Open Access Publishing: A Literature Review

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SUMMARY

Within the context of the Centre for Copyright and New Business Models in the Creative Economy (CREATe) research scope, this literature review investigates the current trends, advantages, disadvantages, problems and solutions, opportunities and barriers in Open Access Publishing (OAP), and in particular Open Access (OA) academic publishing. This study is intended to scope and evaluate current theory and practice concerning models for OAP and engage with intellectual, legal and economic perspectives on OAP. It is also aimed at mapping the field of academic publishing in the UK and abroad, drawing specifically upon the experiences of CREATe industry partners as well as other initiatives such as SSRN, open source software, and Creative Commons. As a final critical goal, this scoping study will identify any meaningful gaps in the relevant literature with a view to developing further research questions. The results of this scoping exercise will then be presented to relevant industry and academic partners at a workshop intended to assist in further developing the critical research questions pertinent to OAP.

OPEN ACCESS PUBLISHING AND DIGITAL ENLIGHTENMENT

The philosopher of science Helen Longino argued that ‘the social [dimension of knowledge] is not a corrupting but a validating element in knowledge’. John Willinsky builds upon this argument by noting that ‘the global scale of knowledge’s circulation is critical to its very claim as knowledge’. Therefore, any constraints to knowledge’s circulation undermine its creation as well. This study tells the story of these constraints and how they have promoted a global reaction to enhance OA to knowledge generally and OAP to academic research and scholarship in particular. In a momentous speech at the European Organization for Nuclear Research (CERN) in Geneva, Professor Lawrence Lessig reminded the audience of scientists

1 OAP is sometimes conflated with Open Publishing (OP), and sometimes understood as a notion that falls under the larger category of OP. However, the relationship between the two concepts is complex. OP is best conceived as an editorial process that is transparent to the readers. Similarly to open software, OP emphasises collaboration practices among a massive base of peers. Typical examples of OP include Wikipedia, YouTube and blogs. See, for example, Caio M. S. Pereira Neto, ‘Online Collaborative Media and Political Economy of Information - A Case Study’ (2003) 21 J. Marshall J. Computer & Info. L. 511; John Cahir, ‘The Withering Away of Property - The Rise of the Internet Information Commons’ (2004) 24(4) OJLS 619. In itself, OP does not require the absence of economic or permission barriers as OAP does. Conversely, OAP does not require specific transparency in the editorial process or collaborative practices of content creation.


and researchers that most scientific knowledge is locked away from the general public and can only be accessed by professors and students in a university setting. Lessig pungently made the point that ‘if you are a member of the knowledge elite, then there is free access, but for the rest of the world, not so much [. . .] publisher restrictions do not achieve the objective of enlightenment, but rather the reality of “elite-ment”’. In this respect, the path to digital enlightenment seems to necessarily pass through OA to scientific knowledge.

**STRUCTURE AND METHODOLOGY**

In looking at how this path to digital enlightenment is being traced in recent times, one of the challenges that this study had to face has been the massive amount of literature that has been produced on the subject in recent years, especially in the last decade, spanning the entire field of academic research, from the natural sciences to the humanities. In other words, a scoping study and literature review on the subject of OAP is challenging because the topic represents a quintessential example of an interdisciplinary subject that may potentially trigger the research interests of any academic researcher willing to investigate the role that OAP may have in his or her field of research. In fact, this is exactly the state of the literature that has emerged in the past two decades. Since the advent of the first OAP experiments in the early 1990s, natural scientists, social scientists, economists, librarians and legal scholars have contributed to the debate providing insights – or promoting practical experiments themselves – from their sector-specific angle. In light of this consideration, it is easy to understand that a comprehensive review of the OAP literature – and the theoretically connected literature discussing the broader OA movement – is a goal that is extremely hard to achieve.

Mindful of these difficulties, we have nevertheless strived to provide a broad map of the OAP literature and the critical issues that this literature has underlined. We have attempted to highlight the core literature, projects and business models that span a very diversified array of scientific fields, hopefully avoiding – or at least limiting as far as possible – any prejudicial emphasis on literature originating from a specific field. Indeed, this study has been carried out by legal scholars based at the law department of the University of Nottingham, within the general framework of CREATe’s scope and focus of research. The training and educational background of the authors of this work have undoubtedly influenced the overall structure and selection of relevant topics of this study. Conscious of this unavoidable bias, we hope, however, that the study may still be able to reflect the many different voices that have reviewed the topic of OAP.

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This study has been structured in four sections. The first section has a broader scope, serving also as an introductory background to the discussion that follows in the remaining sections. It details the history and theory of OAP, together with a review of the main definitional issues surrounding the topic. At the same time, the first section also aims to contextualise the OAP movement within the broader OA movement and the many projects, such as free and open source software, Creative Commons, Wikipedia or open patenting, that have emerged as part of innovative networked peer production ethics. Sections two and three tackle issues concerning the legal framework within which the OAP debate is located and the economics of OAP. In particular, the tension between the present copyright system and OAP is discussed in Section two, with special emphasis on the rationale and incentive for copyright protection in academic research. Again, Section two tries to frame the OAP debate within the international Access to Knowledge (A2K) debate and the educational divide between developed, developing and emerging countries, by reviewing the relevant literature that has discussed this conundrum. Section three looks at the economics of academic publishing and the emergence of OAP within these economics and market constraints, both from an historical standpoint and by reviewing the several business models that have emerged in the domain of online repositories and journal and book publishing. This third section has also focused on the predominantly economic literature that has discussed the value and metrics of OAP, especially in terms of research impact, citation advantage, quality of research, and peer review process of OAP. Finally, the last section of this study provides a brief overview of the emergence of OAP mandate policies, which seem to be increasingly implemented by universities, funder institutions and governmental bodies as an instrument to foster a globalised free distribution of knowledge and overcome the resistance that the traditional mechanics of academic publishing may pose to this goal.

**Findings**

As a result of this broad overview of the OAP literature, we have highlighted a number of research gaps that should serve as guidance for future research on the topic. Although, as mentioned above, literature discussing OAP is plentiful, the subject is still in its early stages of development and additional research is needed in several directions. As a preliminary comment on the mass of literature in question, we note that, also as a consequence of the extremely diverse research interests on the subject of OAP – which may be mostly unrelated to the specific research training or expertise of the author – the literature may tend to be repetitive and focus on broad ethical issues. At times, especially in early scholarship, there is too much rhetoric in the OAP movement’s arguments that seems to overlook the standard well-established copyright rationale. Arguments emphasising the need for OAP on the basis of the responsibility of scholars because of the impact of their research subjects on the daily lives of the public have been frequently put forward. These arguments are unsatisfactory, especially if they do not carefully take into consideration the justifications that copyright
theory has brought about for providing exclusive rights to authors. In this respect, these arguments may be easily dismantled by 300 years of copyright literature, which justifies protection through either natural rights or incentive theory. A point that should never be ignored is that copyright protection is a legal tool that empowers authors, not publishers. In fact, historically, copyright law has emerged as a reaction to the monopolisation of culture by publishers. Given all the unsatisfactory consequences of a process of overexpansion of exclusive rights over intellectual outputs which tend to be increasingly vested in intermediaries rather than authors, copyright protection still locates its basic rationale in an incentive for authors to create for the enjoyment of the public or in a natural right that provides authors with the fruits of their labour, therefore making them free from any external control. Therefore, it should always be emphasised that OAP can only be promoted through firm economic arguments sustaining an incentive for authors to make their works free and open to the public.

Again, as another preliminary comment, it is worth noting that diverging views seem quite rare in the literature, at least as far as the basic tenets of the debate are concerned. Besides the increasing emergence of views questioning the so-called OA advantage, there is general agreement of the need for embracing OAP as an instrument of enhanced democratisation and an opportunity to rapidly speed up the process of knowledge creation. Although the democratic value of OA in academic publishing and circulation of knowledge seems at first sight quite undisputable, more nuanced views would still probably be welcome. So far, the academia seems to have embraced OAP as a panacea for all the evils of commercial academic publishing, but a serious consideration regarding the way in which OAP is going to change academic mechanics, especially in the domain of academic careers, promotion and reputation, still seems to be necessary and so far not fully achieved. Also, it seems that the literature hardly makes any distinction between publicly funded and privately funded universities and research or with regard to partially public and partially private universities. These distinctions are certainly worthy of more specific investigation.

Besides these general annotations, we have laid out below a few specific research gaps that in our opinion would be worthy of additional investigation.

**Research Gap I: Historical Perspective**

I.1. Looking at OAP from an historical perspective is an exercise only partially completed by the literature and more investigation may be opportune. As we have tried to briefly show, the idea of OA to scholarly knowledge has deep roots in human history. Although the recent history of ‘open science’ has been reviewed and put into correlation with the modern OA

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5 See infra Section 3.5.
6 See infra Section 1.1.
and OAP movement, no literature has investigated the long pre-enlightenment tradition that from Plato to the mediaeval proverbial dictum ‘scientia donum dei est unde vendi non potest’ has seen knowledge as a gift to share or, in Erasmus of Rotterdam’s words, that ‘friends hold [... ] in common’. In particular, how that tradition has transitioned into the ‘open science’ movement that emerged in the seventeenth century may be worthy of investigation, as this historical transition has not as yet been elucidated. Broadly, this strand of research may constitute a useful analysis to strengthen foundational arguments in favour of OAP for scholarly research.

I.2. Again, besides the neglected review of the pre-enlightenment tradition, further discussion of the historical and cultural linkage between the ‘open science’ and modern OAP movement would also be welcome. Reference to the relationship between the two movements is provided by some literature but more specifically dedicated studies would constitute a useful resource. Finally, review of the historical triangulation between open science, learned society and OAP may be a meaningful field for additional research in order to understand the historical evolution, and the reasons, that have led learned societies to derail from the stricter open science ethos and forge an alliance with commercial publishers, which have propelled in part some of the hurdles that the academic community itself has been facing with the ‘serial crisis’.

Research Gap II: Copyright Protection and Theory

II.1. Literature has investigated at length the sustainability of the traditional copyright rationale in light of the specific economics of academic publishing. In general terms, it has found that economic incentive is negligible for academic authors. In this respect, however, it may be worth further reviewing differences between academic outputs. For example, textbooks are more lucrative than other research outputs, such as monographs or articles, and authors may not embark on those research projects solely on the basis of a reputational incentive. For some types of publications, the economic incentive may be important for academic authors. Therefore, the circumstances in which the economic incentive becomes relevant for academic authors should be more carefully reviewed by the literature. These circumstances may in fact turn out to be scarcely relevant for publicly funded research, which is the key concern triggering OA mandate policies; however, the literature should try to differentiate between research outputs in order to clearly define what should be covered by OA mandate policies and what should not.

II.2. The OAP movement has placed special emphasis on Creative Commons (CC) licences as a tool to promote more unrestricted circulation of scholarly knowledge, and in particular on the CC-BY licence allowing any use provided that attribution is given. CC-BY has been endorsed by several OAP initiatives and recently also by governmental and research funders’ OA mandate policies. However, concerns have been raised about the adequacy of
mandating CC-BY licences. In this respect, additional literature may devote specific attention to reviewing the issues surrounding these concerns.

**Research Gap III: Economics and Business Models**

The next set of research gaps may be loosely related to the economics of OAP and the business models of the academic market players. These research gaps look at business models from the perspective of the university, the individual academic, and the publisher.

**III.1. Open University, Open Education and Open Educational Resources**

Together with OAP, the promotion of Open Education (OE) and Open Educational Resources (OERs) is also gaining momentum, especially in connection with the pressing need to provide a solution to the scientific and educational divide between the global North and global South. Also, the global emergence of Massive Open Online Classes (MOOCs) has further increased the level of attention given to OE and OERs. In light of the consideration that the next challenge for OAP may be its integration within the university environment, additional research would be welcome discussing how to correlate the OAP movement to the OERs movement. There does not seem to be any specific literature dealing with this interaction. In particular, special emphasis should be given to advanced discussion of the integration of OAP business models into OERs projects.

Studies looking at the implementation of OAP models in support of MOOCs’ projects and platforms, bearing in mind the specificities of these projects, would constitute a natural advancement of the research in the field. Generally speaking, there seems to be little serious literature investigating the reality of MOOCs and none looking at the connections between MOOCs and OAP.

Furthermore, the study of the interaction between OAP and OERs is especially relevant in the domain of OAP for books, most of the course materials being in the form of books. It is worth noting that course books are often learned compilations of previous knowledge, whose shell of copyright protectability may be thinner than in the case of other works, which may render any rationale for strong copyright protection even weaker and even add additional strength to the promotion of OAP in this field. The sought literature may readdress the investigation of sustainable OAP business models for books towards the provision of courseware materials in an OE environment, with special emphasis on how these business models should be integrated within the university setting.

**III.2. Academic Scholars, Reputation, Prestige and Careers**

One of the biggest conundrums surrounding the OAP debate, which often seems not to be highlighted sufficiently by most literature, is the logical connection between scholarly
authors’ incentive to creation, academic reputation and prestige, scientific journals’ impact factor, and the academic road to tenure and promotion. The analysis of the interaction between these variables seems a very relevant line of research that may prove critical for strengthening or weakening any arguments discussing the sustainability and broader adoption of OAP models. In particular, besides a general overview of these notions within the context of OAP, studies may be welcome in defining roadmaps and solutions to adjust the emergence of OAP to academic procedures, policies and standards in the field of academic career. Again, in close association with the sought investigation mentioned above, research should also look at the effects of OAP on new entrants in the academic markets, in light of part of the economic literature that seems to suggest that OAP may have more beneficial effects for well-established and super-star academic authors than for others.

### III.3. Academic Publishing Market

Although deeply investigated by the literature, there is still the potential for lines of research in connection with the economics of the academic publishing market and its interaction with emerging OAP business models.

#### III.3.1. Competition

One research question that may profit from more investigation is that of the interface between competition law and the monopolistic nature of copyright in the academic publishing market. Specific studies should look at the sustainability from a competition law standpoint of the escalating prices in the academic publishing sector, with special emphasis on reviewing the reasons and rationale for allowing mergers and acquisitions in this already very concentrated market. Also, in connection with the review of anti-competitive practices, one point that may be worthy of more investigation – and, according to Willinsky,\(^7\) is missing from the current economics of OA – is a more exact accounting for pricing differences by commercial publishers and other academic publishers. Hence, literature should also review how OAP business models may or may not change the present market dysfunctions, projecting whether the competition equilibrium will be enhanced or worsened by OAP and again investigating whether certain business models would be better than others to address this monopoly power problem.

#### III.3.2. Cost of Closed Access

Some authors have noted that in all the economic discussion the cost of not moving to OA is ignored. Most of the quantitative exercise has focused on the billions that the academic publishing industries contribute to the global economy, or the citation advantage that OAP may offer, or the economic advantage of adopting OAP in terms of savings of public money.

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\(^7\) See infra Section 3.2.1.
However, no specific economic quantification has addressed the ‘loss of efficient communication between scholars, and in particular the stifling of innovative interdisciplinary research and cross-discipline synergy of research’. Although it is an extremely difficult value to quantify, and similar quantifications have been attempted quite unsuccessfully by economists trying to define the value of the public domain, research in this direction may substantially strengthen the arguments of OAP advocates.

