Positions on creating an Open Access publication market which is scholarly adequate

Positions of the Ad Hoc Working Group Open Access Gold in the priority initiative "Digital Information" of the Alliance of Science Organisations in Germany

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Contents

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Aims

The Alliance of German Scientific Organisations has been promoting the development of Open Access via its priority initiative "Digital Information" since 2008.[1] The “Ad Hoc Working Group Open Access Gold” was set up to assist with the process of transformation from subscription to Open Access in 2013.[2]

The working group was set up to actively help lay the groundwork for transforming, analysing and evaluating key parameters of the Open Access publication market. The working group also deals with the practical challenges involved in transforming scientific publishing, and considers the opportunities and challenges involved in concluding contracts on Open Access article processing charges (APCs).

This position paper is the working group's first result. It is directed at scholarly institutions dealing with aspects of Open Access publishing, and bundles and evaluates the requirements for contracts based on the publication cost model. It also raises the question of linking subscriptions and Open Access and gives the institutions targeted ideas for formulating their Open Access strategies. It aims to create transparency and sustainability in the field of scholarly publishing in the interests of the sciences and to avoid perpetuating mistakes of the past.

1 http://www.allianzinitiative.de/en/start.html (accessed: 07.08.2014)

2 http://www.allianzinitiative.de/en/core-activities/cross-disciplinary-issues/open-access-gold.html (accessed: 07.08.2014)

Summary

Open Access aims to use the opportunities offered by the digital world and make scholarly knowledge openly available and reusable online. Academic institutions, research funding agencies and governments worldwide have signed up to promoting Open Access.

As well as establishing Open Access repositories to make traditionally published articles available (Open Access green) to universities and non-university research institutions, in recent years publishers, learned societies and academic institutions (hereinafter referred to as “providers”) have successfully started publishing Open Access journals and monographs (Open Access gold).

Open Access journals devolve their funding and business models from readers to the institutions or funding organisations of authors. Commercial providers usually charge what are known as article processing charges (APCs) to publish articles in these Open Access publications. Academic institutions and funding organisations provide funds to cover these APCs. There are also many Open Access journals which are financed and published directly by academic institutions and do not charge APCs.

The challenge academic institutions face is switching from a subscription-based publication system to Open Access actively in the interests of science. This means the funds which were formerly raised for the subscription-based publication system will need to be transferred step by step.

There are five factors which define the foundations of the transformation process from subscription to a scholarly adequate Open Access publication system, as follows:

- **Transparency**: in the Open Access market, providers' services, prices and other terms must be openly documented and verifiable.
- **Competition:** in the transformation to Open Access publishing, it is in the interests of academic institutions to encourage competition in the publications market.
- **Sustainability**: permanent access and extensive reuse rights are needed if researchers are to be able to work with publications in virtual research environments.
- **Economic viability:** we need to establish not just whether Open Access publishing can be funded, but also ensure there are efficient business processes between funding organisations, academic institutions, publishers and Open Access providers.
- **Pluralism**: when switching from subscription to Open Access, we need to consider what the different disciplines involved need, including funding and business models which differ from one specialism to another.

Based on these five factors, this position paper collects the current status about the business relationship between academic institutions and Open Access providers. The paper looks at requirements for contracts on APCs and assesses them; it also defines positions on linking subscription and Open Access and gives academic institutions suggestions for formulating their Open Access strategies.

The positions formulated are intended to make academic institutions and their Open Access advocates aware of strategic areas for action when dealing with publishers, their business and funding models.

This position paper describes a number of core statements in detail, as follows:

- Open Access and traditional subscription models must not be considered separately from one another.

- We should not support hybrid models until the providers have sorted out the problems involved.
- Providers need to ensure that the level, development and terms of APCs are transparent and openly documented.
- APCs must be reasonable and verifiable for the services rendered by the providers. We advise academic institutions and funding bodies to set upper limits here.
- Contracts between providers and academic institutions as well as contracts between providers and authors must not include any non-disclosure agreements.
- Providers should support central invoicing for academic institutions. Standardised procedures for handling invoices should be established in close collaboration with academic institutions.
- Academic institutions must ensure that Open Access journals funded via academic sponsors can be operated sustainably at the institution concerned.
- Providers must use standardised licences and formats to ensure that Open Access publications can be reused technically and lawfully.
- Providers need to ensure that Open Access publications receive optimum visibility.

1. Introduction

1.1 Open Access

Open Access aims to use the possibilities the digital world provides and make scholarly knowledge openly available and reusable on the Internet. Academic institutions, research funding agencies and governments worldwide have committed themselves to Open Access, and many scholarly authors are in favour of the idea.[3]

Open Access allows research results to penetrate widely beyond specialist boundaries, helps make research transparent and so helps communicate findings to society, politics and the economy. The openness of Open Access publications also encourages people to reuse them and so allows researchers to use innovative working methods like text and data mining.

As defined by the "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities"[4], signed by the German science organisations in 2003, there are a number of requirements Open Access publications must meet, as follows:

- *"The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use."*

- *"A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving."*

The use of internationally applicable and standardised licences like the Creative Commons “attribution” licence (CC-BY) enables the reuse of research results in a legally safe manner according to the “Berlin Declaration”.

The growth of Open Access is powered by the growing importance of the issue to science policy.[5] The government of the Federal Republic of Germany considers the issue as "highly important"[6] and is working on implementing an Open Access strategy for Germany.[7]

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[3] Dallmeier-Tiessen, S. et al. (2011). Highlights from the SOAP project survey. What Scientists Think about Open Access Publishing. Online: http://arxiv.org/abs/1101.5260 and Dallmeier-Tiessen, S., & Lengenfelder, A. (2011). Open Access in der deutschen Wissenschaft – Ergebnisse des EU-Projekts „Study of Open Access Publishing“ (SOAP). GMS Medizin – Bibliothek – Information, 11(1-2), Doc 03. Online: http://doi.org/10.3205/mbi000218 (accessed: 07.08.2014)

[4] Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003). Online: http://openaccess.mpg.de/68053/Berliner_Erklaerung_dt_Version_07-2006.pdf (accessed: 07.08.2014)

[5] For an overview of developments in Europe, see: European Commission. (2011). National open access and preservation policies in Europe. Analysis of a questionnaire to the European Research Area Committee. Luxembourg: Publications Office of the European Union. Online: http://doi.org/10.2777/74027 (accessed: 07.08.2014)

[6] See the Federal Government's position paper: Zur Mitteilung der Europäischen Kommission „Eine verstärkte Partnerschaft im Europäischen Forschungsraum im Zeichen von Exzellenz und Wachstum". 13 February 2013. Online: http://www.bmbf.de/pubRD/EFR_BReg_Positionspapier_deutsch.pdf (accessed: 07.08.2014)

[7] See: Coalition agreement for the 18th legislative period between CDU, CSU and SPD. Online: https://www.cdu.de/sites/default/files/media/dokumente/koalitionsvertrag.pdf (accessed: 07.08.2014)

Open Access policies are becoming a major part of researchers' everyday life: if they are funded by the European research programme HORIZON 2020, for example, they are bound to make their publications available in Open Access.[8]

As well as establishing Open Access repositories to make traditional published articles available (Open Access green) to universities and non-university research institutions, in recent years publishers, learned societies and academic institutions (hereinafter referred to as “providers”) have successfully started publishing Open Access journals and monographs (Open Access gold).

