or publishers. Yet there were a range of institutional viewpoints on the value of aggregated billing arrangements. Some institutions considered these to be invaluable in reducing the administrative burden, while others expressed concerns that this would lead to a loss of transparency in article pricing.

The picture is further complicated by the number of variables that publishers need to consider when determining what to invoice for an individual APC, including:

- Application of waivers
- Calculation of tax due
- Discounts based on the author's country of origin
- Institutional memberships and discount arrangements
- Discounts based on society memberships
- Multi-author payment arrangements
- Funder-specific requirements

Collectively, this results in a labor-intensive payment process for all parties, where the recurrent issue of scalability is particularly acute. Publishers must also address the need to preserve the integrity of the peer review process in an author-pays model, and decide whether to publish the manuscript online in open access form before or after payment is received. Close to the hearts of all the participants are ongoing questions about the most appropriate relationship between APC pricing, subscription revenues, licensing and embargo periods.

Promoting Standardization in Open Access — University of St Andrews

Anna Clements, Head of Research Data and Information Services at the University of St Andrews, sees significant scope for standards to reduce the time spent by institutions in the OA process. Identifying three key processes in APC management (transactions with the publisher, managing funds within the institution, and reporting compliance), she pointed out: “We need common definitions and vocabularies, persistent identifiers and a standard metadata exchange format.”

Part of the solution lies in harmonizing existing vocabularies, Anna acknowledged, but she identified a lack of standardization in publisher polices as the biggest single contributor to inefficiency within the institutional open access process. This is something the Consortia Advancing Standards in Research Administration Information (CASRAI) could potentially address, working in conjunction with publishers. Meanwhile, defining a set of “APC transaction profiles” could significantly speed up the handling of financial transactions, while early capture of rich article metadata would reduce the need to merge and de-duplicate records at a later date. “We need a suitable, non-proprietary data model,” concluded Anna, “and we need to work with publishers on this.”

3.5. Standards and Interoperability

The need to improve sharing of information through development of common definitions, technical vocabularies and data standards was apparent throughout the day. Author identification and disambiguation presents challenges for publishers and institutions alike, while many other data elements, such as grants, publishers, article OA status and license terms, still lack accepted machine-readable persistent identifiers.

ORCID⁷ and FundRef⁸ were cited as promising examples of persistent identifiers for researchers and funders respectively. Nevertheless, there were concerns with how to accelerate their adoption: “Publishers are quite aware of ORCID,” said one, “but the author community are at the ‘what’s in it for me’ stage?”

The difficulty of developing standards in such a complex and rapidly evolving environment was readily acknowledged by all parties. Even where accepted standards exist, as in the case of the Digital Object Identifier (DOI)⁹ for publications, unanswered questions remain over when these should be generated, and how they can best be shared between publishers and institutions.

3.6. Reporting and Compliance

Demonstrating compliance with research funders’ open access mandates is a high priority for UK academic institutions. Their evolving internal and external reporting requirements often manifest themselves in rising demands for information from publishers. This places an additional burden on publisher processes — but was felt to offer an opportunity for publishers to get a better understanding of their user base.

For institutions, the large amount of information required to meet funder reporting requirements places an unwelcome burden on both authors and administrative staff. Additional needs are continuing to emerge, including tracking of article versions and date of acceptance in order to demonstrate compliance with REF policy.

Both institutions and publishers could see value in greater use of business rules within publisher or vendor systems in order to present the most appropriate choices to authors based on their institutional affiliation and funding sources. The ability of vendors such as Aries Systems and CCC to capture and report article metadata in a standardized form offers significant potential to streamline reporting and compliance activities if this can be effectively shared with institutions.

⁷ <http://orcid.org/>

⁸ <http://www.crossref.org/fundref/>

⁹ <http://www.doi.org/>

4. SOLUTIONS

	INSTITUTIONS	PUBLISHERS	FUNDERS	SUPPLIERS
Author Engagement	<ul style="list-style-type: none"> Engage authors at acceptance (or earlier) with simple, clear messaging Develop communications and back-office processes in parallel in order to support rising demand 	<ul style="list-style-type: none"> Codify and standardize policies to aid authors and institutions 	<ul style="list-style-type: none"> Effectively communicate OA mandates to authors and institutions 	<ul style="list-style-type: none"> Use business rules to present appropriate options to authors and administrators
Streamlining the Process		<ul style="list-style-type: none"> Develop close working relationships between finance and operations and production staff 		<ul style="list-style-type: none"> Capture metadata at article submission, in standard form
Copyright and Licensing	<ul style="list-style-type: none"> Explore use of addenda and other initiatives to facilitate repository deposit 	<ul style="list-style-type: none"> Engage with administrators on license choice early in the process 		<ul style="list-style-type: none"> Support authors and administrators by linking to publishing and licensing policies from within the payment workflow
APC Management and Billing	<ul style="list-style-type: none"> Adopt aggregated billing or prepayment schemes to reduce numbers of invoices 	<ul style="list-style-type: none"> Offer aggregated billing/prepayments, but with granular reporting to preserve transparency 	<ul style="list-style-type: none"> Provide dedicated funding for APCs 	<ul style="list-style-type: none"> Allow institutional approval and processing of APC payments Support aggregated billing/prepayments
Standards and Interoperability	<ul style="list-style-type: none"> Encourage adoption of ORCID by authors 	<ul style="list-style-type: none"> Consider earlier issue of DOI to aid institutions Adopt standards to aid author and institutional identification 	<ul style="list-style-type: none"> Support standards development and promote infrastructure 	<ul style="list-style-type: none"> Codify standards and promote interchange of data between publisher and institutional systems
Reporting and Compliance	<ul style="list-style-type: none"> Adopt standardized approaches to compliance reporting Support CASRAI Open Access Working Group 	<ul style="list-style-type: none"> Engage with CASRAI Open Access Working Group 	<ul style="list-style-type: none"> Adopt standardized approaches to compliance reporting 	<ul style="list-style-type: none"> Deliver data in a standard form suitable for compliance purposes