III.3.3. Article Processing Charges

III.3.3.1. The Article Processing Charges (APCs) business model has emerged as the seemingly most sustainable business model in academic OAP. For the large part, the literature’s focus has addressed the discussion of this OAP business model. However, although widely implemented and irrefutably the dominant business model for OAP, APCs have also collected a large share of critiques. In this respect, on the one hand it may be useful to undertake a comprehensive review of the value and disvalue of the APC business model, including variations such as the so-called hybrid OA, with special emphasis on the long-term sustainability of APC business models. This review should also be accompanied by an investigation of the foreseeable scenarios in which the global implementation of APCs as a primary tool to sustain academic publishing may lead academic research. On the other hand, research and literature should map and discuss in more detail OAP business models that may be an alternative to the APC model, highlighting the possible advantages, sustainability challenges, and foreseeable effects of their implementation on the future of academic research and publishing.

III.3.3.2. An additional research gap is closely related to the implementation of the APC business model as well as competition issues. Research should investigate the opportunity for introducing specific regulatory mechanisms for APCs, especially looking at the negative and positive externalities of having fixed APC prices in this field. One possible useful research exercise would be to make a comparative study between a model for fixed APCs and the French model for fixed prices in books, expanding the investigation to similar mechanisms in other jurisdictions, if any is in place, or other markets. This research strand appears to be critical in order to avoid a recursive recurrence of rising costs from the ‘serial crisis’ to the ‘APCs crisis’, so that we may change everything to in fact change nothing.

III.3.4. OA Book Publishing

OA book publishing is set to be the next challenge and frontier of OAP. Although projects are emerging in abundance to investigate viable business models to promote OA book publishing, literature still seems to be scarce on the subject. Comprehensive works focusing

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8 See infra Section 3.5.1.
exclusively on OA monographs and books are expected. Investigation should first of all look into the applicability to books and monographs of the arguments that have led to questioning the economics of scholarly publishing of journals. Again, research should be undertaken to review business models for academic books, compare them and identify the most sustainable, also in light of a possible inclusion of books and monographs into mandatory open access regulatory frameworks.

**Research Gap IV: OA Mandate Policies**

Another set of research gaps emerges in connection with the widespread implementation of OA mandate policies.

Literature has noted that the advantages of OA mandate policies will be better understood only when a comprehensive picture of their history and current practice is provided in systematic studies; hence those systematic studies would be a welcome addition to the literature.

**IV.1. Compliance and Enforcing Mechanisms**

Although literature has looked into the compliance rates of OA mandate policies, almost no attention has been devoted to enforcing mechanisms. Literature should carefully examine procedures which assure compliance with OA mandates and produce a set of proposals for defining which enforcing mechanisms – if at all and to which extent – should be put in place to force incompliant academic researchers to meet the OA mandates. This discussion should be inserted into the broader re-engineering of academic procedures and norms to evaluate academic performances and manage academic careers. This global integrated reform also seems needed according to commentators noting that the success of an OA mandate policy in terms of compliance and full participation may be obtained ‘only if the entire scholarly communications system is adjusted’.\(^9\)

**IV.2. Academic Freedom**

The implementation of OAP mandate policies also poses critical concerns in connection with academic freedom. Some journals with high reputational value may not offer an OA option or have prohibitive APCs or other costs, which may impinge on academic freedom. Academics should have total freedom to publish where they wish; otherwise academic freedom may be limited. The very sensitive question of academic freedom has received limited attention by the literature. Therefore, additional research may specifically concentrate on the curtailing effects that the OAP mandate regime may have on academic freedom and the mechanisms that should be put in place in order to minimise these effects.

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\(^9\) See infra Section 4.5.
This is, in fact, one fundamental question that the OAP debate should answer. It is disputable to pave the way to enhanced access to knowledge by limiting the freedom of academic authors to make independent decisions regarding the medium and place through which they want to make their voice heard.

**IV.3. Rationale for OA Book Publishing and Mandate Policies**

The inclusion of monographs in OA mandate policies may give rise to criticism and opposition. If one of the basic supporting arguments for OAP of publicly funded research – and therefore for justifying the fairness of forcing an academic author into an OA policy mandate against several hundred years of copyright incentive theory – is the coverage of the publication’s subject matter by the research grant, OAP for books may present a challenging case. Is a book the same as a journal article in terms of perfect overlapping between research grant and the subject matter included in the publication? It is probable that research may come up with fruitful results investigating along these lines, also in light of the consideration that OA mandate policies for monographs and books may pose a far more serious threat to general copyright theory than OA mandate policies for journal articles and other research outputs. Undeniably, the book has critically characterised the history of copyright and authorship rights more than any other creative artifacts. Dispossessing an unwilling author, although academic, from the highest fruits of their ‘genius’ – such as those embedded in a book, which tends to become a comprehensive representation of the whole authorial persona, which can hardly be confined to the results of work carried out in fulfilment of a research grant – may potentially turn upside down 300 years of Lockean theory of copyright. Any such policy decision must be supported by a very careful investigation and should have strong theoretical justifications.
PART 1 – HISTORY AND THEORY

ABSTRACT

The first part of this literature review starts in Section 1.1 with an initial review of the historical underpinnings of the notion of knowledge, with special emphasis on academic knowledge and its traditional open access status of absent copyright regulations. The construction of knowledge as a gift has throughout the centuries faced a relentless process of propertisation. Section 1.2 gives an account of this trend towards commodification and propertisation of knowledge, before looking at the re-emergence of open access and gift economy in the modern interconnected digital society. In looking at the return of open access, Section 1.3 discusses in general terms the theoretical background to open access publishing, including the commons movement, digital commons, free software and open source, creative commons, wikis and Wikipedia, science commons and open patenting, and finally the notion of open science, which is an umbrella concept within which all the emerging open access movements must be framed. Section 1.4 tackles more specifically the emergence of the open access publishing movement, looking at its history, definitions and sub-themes, such as OAP in science, humanities, law, primary sources, etc. Finally, Section 1.5 frames the overall discussion within the analysis of the notion of academic cultural commons, open university and open learning, and the construction of open knowledge environments.

1.1 Scientiae Donum Dei Est Unde Vendi Non Potest

The modern debate about the future of academic publications tends to present OA as an unprecedented change of paradigm, a leap of faith. In contrast, the idea of OA – and the return of OA – has a credible source in the history of knowledge. In ancient Greece, and most pre-modern civilisations, knowledge and information seem not to have been regarded as an ownable commodity. In this respect, the example of the Sophists’ teaching activities may be instructive. They were the first group to teach in exchange for a reward and the fact...
that they took fees for their teachings was largely objected to by many.\textsuperscript{12} In any event, even in the case of the Sophists, ownership was unlikely to be attached to the subject of their teachings.\textsuperscript{13} A large number of manuals reporting their teachings were written by their audience and then copied by others. No objection to this practice is reported by the Sophists. Conversely, they may have regarded these manuals as a form of publicity that expanded their reputation, and perhaps increased the reward that they may have earned through their freelance teaching activities.\textsuperscript{14}

Again, a well-known story related to Plato’s teachings seems to stress the ancient notion that knowledge was not to be treated as an ownable commodity. The subjects of Plato’s writings were undoubtedly taught first to a small circle of students. Plato’s hearers appear to have first brought the material before the public by circulating the written reports of his lectures. Hermodorus of Syracuse, student of Plato, is reported to have made a trade of the sale of Plato’s lectures after preparing written reports of his instructor’s talks.\textsuperscript{15} As seems probable, the teachings of Plato were a gift to his hearers. In contrast, Hermodorus carried Plato’s notebooks off to Sicily and secured certain profits from their sales.\textsuperscript{16} Hermodorus’ conduct was highly condemned in the Ancient world. The moral contemptibility of Hermodorus’ activity lay in distributing Plato’s works for a material gain.\textsuperscript{17} His misconduct earned such widespread contempt as to become proverbial – ‘Hermodorus trades in tracts’ – as reported also by Cicero in a famous letter to Atticus.\textsuperscript{18}

In the sixth century A.D., an attempt to protect open access to knowledge from private enclosure has been reported to have precipitated a civil war.\textsuperscript{19}

\begin{enumerate}
\item See David L Blank, ‘Socratics Versus Sophist on Payment for Teaching’ (1986) 4 Classical Antiquity 1 (discussing the Sophistic model as opposed to the Socratic one); George B Kerferd, \textit{The Sophistic Movement} (CUP 1981) 25.
\item See Salathiel Masterson, ‘Copyright: History and Development’ (1940) 28 Cal. L. Rev. 620, 623 [hereinafter Masterson, \textit{Copyright: History and Development}] (noting that Protagoras was the first who received pay for his lessons, however ‘his remunerative works is [ . . . ] an example of property produced from an intellectual product, but not yet of property resulting from the production of a work of literature’).
\item See Philodemos, VI History of the Academy 6-10, \textit{as cited in III-VI Proceedings of the Danish Institutes at Athens} (The Institute 2000) 30. See also William Mure, \textit{A Critical History of the Language and Literature of Ancient Greece} (Longman et al. 1853) 39.
\item See, reporting the anecdote, Charles F Montalembert, \textit{Saint Columba: Apostle of Caledonia} (William Blackwood and Sons 1868) 17-25; Edward A Cock, \textit{Life and Work of St. Columba} (Simpkin, Marshall 1888) 56-57; Harold C Streibich, \textit{The Moral Right of Ownership to Intellectual Property Part I} - \textit{From the Beginning to the
master Abbot Finnian, the Irish Saint Columba decided to make a copy of the Abbot’s Psalter. Apparently, Finnian discovered Saint Columba clandestinely at work and demanded the return of the copy he made. Finnian contended that a copy made without permission belonged to the owner of the original. Saint Columba refused to surrender the copy and the question was referred to the King of Tara, one Diarmid or Dermot. The king decided in favour of Finnian by noting that ‘to every book belongs its son-book (or copy), as to every cow belongs her calf’. Angered by the decision, Columba started a rebellion which ended with the defeat of the king. For once, copyright expansionism did not pay off. The copied manuscript, now on display in the Museum of the Royal Irish Academy, was later known as the Catach, or Fighter, or Book of Battle. Together with its silver case, the book was carried in battle by the O’Donnell clan to ensure victory as late as the end of the fifteenth century.

Saint Columba fought strenuously for the right to transcribe other manuscripts throughout his life, as also indicated by another incident. This time, Saint Columba placed a curse on the work of Longarad, a reclusive doctor of law and philosophy, who refused to let Columba examine, and presumably copy, his works. As a result of his life and activities, Saint Columba is remembered by history as a great collector of manuscripts and one of the initiators of the monastic amanuensis tradition. Perhaps his quest for openness and access to others’ works and manuscripts played some role in the later capacity of monks to freely copy works and preserve the riches of ancient knowledge for humankind. Boosted by figures like Saint Columba, the Catholic Church was a catalyst for culture, erudition and learning during the so-called Dark Age, with monasteries serving as hubs of knowledge resources.

Saint Columba’s strenuous defence of open access to knowledge and culture definitely intertwined with the mediaeval belief that learning was to come as a gift. ‘Knowledge is a gift of God and cannot be sold’, a mediaeval proverb rang. The proverb was actually an interpolation into canon law doctrine of a passage from the Book of Matthew in which Jesus exhorted the disciples to treat the knowledge they received from him as a gift to be shared. In that passage, Jesus is recorded as saying: ‘[f]reely ye have received, freely give’. Again, in the words of Marie de France, the gift of knowledge was to be left open to seed and burst

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20 Cock, Life of St. Columba (n 19) 56.

21 Ibid.


23 See ibid 63; Cock, Life of St. Columba (n 19) 65.


into flower. In the prologue of her tales, Marie de France described the productive web of reciprocations of knowledge exchange by stating:

[to Whom God has given the gift of science / And the eloquence of good speech / Must not be silent or conceal it / But willingly show it / When a great good is heard by many / Then it begins to seed / And when it is praised by many / Then it bursts into flower.27

The mediaeval canon law doctrine reinforced the Greek ideal that, as we have seen earlier, was represented in the long-lasting proverbial dictum ‘Hermodoros trades in tracts’. In mediaeval times, the Greek ideal was applied for a long time to storytellers, the sale of notarial and scribal productions, or to professors, who were to take no fees for their teachings.28 In the case of teaching, the patterns of gifts in knowledge-based transactions were still vital as late as the sixteenth century.29 At this time, students in Paris and Montpellier used to present banquets, fruits, sweets and wine to their professors after examinations and disputations.30 The old humanist ideal scientia donum dei est, unde vendi non potest was partially reflected also in the reproduction of manuscripts, at least within university settings. After universities took over the role of the monasteries beginning in the twelfth century, they maintained a strict open access policy towards intellectual resources. The university regulations excluded property rights over any written words by providing that manuscript dealers could not refuse to lend a copy to a member of the university even though the loan was requested for producing copies.31 Again, the so-called pecia system was an example of a fully operational primitive peer-to-peer network, in which the copying of manuscripts was perceived as a meritorious and godly act.32 The pecia system was originally

26 Matthew, 10:8. See also Hesse, ‘The Rise of Intellectual Property’ (n 11) 27.
28 See Natalie Zemon Davis, ‘Beyond the Market: Books as Gifts in Sixteenth-Century France’ (1983) 33 Transactions of the Royal Historical Society 69, 71 (noting, however, that the text of Luke that ‘the laborer is worthy of his hire’ was finally used to justify some payments for the teachers and scribes.)
29 Ibid 72; Post and others, ‘The Medieval Heritage of a Humanistic Ideal’ (n 25) 195.
30 See Davis, ‘Beyond the Market’ (n 28) 71-72.
31 See May and Sell, Intellectual Property Rights (n 11) 50; Masterson, ‘Copyright: History and Development’ (n 13) 624-625. But see Mark Rose, Authors and Owners: The Invention of Copyright (Harvard University Press 1993) 9, citing George H. Putnam, II Books and their Makers During the Middle Ages (Hillary House 1962) (1896-97) 481-483 (noting that ‘in the Middle Ages the owner of a manuscript was understood to possess the right to grant permission to copy it, and this was a right that could be exploited, as it was, for example by those monasteries that regularly charge a fee for permission to copy one of their books’).
developed in European universities as a regulated procedure for reproducing books and keeping their prices as low as possible. The *peciae* were sections into which the books were broken, then loaned, usually for a small fee, to be copied by students. The distribution of the *peciae* among a large number of students working simultaneously enabled copying in a shorter amount of time than a copier working alone. Even after the emergence of commercial scriptoria, university authorities continued to recognise that knowledge was a gift of god that should not be sold too dearly by implementing a careful regulation of the rates for the rental and sale of manuscripts.