How far Open Access has come varies from one discipline and publication culture to another. While it is an established publication strategy in STM[9], in the social sciences and humanities, in which monographs dominate, Open Access is only just beginning. This position paper will therefore focus on Open Access journals, which are quality-assured journals whose articles are made available digitally and openly[10] online as soon as they appear. Commercial providers generally charge publication fees – known as article processing charges (APCs) – to publish articles in these journals. To fund these APCs, academic institutions and funding organisations provide so-called Open Access funds. There are also many Open Access journals which are financed and published directly by academic institutions and often do not charge APCs.

1.2 Open Access publication market

The Open Access publication market is gaining momentum. Even commercial providers have acknowledged the growing importance of the issue in terms of science policy and founded Open Access journals accordingly. Additionally, traditional subscription-based journals are increasingly being transformed to Open Access.

Traditional publishers like Elsevier, Springer, Wiley and Informa (among others, Taylor & Francis) have set up Open Access divisions in recent years. Also, Open Access providers have been acquired by traditional providers (e.g. BioMed Central was purchased by Springer, and Frontiers by the Nature Publishing Group). Newly founded Open Access providers, like PLOS and Copernicus, have also established themselves. As new providers have entered the market, new publication models have also become more important. One feature worth mentioning here are so-called “mega-journals” covering a broad spectrum of subjects. The most prominent of these is PLOS ONE, which published 31,500 articles in 2013 alone, making it the largest journal in the world.

Of the journal articles indexed in the SCOPUS database, around 11% are published – originally – in Open Access journals. In the Web of Science database they amount to about 9%. Additionally, there are articles subject to embargo that are not made freely available in the first instance (SCOPUS 5.2%, Web of Science 6.4%).[11]

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[8] European Commission. (2013). Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020. Online: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf (accessed: 07.08.2014)

[9] Science, technology and medicine

[10] Formulating the conditions which need to be met before we can call Open Access open is one of the key concerns of this position paper.

[11] Laakso, M., & Björk, B. (2012). Anatomy of open access publishing: a study of longitudinal development and internal structure. BMC Medicine, 10, 124. Online: http://doi.org/10.1186/1741-7015-10-124 (accessed: 07.08.2014)

Many commercial providers have already begun offering “hybrid” publication models, i.e. journals whose traditional subscription-based business model has been combined with another source of funding: individual articles from the journal are made publicly available in its electronic version against payment of publication charges. Academic institutions are very uneasy about this model, as these hybrid journals run the risk of double financing (“double dipping”). The costs of “freeing” individual contributions are usually incurred as well as subscription costs, and there are very few cases in which providers make up for this sufficiently.

If we add the articles in hybrid Open Access journals (SCOPUS and Web of Science 0.7% each) to those which appear from the outset as Open Access publications and those which are time-delayed, the proportion of Open Access articles in SCOPUS is around 17% and in Web of Science somewhat more than 16%.[12]

The sales made by the publishing industry from Open Access APCs have soared in recent years; one study indicates by 34% from 2011 to 2012.[13]

The growth of Open Access has led to science dealing intensively with the nascent Open Access publication market. A study commissioned by a number of international science organisations on developing an effective market for Open Access APCs attracted considerable attention when it appeared in 2014.[14] This study aims to help scholarly organisations consider what to do in terms of accepting Open Access APCs: it distinguishes between actions which require switching to Open Access gold as soon as possible and those resulting in a slower process of conversion, but in which other developments, such as price trends, are influenced more in the interests of science.

The study favours scenarios which combine Open Access APCs with price reduction mechanisms. To this end, journals should be divided either into different levels of quality and/or service or the funding bodies should only accept costs per publication up to a defined cap limit. The study raises objections when it comes to applying the so-called “big deals” (packages of journals) to the Open Access gold market.

It follows from this that we need to look at the emerging Open Access market for Germany in more depth, economically speaking. Scholarly organisations working together internationally play a key role here.

1.3 From subscription to Open Access

Publishing is switching from subscription-based to Open Access journals step by step: thus, when designing the process of transformation from subscription to Open Access, we need to keep our eye on the publication market as a whole, still dominated by subscription models as it is. Scholarly institutions are therefore endeavouring to enshrine Open Access components in contracts on subscription models, as the German Research Foundation (DFG)'s “Alliance Licences” have been promoting since 2011. Incorporating a binding Open Access

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[12] Laakso, M., & Björk, B. (2012). Anatomy of open access publishing: a study of longitudinal development and internal structure. BMC Medicine, 10, 124. Online: http://doi.org/10.1186/1741-7015-10-124 (accessed: 07.08.2014)

[13] Outsell. (2013). Open Access: Market Size, Share, Forecast, and Trends. Online: http://img.en25.com/Web/CopyrightClearanceCenterInc/{1eced16c-2f3a-47de-9ffd-f6a659abdb2a}_Outsell_Open_Access_Report_01312013.pdf (accessed: 07.08.2014)

[14] Björk, B.-C. & Solomon, D. (2014). Developing an effective market for open access article processing charges. Online: http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtp055910.pdf (accessed: 07.08.2014)

component in the “Guidelines for the Purchase of Licences funded by DFG”[15], which define the framework for the “Alliance Licences”, ensures authors and their institutions retain the right to make publications in licensed journals freely available via an Open Access repository. Since 2013, “Alliance Licence” negotiations have also included Open Access gold conditions.[16]

Linking subscription and Open Access aims to induce providers to deal with the demands of Open Access publishing and optimise their publishing policies.

Enshrining Open Access components in a subscription-based context can create a wide range of potential scenarios, pursuing both the green and golden Open Access models combined with subscription ones.

With this in mind, the transformation of the subscription-based publication market to Open Access must guide our thoughts when negotiating contracts in a subscription context and, as far as possible, be included in contracts, at institutional, regional and national level. The key concern here should be not merely encouraging scholarly publications to be freely available, but also employing and reorganising the resources available to ensure that this transformation can be made as cost-neutrally and sustainably as possible, while at the same time avoiding the emergence of parallel funding structures.

To this end, it is essential that academic institutions do not consider what they spend on subscriptions and Open Access separately. Publication funds make it possible, for example, to record the costs of Open Access publishing systematically, making them a key tool when it comes to redirecting funds which are currently spent on subscription fees but which should be redirected to Open Access publishing in future.[17] These funds provide central services to authors for the handling of APCs and assist authors in covering the publication costs of Open Access publishing (or some of them).[18]

The fact that academic institutions are concerned to design dealing with publication charges efficiently, while simultaneously breaking down the barriers for authors to publishing in Open Access journals funded by publication charges, is also a source of tension. Academic institutions are increasingly signing contracts with providers, which set the level, billing procedures and other terms and conditions of publishing papers by their staff in Open Access programmes. Like the “big deals” (packages of journals), such contracts entail the risk of reducing competition, as assuming the costs without complications means authors have no incentive to choose a publisher based on the amount of APCs. This tension between efficiency and competition is one aspect to bear in mind when dealing with APCs.