Developing a Flexible Solution to APC Management — RightsLink for Open Access

CCC's RightsLink for Open Access is a flexible platform for managing author charges. Via a walkthrough of the payment process, Ken Okaya, Product Manager, demonstrated how RightsLink uses a sophisticated set of business rules to present the correct pricing options to an author or administrator. "We can provide authors with an estimate of their charges at the point of submission," he explained. "When their article is accepted, they then come back into our system to make payment — whether by credit card, by invoice or through an institutional membership scheme." The solution has the ability to handle waivers, discounts, multiple currencies and multi-author payments, as well as additional payments for certain license options, or page and color charges.

"The strength of our workflow is that it offers standardization and the rich metadata that is needed for downstream reporting," said Jennifer Goodrich, CCC's Director of Product Management. It is this metadata that makes the solution a potentially valuable part of the APC management process for institutions: "What's useful to us is knowing which articles relate to which payments — and you have that information," noted one institutional representative. CCC has already incorporated emerging standards such as ORCID, Ringgold and FundRef into its solution. "What we've really seen today is how much commonality there is between the requirements of institutions and publishers," Jen concluded. By offering a flexible, standards-based solution, CCC is ideally placed to support much greater interoperability between the wide range of systems currently used by the other stakeholders in the APC management process.

5. CONCLUSION — SHAPING THE FUTURE FOR OPEN ACCESS APCs

As one attendee at the roundtable observed, we are no longer at the "manifesto stage" of the open access revolution. Authors, institutions, and publishers all need an effective infrastructure that can support rapid growth in APCs, but the barriers to delivering this remain significant.

The consensus view from the roundtable was that the current approach to APC management is highly fragmented and undermined by differences of approach among nations and among academic disciplines, inefficiencies in process and scarcity of resources. Opportunities exist to overcome many of these issues through improvements in data-sharing and development of common identifiers and vocabularies, but these must be placed in the context of broader trends and continuing uncertainties. We live in an era of increased public accountability for research, where demands for open access extend beyond publications to research data, and big questions hang over the future of academic publishing and even the nature of the research article in an all-electronic age.

At the close of the roundtable discussion, those present were challenged to develop a narrative that could encapsulate this complex and evolving picture and help guide decision-making in the here and now. The resulting statement reflects the collaborative spirit of the roundtable event, with the challenge of making open access work seen as a shared endeavor in which all the stakeholders have a crucial role to play.

A Future Narrative for Open Access

We should work towards simplifying and standardizing processes to move towards a sustainable and scalable OA ecosystem which preserves academic freedom and author choice in publishing and makes the research as valuable as possible for the end user.

Reporting and Compliance at the University of Glasgow

Valerie McCutcheon, Research Information Manager at the University of Glasgow, cautioned that: “We expect funders to require better compliance and expenditure information in the future.” While the basic financial data around APCs is reasonably straightforward, the process is complicated by the absence of a one-to-one relationship between publications and transactions, for example due to the need to separately account for value added tax (VAT) on overseas purchases. Furthermore, at Glasgow, as in most other institutions, data associated with APCs is held in multiple systems, covering finance, library management and research. In consequence, institutions often find it easier to analyze data in spreadsheets than in their existing systems.

The key to helping institutions meet funder requirements lies in obtaining better quality data at an early stage from publishers. “What we need is actual APC costs, date of payment, license type, DOI and agreed publication date,” observed Valerie. Obtaining this data in a standardized form would help institutions address evolving requirements from funders, and also meet their own internal reporting needs more accurately and efficiently.

APPENDIX 1 – DELEGATE LIST

Roundtable

<i>American Chemical Society</i>	Brandon Nordin	Vice President, Marketing, Sales and Web Development
<i>Aries Systems</i>	Richard Wynne	Vice President of Sales and Marketing
<i>IEEE</i>	Karen Hawkins	Senior Director, Product Design
<i>Imperial College London</i>	Dr. Torsten Reimer	Open Access Project Manager
<i>Jisc</i>	Sarah Fahmy	OA Good Practice Manager
<i>Nature Publishing Group</i>	Ros Pyne	Research and Development Manager
<i>Research Consulting</i>	Rob Johnson	Director
<i>University College London</i>	Catherine Sharp	Open Access Funding Manager
<i>University of Exeter</i>	Jill Evans	Open Access and Data Curation Manager
<i>University of Glasgow</i>	Valerie McCutcheon	Research Information Manager
<i>University of Huddersfield</i>	Graham Stone	Information Resources Manager
<i>University of Kent</i>	Simon Kerridge	Director of Research Services
<i>University of St Andrews</i>	Anna Clements	Head of Research Data and Information Services

CCC Attendees

	Jennifer Goodrich	Director of Product Management
	Jake Kelleher	Senior Director of Licensing and Business Development
	Toli Michel	Manager, Technical Leads
	Ken Okaya	Product Manager

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