Erasmus of Rotterdam evoked the pre-modern tradition of openess and sharing of knowledge by starting his collection of *Adages* in 1508 programmatically with the proverb ‘friends hold all things in common’—*amicorum communia omnia* in the original Latin version. The ancient tradition echoes powerfully in Erasmus’ programmatic proverb, if we recall the lines of Macrobius’ *Saturnalia*: ‘all poets and other writers are allowed to act among themselves in this way, as partners holding in common [*haec societas et rerum communio*]’. The *Adages* of Erasmus is a particularly successful product of the emerging printing industry of the early sixteenth century that looked ahead to the development of copyright and back to the ancient tradition that ideas and knowledge should be universally shared in the spirit of friendship. A long-lasting tradition of gift exchange emerges in the mediaeval and early Renaissance mechanics of book distribution and circulation. Traditionally, mediaeval manuscripts included an illumination of the author on bended knee presenting the book to a patron. The illuminations attested to a tradition of public gift in the exchange of books. As reported by Natalie Zemon Davis, gift exchange was the dominant

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34. See Davis, *Beyond the Market* (n 28) 72.
36. See Eden Katly, *Friends Hold All Things in Common: Tradition, Intellectual Property and the Adages of Erasmus* (Yale University Press 2001) (noting that the *Adages* ‘not only credit antiquity with Renaissance humanism’s understanding of tradition but also helps to set in motion the inevitable collision between a shared notion of common tradition and the privately held interest in the written word that later centuries will call intellectual property’).
37. See Eden Katly, *Friends Hold All Things in Common: Tradition, Intellectual Property and the Adages of Erasmus* (Yale University Press 2001) (also arguing that the Adages ‘not only credit antiquity with Renaissance humanism’s understanding of tradition but also helps to set in motion the inevitable collision between a shared notion of common tradition and the privately held interest in the written word that later centuries will call intellectual property’).
method for the initial diffusion of late-mediaeval writings.\textsuperscript{39} The author used to send the work to a powerful, reputable and wealthy person, who sent back a gift, enhanced the lustre of the work through his reputation, and defended the work against criticism, if necessary.\textsuperscript{40} In this context, written scholarly correspondence among individual scholars and exchange of manuscripts in the form of a gift characterised the scholarly discourse before and, for a long time, after the advent of print. Inspired by the Erasmian and ancient ethos of commonality and friendship, the goal of the first university presses – which appeared shortly after the invention of print, such as Oxford University Press already printing in 1478 – was to advance scholarship through making the research available to fellow scholars, rather than selling books.\textsuperscript{41}

The advent of the first academic journals in the seventeenth century institutionalised and generalised the pre-print – and early print – system of scholarly correspondence among individual scholars and exchange of manuscripts.\textsuperscript{42} The crystallisation of that system led to the emergence of the notion of ‘open science’. As Paul David has argued in a seminal work dedicated to the \textit{Historical Origins of ‘Open Science’}, the need to build a publicly recognised reputation within the patronage economy fostered more open forms of science.\textsuperscript{43} With the creation of the \textit{Philosophical Transactions} of the Royal Society of London by Henry Oldenburg in 1665 – the first modern peer-reviewed academic journal – the old scholarly tradition of open knowledge was channelled into a procedure for establishing knowledge claims that could be evaluated and recognised by peers and then utilised by the public.\textsuperscript{44} The very same year, the Académie Française in Paris started publishing the \textit{Journal des sçavans}, which was even more influenced by the previous forms of manuscript epistolary exchanges that were so typical of the Republic of Letters.\textsuperscript{45} Both publications were characterised by the fact that scholarly associations of the state were supporting the system, construing scholarly publication as a public good rather than a commodity.\textsuperscript{46} As Paul David has noted, modern

\textsuperscript{39} See Davis, ‘Beyond the Market’ (n 28) 73.

\textsuperscript{40} \textit{Id}.

\textsuperscript{41} Michael Nentwich, ‘(Re-)De-Commodification in Academic Knowledge Distribution?’ (2001) 14(2) Science Studies 21, 21-42.

\textsuperscript{42} \textit{Ibid} 22.


\textsuperscript{45} \textit{Ibid} 5 (describing the more marketed departure from the past of the \textit{Philosophical Transactions} if compared with the French publication, although the two publications have always been considered as ‘twin sisters’).

\textsuperscript{46} See Nentwich, ‘(Re-)De-Commodification in Academic Knowledge Distribution?’ (n 41) 22.
public patronage of research and scholarship still remains the ‘European feudalism’s great gift to the economic vigor of capitalism in the modern age.’

1.2 The Road to Propertisation

The idea that culture, knowledge and creativity are gifts that cannot be sold on the open market has strong roots in ancient and mediaeval times. Eventually, the market took over almost entirely by the beginning of the nineteenth century. Since the 1960s, law and economics scholars have launched a crusade to expose the evil of the commons, the evil of not propertising. Since Harold Demsetz, economists have viewed property rights as a desirable tool to internalise the full social value of people’s actions and therefore maximise the incentive to engage in those actions. An influential article written by Garret Hardin in 1968 termed the evil of not propertising the tragedy of the commons. The subject of Hardin’s essay was the carrying capacity of the commons and its limits. Hardin identified the tragedy of the commons in the environmental dysfunctions of overuse and underinvestment found in the absence of a private property regime. Hardin made it clear that any commons open to all, ungoverned by custom or law, will eventually collapse. Hardin’s analysis shaped the debate to come. The fear of the tragedy of the commons propelled the idea that more property rights necessarily led to the production of more information together with the enhancement of their diversity. In this perspective, the prevailing assumption is that anything of value within the public domain should be commodified. This ‘cultural


48 See Mark Rose, ‘Nine-Tenths of the Law: The English Copyright Debates and the Rhetoric of the Public Domain’ (2003) 66 Law & Contemp. Probs. 75, 85 (noting that, since its inception, the public domain discourse was comparatively weak against the rhetoric of property, as the law is mostly about property or, as the adage has it, possession is nine-tenths of the law).


52 See James Boyle, ‘Foreword: The Opposite of Property’ (2003) 66 Law & Contemp. Prob. 1, 7 (noting that, ‘any discussion of intellectual property or the public domain proceeds in the shadow of the tragedy of the commons’).
stewardship model’, as Julie Cohen has termed it, regarded ownership as the prerequisite of productive management, assumed that any commons is inefficient, and promoted the idea that opposing the expansion of intellectual property is a mistake in economic terms. As Paul Goldstein puts it, ‘the best prescription for connecting authors to their audiences is to extend rights into every corner where consumers derive value from literary and artistic works. If history is any measure, the results should be to promote political as well as cultural diversity, ensuring a plenitude of voices, all with the chance to be heard’. The recent tremendous expansion of intellectual property rights has been justified by this statement and the like.

1.3 The Return of Open Access

In recent years, however, a revisionist movement has also started to ponder whether our copyright policies struck the right balance between protection, incentive to creation, access to knowledge, circulation and cumulative production of knowledge. Modern technological advancement – and the misperception of the ‘Internet threat’ has in fact increasingly disoriented the coordinates by which the solution of the copyright paradox should be calculated and exacerbated the tension lying within it. Scholars and the civil society have warned that ‘we are in the midst of an enclosure movement in our information environment’. Professor Boyle has talked about a second enclosure movement that it is now enclosing the ‘commons of the mind’. As for the natural commons, fields, grazing


55 Paul Goldstein, Copyright’s Highway: From Gutenberg To The Celestial Jukebox (Stanford University Press 1994) 236. See also Wagner R Polk, ‘Information Wants to Be Free: Intellectual Property and the Mythologies of Control’, 103 Colum. L. Rev. 995 (2003) (arguing that ‘increasing the appropriability of information goods is likely to increase, rather than diminish, the quantity of “open” information’).


lands, forests and streams, which were enclosed in the sixteenth century in Europe by landowners and the state, relentlessly expanding intellectual property rights are enclosing the intellectual commons. In a very similar fashion, Peter Drahos and John Braithwaite have spoken of ‘information feudalism’. As in the case of mediaeval feudalism, a redistribution of property rights involves this time a transfer of knowledge from the intellectual commons to media conglomerates and integrated life science corporations, rather than individual scientists and authors. Authors have argued that this process of ‘commodification of information’ is promoted by a mix of technology and legislation. According to Bernt Hugenholtz and Lucie Guibault, as a consequence of the transformation of the meaning of market power operated by the information economy, ‘[i]tems of information, which in the “old” economy had little or no economic value, such as factual data, personal data, genetic information and pure ideas, have acquired independent economic value in the current information age, and consequently become the object of property rights making the information a tradable commodity’. The commodification of information is propelled by the ability of new technologies to capture resources previously unowned and unprotected, as in a new digital land grab. Professor Elinor Ostrom and her colleague Charlotte Hesse have reinforced this point by arguing that ‘[i]nformation that used to be “free” is now increasingly being privatized, monitored, encrypted, and restricted. The enclosure is caused by the conflicts and contradictions between intellectual property laws and the expanded capacities of new technologies’. This may have serious effects on the academic cultural commons, as – Ostrom and Hesse still argue – this process of enclosure

59 See Boyle, ‘The Second Enclosure Movement’ (n 58) 33-36.
60 See Peter Drahos with John Braithwaite, Information Feudalism: Who Owns the Knowledge Economy? (Earthscan Publications 2002).
61 Ibid 2-3 (arguing that the ‘effect of this [. . . ] is to raise levels of private monopolistic power to dangerous global heights, at a time when states, which have been weakened by the forces of globalization, have less capacity to protect their citizens from the consequences of the exercise of this power’).
63 P Brent Hugenholtz and Lucie Guibault, ‘The Future of the Public Domain: An Introduction’ in Lucie Guibault and P Brent Hugenholtz (eds), The Future of the Public Domain: Identifying the Commons In Information Law (Kluwer Law International 2006) 1. See also Niva Elkin-Koren, ‘It’s All About Control: Rethinking Copyright in the New Information Landscape’ in Niva Elkin-Koren and Neil W. Netanel (eds), Commodification of Information: Political, Social, and Cultural Ramifications (Kluwer Law International 2002) 81-82 (noting that, in addition, the decentralised nature of the Internet has increased the significance of control over the content via copyright law and has augmented the pressure on the legal system to produce new means of market control).
'leads to speculation that the records of scholarly communication, the foundations of an informed, democratic society, may be at risk'. 66 Again, extreme propertisation and commodification of information – which has been reinforced in the information society – seems to be a counterintuituitive option for the networked information society in light of the opportunities that digitisation and Internet distribution offer. As Professor Paul David has argued,

Today, the greater capacity for the dissemination of knowledge, for cultural creativity and for scientific research carried out by means of the enhanced facilities of computer-mediated telecommunication networks, has greatly raised the marginal social losses that are attributable to the restrictions that those adjustments in the copyright law have placed upon the domain of information search and exploitation. 67

In fact, the road to propertisation, especially in view of the value of open access in the digital environment, seems not to be the sole option, as fundamental literature has highlighted in recent years. Nobel laureate Elinor Ostrom powerfully advocated the cause of the commons against the mantra of propertisation. Ostrom’s works showed the inaccuracies of Hardin’s tragedy of the commons. 68 Empirical studies, which Ostrom has spearheaded, have shown that common resources can be effectively managed by groups of people under suitable conditions, such as appropriate rules, good conflict-resolution mechanism, and well-defined group boundaries. 69 Under suitable conditions and proper governance the tragedy of the commons becomes ‘the comedy of the commons’. 70 This is especially true for cultural commons, with special emphasis on academic cultural commons. 71 Culture in fact represents

66 Ibid.
70 See Carol M Rose, ‘The Comedy of the Commons: Custom, Commerce, and Inherently Public Property’ (1986) 53 U Chi L Rev 711 (arguing that the commons, rather than ineludibly turning into a tragedy of underproduction, may turn into a comedy of efficient production if managed through the appropriate rules).
71 See, for an analysis of academic cultural common building upon Ostrom’s pioneering work in the natural resources environment, Michael J Madison, Brett M Frischmann and Katherine J Strandburg, ‘The University as Constructed Cultural Commons’ (2009) 30 Wash U J L & Pol’y 365; Michael J Madison, Brett M Frischmann and
a quintessential example of comedic commons because it gets enriched through reference the more people consume it. This is because the carrying capacity of cultural commons is endless and cultural commons are non-rivalrous. As the argument goes, rather than being a solution to manage efficiently scarce resources, propertisation and enclosure in the cultural domain may be a wasteful option by cutting down social and economic positive externalities. Reviewing the peculiar nature of cultural commons, the academic literature has turned the paradigm of underuse of common resources upside down by developing the idea of the tragedy of the anti-commons, which lies in the underuse of scarce scientific resources because of excessive intellectual property rights and all related transaction costs.

Recently, after a long unchallenged dominance of the market and a steady trend towards propertisation of knowledge-based outputs, gift exchange models seem to regain increasing relevancy in the networked information economy. Communities of social trust, such as Linux, Wikipedia, YouTube, fan-fiction communities, and major political websites, have spread virally on the Internet, powerfully boosted by open and gift exchange models. Technology has made possible large-scale cooperative behaviour and gift exchange that was previously limited to rarified groups. Initially, the large-scale cooperative behaviour emerged and evolved in software communities and the academia. However, these cooperative and participative behaviours have spread far beyond these initial rarified

Katherine J Strandburg, ‘Constructing Commons in the Cultural Environment’ 95 Cornell L. Rev. 657 (2010). See also, discussing the notion of ‘information commons’, Elinor Ostrom and Charlotte Hess, A Framework for Analyzing the Knowledge Commons’ in Charlotte Hess and Elinor Ostrom (eds), Understanding Knowledge as a Commons: From Theory to Practice (MIT Press 2007). For a very comprehensive list of the commons scholarship, including information, cultural and scientific commons, see Indiana University, Digital Library of the Commons <http://dlc.dlib.indiana.edu/dlc> accessed 2 June 2013.


See infra at 2.2.3.

See Madison, Frischmann and Strandburg, ‘The University as Constructed Cultural Commons’ (n 71) 378-402.
communities. From open source we have been moving to open culture. Open networks and networked peer collaboration have transformed markets by enabling amateurs to innovate. David Bollier has described this process as a ‘viral spiral’ by which Internet users come together to build digital tools and share content on self-created online commons. In cyberspace human intelligence has become collective through mass collaboration, which – as several authors have increasingly noted – may stifle social and economic enrichment to a far greater extent than in the past. Benkler defines the high generative capacity of online commons as the ‘wealth of networks.’ In the *Wealth of Networks*, Yochai Benkler writes: ‘[r]adical decentralization of intelligence in our communications network and the centrality of information, knowledge, culture, and ideas to advanced economic activity are leading to a new stage of the information economy — the networked information economy.’ The wealth of networks lies in social and networked peer production that is highly generative because it is modular, granular, and cheap to integrate the results. To borrow Jerome Reichman’s categories, new forms of innovation enable the transformation of small grains of

83 Benkler, *The Wealth of Networks* (n 82) 32.
84 Ibid 91-127.
information and innovation into distributed and collective forms of intelligence. As Benkler puts it, the networked environment makes possible a new modality of organizing production: radically decentralized, collaborative, and nonproprietary; based on sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with each other without relying on either market signals or managerial commands. This is what I call ‘commons-based peer production.’

In the emerging ecosystem of ‘commons-based peer production,’ open access models play a pivotal role that supposedly should run the networked information economy and enrich the wealth of networks. In this respect, theoretical developments have been accompanied by efforts to turn commons theory into practice. As technology has facilitated a vast array of cooperative creative projects, community production has been increasingly considered as a solution to the free-rider problems of cultural production by converging initiatives such as open source software, Creative Commons, Wiki environments or SSRN. Actually, Creative Commons, the open-source software movement, and the free software movement have created a commons through private agreement and technological implementation. Again, private firms in the biotechnological and software field have decided to forgo property rights to reduce transaction costs and circumvent any ‘anti-commons’ failure. A call for open access in academic publishing follows in the footsteps of those many other initiatives and

86 Benkler, The Wealth of Networks (n 82) 60.
Before turning to the discussion of the open access movement in academic publishing, we will first briefly review some of the other relevant practical implementations of commons theory.

1.3.1 Free/Libre and Open Source Software

The return of the gift and the emergence of nonproprietary, decentralised, open access models of intellectual production have been a marked feature of the software community since the early history of the digital networked society. In *The Cathedral and the Bazaar*, Eric Hamilton analysed the ‘hacker culture as a “gift culture” in which participants compete for prestige by giving time, energy and creativity away.’ Yochai Benkler has extended the same conclusions to the open source movement. Again, in Benkler’s view, open source software is the ‘quintessential instance of commons based peer production’. In this respect, the open source movement has also been construed as an eco-system that may act towards ‘democratizing innovation’.