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15 Deutsche Forschungsgemeinschaft (2012). Merkblatt Überregionale Lizenzierung. DFG-Vordruck 12.18 - 03/13. Online: http:www.dfg.de/formulare/12_18/12_18_de.pdf (accessed: 07.08.2014)

16 OA gold conditions in “Alliance Licences" usually include discounts on processing charges of the providers concerned which authors from institutions involved in Alliance Licences can use for Open Access publications by those providers' Open Access presses. To see the Open Access components negotiated in Alliance Licences, go to: http://www.nationallizenzen.de/open-access/open-access-rechte.xls/view (accessed: 07.08.2014)

17 See Schimmer, R. (2012). Zum nachhaltigen Umgang mit Open-Access-Publikationsgebühren. In: Arbeitsgruppe Open Access der Schwerpunktinitiative Digitale Information (Ed.). Open-Access-Strategien für wissenschaftliche Einrichtungen. Online: http://doi.org/10.2312/allianzoa.005 (accessed: 07.08.2014)

18 Eppelin, A., Pampel, H., Bandilla, W., & Kaczmirek, L. (2012). Umgang mit Open-Access-Publikationsgebühren – die Situation in Deutschland in 2010. GMS Medizin - Bibliothek - Information, 12(1-2), Doc04. Online: http://doi.org/10.3205/mbi000240 (accessed: 07.08.2014)

1.4 Key aspects of the transformation process

As Open Access publishing becomes increasingly established, academic institutions and funding bodies are called on to help in designing the emerging Open Access publication market. One of the main aims here is to help shaping the switch from the subscription-based publication system to Open Access actively in the interests of science.

There are five key factors which define the framework for this transformation process to a scholarly adequate Open Access publication system, as follows:

Transparency: In the subscription-based publication system, contracts between academic institutions and providers often include confidentiality agreements, which the providers impose. Pricing is often non-transparent. This practice ties the hands of the academic institutions in negotiations and limits their room for manoeuvre in transparently dealing with tax money. To create a scholarly adequate publication system, we need providers to document their services, their prices and other terms and conditions openly and in a verifiable manner.

Competition: Oligopolistic publishing structures and a lack of transparency put the brakes on competition in the subscription-based publication system. It is in the interests of academic institutions to encourage competition in the publishing market as part of the transformation to the Open Access publishing system.

Sustainability: Digital sciences need to be able to access publications comprehensively and permanently. Machine-readable and extensive reuse rights are required to use publications in e.g. virtual research environments. This is the only way information can be extracted via text and data mining and new connections made. Open Access needs to be permanently assured as part of a trustworthy, reliable information infrastructure.

Economic viability: If the transformation is to be economically viable, we need to look at not just how Open Access publications can be funded, but also how efficient the business processes involved in the publication processes are. Any additional funding for Open Access will only be able to assist in the transition phase, if at all: thus it is required to use or rearrange the financial resources which already exist to ensure that the transformation process is as cost-neutral and sustainable as possible. As the Open Access market grows, we also increasingly need to develop new business processes and make them efficient and transparent, e.g. for processing APC payments. One essential aspect, which affects all the players in scholarly publishing, is creating standards.

Pluralism: When switching from subscription-based to Open Access models, we need to consider the needs of the different disciplines involved, such as the funding and business models which vary from one specialism to another. In practice, therefore, we also need to continue developing and promoting other models alongside funding via APCs.

As Open Access publishing is still in its infancy, and the underlying technology is developing fast, we also need to review and, where necessary, revise the following positions in dialogue with international scholarly organisations.

2. Positions

2.1 Quality assurance and transparency

2.1.1 Quality assurance

2.1.1.1 Background

Quality assurance mechanisms used in the publication process vary from one discipline and publication format to another; but they must always be in line with good scientific practice in the discipline concerned. Providers together with the editors of their publications must provide quality assurance.

Open Access makes it possible to try innovative approaches to quality assurance. Review procedures in which reviews and the referees' names may be published could help in improving established quality assurance procedures.

Providers should promote the reproducibility of the results published working with the editors of a publication.

2.1.1.2 Positions

- Providers need to ensure they use appropriate accepted quality assurance methods.
- Opportunities to improve quality assurance further, e.g. via open peer review methods, should be used.
- Accompanying materials to articles, such as research data, software and details of methods used, should be made openly available (cf. 2.4.4), using publicly operated repositories ensuring permanent access to accompanying materials.[19]

2.1.2 Transparency

2.1.2.1 Background

Open Access journals must clearly and verifiably define the services they offer as well as their terms and conditions. In editorial policies and further information, the legal framework of a publication and the related requirements of articles to be submitted have to be documented comprehensibly.

Unlike providers with questionable business habits, whose journals are often called “predatory”, Open Access providers should design their quality assurance and pricing processes to be transparent (cf. 2.3.1).

2.1.2.2 Positions

- Requirements of articles to be submitted and providers' services must be defined verifiably in editorial policies and further information.
- The level, development and terms of the APCs imposed must be easily understandable, readily visible and reusable (ideally machine-readable too) on the provider's/journal website.

[19] A selection of such repositories can be found via re3data.org – Registry of Research Data Repositories. See: http://www.re3data.org (accessed: 07.08.2014)

- Decisions on discounts and waiving APCs must be made independently of substantive decisions to accept or reject articles submitted (cf. 2.3.1).
- Committee on Publication Ethics (COPE)[20] and Open Access Scholarly Publishers Association (OASPA)[21] standards must be observed.
- Contracts between providers and academic institutions and between providers and authors must not include non-disclosure agreements.

2.2 Finance and business models

2.2.1 Open Access gold

2.2.1.1 Background

Many Open Access gold business models[22] have been developed to date, which may be outlined briefly as follows:

A. Publishing without APCs		
	Providers do not charge authors for publishing their articles.	Insofar as this involves offers by commercial providers, these are usually for a limited period only, and serve to establish new Open Access journals on the market. Offers by non-commercial providers may be lasting, provided they are used to fund the publication activities of an institutional infrastructure and/or other funding models.
B. Publishing with APCs		
	B.1 Publication paying APCs set by provider	
	Paying an APC per article to a genuine Open Access journal.	The provider charges the authors an APC to publish their article. APCs are usually covered by institutions or funders.
	B.2 Publication paying reduced APCs	
	Paying a reduced APC per article to a genuine Open Access journal funded by a learned society.	This model is used by Open Access journals which are published and offered by learned societies. Authors pay the learned society just part of the APC set for publishing their articles, the balance being funded by the learned society to which the authors belong, drawing the funds required from their membership charges, for example. This model also often uses a subsidy by the learned society, in which case the reduction in the APC for the author is invisible.
	Pay an APC for an unlimited number of articles on collaborative	Authors become “members” of an Open Access journal by paying a one-off fee and commit

[20] See: http://publicationethics.org (accessed: 07.08.2014)

[21] See OASPA's Membership Criteria at: http://oaspa.org/membership/membership-criteria/