After an initial communitarian approach to software’s source code, which was shared among developers and computer users, by the 1970s the business model started to change. Increasingly, the software market became proprietary and users were prevented through technical measures from reverse engineering software program. In 1980, copyright protection was extended to computer programs in the United States. Similar extensions, then, occurred in other jurisdictions. It was due to the discontent for these market practices that Richard Stallman started the GNU’s Not Unix (GNU) project in 1983, soon to

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90 See Suber Peter, ‘Creating an Intellectual Commons Through Open Access’ in Charlotte Hess and Elinor Ostrom (eds), Understanding Knowledge as a Commons (MIT Press 2006) (discussing open access publishing as a means to create an intellectual commons and highlighting obstacles to an OA commons that have the flavour of a tragedy of the commons).


be followed by the development of the GNU operating system and the creation of the Free Software Foundation (FSF).\textsuperscript{97} GNU is a non-proprietary UNIX-like software granting its users four freedom rights: use, share, study and modify.\textsuperscript{98} Through a metaphor that was set to become extremely popular, the FSF clarified that ‘free software’ is a matter of liberty, not price, by noting that free software is ‘free as in free speech, not as in free beer’.\textsuperscript{99} A major milestone for FSF took place when Linux Torvalds released the Linux kernel as a freely modifiable source code in 1991, which was relicensed under the GNU General Public Licence (GPL) in 1992.\textsuperscript{100} Shortly thereafter, the Berkeley Software Distribution (BSD) – which originated through UNIX development at the University of California, Berkeley – was also released as a free software.\textsuperscript{101}

Also in an attempt to mediate the extremism of the FSF approach with commercial concerns, the Open Source Initiative was launched in 1998.\textsuperscript{102} In justifying its different attitude – that was also inspired by the decision of Netscape Communications Corporation to release their Netscape Communicator Internet suite as a free software – the OSI founders noted that the initiative was started to ‘dump the moralizing and confrontational attitude that had been associated with “free software” in the past and sell the idea strictly on the same pragmatic, business-case grounds that had motivated Netscape.’\textsuperscript{103} The main difference between Open Source and Free Software lies in their licensing approach, and I will return to this point later. Open source software spread rapidly. Netscape code has become the browser today known as Mozilla Firefox and Thunderbird. Google, Oracle and IBM have become only a few among the major players in the open source market.


\textsuperscript{99} Ibid.


\textsuperscript{101} See Marshall Kirk McKusick, ‘Twenty Years of Berkeley Unix: From AT&T-Owned to Freely Redistributable’ in Chris DiBona, Sam Ockman and Mark Stone (eds), OpenSources: Voices From the Open Source Revolution (O’Reilly Media 1999) (detailing the spread of open source culture among the UC Berkeley computer science, mathematics, and statistics departments). See also Greg Lehey, The Complete FreeBSD (O’Reilly Media 2003); Michael W Lucas, Absolute FreeBSD (No Starch Press 2007).


\textsuperscript{103} David Booth, Peer Participation and Software: What Mozilla Has to Teach Governments (MIT Press 2010) 8.
Steven Weber stresses the difference between open source software and the traditional intellectual property model by noting that open source software turns the principle of exclusivity of intellectual property upside down because this software is ‘configured around the right to distribute, not to exclude.’\(^{104}\) As Maurer and Scotchmer have noted, open source software development remedies a defect of intellectual property protection, which does not generally encourage disclosure of the source code.\(^{105}\) The open source model has been customarily characterised, though variants are plentiful, by software developers making their source code available for free to end-users and improvers. Authors have investigated at length the reasons why developers participate in open source collaborations instead of keeping their code proprietary.\(^{106}\) Open source software developers’ incentives encompass a vast range of reasons, including ‘own use benefits, complementarity with proprietary products sold in the market, signaling, education, [achieving commons standards/network externalities] and social psychological motives such as altruism or simple enjoyment.’\(^{107}\) In addition, commercial and hobbyist contributions have equally characterised open source software with an increasing switch to commercial motivations in recent times.

Of course, code can be released subject to licence restrictions. Licences applied to open source software make the open-source eco-system a contractually reconstructed commons. The Berkeley Software Distribution (BSD) licence and the GNU GPL\(^ {108}\) are among the most common open source software licences. In fact, they entail a substantially different approach to the distribution of open source software. The GPL is a viral licence, whereas the BSD, or other Open Source licences, are not. A viral licence obligates a further developer of

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\(^{104}\) Steven Weber, *The Success of Open Source* (Harvard U Press 2004) 1. See also John P. Ulhöi, ‘Open Source Development: A Hybrid in Innovation and Management Theory’ (2004) 42 Mgmt Decision 1095 (discussing the more general case of open source development in several industrial sectors – such as the iron, sport equipment and software industry – and contrasting open source models with private property theory, which may see open source or non-proprietary knowledge as an anomaly).

\(^{105}\) Maurer and Scotchmer, ‘Open Source Software’ (n 92) 4 (noting that source code is typically not disclosed in either copyrighted software or software patents).


\(^{107}\) Maurer and Scotchmer, ‘Open Source Software’ (n 92) 4.

\(^{108}\) See GNU General Public Licence <https://gnu.org/licenses/gpl.html>.
the code to make it available under the same licensing terms. Instead, the Berkeley Software Distribution licence requires users to give attribution credit but does not prohibit commercial use or development. Basically, the essential difference between Open Source and Free Software is that, with the exception of the requirement to provide source code, the definition of Open Source is only concerned with what a licence may require,\(^\text{109}\) whereas the Free Software definition requires, for a software to be free, that all four freedoms must be exercised.\(^\text{110}\) In this respect, the Free Software requires that, if you reuse the source code, the entire result must also be distributed as Free Software. Therefore, if a user modifies and/or incorporates Free Software into another work, the user is forbidden to further restrict the ability of any ‘downstream’ users from modifying, using or redistributing the software and the same rights that were originally given by the GNU GPL licence must apply to any ‘downstream’ users.\(^\text{111}\) These different licensing regimes are closely related to the diverse philosophical models inspiring FSF and OSI mentioned above. The tension in the free/open source software movement between anti-propertarian radicalism and commercial interests may also serve as a learning experience for the OA movement in academic publishing.\(^\text{112}\) In fact, the emphasis on commercial concerns seems to have served well the recent expansion of open source on a more massive scale, while free-software extremism seems to have been less successful.

### 1.3.2 Creative Commons

From the free software/open source movement, the open source concept has spread to other domains, usually governed by intellectual property rules. In this respect, Creative Commons (CC) has been another example of a practical implementation of the return of the

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\(^{111}\) In practice the difference between Open Source and Free Software is minimal and the vast majority of the open source software is also free software, with the only relevant exception of the phenomenon of ‘tivoization.’ Tivoization, coined by Richard Stallman in reference to TiVo’s use of the GNU GPL licence, refers to a situation in which a software is designed to run on a particular device and that device is designed to prevent modified versions of the software from actually working, therefore preventing users from enjoying one of the freedoms provided in the Free Software definition. See Richard Stallman, Why Open Source Misses the Point of Free Software (GNU Operating System) <http://www.gnu.org/philosophy/open-source-misses-the-point.html> accessed 30 April 2013. The practice of tivoization prompted a reaction from the FSF and led to the development of the GPL Version 3, including among its goals also that of preventing tivoization. See Richard Stallman, “Transcript of Richard Stallman on GPLv3 in Brussels, Belgium; 1st of April 2007” (Free Software Foundation Europe, 4 April 2007) <http://fsfe.org/campaigns/gplv3/brussels-rms-transcript#tivoisation> accessed 15 July 2013.

gift and OA in the digital domain. Creative Commons was founded in 2001 by scholars, technologists and entrepreneurs as a reaction to the dramatic expansion of copyright terms and coverage. The goal of the organisation is to develop and support ‘legal and technical infrastructure that maximizes digital creativity, sharing and innovation.’

To this end, CC has developed a series of machine-readable licences that users can choose from and attach to their own creations. The licences communicate which rights the users reserve or waive for the benefit of recipients and other creators. In this respect, CC has labelled its licences as ‘some rights reserved.’ The ‘some rights reserved’ approach, as opposed to the traditional copyright ‘all rights reserved’ approach, makes CC a contractually reconstructed commons. Initially, the core CC licences were drafted according to United States Copyright law and were later ported to different copyright legislation around the world, as part of the Creative Commons International porting project. The CC licences incorporate a ‘three-layer’ design. Each licence includes a traditional legal tool incorporating legalistic language and formulas, a human readable version of the licence summarising the terms of the licence in a user-friendly manner, and a machine-readable

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115 Creative Commons, Mission <http://creativecommons.org> accessed 16 April 2013. See also Uma Suthersanen, ‘Creative Commons – the other way?’ (2007) 20(1) Learned Publishing 59 (discussing the first known decision upholding a CC licence in a relation to photographs made available to the public on an online sharing website and analysing the structure of the CC licensing regime in England and Wales); Jacobsen v Katzer 535 F 3d 1373 (Fed Cir 2008) remanded 609 F. Supp. 2d 925 (N D Cal 2009) (discussing the relationship between CC licences and contracts in the US and construing the terms of the licence as equivalent to the conditions of a contract, therefore binding upon any user of the work).

116 See Gary Stix, ‘Some Rights Reserved: Cyber-law Activists Devise a Set of Licenses for Sharing Creative Works’ (2003) 288 (3) Scientific American 46. See also Mira T Sundara Rajan, ‘Creative Commons: America’s Moral Rights?’ (2011) 21 Fordham Intell Prop Media & Ent. L J 905 (discussing the moral rights implications of four movements that represent distinctive manifestations of free access principles, including Creative Commons, Free Software, Wikipedia and Google books and arguing that ‘[i]n deed, the moral rights approach to creative works is the foundation of the CC licence’ and ‘[t]he provisions of the Creative Commons licenses closely approximate the legislative provisions of moral rights to be found in the laws of countries outside the United States’).

117 See Prodomos Tsiavos, Edgar Whitley, ‘Open Sourcing Regulation: The Development of the Creative Commons Licences as a Form of Commons Based Peer Production’ in Danièle Bourcier and others (eds), Intelligent Multimedia - Managing Creative Works in a Digital World (European Press Academic Publ 2010) 89-114.

118 See Catharina Maracke, ‘Creative Commons International: The International Licence Porting Project’ (2010) 1 (1) JIPITEC 4 <http://www.jipitec.eu/issues/jipitec-1-1-2010/2417> accessed 30 April 2013. See also Uma Suthersanen, ‘Creative Commons – the other way?’ (2007) 20(1) Learned Publishing 59 (discussing the first known decision upholding a CC licence in a relation to photographs made available to the public on an online sharing website and analysing the structure of the CC licensing regime in England and Wales); Jacobsen v Katzer 535 F 3d 1373 (Fed Cir 2008) remanded 609 F. Supp. 2d 925 (N D Cal 2009) (discussing the relationship between CC licences and contracts in the US and construing the terms of the licence as equivalent to the conditions of a contract, therefore binding upon any user of the work).

119 See Creative Commons, Licences <http://creativecommons.org/licenses> accessed 16 April 2013.
version of the licence. The machine-readable version summarises the terms of each licence in a standardised way that software systems, search engines and other kinds of technology can understand. In short, the CC licence is affixed with electronic tags so that a browser can find copyrighted items pertaining to the various CC licensing categories. The CC licensing platform includes four core types of licences: attribution (BY), non-commercial (NC), no derivatives (ND) and share alike (SA). The types can be grouped together in more or less restrictive fashions. The CC also offers the opportunity to circulate the work with no conditions attached by ‘dedicating’ the copyright to the public domain. This is done through the Creative Commons CC0 Licence and the Public Domain Mark. The Public Domain Mark was released in October 2010 by Creative Commons as a tool enabling works free of known copyright restrictions to be labelled and easily discovered over the Internet. The Public Domain Mark complements the Creative Commons CC0 public domain dedication which allows authors to relinquish their rights prior to copyright expiration.

CC licensing has expanded relentlessly in the last few years with hundreds of millions of CC licensed works available on the Internet. Major users, such as Al Jazeera, Flickr, Wikipedia, Google, or the White House, have adopted CC licences. Again, of special interest given the core focus or our research, open access journals, such as those published by the Public Library of Science, have been published under CC licences. Increasingly, governments are considering turning to the use of CC licensing to enable open access to public sector information and publicly funded research. In this respect, governments have come to realise that the wide dissemination of the research they have produced or supported can


121 See Tony Simmonds, ‘Common Knowledge? The Rise of Creative Commons Licensing’ (2010) 10(3) Legal Information Management 162 (analysing the six CC licences).


123 See About CC0 — ‘No Rights Reserved’ <http://creativecommons.org/about/cc0> accessed 30 April 2013.


125 See Anne Fitzgerald, Neale Hooper and Brian Fitzgerald, ‘The Use of Creative Commons Licensing to Enable Open Access to Public Sector Information and Publicly Funded Research Results. An Overview of Recent Australian Developments’ in Danièle Bourcier and others (eds), Intelligent Multimedia - Managing Creative Works in a Digital World (European Press Academic Publ. 2010) 151-174 (discussing the experience of governments in Australia in applying CC licences to public sector information in a context in which most of the materials and information produced or funded by the government is subject to copyright; in this respect the Australian experience can be easily translated to the UK and European context).
‘stimulate economic innovation, scientific progress, education, and cultural development’ and CC licences have been seen as a possible tool to promote that dissemination.

Some authors, including Niva Elkin-Koren, have criticised Creative Common’s strategy for being entirely dependent upon a proprietary regime and deriving its legal force from that regime. In Elkin’s view, the dependence on copyright may interfere with the goal of promoting a core perception of freedom of information, while working towards the development of a sustainable alternative to copyright. Elkin concludes that the reliance on property rights and on viral contracts to promote free culture, without a commitment to a single standard for freedom of information, leaves the CC’s strategy only ‘with the single unifying principle which empowers authors to govern their works.’ The lack of standardisation and the proliferation of contractual terms – Elkin argues – could strengthen the proprietary regime in information by increasing uncertainty and end-users’ costs in determining the rights attached to any specific work. Again, other noteworthy critiques have specifically targeted the non-commercial feature of some CC licences as being incompatible with free knowledge databases like Wikipedia, open media archives and open source projects, which explicitly allow and encourage commercial use.

1.3.3 Wikis and Wikipedia

Wikis are collaborative online environments where users are allowed to add, modify or delete its content and may serve many different purposes. Most wikis are the result of


128 Elkin-Koren, ‘Exploring Creative Commons’ (n 127) 326.

129 Ibid.


131 See Tapscott and Williams, Wikinomics (n 81); Anja Ebersbach, Wiki: Web Collaboration (Springer Science+Business Media 2008); Bo Leuf, The Wiki Way: Quick Collaboration on the Web (Addison-Wesley 2001); Stewart Mader, Wikipatterns (John Wiley & Sons 2007); Mark Cooper, ‘From Wifi to Wikis and Open Source:
collaborative and cumulative creativity and authorship. Wikipedia environments are another quintessential example of an emerging peer-based gift/sharing economy, whose end-result lies in the creation of a cultural commons.

Wikipedia is a combination of the words wiki and encyclopedia. Launched in 2001 by Jimmy Wales and Larry Sanger, Wikipedia takes the wiki collaborative ethos to the global ubiquitous encyclopedia level. Wikipedia is a multilingual, open access, crowd-funded encyclopedia edited collaboratively by volunteers around the world. With more than 26 million articles in 286 languages, Wikipedia’s numbers are growing steadily. By way of example, the English version has grown from 3.5 million articles in 2011 to 4.2 million in May 2013. Wikipedia has other multilingual free-content sister projects, including Wiktionary, Wikibooks and Wikinews. Collaborative authorship and social editing in Wikipedia and wiki environments represent an increasingly influential model for content creation and dissemination, so that commentators are now talking about ‘wikinomics.’

The rationale for volunteers’ contributions to Wikipedia has been studied, although not yet in as comprehensive a manner as open source software contributors. Wikipedia contributors and editors are usually uncompensated, although contributions take time and knowledge, therefore literature has tried to investigate the non-monetary incentives at work among Wikipedians. Studies have looked at profiles of individuals contributing to Wikipedia,
comparing the influence of cultural differences between national contributors, focusing on personal characteristics of contributors, and comparing motivations associated with high and low levels of contribution. Additionally, Forte and Bruckman investigate why people write for Wikipedia even when the encyclopedia does not provide bylines to credit authors and suggest ‘softer’ incentives such as engagement in desirable activities. Running an empirical analysis, Yang and Lai have concluded that internal self-concept-based motivation is the key motivation for knowledge sharing on Wikipedia. According to Yang and Lai’s results, the principal reason for Wikipedians to share knowledge is a ‘force that drives individuals to pursue an activity that meets their inherent standards’ rather than ‘adopting an activity that is congruent with the expectations of a reference group’.

Content reliability is one of the most widely discussed topics in research related to Wikipedia, and critiques related to Wikipedia’s reliability have been a constant issue. The completeness and accuracy of Wikipedia’s articles have been placed under scrutiny by several authors, often noting that Wikipedia may be biased by personal viewpoints. In this respect, editorial wars have been a common feature of the editing process on Wikipedia in


139 See Yair Amichai-Hamburger, Naama Lamdan, Rinat Madiel, and Tsahi Hayat, ‘Personality Characteristics of Wikipedia Members’ (2008) 11(6) CyberPsychology & Behavior 679 (finding that Wikipedia members locate their real me on the Internet more frequently compared with non-Wikipedia members and agreeableness, openness, and conscientiousness were lower for the Wikipedia members than non-members).


143 Ibid 1378.

past years.\textsuperscript{145} However, these edit wars have been a self-correcting mechanism that eliminates much inaccuracy.\textsuperscript{146} Increasingly, opposition to Wikipedia as a learning tool in academic settings has become more lenient, if the necessary countermeasures are applied.\textsuperscript{147} Still, Wikipedia seems to be perceived as less credible compared with more expertly provided online encyclopedic information,\textsuperscript{148} although studies tend to demonstrate that accuracies and inaccuracies in Wikipedia are similar to those of the more academically qualified counterparts.\textsuperscript{149} Literature’s conclusions on Wikipedia’s accuracy and reliability may serve as a useful tool to address the discussion on the possible migration from highly reputed traditional academic reviews to open access journals.

Moreover, the adoption of Wikipedia in the academic community has been discussed. PLoS Computational Biology, for example, has launched a new type of peer-reviewed article, written in the style of Wikipedia, which, once accepted, is to be published in the PLoS review, with the text being uploaded to Wikipedia shortly thereafter and open to the usual editing process.\textsuperscript{150} Lu and Askin have compared the processes of publishing a peer-reviewed


\textsuperscript{146} Reid Goldsborough, ‘Truth testing on the Internet’ (2012) 39(4) Teacher Librarian 68, 68. See also Mohammad M Rahman, ‘An Analysis of Wikipedia’ (2008) 9(3) JITTA 81 (noting that ‘[q]ualitatively, Wikipedia’s definition as a public good, combined with free-riding and free-editing helps to maintain the reliability of Wikipedia’).


article in Wikipedia and the open access journal model.\textsuperscript{151} Compared with an open access journal model, Wikipedia is less expensive, quicker, more widely read, and offers a wider variety of articles. However, many challenges still remain. As Lu and Askin noted, the website structure is not well suited to academic publications; the site is not integrated with common academic search engines such as Google Scholar or with university libraries; and there are concerns among some members of the academic community about the site’s credibility and impact in academia.

Again, two projects have sought to apply open access crowd-sourced production of knowledge to the academic domain in the field of text archiving.\textsuperscript{152} Distributed Proofreaders is a project affiliated to Project Gutenberg,\textsuperscript{153} one of the oldest digital library projects, where contributors can proofread text of scanned book pages which have been generated by optical character recognition software and contain errors.\textsuperscript{154} Unlike Wikipedia, not all contributors can participate in all stages of proofreading, of which there may be several. Wikisource is a digital library of previously published free-content works that are in the public domain or licensed under terms allowing free copying, modification and reuse, including commercial.\textsuperscript{155} As with Distributed Proofreaders, users may proofread the scanned text that has been uploaded on the site with no limitation, as in a traditional wiki environment.

\subsection*{1.3.4 Open Science, Science Commons and Open Patenting}

Open Science is the grand scheme within which open access movements have to be ‘re-comprehended’. As we have mentioned earlier, the notion of open science has a long history, dating back to the sixteenth century. Nonetheless, the post-Renaissance Open Science revolution has been eroded by the relentless propertisation of intellectual entitlements. David underlines the tension of this patronage economy with the modern


\textsuperscript{155} See Wikisource <\texttt{http://wikisource.org}> accessed 11 May 2013.
commercial system based on ‘the control of knowledge through secrecy or exclusive possession of the right to its commercial exploitation’. David reclaims the efficacy of a public patronage based open science model and call for a rebalance between the Republic of Science and the proprietary technology, as “[t]o pursue the policy path toward the vision of perfected “Intellectual Capitalism” could perversely lead the global enterprise of scientific research [. . . ] towards the truly darker past from which western European societies rather fortuitously managed to escape in the seventeenth century’. This balance is precisely the goal that emerging open access movements would like to achieve.

Besides the open access to academic literature and scholarship, which lies at the core of open science and is the focus of our review, open access has recently emerged in the field of patentable innovation, under the assumption that excessive patenting stifles innovation, and research data, which have been increasingly privatised and commercialised by new legal rights and mechanism. Leading institutions, including the Royal Society, have highlighted ‘the need to grapple with the huge deluge of data created by modern technologies in order


158 See Willinksy, The Unacknowledged Convergence of Open Source, Open Access, and Open Science’ (n 87).


160 See Reichman and Uhlir, ‘A Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property’ (n 88) 135 (discussing the legal tools and mechanism commodifying scientific research data).
to preserve the principle of openness and to exploit data in ways that have the potential to create a second open science revolution.\textsuperscript{161} Also in the case of research data and patentable innovation, parties have attempted to create a ‘science commons’ by pooling together intellectual resources through private agreements. Private firms in the biotechnological and software field have decided to forgo property rights in order to reduce transaction costs.\textsuperscript{162} The key assumption is that injecting information into the public domain will preempt property rights of competitors and thus correct in part the market failure caused by the phenomenon of the ‘anti-commons’.\textsuperscript{163} Publicly funded projects have promoted data sharing among scientists that have driven the Human Genome Project and International Haplotype Map Project.\textsuperscript{164} Again, proposals have been made for promoting open and collaborative research in the domains of synthetic biology,\textsuperscript{165} stem cell research\textsuperscript{166} and microbial research.\textsuperscript{167}

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\begin{itemize}
  \item \textsuperscript{162} See Arti K Rai, ‘Open and Collaborative Research: A New Model for Biomedicine’, in Robert W Hahn (ed), Intellectual Property Rights in Frontier Industries: Software and Biotechnology (AEI Press 2005) 131, 140-45; Robert P Merges, ‘A New Dynamism in the Public Domain’ (2004) 71 Chi. L. Rev. 183, 186-191. See also, discussing the ‘genome commons’ and more generally the ‘science commons,’ Jorge L Contreras, ‘Data Sharing, Latency Variables, and Science Commons’ (2010) 25 Berkeley Tech L J 1601. An interesting emerging set of issues in the domain of research data may involve the likelihood of copyright protectability of semantic web ontologies – the structures or hierarchical organisations that define contextual relationships on the semantic web, which is the web designed for finding data, rather than documents. Authors have noted that the ‘ability of the semantic web to annotate and reuse data relies on the social structure of science supporting data sharing as a norm,’ therefore in order not to lose the new immense value that the semantic web may produce in terms data retrieval and reuse, ‘the best practices for the scientific community should include adopting a machine readable license which disclaims copyright protection for publication of public scientific data and assures automation of the integration of ontologies which will maximize easy access to public science materials that can be queried.’ See Andrew Clearwater, ‘The New Ontologies: the Effect of Copyright Protection on Public Scientific Data Sharing Using Semantic Web Ontologies’ (2010) 10 J. Marshall Rev. Intell. Prop. L. 182, 205.
  \item \textsuperscript{163} See infra n 74.
  \item \textsuperscript{166} See Winickoff, Saha and Graff, ‘Opening Stem Cell Research And Development’ (n 164).
  \item \textsuperscript{167} See Jerome H Reichman, Paul F Uhlir, and Tom Dedeurwaerdere, Governing Digitally Integrated Genetic Resources, Data, and Literature: Global Intellectual Property Strategies for the Microbial Research Commons (CUP, forthcoming 2014); Paul F Uhlir (ed), Designing the Microbial Research Commons: Proceedings of an

\end{itemize}
Created as a spinoff of CC, Science Commons attempted to set up a framework to make scientific research ‘re-useful’, enabling ‘one-click access to research materials, and integrating fragmented information resources’.\textsuperscript{168} Although Science Commons has been discontinued as a stand-alone project and re-integrated with CC, most of the sub-projects that it fathered are still proceeding. In particular, Science Commons – now CC Science – have been exploring new models for licensing patents and know-how and are promoting open innovation.\textsuperscript{169} In this context, CC has developed the CC Public Patent Licence,\textsuperscript{170} as part of the GreenXchange Project, a collaboration to promote the sharing of know-how and patent technology for solving sustainability and other pressing social problems.\textsuperscript{171} As indicated in the CC Public Patent Licence, ‘the CC Public Patent License is intended to be used as part of a public license offer to license patent rights. A public license offer provides two main benefits: a) it is publicly accessible on the Internet: anyone can read the full terms of the offer; b) it is a “live” offer so that anyone can accept it if they agree to all its terms. To have these benefits, the offer must be openly published, and it must be capable of being accepted by anyone on a non-discriminatory basis and without additional negotiation’.\textsuperscript{172}

In any event, although openness in the patent domain seems to be emerging, as Maggiolino and Montagnani have noted, open patenting ‘is still a kaleidoscopic phenomenon whose boundaries are unsettled and very much affected by the industry to which the subject matter (or innovation) belongs.’\textsuperscript{173} On the one hand, projects like the Open Invention Network, pooling software patents in order to improve applications for the


\textsuperscript{168} See Science Commons <http://sciencecommons.org/about> accessed 10 May 2013. See also Mandrusiak, ‘Balancing Open Source Paradigms’ (n 87) 316-330 (discussing pitfalls of the Science Commons project).


\textsuperscript{172} CC Public Patent License (n 170).

Linux operating system,¹⁷⁴ and the BIOS Project, which guarantees open access to some patented and not-patented biological materials,¹⁷⁵ in exchange for the right to use the commons, have set up licences including both a ‘non-challenging clause,’ a ‘grant-back clause on improvements’ and a ‘viral clause’ forcing members to assign or license patents included in the pool only subject to the terms of the pool licence. On the other hand, projects like GreenXchange do not seem to be concerned by free riding and do not include a grant-back and viral clause but only non-challenging clauses. In contrast, GreenXchange licensing models provide a path to commercialisation with a scheme of rules for the payment of royalties that the participants have the option of charging.¹⁷⁶

1.4 THE OPEN ACCESS MOVEMENT IN ACADEMIC PUBLISHING

As part of this ongoing discourse about open access and cultural commons, Open Access Publishing (OAP) has been emerging as a global movement that drives the renewed emphasis on open science and the global request for access to knowledge. Open access publishing – or open access to scholarship – endorses the goal of allowing information to flow more freely among researchers and the public at large as a reaction to perceived pitfalls in the present system of circulation of academic knowledge and the dematerialisation of scholarly publishing after the advent of electronic publishing and Internet distribution.¹⁷⁷ The profound interrelation between OAP and digitisation – and more generally the nexus of causality between digitisation and open access – is acutely exposed by Jean Claude Guédon:

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¹⁷⁶ The GreenXchange offers the possibility to pledge patents with three different Licence types: (1) Research Non-Exempt (which ‘provides non-profits, such as universities, the freedom to research on the patented technology, improve on it, and patent the improvements for non-commercial use’); (2) Standard (which ‘offers a royalty-free license with which any party can commercially use the patented technology’); (3) Standard PLUS (which ‘offers a license that requires a payment and/or can restrict who can accept the license [. . . ] [t]he PLUS is the payment and restrictions that have been added in the public addendum within the [CC Model/Public] Patent License’). See The GreenXchange (n 171).

Open Access is not an end in itself; it is merely a symptom of deeper processes linked to the growing role of digitization in our civilization. It is digitization that brings about opportunities for profound shifts in power. Open Access simply defines a battle front that refers to the challenges being thrown at the architectures of control supported by publishers. Like a litmus test, the quest for Open Access reveals an architecture of control on the wane.\(^{178}\)

The open access movement in scholarly publishing was inspired by the dramatic increase in prices for journals and publisher restrictions on the reuse of information. ‘Price barriers’ and ‘permission barriers’ have been increasingly turning open access into a new ‘principle’ in scholarship and research that has been promoted globally.\(^{179}\) As John Willinsky noted, ‘open access could be the next step in a tradition that includes the printing press and penny post, public libraries and public schools. It is a tradition bent on increasing the democratic circulation of knowledge [. . . ].’ \(^{180}\) The advent of ‘open access’ publishing offers a new model for the operation of scholarly journals, and its promise is reflected in the expanding literature devoted to this pioneering concept.\(^{181}\) As a general rule, open access refers to a publishing model where the research institution or the party financing the research pays for publication and the article is then freely accessible. In particular, open access refers to free and unrestricted world-wide electronic distribution and availability of peer-reviewed journal literature.\(^{182}\) However, open access to books and monographs seems to be an equally relevant goal of the OAP movement, although at an earlier stage of development.

According to Peter Suber, the *de facto* spokesperson of the OAP movement,\(^{183}\) ‘[Open access (OA) is free online access [. . . ] OA literature is not only free of charge to everyone with an internet connection, but free of most copyright and licensing restrictions. OA literature is barrier-free literature produced by removing the price barriers and permission

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\(^{179}\) Willinsky, *The Access Principle* (n 3) See also Peter Suber, *Open Access* (MIT Press 2012) (discussing the emergence of this principle in one of the few book length descriptions dedicated to the subject).


\(^{182}\) See Budapest Open Access Initiative <http://www.opensocietyfoundations.org/openaccess> accessed 16 January 2013. See also Peter Suber, ‘Creating an Intellectual Commons through Open Access’ (n 90) 171-208.

barriers that block access and limit usage of most conventionally published literature, whether in print or online’. Other authors have stressed that the extent of the OAP notion should be ‘very wide indeed’ and that ‘whenever possible neither use, nor the ability to participate in the fine-tuning of the system, should be restricted to professional scholars’. This notion goes hand in hand with the idea of ‘democratizing innovation’, initially developed in software communities, meaning a world ‘of potential colleagues rather than a universe of passive consumers’.

Therefore, the academics’ reaction against the ‘cost of knowledge’ – also known as the serial crisis – is on the rise, especially against the practice of charging ‘exorbitant high prices for [ . . . ] journals’ and of ‘sell[ing] journals in very large bundles’. As Reto Hilty has noted, the price increase of publishers’ products – while publishers’ costs have sunk dramatically – has forced the scientific community to react by implementing open access options, because

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184 Peter Suber, ‘Creating an Intellectual Commons through Open Access’ (n 90) 171.