[22] Cf. Schmidt, B. (2006). Geschäftsmodelle des Open Access-Publizierens: Welche Perspektiven bieten sich hier für Bibliotheken? Bibliothek - Forschung und Praxis, 30(3), 290–297. Online: http://www.b2i.de/fileadmin/dokumente/BFP_Bestand_2006/Jg_30-Nr_3/Jg_30-Nr_3_Aufsaetze/Jg_30-2006-Nr_3-S_290-297.pdf (accessed: 07.08.2014); Schmidt, B. (2007). Auf dem „goldenen“ Weg? Alternative Geschäftsmodelle für Open-Access-Primärpublikationen. Zeitschrift Für Bibliothekswesen Und Bibliographie (ZfBB), 54(4-5), 177–182. Online: http://hdl.handle.net/10760/10711 (accessed: 07.08.2014) Björk, B.-C. & Solomon, D. (2014). Developing an effective market for open access article processing charges. Online: http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtp055910.pdf (accessed: 07.08.2014)

	terms.	themselves to assisting the publication process as reviewers. In return, they are not charged any APCs for publishing their articles in the journal in question. The model is scalable depending on how many publications are planned per year, and can also be used with groups of authors and institutions[23].
	Institutions pay APCs to have multiple articles by their members published	Institutions pay providers a charge so that their authors can publish their articles in those providers' Open Access journals. There are a variety of ways providers can design these models, which include: • Charges are generally prepaid ("prepaid membership") Authors of the institution can then publish without making their own payments of APCs. The APCs, which are often subject to a discount, are deducted from the prepayment.[24] • Paying an annual charge based on a fixed defined discount granted to an institution's authors on APCs per article. • Paying an all-in lump-sum charge for all an institution's authors ("flat fee"); the more publications are involved, the less the APC per article).
	B.3 Other models	
	Consortia to finance journals migrating from subscription to Open Access	Institutions join together to form a consortium, bundling their Open Access publication activities and working with one or more providers, aiming to enable the providers to switch their business model from a subscription-based one to a publication-cost-based one as part of the partnership. The challenge this involves is dealing with the organisational implications and redistributing costs, which involves using not just financial, but also use-based parameters. This is a highly complex model.[25]
	Crowdfunding	Institutions join forces to create a consortium and together fund a provider's Open Access publication by paying a defined charge per institution. The more institutions there are in the consortium, the less the charge. This model does not impose any financial burden on authors.[26]

[23] Cf. for example the PeerJ model: http://peerj.com (accessed: 07.08.2014)

[24] This model can also be extended to a consortium of institutions. Cf. for example the GASCO consortium with BioMed Central or the Helmholtz consortium with Wiley.

[25] Cf. the SCOAP3 initiative, http://www.scoap3.de (accessed: 07.08.2014)

[26] Cf. the Knowledge Unlatched initiative for Open Access publishing monographs. See: http://www.knowledgeunlatched.org (accessed: 07.08.2014). The creative commons licence Knowledge Unlatched uses, CC-NC-ND presents problems in terms of the importance of reusing content. See also section 2.4.4.

2.2.1.2 Positions

The positions on the two main models above (A. Publishing without APCs, and B. Publishing with APCs) are described below, as follows:

A. Publishing without APCs

While funding Open Access journals via APCs has established itself in STM, the situation in the social sciences and humanities is quite different. Here, many Open Access journals are published under academic sponsorship, with academics organising the process of publication and making Open Access journals available via institutional publishing platforms, usually without traditional publishers being involved. As APCs are unusual in these fields at present, the costs cannot be allocated to the articles. Open Access journals in the humanities and social sciences therefore benefit less from the funds that are provided by funding agencies for taking over APCs. To help develop Open Access journals which do not levy APCs, universities and non-university research institutions are also compelled to strengthen self-publishing Open Access activities at academic institutions, which expressly includes providing funds for financing these journals lastingly. Academic institutions thus also contribute to the pluralism of business models.

- Academic institutions need to ensure that Open Access journals funded via academic sponsorship can operate sustainably at the institution concerned.
- Funds should be provided to finance such journals at reasonable levels as part of a publishing fund.
- Research libraries and other information infrastructures should provide publishing platforms (as part of university presses, for example) to help self-publishing organisational units run their Open Access journals.

B. Publishing with APCs

APCs as a business and financial model have a long tradition in the sciences. Even today, some journals in this field charge not only subscription charges but APCs as well, e.g. colour charges. With the growth of Open Access, APCs are gaining ground as a business model. The major providers in particular are keen for academic institutions and funding bodies to provide financing.

Positions on dealing with APCs are described in section 2.3, covering both the variants in publishing after paying an APC which the provider sets (B.1) and the variants of publishing after paying a reduced APC (B.2). This must be borne in mind when assessing variants B.1 and B.2.

There are also a number of other models (B.3), such as consortium funding, which aim to turn subscription-based journals to Open Access or even crowdsourcing approaches to Open Access funding. We will not go into the models described in B.3 in more detail here, as these (often experimental) models need to be considered more closely in each case.

2.2.2 “Hybrid” model

2.2.2.1 Background

The term “hybrid” journals is used for subscription-based journals which make some articles freely available on the journal's website at the time of their publication for an additional fee.

In the scientific community, there are two competing positions on this business model:

Those responsible for providing information and for Open Access have serious reservations about this model on the grounds that it charges a further fee for “free” articles over and above the subscription fee. These reservations stem from the following:

- It is generally unclear how this additional income will be set off against subscription costs. This problem is discussed in the section on “double dipping”.

- It is also mostly unclear what proportion of articles providers need to make “free” to actually switch from subscription to Open Access.
- There are many cases in which “free” articles are not presented optimally on a provider's website, i.e. the visibility benefits of Open Access do not apply.
- What is also irritating is that many providers charge much higher APCs for their “hybrid” journals than for their genuine Open Access ones.

On the other hand, “hybrid” journals are of interest to scholarly authors who have sufficient resources to finance APCs and who have an interest in being published in leading journals while still taking advantage of the benefits of Open Access publishing and/or meeting the funding requirements which presumably apply.[27]

Academic institutions should not support hybrid models unless these problems are resolved.

One current version of the hybrid model links APCs to the subscription fees of the authors' institution.[28] This allows authors to publish on an Open Access basis free of charge if their institution has a subscription[29]. This model of “rededicating” subscription costs to publication costs should be further explored, encompassing the circumstances under which appropriate terms could be included in negotiations of licence agreements. What would be helpful here are multi-institutional analyses of the breakdown of publication and licence costs.

Articles published in “hybrid” journals must meet the same Open Access standards as those applied to genuine Open Access journals (cf. for example the relevant legal and technical criteria in 2.4.4 and 2.4.5).

2.2.2.2 Positions

“Hybrid” models must generally be considered critically, and academic institutions must examine them very closely. Contracts based on these models should be avoided unless the provider demonstrates clearly how the terms for transition will be met and how to avoid “double dipping”. The key points are:

- Providers must explain clearly on their websites and those of their hybrid journals if and under which conditions they are planning a complete conversion of the journal to Open Access.
- Providers must report at least once a year on how the transformation of their hybrid journals is progressing and succeeding.
- Providers must guarantee, by transparent measures, to avoid double dipping. Verifiable reporting has to indicate whether and, if so, to what extent the additional income will be credited to the account of an academic institution or according to which mechanism list prices will be adjusted.
- Providers should ensure that articles which have been made “free” are optimally visible on the publishers' platform and to other search engines (cf. 2.4.2).