185 James Boyle, ‘Meteronianism Unbound, Imagining Free, Decentralized Access to Most Cultural and Scientific Material’ in Charlotte Hess and Elinor Ostrom (eds), Understanding Knowledge as a Commons (MIT Press 2006) 124 <http://www.scribd.com/doc/27333114/Understanding-Knowledge-as-a-Commons-Theory-to-Practice-2007> accessed 18 January 2013. Borrowing from the sociology of science, Boyle refers to the term Mertonianism to describe a process of free, open inquiry, strongly reliant on the process of peer-review to drive hypotheses closer to an underlying reality. See Robert K Merton, On Social Structure and Science (University of Chicago Press 1996). In doing so, Boyle asks ‘what impact more open access to cultural and scientific materials, both scholarly and nonscholarly, by individuals and groups outside the academy might have on scholarship, culture, and even — though this is more speculative and unlikely — on science.’ See also, for similar arguments related to the need of broadly opening access to scholarly research to the general audience, Lessig, ‘The Architecture of Access to Scientific Knowledge’ (n 4) (noting that the present system of scientific knowledge promotes elite-ment rather than enlightenment, as access to information is restricted to a knowledge elite only); Gavin Yamey, ‘Excluding the Poor from Accessing Biomedical Literature: A Rights Violation that Impedes Global Health’ (2008) 10(1) Health and Human Rights 21, 31 <http://www.hhrjournal.org/index.php/hhr/article/view/20/88> accessed 23 April 2013 (discussing specifically the way open access to biomedical literature matters to ordinary citizens and mentioning the example of Sharon Terry, lay person with no formal education and parent of two children diagnosed with the genetic disorder pseudoaxanthoma elasticum (PXE), who had to struggle with seemingly insurmountable barriers to access medical literature and ended up contributing a highly valued chart for the disease, co-patented the gene responsible for PXE, wrote scholarly articles on the subject, founded PXE International, a research advocacy organisation for PXE and became the President and CEO of the Genetic Alliance, a coalition of over six-hundred disease-specific advocacy organisations).

186 See von Hippel, Democratizing Innovation (n 94).

187 Boyle, ‘Meteronianism Unbound’ (n 185) 140.

188 See The Cost of Knowledge, Researchers Taking a Stand against Elsevier, <http://thecostofknowledge.com> accessed 21 January 2013 (an online initiative collecting support from academics and researchers declaring that they will boycott Elsevier’s journals unless they radically change their business practices); ‘The Price of Information: Academics are Starting to Boycott a Big Publisher of Journals’ The Economist (London, 4 February 2012) <http://www.economist.com/node/21545974> accessed 16 January 2013. See also Eyal Amiran, ‘The Open Access Debate’ (2011) 18(1/2) Symproke 251 (reporting several other examples of these reactions and boycotts against the cost of knowledge and generally detailing how intense the debate has become in recent years).
antiquated copyright laws have failed to bring about a reasonable balance of interests.\textsuperscript{189} Universities, libraries and governments around the world have examined journal prices and availability and expressed dissatisfaction with the nature of the current business model for scientific publishing. In an August 2004 report, the UK House of Commons Science and Technology Committee concluded that ‘provision of [academic] journals in the UK is unsatisfactory [. . .] due to a combination of publishers’ pricing policy and the inadequacy of library budgets’ and ‘the practice of some of the larger commercial publishers of “bundling” content together to be sold as one product is having a negative impact on smaller publishers and on the ability of libraries to purchase the journals required by the community’.\textsuperscript{190} The Scottish Confederation of University and Research Libraries together with the National Library of Scotland reached very similar conclusions. In a declaration known as the ‘Scottish Declaration on Open Access’, issued in October 2004, they noted that the ‘subscription-based system severely restricts access to leading edge research’ and that ‘[t]he kind of profit that is being made by some of the very large commercial publishers is inappropriate in that it is predicated on publicly funded research’.\textsuperscript{191} In the United States, for example, Cornell University noted with disapproval in a 2003 resolution on university library policies that its library budget has increased by 149\% from 1986 to 2001, while the number of periodicals purchased grew by only 5\%."\textsuperscript{192}

In a recent article published by \textit{The Guardian}, George Monbiot highlighted the unfairness of the system of academic publishing by noting, with specific reference to academic publishers, such as Elsevier, Springer or Wiley-Blackwell, that ‘[w]hat we see here is pure rentier capitalism: monopolising a public resource then charging exorbitant fees to use it. Another term for it is economic parasitism. To obtain the knowledge for which we have

\textsuperscript{189} See Reto M Hilty, ‘Copyright Law and the Information Society – Neglected Adjustments and Their Consequences’ (2007) 38(2) ICC 135 (also noting, however, that it is questionable whether an essential achievement of our modern society – the division of labour - should be overturned).


\textsuperscript{192} See Cornell Faculty Senate Resolution, Resolution regarding the University Library’s Policies on Serials Acquisitions, with Special Reference to Negotiations with Elsevier (17 December 2003) <http://www.library.cornell.edu/scholarlycomm/resolution2.htm> accessed 23 May 2013.
already paid, we must surrender our feu to the lairds of learning.” The parasitism lies in a monopoly over content that the academic publishers do not create and do not pay for. The researchers, willing to publish with reputable journals, surrender their copyright for free. Most of the time, the production of that very content – now monopolised by the academic publishers – was funded by the public, through government research grants and academic incomes.

Equally, permission hurdles involved with access to and re-use of scholarship have played a relevant role in the OAP movement. Having his draft articles removed from the Social Science Research Network (SSRN) at the request of the copyright-holder, the California Law Review, after his work had been published and made available in commercial databases, Dan Hunter coined the term ‘walled gardens’ to refer to permission barriers of academic publishing. These databases create the ‘walled gardens’ that restrict access to paid subscribers. As Nancy Kranich, former president of the American Library Association, has noted, the ‘walled garden’ promotes a process of online enclosure that poses ‘an increasing threat to democratic principles of informed citizens and academic principles of building on the shoulders of giants’.

The reaction to price and permission barriers to scientific scholarship has turned into an open access movement in scholarly publishing, which now has a long history dating back to projects in the 1990s and fast developing in the last decade. Since that time on, the


194 See Dan Hunter, ‘Walled Gardens’ (2005) 62 Wash & Lee L. Rev. 607 (examining the open-access movement in scholarly publishing generally and in relation to law review publishing). But see Salil K Mehra, Paradise is a Walled Garden - Trust, Antitrust and User Dynamism, 18 Geo. Mason L. Rev. 889 (2011) (discussing whether walled gardens may in fact bea kind of creative paradise that spawns significant user dynamism).


197 See, for a complete historical timeline of the open access movement, Peter Suber, Timeline of the Open Access Movement <http://legacy.earlham.edu/~peters/fos/timeline.htm> accessed 27 January 2013. Besides the emergence of open databases, another influential precursor of the OAP movement may be identified in the Taxpayer Asset Project, and the related Crown Jewels Campaign, creating a grassroots campaign through Internet e-mail listservers in 1990 to demand access to federally owned databases in the United States, as a reaction to the Reagan administration’s policies privatising access to digital versions of government information. In particular, the Crown Jewels Campaign focused on access to highly valuable federal databases such as a database of corporate disclosure documents compiled by the U.S. Securities and Exchange Commission, the Medline database of biomedical articles maintained by the National Institutes of Health, the federal database of patent filings held by the U.S. Patent and Trademark Office, the full text of bills pending
movement has grown in importance through a number of initiatives that have shaped its principles and goals, enhanced practical implementations and promoted global attention and related policy reactions.

1.4.1 The Three Bs: Budapest, Berlin and Bethesda

A major theoretical boost to the OAP movement was given over a 20-month period from 2001 to 2003 by three initiatives, and their related declarations, that came to be known as the ‘Three Bs’. The first was the Budapest Initiative in February 2002, then the June 2003 Bethesda Statement on Open Access Publishing, and finally the October 2003 Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. Before turning to a brief description of these three main OAP declarations, it is also worth mentioning, as part of the theoretical process that led to the definition of the general principles shaping the OAP movement, the Statement on Open Access to Scholarly Literature and Research Documentation adopted by the International Federation of Library Associations (IFLA) in the Hague on 5 December 2003.198

The Budapest Open Access Initiative (BOAI) was the result of a Conference organised in Budapest by the Open Society Institute, a branch of the Open Society Foundations, a philanthropic endeavour created by George Soros, in December 2011.199 The BOAI Declaration was issued shortly thereafter on 14 February 2002. The purpose of the BOAI was to ‘accelerate progress in the international effort to make research articles in all academic fields freely available on the internet’. From the Budapest Open Access Initiative stems an oft-quoted definition of OA that includes free reuse and redistribution of OA material by anyone:

By ‘open access’ to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this


domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited. At the time of the tenth anniversary of the BOAI, the Open Society Foundation launched BOAI 10 including a new set of guidelines and recommendations. The recommendations strengthen and crystallise the advancements that the open access movement has made in the last decade. BOAI 10 seeks the promotion of (i) the development of Open Access policies in institutions of higher education and in funding agencies, (ii) the open licensing of scholarly works, (iii) the development of infrastructure such as Open Access repositories and creating standards of professional conduct for Open Access publishing. The recommendations also establish a new goal of achieving Open Access as the default method for distributing new peer-reviewed research in every field and in every country within ten years’ time. The Bethesda Statement on Open Access Publishing was released on 20 June 2003 by a group of interested parties, including funding agencies, scientific societies, publishers, librarians, research institutions and individual scientists, gathering together at the headquarters of the Howard Hughes Medical Institute in Chevy Chase, Maryland. The Bethesda Statement endorsed the goal of stimulating ‘discussion within the biomedical research community on how to proceed, as rapidly as possible, to the widely held goal of providing open access to the primary scientific literature.’ The Bethesda Statement identified an Open Access Publication as one that meets two conditions:

1. The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual 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, as well as the right to make small numbers of printed copies for their personal use.

2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported 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 (for the biomedical sciences, PubMed Central is such a repository). 203

The major catalyst for open access at the European level was provided by the so-called Berlin Conferences. 204 The first Berlin Conference was organised in 2003 by the Max Planck Society and the European Cultural Heritage Online (ECHO) project to discuss ways of providing access to research findings. Annual follow-up conferences have been organised ever since. 205 The most significant result of the Berlin Conference was the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (‘Berlin Declaration’), including the goal of disseminating knowledge through the open access paradigm via the Internet. 206 The unique feature of the Berlin Declaration is the focus on the scientific requirements that the materials that should be disseminated through open access should meet. The experts gathering together in Berlin stated: ‘[w]e define open access as a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community.’ 207 The Berlin Declaration has been signed by hundreds of European and international institutions.

For the sake of simplicity, Suber has distilled the commonalities of these three statements into the ‘BBB definition of Open Access’ by noting that there is uniformity in the core concept of removing price and permission barriers. 208 Although the definitions may differ in part, other recurring common principles encompass authors’ consent on which open access must always depend and flexibility on removing barriers to commercial use or imposing a specific policy on derivative works. 209 The ‘three Bs’ tend to maintain the ‘definition of open access [. . .] an evolving and flexible concept with policy space to test new elements as they

203 Ibid.
205 Ibid.
206 See ‘Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities’ (Berlin Conference, Berlin, 20-22 October 2003) <http://oa.mpg.de/lang/en-uk/berlin-prozess/berliner-erklarung> accessed 16 January 2013 (stating that ‘in order to realize the vision of a global and accessible representation of knowledge, the future Web has to be sustainable, interactive, and transparent. Content and software tools must be openly accessible and compatible’).
207 Ibid. See also Andres Guadamuz Gonzalez, ‘The digital divide: it’s the content, stupid: Part 2’ (2005) 11(4) CTLR 113, 118.
become necessary' and, as Manon Ross has noted, ‘the challenge is to keep it simple and not confusing, yet complex enough to accommodate diversity’.210

1.4.2 SPARC and Civil Society

Together with OAP declarations, the open access movement was boosted by countless initiatives of which the Scholarly Publications Access Resource Coalition (SPARC) is one of the most prominent.211 SPARC is an international alliance of academic and research libraries which promotes open access to scholarship with currently over 800 institutions in Australia, China, Europe, Japan and North America.212 It was launched in 1997 as a reaction to the ‘serial crisis’. In 2001, SPARC joined forces with European organisations to establish SPARC Europe.213 SPARC was developed by the Association of Research Libraries to address ‘imbalances in the scholarly publishing system’, including supporting and promoting open access.214 Basically, SPARC is a ‘catalyst for action’, which is aimed at reducing barriers to access, sharing and use of scholarship by promoting the understanding and implementation of OA policies and practices for scholarly research outputs, with a primary focus on journal literature, but with an evolving interest in OA in research outputs of all kinds.215 As the SPARC website claims, its pragmatic focus is on educating stakeholders, advocating policy changes and incubating real-world demonstrations of business and publishing models that may ‘stimulate the emergence of new scholarly communication models that expand the dissemination of scholarly research and reduce financial pressures on libraries’.216


211 There has been a multitude of OA initiatives worldwide in the last two or even three decades, ranging from institutional, governmental and civil society endeavours. Giving even a partial account of them is almost impossible. A good starting point for a picture of all these initiatives is Suber, Timeline of the Open Access Movement (n 197).


216 Ibid.
coalition members of SPARC support the project through fees to cover the operating expenses and build a capital fund to finance its programmes.

However, additional coalitions are forming to join SPARC in its quest for OA and OAP. Merging together the interest of two different groups of OA publishers, commercial publishers and independent scientist/scholar publishers, the Open Access Scholarly Publishers Association (OASPA) was launched in 2008 ‘to support and represent the interests of Open Access (OA) journal and book publishers globally in all scientific, technical, and scholarly disciplines’. OASPA promotes its goal by exchanging information related to OAP, setting OAP standards, supporting the development of OA business and publishing models, educating the community on the benefits and value of OAP and advocating for Gold OA. OASPA may soon acquire a leading role in the OAP movement as it has been joined so far by the majority of the most relevant OAP players and advocates. Additionally, in a forward-looking move, OASPA has recently adapted its membership to include book publishers who, increasingly, are engaged with or investigating possibilities for OA book publishing.

1.4.3 OA Publication Models: Green, Gold, Gratis and Libre

The BBB definition that Suber has distilled is extremely inclusive in order to re-comprehend the entire variety of OAP types. In this regard, four major categories of OAP have been identified by the literature: green, gold, gratis and libre. The OA publication models mainly depend on the delivery mechanism of the articles and status of the traditional barriers to access. The distinction in the delivery mechanism of the OA research outputs has traditionally been connected with the chromatic qualifiers, gold and green, indicating whether the work is available OA via a journal (gold OA) or by way of a repository (green OA). The distinction between green and gold OAP was first theorised by Stevan Harnad and others a decade ago. The Open Access Scholarly Publishers Association (OASPA), has noted that ‘[g]old OA refers to implementing the free and open dissemination of original scholarship by publishers, as opposed to Green OA, in which free and open dissemination is

218 Ibid.
219 Ibid.
achieved by archiving and making freely available copies of scholarly publications that may or may not have been previously published.\textsuperscript{221} Thus an article published in an open access journal is considered gold OA, whereas a pre-print article deposited within an institutional repository to be published in a conventional journal available only via subscription is an example of green OA.

It is worth mentioning that the Immediate Deposit/Optional Access (ID/OA) has also been proposed as a compromise model where publishers do not endorse green OA or require an embargo period before the research output can be published OA. In the ID/OA scenario the author would immediately deposit an article in a repository upon acceptance for publication, but set only the metadata on OA.\textsuperscript{222} This model should be coupled with a semi-automated email print request button – which is enabled in repositories such as DSpace and EPrint\textsuperscript{223} – allowing any potential user to request a single copy of the deposited draft by email on an individual basis, which falls under fair use.\textsuperscript{224}

The status of other barriers to access, such as price and permission for reuse, are indicated by the terms gratis and libre. The distinction has been made popular by Peter Suber, who borrowed the gratis/libre language from the world of software.\textsuperscript{225} In contrast to the gold/green distinction, which answers the question how the content is delivered, the gratis/libre distinction answers the question how open the content is.\textsuperscript{226} A gratis OA publication is free of price barriers as the publication is openly available, free of charge. The business models for achieving these results are various – including the most common system whereby publishers charge the author a fee to ‘free’ the work – and we will return to these in Section III of this study. A publication is considered libre if price barriers are removed and at least some permissions barriers are also relaxed. In the libre OA scenario, therefore, the content is also free of some copyright restrictions.

\textsuperscript{224} See Harnad, ‘The Immediate-Drop/Optional-Access (ID/OA) Mandate’ (n 222).
\textsuperscript{225} See Suber, Open Access (n 179) 65-75, 66.
\textsuperscript{226} Ibid 67.
According to some authors, a distinction within a broader OAP domain has also been made between models which completely meet the requirements stated by the OAP principles we have reviewed earlier, and especially the BBB definition of OAP, and many other models which do not totally fulfil the purpose intended in the OA declarations. Therefore, OA has been distinguished in true OA models and hybrid models. In this respect, true OA would include self-archiving in subject-based or institutional repositories, basically what we have referred to above as green OA, and OA journals, or gold OA. Hybrid models have been further distinguished, for example by Bernius and others, as optional OA, retrospective OA, delayed OA or partial OA, which refer respectively to OA granted upon authors’ decision following the payment of a fee, to retro-digitised files such as older journals volumes, after an embargo period, or to some parts of the journals. However, additional distinctions and categorisations have been attempted and we will return to some of these when discussing OA business models more specifically in Section III of this study.

1.4.4 OA Publication Channels

Besides the establishment of the OAP movement’s core principles in declarations and literature, the practical implementation of these principles has occurred through the emergence of OA publications, which have been delivered via traditional publication channels such as repositories, journals and, more recently, books.

1.4.4.1 OA Repositories

Electronic repositories give authors the opportunity to archive digital ‘e-prints’. The scholarly works archived by authors – an action which is usually referred to as ‘self-archiving’ – may be either working papers that have not yet been published, also called ‘preprints’, or articles already published by a journal, known as ‘postprints’. There are two main categories of repositories: disciplinary or subject-specific repositories and institutional repositories. Subject-specific Repositories, or open online databases, where authors may deposit pre-publication versions of their articles, together with supporting data and other materials, have been perhaps the first practical expression of the emergence of an open access publishing movement. In particular, the ArXiv database in high energy physics and related fields – which was established in 1991 – may be regarded as the pioneering initiative among

227 See Steffen Bernius and others, ‘Open Access Models and their Implications for the Players on the Scientific Publishing Market’, (2009) 39(1) Economic Analysis & Policy 103, 105-108. See John Willinsky, The Access Principle (n 3) 211-216 (‘group[ing] the current variations’ of open access publishing ‘into ten flavors or models, based largely on how they are financed and the nature of the access that they provide’).

228 Ibid 105.

open online databases. Subject-specific or subject-based repositories bundle together research outputs of specific scientific disciplines regardless of the institutional affiliation of the researchers. The Institutional Repository (IR) or the OA archive has been seen as the most cost-effective route to providing maximal access to publicly funded research. IRs bundle together the research output of an institution, such as a university or research centre, in order to make it available to the public. IRs have emerged later than subject-based repositories. Since the first IRs were developed around ten years ago – such as Eprints at Southampton, D-Space at MIT, the Digital Academic Repositories (DARE) programme in the Netherlands, later integrated into the National Academic Research and Collaborations Information System (NARCIS), and the Focus on Access to Institutional Resources (FAIR) run by JISC in the United Kingdom – their number has grown very rapidly.

The OpenDOAR is perhaps the most authoritative directory of academic open access repositories and one of the SHERPA services including RoMEO and JULIET, run by the

237 See NARCIS <www.narcis.nl> accessed 1 July 2013.
239 See OpenDOAR – Directory of Open Access Repositories <http://www.opendoar.org> accessed 13 June 2013. See also Kathleen B Oliver and Robert Swain ‘Directories of Institutional Repositories: Research Results & Recommendations’ (World Library and Information Congress: 72nd IFLA general Conference and Council, Seoul,
Centre for Research Communications, which is hosted by the University of Nottingham and currently funded by the Joint Information Systems Committee (JISC).\(^{240}\) OpenDOAR has over 2,300 listings included in its database and, through its statistical charts, shows a steady increase from the 866 repositories listed at the end of 2006, to 1,100 in 2007, 1,300 in 2008, 1,600 in 2009, 1,900 in 2010, 2,200 in 2011 and 2,300 in 2012.\(^{241}\) By far the majority of these repositories are in the English language.\(^{242}\) Almost 50 per cent of the repositories are located in Europe, 20 per cent in North America, 17 per cent in Asia, 8 per cent in South America, 3 per cent in Africa and 2.5 per cent in Australasia.\(^{243}\) The United States is by far the country hosting most repositories with 17 per cent, followed by the United Kingdom with 9 per cent, Germany with 7 per cent and Japan with 6 per cent.\(^{244}\) With the inclusion of India, Poland and Italy, seven countries host more than 50 per cent of the worldwide OA repositories.

The large majority of repositories (83 per cent) fall into the institutional category, being an institutional or departmental repository; disciplinary repositories or cross-institutional subject repositories account for 10.6 per cent; archives aggregating data from several subsidiary repositories amount to 4.1 per cent, and repositories for governmental data to 2.5 per cent.\(^{245}\) Most of these repositories are multidisciplinary, generally being institutional repositories, whereas the majority of the disciplinary repositories can be found in Health and Medicine, followed by History and Archeology, Business and Economics, Law and Politics and General Science.\(^{246}\) As for the content type included in OA repositories, this is quitemiscellaneously distributed. Journal articles have been found in the majority of repositories (1,570), followed by theses and dissertations (found in 1,237 repositories), unpublished reports and working paper (831), book chapters and sections (822), conference and

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\(^{240}\) Ibid. See also JISC \(<http://www.jisc.ac.uk>\) accessed 14 June 2013.


workshop papers (812), multimedia (544), bibliographic references (422), learning objects (356), datasets (86), patents (66) and software (35).\(^{247}\)

The interplay between OAP and open source software emerged at an early stage in self-archiving. In 2000, Eprints released by the University of Southampton was made freely available in order to provide libraries and other institutions with the tools to set up similar archives.\(^{248}\) Around the turn of the century, several special open source systems were developed specifically for managing eprint archives, such as ePrints, DSpace or Fedora/Fez.\(^{249}\) Reporting on the usage of OA repository software, OpenDOAR listed, out of a total of 2,359 repositories, 41.2 per cent using DSpace, 14.8 per cent using Eprints, 4.2 per cent using Digital Commons and 2.9 per cent using OPUS, whereas the remaining repositories are listed as running unknown software or other types of software.\(^{250}\) Looking at the infrastructural characteristics of subject-specific and institutional repositories, it is worth noting that only a small percentage of subject repositories have their own IT infrastructure, whereas the large majority of small and medium-sized repositories are run on top of OA repository software, such as Eprints, D-Space and Opus.\(^{251}\) In contrast, IRs fall naturally into a university’s organisation, often a library, and almost all the IRs have been created using OA solutions.\(^{252}\)

The Open Archives Initiative (OAI) has addressed the problem of consistent classification of the contents of individual databases of preprints and other materials. OAI has laid down standards for the metadata that should be associated with the item and outlined a Protocol for Metadata Harvesting (OAI-PMH) which enables the metadata from different archives to be gathered together into a single searchable whole.\(^{253}\) If the repository complies with the


\(^{249}\) See Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 58.


\(^{251}\) See Björk, ‘Open Access’ (n 484) 8.


OAI-PMH, users can utilise federated searching across all repositories. In addition, all major institutional repositories are now indexed by Google Scholar, although a low indexing ratio has been shown for many IRs in Google Scholar.254

### 1.4.4.2 Open Access Journals

In order to promote and map the diffusion of OA journals, the Lund University Libraries started the Directory of Open Access Journals (DOAJ) in February 2003.255 Aiming at comprehensive coverage, the DOAJ is intended to expand the ‘visibility and ease of use of open access scientific and scholarly journals thereby promoting their increased usage and impact.’256 This ten-year project builds upon the BOAI definition of OA and defines OA ‘as journals that use a funding model that does not charge readers or their institutions for access.’257 DOAJ sets additional requirements for listing OA journals in its directory, such as quality control, including peer review, and regular publication of research articles in consecutively numbered and dated issues.258

Since the inception of the open-access initiative in 2001, there are now almost 10,000 open access journals and their number is constantly on the rise.259 Laakso and others have studied the development of open access journal publishing in the first decade of this

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257 Ibid.

258 For studies discussing and questioning whether all the journals listed meet the OA requirements, see Hajar Sotudeh and Abbas Horri, ‘Tracking Open Access Journals Evolution: Some considerations in Open Access Data Collection Validation’ (2007) 58(11) J of the American Soc’y for Info Sci and Tech 1578 (noting that only half of the collection meets the requirement of a free, immediate, full and constant access policy for at least 5 years); Sally Morris ‘Personal View: When is a journal not a journal - a closer look at the DOAJ’ (2006) 19 Learned Publishing <http://docserver.ingentaconnect.com/deliver/connect/alpisp/09531513/v19n1/s7.pdf?expires=1370838167&id=74508955&titleid=885&accname=Guest+User&checksum=161A11C769B79585850585DF3EEE6BF> accessed 1 June 2013 (discussing whether the journals listed in the DOAJ are really open access or journals at all).

259 See DOAJ (n 255).
century. The results show a very rapid growth of OA publishing. From 2000 to 2010 the annual growth rate has been 18 per cent for the number of journals and 30 per cent for the number of articles. Still, Laakso and others note that these figures are remarkable if contrasted with the reported 3.5 per cent volume increase in journal publishing in general. Additional OA models, such as articles made OA by publishers with a delay and individual author-paid OA in subscription journals, have grown exponentially in the last decade, together with the presence of commercial publishers on the OA scene. In particular, commercial publishers, who have been little involved in the early years of OA publishing, have shown the most dramatic development since 2005, becoming the most common publishers of OA articles and jumping from 13,400 articles in 2005 to 119,900 in 2011. Laakso and Björk have quantified 49 per cent of all OA articles as being from journals requiring article-processing fees. Additionally, approximately 17 per cent of the 1.66 million articles published during 2011 and indexed in Scopus – the most comprehensive article-level index of scholarly articles – are available OA through journal publishers: 11 per cent of them in full immediate open access, 0.7 per cent as author-paid OA in subscription journals, and the remainder in journals that have a maximum OA delay of twelve months. Major increases in the rate of OA journals from 2005 to 2011 have been registered respectively in Asia, Europe and United States. Latin America shows an early adoption of OA journals with numbers superior to North America and Asia in 2000 and 2005, but the region has not increased its output at a similar rate to Asia, Europe and North America, who have multiplied their outputs between 2005 and 2011.

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263 Ibid 128.

264 See SciVerse Scopus <http://www.scopus.com/home.url> accessed 1 June 2013 (which is very unfortunately not an OA database).


266 Ibid 129-130.
From an IT infrastructure perspective, most journals use either proprietary systems or open software systems. As in the case of repositories, several special open source systems were developed in the last decade or so specifically for publishing journals, such as DpubS, Hyperjournal, or the Open Journal Systems. The last of these is the most widely used open source software for the management and publishing of journals and was developed as part of the Public Knowledge Project at Stanford under the direction of John Willinsky. Also, collaborative or third party platforms, such as Scielo, J-Stage and Highwire press have been used for the publication of accepted papers by a large number of established journals. For example, Stanford’s Highwire Press — a library initiative providing electronic publishing support to a large number of publishers including scholarly societies and non-profit publishers – has created the largest archive of free full-text science worldwide, assisting in the online publication of almost 2.4 million delayed OA (usually 12 months) articles out of a total of more than 7.1 million articles published through its e-platform.

**1.4.4.3 Open Access Books**

Although at an early stage, open access publishing is being promoted also in the domain of books and monographs. The Open Access Publishing in European Networks (OAPEN) is the leading initiative in this context and aims at working with publishers to build a quality controlled collection of OA books. OAPEN has several national counterparts, including OAPEN UK. Interest in OAP of academic books seems to be definitely on the rise, especially in the humanities and social sciences sector, which is the sector most concerned with the future of academic monographs. This may also be reflected by a large conference recently organised by JISC and OAPEN and hosted by the British Library, which gathered together

267 See Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 58.


271 See Japan Science and Technology Information Aggregator, Electronic <https://www.jstage.jst.go.jp/browse> accessed 13 July 2013.


hundreds of international attendees.\textsuperscript{274} Several OA books business models, as we will investigate in detail in Part III of this study, have been trialled to date by individual publishers, such as OpenBook Publishers,\textsuperscript{275} or consortia projects, such as Knowledge Unlatched.\textsuperscript{276}

1.4.5 Open Access Publishing in the STEM Subjects

The ratio of OAP varies considerably according to the academic field. Scholars in the physical and biological sciences have led the way in showing the viability of Internet based, open access scholarly publishing. As mentioned earlier, the ArXiv e-print platform was launched in 1991 by physicists at Cornell University and has become one of the most successful OA digital archives in the sciences. As Matthew White has noted, the pioneering success of the ArXiv initiative has the merit of having outlined first the inadequacy of journals in communicating, by placing an emphasis on the article as opposed to the journal and questioning the validity of the relationship between the journal and the evaluation process.\textsuperscript{277} Initially established by Paul Ginsparg as a server which provided colleagues in the physics community with a platform on which to store and access research papers, ArXiv has turned into a worldwide community-sustained, moderated scholarly communication forum, whose content is free and OA to individual users and can be deposited by the individual researchers in the archive for free.\textsuperscript{278} To date ArXiv offers open access to approximately 850,000 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics, with around 50 million downloads from all over the world.\textsuperscript{279}

Today, the sciences are still the largest feeders of the open access movement in scholarly publishing. OA publication volume has grown within all major scientific disciplines; however, biomedicine has seen a particularly rapid 16-fold growth from 7,400 articles in 2000 to

\begin{footnote}
\textsuperscript{274} See Open Access Monographs in the Humanities and Social Sciences Conference, The British Library, London, 1-2 July 2013 <https://www.jisc-collections.ac.uk/JISC-Collections-events/oabooksconf> accessed 15 July 2013 (including all the presentations and videos from the event, alongside a conference ‘storify’ and links to blogs about the conference).


\textsuperscript{276} Frances Pinter, ‘Knowledge Unlatched: An Argument for Academic Scholarship in Law to be Open and How it Might be Achieved’ (2012) 12(3) LIM 185

\textsuperscript{277} See White, ‘What is the Future Role of the Publisher?’ (n 19.