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[27] Some authors do not know that Open Access policies of funding bodies can also be met through the green road to Open Access.

[28] See Shieber, S. (2014). A true transitional open-access business model. Occasional Pamphlet. Online: http://blogs.law.harvard.edu/pamphlet/2014/03/28/a-true-transitional-open-access-business-model/ (accessed: 07.08.2014)

[29] Example: Electrochemical Society.

2.2.3 Open Access components of subscription contracts

2.2.3.1 Background

Most scholarly publications still appear in subscription-based journals: so the switch to Open Access can only succeed if the traditional publishing system is taken as the starting point for the transformation. Transforming the subscription-based publishing market to Open Access must guide negotiating contracts for subscription models.

It therefore makes sense to include Open Access rights – i.e. rights following the green road as modelled in the "Alliance Licences"[30] – when negotiating subscription contracts and so further the transition to Open Access consistently.

In linking the subscription model with the transformation of journals to Open Access, it also makes sense to use transformation clauses to define the terms in the long term and to offset subscription fees against any APCs incurred. Even if it is of no practical relevance to the current licence period, such a clause could be strategically important and help design the framework conditions of the Open Access publication market generally.

The terms of APCs in a provider's Open Access programme should also be included in negotiations for subscriptions.[31] Some key questions that could be useful here are as follows:

- How many publications by authors affiliated with the institution concerned appear in this provider's journals?
- Does this mean we can say anything about how important this provider is to authors?
- Based on the publication model and using average indicators, can we calculate an amount which has to be raised to fund these publications centrally for all the authors of the institution concerned?
- How does this amount look compared with the subscription charges which have been paid to date or with what the provider is offering?

2.2.3.2 Positions

- We need to include Open Access rights based on the "Alliance Licence" model[32] when negotiating licence agreements for subscription-based journals.
- Another point we need to consider when negotiating licences is whether a provider's programme also includes Open Access journals. If so, we should try to get free publishing for members of the institution concerned in the journals included in negotiations.
- Even if a provider offers a hybrid model for their journals, we should still try to include an Open Access option for members of the institution concerned without paying any more article fees in negotiations. We need to remember that a licence agreement allows for the event that, if APCs are increased during the term of the licence, that does not result in the licence fees being topped up or reviewed.
- In view of transforming subscription-based journals to Open Access ones funded via APCs in the long term – to avoid double dipping – a so-called transformation clause has to be included. We need to ensure that subscription fees already paid are netted.

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[30] See DFG-Merkblatt Überregionale Lizenzierung (DFG-Vordruck 12.18 - 03/13) Online: http://www.dfg.de/formulare/12_18/12_18_de.pdf (accessed: 07.08.2014)

[31] See also the brochure Open-Access-Rechte in Allianz- und Nationallizenzen. Eine Handreichung für Repository-Manager, Bibliothekare und Autoren. April 2012. Online: http://doi.org/10.2312/allianzoa.004 (accessed: 07.08.2014)

[32] See DFG-Merkblatt Überregionale Lizenzierung (DFG-Vordruck 12.18 - 03/13) Online: http://www.dfg.de/formulare/12_18/12_18_de.pdf (accessed: 07.08.2014)

2.3 Article processing charges

2.3.1 Level of article processing charges

2.3.1.1 Background

There are many methods providers use when charging APCs.[33] To some extent, these break down into fixed and variable APCs, as follows:

- Fixed, uniform fees per article,
- Banding articles by number of pages when submitted,[34]
- Banding articles by technical format when submitted,[35]
- Banding by choice of licence for articles as published.[36]

There are also many other models which are still at the test stage.[37] Academic institutions and their authors often find it hard to tell what the benefits and drawbacks of such models are.

Another question for academic institutions and funding bodies is whether setting an upper limit – up to which APCs are taken on or can be subsidised – can further competition in the publications market.

2.3.1.2 Positions

- The level of APCs charged must be communicated transparently and verifiably to authors and their institutions as soon as they submit articles (cf. 2.1.2).
- Providers must show verifiably what services they provide in return for paying APCs (cf. 2.1.2).
- The level of APCs must be reasonable and verifiable in view of the services providers render. We advise setting an upper limit.
- What is not acceptable are models which, as well as Open Access APCs, also charge other costs, e.g. for colour illustrations or over-length articles, to authors, their institutions and/or funding bodies.
- Academic institutions need to keep an eye on the development of APCs. This requires improved reporting procedures at institution level, which means in turn that Open Access providers must provide the necessary data in standardised formats. Furthermore, processes and tools for aggregating APCs amongst institutions should be developed to ensure costs are transparent and comparable and to make it possible to calculate indicators and guidelines.
- Providers must ensure that authors who are not in a position to pay APCs are not prevented from publishing. They must do so using what are known as “waiver policies” (cf. 2.1.2).

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[33] Solomon, D. J., & Björk, B.-C. (2012). A study of open access journals using article processing charges. Journal of the American Society for Information Science and Technology, 63(8), 1485–1495. Online: http://doi.org/10.1002/asi.22673. Preprint: http://www.openaccesspublishing.org/apc2/preprint.pdf (accessed: 07.08.2014)

[34] Example: journal "Atmospheric Chemistry and Physics“, published by Copernicus Publications. See: http://www.atmospheric-chemistry-and-physics.net/submission/service_charges.html (accessed: 07.08.2014)

[35] Example: journal "Atmospheric Chemistry and Physics" published by Copernicus Publications. See: http://www.atmospheric-chemistry-and-physics.net/submission/service_charges.html (accessed: 07.08.2014)

[36] Example: journal "Nature Communication" published by Nature Publishing Group. See: http://www.nature.com/ncomms/open_access/index.html (accessed: 07.08.2014)

[37] Like the PeerJ model, for example, in which the authors pay a once-off fixed “lifelong” charge and commit themselves to guaranteeing one review a year in return. Cf.: section 2.2.1

2.3.2 Billing article processing charges

2.3.2.1 Background

As both providers and academic institutions have a great interest in keeping transaction costs low when dealing with Open Access APCs, collective billing methods have been developed in the past, which providers often call “membership models”. Here, an academic institution and a provider conclude a contract which sets either a) the level of APCs or b) the level of a prepayment and other billing terms and conditions for a fixed term.

These may be divided into prepayment and post-payment methods, as follows:

- Post-payment methods charge the costs of the APCs incurred in a given period retrospectively via a “collective account”.
- With prepayment methods, academic institutions pay up front, giving a provider a preset amount even before any articles have been published, from which APCs can be debited for that institution's authors until it is used up.

Prepayment methods are quite common in media advertising insofar as the benefits to the institution are self-evident. The prepayment model has the advantage that it makes costs foreseeable. They may however result in unintended steering effects: if prepayments are made which cannot be refunded, the publishing bodies may put pressure on the decisions of the authors to use the prepayment to the full.

The problem with the term “membership” is that it implies that an academic institution endorses a given journal. Providers often use such memberships when advertising their journals. This could work against creating a transparent publication system and inducing competition in the market for scholarly publications (cf. 2.1.2).

2.3.2.2 Positions

- The term “membership” should be avoided in business dealings between academic institutions and providers as a matter of principle.
- In the case of prepayment methods, care must be taken to ensure that the way they are formulated does not affect publishing behaviour. It must hence be possible to calculate how much a prepayment will be required verifiably based on how many articles, for which APCs would be payable, can be expected.

2.3.3 Accounting methods

2.3.3.1 Background

As the Open Access market grows, so it becomes increasingly important to make processing payments of Open Access APCs efficient and transparent. One major aspect here is to create standards which enable and assist costs to be allocated and distributed. This standardisation involves everyone in scholarly publishing, including funding bodies, authors, academic institutions, libraries and publishing houses. Standardisation in this field is still largely undeveloped, so we can only touch on a few key points here.

In the medium term, academic institutions need to work with providers internationally to create accounting standards. In the longer term, an Open Access gold infrastructure based on standards is bound to ensure that everyone involved in publishing works together reliably and automatically over the whole production workflow, from submitting articles to presenting them in portals and search engines.

Providers should endeavour to harmonise and standardise their submission processes and platforms and optimise them in the direction of costs being assumed by third parties (the

corresponding author's institution or funding body). At present, most processes and platforms aim to charge authors.

2.3.3.2 Positions

- Providers should support central accounting for institutions.
- Providers should implement a workflow accordingly which identifies authors by the institutions they belong to right from the submission process. This workflow should also include a verification mechanism, e.g. by e-mailing the institution concerned automatically asking it to confirm that the author belongs to it.
- Institutions which bear APCs should be designated as such in the publication and associated metadata.
- Providers' submission/publication systems should be based as far as possible on standardisation initiatives like ORCID,[38] FundRef[39] or Ringgold.[40]
- Providers should provide accounting and bibliographical metadata in a machine-readable format (cf. 2.4.1).
- A standard should be developed for reporting APCs similar to the standard for use statistics of the electronic information resources COUNTER[41].
- Invoices for Open Access publication fees should be handled via an academic institution's central organisation unit, such as its library.
- Academic institutions should ensure that all information on payments to providers, including costs of subscription-based journals and charges for colour illustrations and over-length articles, are recorded and analysed in one place.
- If there are a large number of publications, providers should draw up bundled invoices for academic institutions (e.g. quarterly) if required (cf. 2.3.2 and 2.3.3), and also provide them with a complete overview each year.
- If a contract is concluded on the billing process, the provider should provide a reporting tool, via a web interface or equivalent interfaces, for example. This tool should enable an academic institution to find out how many articles have been accepted and the amount of APCs accumulated so far (cf. 2.3.2 and 2.3.3).

2.3.4 Multiple authors and article processing charges

2.3.4.1 Background

Publications are often created in the course of research projects involving authors from a number of different institutions. If these results are published in Open Access journals which are funded via APCs, the question arises as to which of the institutions involved is to bear them. Sharing the costs (“split billing”) presents academic institutions and providers with a number of challenges and generates transaction costs which need to be kept as low as possible (cf. 0). We would therefore advise against sharing APCs between different organisations (“split billing”).

2.3.4.2 Positions

- Academic institutions should ensure that, even before articles are submitted for publication, they have established which institutions (corresponding author's, co-authors', funding bodies, etc.) are to fund the APCs incurred.

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38 http://orcid.org (accessed: 07.08.2014)

39 http://www.crossref.org/fundref (accessed: 07.08.2014)

40 http://www.ringgold.com (accessed: 07.08.2014)

41 http://www.projectcounter.org/about.html (accessed: 07.08.2014)

- If no funder bears the costs, the corresponding author's institution should do so.
- The organisation which pays the APCs should be named in articles and in the metadata involved, using standards such as FundRef[42] or Ringgold[43] (cf. 2.3.3).

2.4 Background conditions

2.4.1 Metadata and interfaces

2.4.1.1 Background

To ensure Open Access publications are integrated in local, subject and other systems, and search engines, it is essential that providers provide high-quality metadata which can automatically be reused both legally and technically speaking. Here, established standards must be complied with and innovations in standardisation must be adopted.

These requirements are important, particularly for importing metadata and full texts into Open Access repositories, publication databases and Current Research Information Systems (CRIS).

2.4.1.2 Positions

- Providers must ensure that standardised metadata on Open Access publications can be reused via open interfaces under the Creative Commons Deed CC-0"[44] (Zero) (cf. 2.4.4).
- Providers should provide metadata on Open Access publications in line with the CrossRef Metadata Schema[45].
- Providers should provide an OAI-PMH interface (2.0)[46] and a REST-API to enable the automated gathering of metadata on Open Access publications (cf. 2.4.4 and 2.4.5).
- Providers should provide an "open_access" set via OAI-PMH 2.0 (setSpec).[47]

2.4.2 Visibility

2.4.2.1 Background

Open Access can make publications highly visible. However, this assumes Open Access articles are flagged as such on publishers' platforms and providers ensure they are as easy as possible to find.

2.4.2.2 Positions

- Providers must ensure that they identify Open Access publications as such via their publishing platforms. RSS feeds, independent websites and search engines should ensure the articles published can be accessed easily (cf. 2.4.1 and 2.4.5).
- Providers must ensure that the legal terms and conditions (licence) for reusing an article are recognisable on the front page of the article and in the metadata.

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42 http://www.crossref.org/fundref (accessed: 07.08.2014)

43 http://www.ringgold.com (accessed: 07.08.2014)

44 http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

45 See: http://www.crossref.org/schemas/crossref4.3.4.xsd (accessed: 07.08.2014)

46 http://www.openarchives.org/OAI/openarchivesprotocol.html (accessed: 07.08.2014)

47 See the requirements of the "DINI Certificate 2013 for Open Access Repositories and Publication Services" under "A.2.1 Open Access Document Set". Online: http://nbn-resolving.de/urn:nbn:de:kobv:11-100220501 (accessed: 07.08.2014)

- Providers should ensure they use the SWORD protocol[48] or other methods to ensure that metadata and full texts of their Open Access publications are delivered to defined repositories automatically, such as the repository of one of the institutions involved and/or specialist subject repositories. If funding organisations want Open Access publications to be stored in other (e.g. specialist) repositories, providers must meet that wish at no extra charge.
- Providers should present publications appearing under the EU's HORIZON 2020 funding programme automatically in the OpenAIRE portal.[49]
- Providers should save publications created by projects supported by the European Research Council (ERC) on Europe PubMed Central automatically.[50]

2.4.3 Statistics

2.4.3.1 Background

To enable multi-dimensional considerations of research services and their reception, it is vital that providers make available standardised access statistics on reusing and that they support methods like Article Level Metrics (ALM)[51].

2.4.3.2 Positions

- Providers must provide access statistics for free reuse in a transparent, standardised form at article level, e.g. via Article Level Metrics (ALM)[52].
- Providers must ensure via COUNTER certification[53] that use figures for Open Access journals can be reused openly and verifiably at title level.

2.4.4 Legal aspects

2.4.4.1 Background

Digital sciences rely on publications being reusable, legally and technically speaking. Methods like text and data mining can only be used if researchers are granted licences to use publications accordingly. Seen in this light, it is extremely important that, as the “Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities” stated as far back as 2003[54], Open Access publications are published using liberal licence models which ensure publications can be reprinted with certainty in law[55]. The licence must be enshrined in the metadata and the article in a machine-readable format.

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48 http://swordapp.org (accessed: 07.08.2014)

49 See: http://ec.europa.eu/research/science-society/open_access/ und http://www.openaire.eu (accessed: 07.08.2014)

50 European Research Council (2013). Open Access Guidelines for researchers funded by the ERC. Online: http://erc.europa.eu/sites/default/files/document/file/ERC_Open_Access_Guidelines-revised_2013.pdf (accessed: 07.08.2014)

51 http://article-level-metrics.plos.org (accessed: 07.08.2014)

52 http://article-level-metrics.plos.org (accessed: 07.08.2014)

53 http://www.projectcounter.org (accessed: 07.08.2014)

54 http://openaccess.mpg.de/3515/Berliner_Erklaerung (accessed: 07.08.2014)

55 Helmholtz Open Access Koordinationsbüro. (2013). Rechtliche Aspekte von Text und Data Mining. Helmholtz Open Science Briefing. 14.10.2013. Version 1.0. Online: http://oa.helmholtz.de/fileadmin/user_upload/redakteur/Dokumente/helmholtz_osb_tdm.pdf (accessed: 25.09.2014)

2.4.4.2 Positions

- The grantor of a licence must be the author of the publication.
- Providers must ensure that the Open Access publications they publish appear under the Creative Commons Licence CC-BY[56] ("Attribution") or a more liberal licence (e.g. under Creative Commons Deed CC-0[57]) and that this licence is enshrined in publications and their associated metadata in a machine-readable format.
- Providers must ensure that metadata on the Open Access publications they publish can be reused machine-readably via open interfaces – under the Creative Commons Deed CC-0[58] (Zero) – to ensure publications can be seen in third party evidential systems (cf. 2.4.1).
- If research data on which Open Access publications are based is made available, providers should ensure that it is saved permanently in a publicly operated repository under the Creative Commons Deed CC-0[59] (Zero).

2.4.5 Technical aspects

2.4.5.1 Background

For publications to be reused, they must be published based on open technical reusing standards. Precisely when using innovative methods like text and data mining, it is important that publications be machine-readable and that providers enable researchers to access the publications they publish freely and easily via software interfaces (cf. 2.4.4).

2.4.5.2 Positions

- Providers must ensure the Open Access publications they publish are machine-readable. Publications should be available in HTML, PDF/A and XML (using Journal Article Tag Suite - JATS[60]).
- Providers should make it possible to access and reuse the Open Access publications they publish via a software interface like REST-API or OAI-PMH (cf. 2.4.1 and 2.4.2).
- Providers should support the SWORD protocol[61] (cf. 2.4.2).

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56 http://creativecommons.org/licenses/by/4.0/ (accessed: 07.08.2014)

57 http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

58 http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

59 http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

60 http://jats.nlm.nih.gov/ (accessed: 07.08.2014)

61 http://swordapp.org (accessed: 07.08.2014)

Appendix: Checklist

Quality assurance (2.1.1)

- Providers need to ensure they use appropriate accepted quality assurance methods.
- Opportunities to improve quality assurance further, e.g. via open peer review methods, should be used.
- Accompanying materials to articles, such as research data, software and details of methods used, should be made openly available (cf. 2.4.4), using publicly operated repositories ensuring permanent access to accompanying materials.[62]

Transparency (2.1.2)

- Requirements of articles to be submitted and providers' services must be defined verifiably in editorial policies and further information.
- The level, development and terms of the APCs imposed must be easily understandable, readily visible and reusable (ideally machine-readable too) on the provider's/journal website.
- Decisions on discounts and waiving APCs must be made independently of substantive decisions to accept or reject articles submitted (cf. 2.3.1).
- Committee on Publication Ethics (COPE)[63] and Open Access Scholarly Publishers Association (OASPA)[64] standards must be observed.
- Contracts between providers and academic institutions and between providers and authors must not include non-disclosure agreements.

Open Access gold (2.2.1)

- Academic institutions need to ensure that Open Access journals funded via academic sponsorship can operate sustainably at the institution concerned.
- Funds should be provided to finance such journals at reasonable levels as part of a publishing fund.
- Research libraries and other information infrastructures should provide publishing platforms (as part of university presses, for example) to help self-publishing organisational units run their Open Access journals.

"Hybrid" model (2.2.2)

- Providers must explain clearly on their websites and those of their hybrid journals if and under which conditions they are planning a complete conversion of the journal to Open Access.
- Providers must report at least once a year on how the transformation of their hybrid journals is progressing and succeeding.
- Providers must guarantee, by transparent measures, to avoid double dipping. Verifiable reporting has to indicate whether and, if so, to what extent the additional

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62 A selection of such repositories can be found via re3data.org – Registry of Research Data Repositories. See: http://www.re3data.org (accessed: 07.08.2014)

63 See: http://publicationethics.org (accessed: 07.08.2014)

64 See OASPA's Membership Criteria at: http://oaspa.org/membership/membership-criteria/

income will be credited to the account of an academic institution or according to which mechanism list prices will be adjusted.
- Providers should ensure that articles which have been made “free” are optimally visible on the publishers' platform and to other search engines (cf. 2.4.2).

Open Access components of subscription contracts (2.2.3)

- We need to include Open Access rights based on the “Alliance Licence” model[65] when negotiating licence agreements for subscription-based journals.
- Another point we need to consider when negotiating licences is whether a provider's programme also includes Open Access journals. If so, we should try to get free publishing for members of the institution concerned in the journals included in negotiations.
- Even if a provider offers a hybrid model for their journals, we should still try to include an Open Access option for members of the institution concerned without paying any more article fees in negotiations. We need to remember that a licence agreement allows for the event that, if APCs are increased during the term of the licence, that does not result in the licence fees being topped up or reviewed.
- In view of transforming subscription-based journals to Open Access ones funded via APCs in the long term – to avoid double dipping – a so-called transformation clause has to be included. We need to ensure that subscription fees already paid are netted.

Level of article processing charges (2.3.1)

- The level of APCs charged must be communicated transparently and verifiably to authors and their institutions as soon as they submit articles (cf. 2.1.2).
- Providers must show verifiably what services they provide in return for paying APCs (cf. 2.1.2).
- The level of APCs must be reasonable and verifiable in view of the services providers render. We advise setting an upper limit.
- What is not acceptable are models which, as well as Open Access APCs, also charge other costs, e.g. for colour illustrations or over-length articles, to authors, their institutions and/or funding bodies.
- Academic institutions need to keep an eye on the development of APCs. This requires improved reporting procedures at institution level, which means in turn that Open Access providers must provide the necessary data in standardised formats. Furthermore, processes and tools for aggregating APCs amongst institutions should be developed to ensure costs are transparent and comparable and to make it possible to calculate indicators and guidelines.
- Providers must ensure that authors who are not in a position to pay APCs are not prevented from publishing. They must do so using what are known as “waiver policies” (cf. 2.1.2).

Billing article processing charges (2.3.2)

- The term “membership” should be avoided in business dealings between academic institutions and providers as a matter of principle.
- In the case of prepayment methods, care must be taken to ensure that the way they are formulated does not affect publishing behaviour. It must hence be possible to

[65] See DFG-Merkblatt Überregionale Lizenzierung (DFG-Vordruck 12.18 - 03/13) Online: http://www.dfg.de/formulare/12_18/12_18_de.pdf (accessed: 07.08.2014)

calculate how much a prepayment will be required verifiably based on how many articles, for which APCs would be payable, can be expected.

Accounting methods (2.3.3)

- Providers should support central accounting for institutions.
- Providers should implement a workflow accordingly which identifies authors by the institutions they belong to right from the submission process. This workflow should also include a verification mechanism, e.g. by e-mailing the institution concerned automatically asking it to confirm that the author belongs to it.
- Institutions, which bear APCs should be designated as such in the publication and associated metadata.
- Providers' submission/publication systems should be based as far as possible on standardisation initiatives like ORCID,[66] FundRef[67] or Ringgold.[68]
- Providers should provide accounting and bibliographical metadata in a machine-readable format (cf. 2.4.1).
- A standard should be developed for reporting APCs similar to the standard for use statistics of the electronic information resources COUNTER[69].
- Invoices for Open Access publication fees should be handled via an academic institution's central organisation unit, such as its library.
- Academic institutions should ensure that all information on payments to providers, including costs of subscription-based journals and charges for colour illustrations and over-length articles, are recorded and analysed in one place.
- If there are a large number of publications, providers should draw up bundled invoices for academic institutions (e.g. quarterly) if required (cf. 2.3.2 and 2.3.3), and also provide them with a complete overview each year.
- If a contract is concluded on the billing process, the provider should provide a reporting tool, via a web interface or equivalent interfaces, for example. This tool should enable an academic institution to find out how many articles have been accepted and the amount of APCs accumulated so far (cf. 2.3.2 and 2.3.3).

Multiple authors and article processing charges (2.3.4)

- Academic institutions should ensure that, even before articles are submitted for publication, they have established which institutions (corresponding author's, co-authors', funding bodies, etc.) are to fund the APCs incurred.
- If no funder bears the costs, the corresponding author's institution should do so.
- The organisation which pays the APCs should be named in articles and in the metadata involved, using standards such as FundRef[70] or Ringgold[71] (cf. 2.3.3).

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66 http://orcid.org (accessed: 07.08.2014)

67 http://www.crossref.org/fundref (accessed: 07.08.2014)

68 http://www.ringgold.com (accessed: 07.08.2014)

69 http://www.projectcounter.org/about.html (accessed: 07.08.2014)

70 http://www.crossref.org/fundref (accessed: 07.08.2014)

71 http://www.ringgold.com (accessed: 07.08.2014)

Metadata and interfaces (2.4.1)

- Providers must ensure that standardised metadata on Open Access publications can be reused via open interfaces under the Creative Commons Deed CC-0"[72] (Zero) (cf. 2.4.4).
- Providers should provide metadata on Open Access publications in line with the CrossRef Metadata Schema[73].
- Providers should provide an OAI-PMH interface (2.0)[74] and a REST-API to enable the automated gathering of metadata on Open Access publications (cf. 2.4.4 and 2.4.4).
- Providers should provide an "open_access" set via OAI-PMH 2.0 (setSpec).[75]

Visibility (2.4.2)

- Providers must ensure that they identify Open Access publications as such via their publishing platforms. RSS feeds, independent websites and search engines should ensure the articles published can be accessed easily (cf. 2.4.1 and 2.4.5).
- Providers must ensure that the legal terms and conditions (licence) for reusing an article are recognisable on the front page of the article and in the metadata.
- Providers should ensure they use the SWORD protocol[76] or other methods to ensure that metadata and full texts of their Open Access publications are delivered to defined repositories automatically, such as the repository of one of the institutions involved and/or specialist subject repositories. If funding organisations want Open Access publications to be stored in other (e.g. specialist) repositories, providers must meet that wish at no extra charge.
- Providers should present publications appearing under the EU's HORIZON 2020 funding programme automatically in the OpenAIRE portal.[77]
- Providers should save publications created by projects supported by the European Research Council (ERC) on Europe PubMed Central automatically.[78]

Statistics (2.4.3)

- Providers must provide access statistics for free reuse in a transparent, standardised form at article level, e.g. via Article Level Metrics (ALM)[79].
- Providers must ensure via COUNTER certification[80] that use figures for Open Access journals can be reused openly and verifiably at title level.

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72 http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

73 See: http://www.crossref.org/schemas/crossref4.3.4.xsd (accessed: 07.08.2014)

74 http://www.openarchives.org/OAI/openarchivesprotocol.html (accessed: 07.08.2014)

75 See the requirements of the "DINI Certificate 2013 for Open Access Repositories and Publication Services" under "A.2.1 Open Access Document Set". Online: http://nbn-resolving.de/urn:nbn:de:kobv:11-100220501 (accessed: 07.08.2014)

76 http://swordapp.org (accessed: 07.08.2014)

77 See: http://ec.europa.eu/research/science-society/open_access/ und http://www.openaire.eu (accessed: 07.08.2014)

78 European Research Council (2013). Open Access Guidelines for researchers funded by the ERC. Online: http://erc.europa.eu/sites/default/files/document/file/ERC_Open_Access_Guidelines-revised_2013.pdf (accessed: 07.08.2014)

79 http://article-level-metrics.plos.org (accessed: 07.08.2014)

80 http://www.projectcounter.org (accessed: 07.08.2014)

Legal aspects (2.4.4)

- The grantor of a licence must be the author of the publication.
- Providers must ensure that the Open Access publications they publish appear under the Creative Commons Licence CC-BY[81] ("Attribution") or a more liberal licence (e.g. under Creative Commons Deed CC-0[82]) and that this licence is enshrined in publications and their associated metadata in a machine-readable format.
- Providers must ensure that metadata on the Open Access publications they publish can be reused machine-readably via open interfaces – under the Creative Commons Deed CC-0[83] (Zero) – to ensure publications can be seen in third party evidential systems (cf. 2.4.1).
- If research data on which Open Access publications are based is made available, providers should ensure that it is saved permanently in a publicly operated repository under the Creative Commons Deed CC-0[84] (Zero).

Technical aspects (2.4.5)

- Providers must ensure the Open Access publications they publish are machine-readable. Publications should be available in HTML, PDF/A and XML (using Journal Article Tag Suite - JATS[85]).
- Providers should make it possible to access and reuse the Open Access publications they publish via a software interface like REST-API or OAI-PMH (cf. 2.4.1 and 2.4.2).
- Providers should support the SWORD protocol[86] (cf. 2.4.2).

[81] http://creativecommons.org/licenses/by/4.0/ (accessed: 07.08.2014)

[82] http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

[83] http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

[84] http://creativecommons.org/publicdomain/zero/1.0/ (accessed: 07.08.2014)

[85] http://jats.nlm.nih.gov/ (accessed: 07.08.2014)

[86] http://swordapp.org (accessed: 07.08.2014)

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