\textsuperscript{279} See ArXiv (n 230).
\end{footnote}
120,900 articles in 2011. The sciences seem to show a trend towards the increasing emergence of new OA journals. In the biomedical field, this has become a well-marked path with the majority of OA articles provided through journal websites, either in OA journals or as OA articles in the context of a traditional subscription model, whereas in other scientific fields there is a higher rate of OA articles available from authors’ websites or institutional repositories. Commercial publishers, such as John Wiley & Sons, Sage Publications and Nature Publishing Group, have launched a growing number of OA publications. Highly ranked medical journals, such as The New England Journal of Medicine, make each issue free to readers six months after publication. The Royal Society, the UK’s national academy of science and the publisher among others of the first modern academic journal Philosophical Transactions, offers OAP options based on authors-pay models, fully open access journals, such as Open Biology, and an OA membership programme to enable institutions to encourage OAP through a 25 per cent saving on all article processing charges. Again, the OA journals published by major OA publishers can be counted in the thousands. BioMed Central and Public Library of Science (PLoS), for instance, are quintessential examples, offering complete and immediate OA to their journals, mostly financed by authors’ fees. PLoS – which publishes the best known scientific OA journal – began with 136 articles in 2006 and now publishes more than 15,000 articles. In 2010, a milestone moment for PLoS took place with the coverage of all the operating cost with revenue for the first time, ‘adding to the growing body of evidence that high-quality open...
access publishing is sustainable. Similarly, BioMed Central – owned by Springer Science+Business Media – is a Science, Technology, Engineering and Medicine (STEM) publisher of 255 peer-reviewed OA journals spanning all areas of biology, biomedicine and medicine. Other well-known OA journal publishers of STEM literature include Hindawi Publishing Corporation, Dove Press and Medknow. As an additional example, Willinsky and others report the successful story of the OA journal Open Medicine. In the biomedical sector, OA journals now form an important source of peer-reviewed data for medicine, span the gamut of medical literature and are highly trusted, highly referenced, indexed and well received. As evidence of the acquired reputation of OA journals in the biomedical field, major data aggregators – including PubMed, Index Medicus, PubMed Central and OVID – have open access databases and search platforms dedicated to open access material.

The leading role of the scientific field in OAP can also be seen with regard to OA mandate policies. Funders of scientific and biomedical research, such as the Wellcome Trust in the UK and the NIH in the US, have first instituted OA mandate policies, which – as will be discussed in more detail in the last part of this review – are under consideration by a number of other


287 See BioMed Central The Open Access Publisher, About us <http://www.biomedcentral.com/about> accessed 10 June 2013.


funding bodies worldwide. In order to enhance the public value of grant-funded research, the UK Wellcome Trust and the US National Institute of Health (NIH) request that all grant recipients deposit copies of their published work in the open access PubMed Central six months after publication.  

Besides the ‘serial crisis’ and library budget constraints – which have been more critical in scientific, and especially biomedical, publishing than in any other academic publishing sector – the literature has highlighted additional specific values of OA in the STEM subjects. In recent times, as a report of the Working Party of the Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP³) has mentioned, the increasing awareness that results of publicly funded research should be made generally available has been amplified in science by the transformation of research activities towards ‘e-Science, carried out by a global scientific community linked by strong networks’. Again, with special reference to biomedical research Yamey and Willinsky have stressed the public health value of access to literature to be construed as a global public good and human right. Still, Willinsky reinforced the democratic value of OA in medical research by mentioning among the critical motivations leading to the launch of the Open Medicine journal that of furthering scholarly innovation, intellectual integrity and academic freedom, that can be too readily violated by ‘current models in biomedical publishing, operating at the intersection of revenue-driven and professional interests’ and depending on medical


295 See Smith, ‘The Highly Profitable but Unethical Business of Publishing Medical Research’ (n 193) 452-453 (noting that Reed-Elsevier, the world’s largest publisher of academic research, made an adjusted operating profit of £1,142 million on a turnover of £5,166 million, of which 39 per cent was contributed by the scientific part of the company, although that part accounts for only 28 per cent of the business and again noting that an average individual million pound journal might well have a gross margin of £600,000 and a profit of £350,000; also, Smith reports that the Brain Research journal famously cost $23,617 a year for 2006 and that ‘the publishers have for around 20 years been following a business model that I call “less for more”, putting up prices “by substantially more than the rate of inflation to compensate for the cancelled [library] subscriptions”).


297 See Yamey, ‘Excluding the Poor from Accessing Biomedical Literature’ (n 185) 21 and Willinsky, The Access Principle (n 3) 143-154.
advertising and professional-association support. Finally, Smith raises the critical point that making money through restricting access to research may be ‘ethically very questionable for academic societies’. Addressing the example of the British Society of Lumpology and its journal, the *British Journal of Lumpology*, Smith considers restriction of access to research to be in clear conflict with the mission of the society, which is ‘to raise standards in and promote lumpology and reduce the mortality and morbidity that results from lumps’. Equally, the same consideration may be applied to any other academic society having similar goals in its mission statements.

### 1.4.6 Open Access Publishing in the Social Sciences and Humanities

Social Sciences, Arts and Humanities come in second place in terms of volume of OA article outputs, with 56,000 articles published in 2011. According to Chris Armbruster, there is a correspondence of the innovative OA logic in academic publishing across natural and social sciences even though solutions vary. Although prices of journals in social sciences and humanities have not witnessed as rapid a price increase as in STEM, the academic community has felt that the logic of OAP applies equally to the social sciences and humanities, as ‘the elaboration, refutation and creation of knowledge claims is increasingly restricted and distorted’. From ArXiv to the Social Science Research Network, social sciences and humanities have followed in the footsteps of the natural sciences, promoting a global cross-disciplinary OAP movement. Yet, in the social sciences and humanities more publishers and editors are needed. This is a goal that is within reach provided that scholars are reassured that OAP may deliver superior literature awareness tools, and costs are reduced and defrayed among scholarly institutions, funding agencies, authors and agencies, especially in the social sciences where charging costs to the authors may be problematic because of the paucity of research grants; authors frequently are not members of academic institutions and single-authored papers are still the standard.

#### 1.4.6.1 SSRN, RePEc, BEPress and JSTOR

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298 Actually, the launch of Open Medicine was related to the growing tension between the editors of the Canadian Medical Association Journal and its publishers, CMA Holdings, which is the business arm of the Canadian Medical Association. See Willinsky and others, ‘Doing Medical Journals Differently’ (n 291) 597, 598-601. In the article, Willinsky and others also offer a brief history of editorial interference in medical journal publishing. Ibid 601-602.

299 Smith, ‘The Highly Profitable but Unethical Business of Publishing Medical Research’ (n 193) 454.

300 Ibid.


303 Ibid 431.

304 Ibid 442-443.
The **Social Science Research Network (SSRN)** has emerged as one of the major players in the open access to scholarship market. It is an electronic repository funded in 1994 by a group of scholars and composed of twenty-four specialised research networks in each of the social sciences.\(^{305}\) The SSRN eLibrary includes an Abstract Database containing abstracts on almost half a million scholarly working and forthcoming papers and an Electronic Paper Collection including approximately 400,000 downloadable full text pdf documents.\(^{306}\) The eLibrary is co-hosted by four institutions – the European Corporate Governance Institute in London, Korea University in Seoul, Stanford Law School in California and University of Chicago Booth School of Business in Illinois – providing mirror paper repositories for SSRN around the world, increasing response capacity, and serving as multiple backups for the paper database.

Although SSRN is an electronic repository which lacks quality control, the metrics that it includes, such as number of downloads, views, posted papers, and related rankings, may increasingly make it a valuable tool for accessing scholarly performance.\(^{307}\) Again, authors have highlighted the fact that publication on SSRN offers the opportunity to have a wide international readership.\(^{308}\) As Ian Ramsey argues, SSRN international readership may have particular advantages for authors in smaller countries in enabling them to build their scholarly reputation without the need to attend and present at international conferences, which may be prohibitive for scholars from emerging and developing countries.\(^{309}\) At this stage of the evolution of law journals and SSRN, however, the major advantages would be for authors to publish both in journals and on SSRN.\(^{310}\) However, attitudes of journals to publication on SSRN may vary and present a challenge for the authors. There is a wide diversity of approaches, as some journals may oppose publication of pre-prints and

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\(^{306}\) See SSRN (n 305).


\(^{308}\) Ibid (noting that in July 2005, 32 per cent of the SSRN’s downloads were from the United States and 68 per cent were from other countries).


\(^{310}\) Ibid 144.
published articles on SSRN or accept it. Again, other journals may ask for an embargo period before the article can be distributed on SSRN.311

The economics sector has established the largest open digital research library: Research Papers in Economics (RePEc).312 RePEc is an international library of economics, which is the outcome of collaborative efforts of hundreds of volunteers in almost eighty countries. This is an add-on library, whose content is provided by a multitude of institutions, including economics departments, national research institutes, international organisations and publishers, by linking servers. RePEc links together 1,500 archives comprising a decentralised bibliographic database of 1.4 million research documents, encompassing working papers, journal articles, books, book chapters and software components, from 1,700 journals and 3,700 working paper series. RePEc also offers a search function to check if papers fed by publishers and linking to pay-per-view or subscription gates are available in OA elsewhere. Any new service willing to use and contribute to the RePEc data313 must abide by the principles set by RePEc, stating that services are free to do whatever they want with the data collected in the archives, provided that: (a) they do not charge for it or include it in a service or product that is not free of charge; (b) when displaying the contents of a template they show the Title, Author-Name, and File-Restriction fields if they are present in the template; (c) they must participate in RePEc by maintaining an archive that actively contributes material to RePEc; (d) they do not contravene any copyright statement found in any of the participating archives; (e) they attribute RePEc as the source of the data.314 Additionally, RePEc services are requested to report usage statistics that can be used towards RePEc rankings.315 In fact, also, as economics working papers define the frontier of research, RePEc rankings and tracking of impact factors show that working paper series outpace the commercial journal.316

Berkeley Electronic Press (BEPRESS) was initially founded by legal and economic academics in 1999 as an electronic publishing firm implementing a hybrid open access model.317 It

311 Ibid 144-145.
313 See RePEc (n 312) for a list of the services so far using and contributing to RePEc data. See also Thomas Krichel and Christian Zimmermann, ‘The Economics of Open Bibliographic Data Provision’ (2009) 39(1) Economic Analysis and Policy 143, 143-152 (discussing RePEc to show that open source bibliographic data collection is sustainable); Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 440-441.
314 See Use of REPEc Data <http://repec.org/docs/RePEcDataUse.html> accessed 13 June 2013.
316 Ibid; Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 441.
317 Actually, BEPress subscription journals implemented a guest access policy, which was a middle ground between free OA and fee-based subscription access, where those without subscription could access an article by filling out a request that allowed BEPress to be informed of the libraries’ interest in reading the journal
published journals in the social sciences, law and medical sectors before selling its portfolio to the academic publishing house Walter de Gruyter. Although BEPress electronic journals represent an OAP experience which has recently proved to be unsuccessful – at least considering that it was not sustained in the long run but sold to a traditional academic publisher and turned into a gated access model – BEPress still pursues OAP goals through other services. It now offers open access publication tools such as the Digital Commons and the Selected Works, together with submission and editorial management tools. The BEPress Digital Commons is a suite of tools and services enabling institutions to manage, display and publish scholarship to the web. Selected Works enables individual scholars to create a web page to announce and distribute research outputs and build a network of colleagues who follow their works.

Although a large part of JSTOR’s database still depends on institutional affiliation, JSTOR has been increasingly pursuing OAP in the social and cultural sciences by making the Early Journal Content freely available and launching the Register and Read beta program. The Early Journal Content on JSTOR includes journal articles published in the United States before 1923 and articles published in other countries before 1870, which are made freely available without registration worldwide. As part of the Early Journal Content program, JSTOR has also made a data bundle, including full-text OCR and article and title-level metadata, freely available to those who would like to conduct data mining or other research across the content. JSTOR’s Register & Read program is a more marked move to promote under the assumption that the libraries would have subscribed to the journal if sufficient interest in the same was shown. See Joshua Gans, ‘Berkeley Electronic Press Closes Up Journals (Digitopoly, 26 January 2012) <http://www.digitopoly.org/2012/01/26/berkeley-electronic-press-closes-up-journals> accessed 14 June 2013. See also Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 440-441 (noting that although BEPress journals were subscription based, they were priced significantly below the discipline’s average and the rates of large commercial publishers, with average prices falling across the years rather than rising).

318 On the reaction of turning the BEPress quasi open access model into gated access, see, for example, BEPress Journals Are Not Open Access Anymore (The RePEc Blog, 16 March 2013) <http://blog.repec.org/2013/03/16/bepress-journals-are-not-open-access-anymore> accessed 14 June 2013; Joshua Gans, ‘Berkeley Electronic Press Closes Up Journals’ (n 317) (noting that he has published with the BEPress journals because they had an open access policy and he supported the goal of coming up with an alternative system to fix the academic publishing market and concludes that ‘the fact that somehow [his OA papers] could all be acquired by another firm represents a breach of, at the very least, an implicit agreement’).


OA by offering free, read-online access to individual scholars and researchers without an affiliation who register for a MyJSTOR account.\(^{324}\) Again, JSTOR has also launched the Access for Alumni program with the aim ‘to extend access to scholarship to individuals around the world’ by enabling eligible higher education institutions to provide their alumni with full access to the same set of archive collection content available to current students and faculty.\(^{325}\)

\textit{1.4.6.2 Open Access to the Law and Legal Scholarship}

The ‘free access to the law movement’ has become a sub-theme on its own within the general OAP movement.\(^{326}\) It initially emerged as a movement to promote OA to legal text and primary sources. As authors have suggested, open access to primary source legal materials – including statutes, regulations and case law – would explicate a democratic function.\(^{327}\) With time, free and open access to legal scholarship and commentary on the law has also become the object of increasing attention. Richard Danner has noted the ‘full understanding of authoritative legal texts requires access to informed commentary as well as to the texts of the law themselves.’\(^{328}\) Several initiatives have attempted to promote OAP in the legal field. In particular, two initiatives have given increased attention to open access to the law and open access to legal scholarship, respectively the Declaration on Free Access to the Law and the Durham Statement on Open Access to Legal Scholarship.

The Declaration on Free Access to the Law or Montreal Declaration has ignited the ‘movement for open access law.’\(^{329}\) The Montreal Declaration was issued by representatives of legal information institutes from all over the world at the 2002 International Conference on Law via the Internet under the aegis of the World Legal Information Institute (WorldLII).\(^{330}\) The Declaration was later amended at meetings in Sydney in 2003, Paris in

\footnotesize{\begin{enumerate}
\item See JSTOR, Register & Read \textless http://about.jstor.org/rr\textgreater accessed 14 June 2013.
\item JSTOR, Access for Alumni \textless http://about.jstor.org/service/access-alumni\textgreater
\item See Armstrong, ‘Crowdsourcing And Open Access’ (n 152) S97; Armstrong, ‘Rich Text’ (n 152).
\item Richard A Danner, ‘Open Access to Legal Scholarship: Dropping the Barriers to Discourse and Dialogue’ (2012) 7(1) JICLT 65, 65.
\item See Danner, ‘Open Access to Legal Scholarship’ (n 328) 65.
\item See World Legal Information Institute, Declaration on Public Access to Law \textless http://www.worldlii.org/worldlii/declaration\textgreater accessed 1 June 2013.
\end{enumerate}}
2004 and Montreal in 2007. The focus of the Declaration is on public legal information. Maximising access to this information – the Declaration continues – ‘promotes justice and the rule of law’ and they are ‘digital common property and should be accessible to all on a nonprofit basis and free of charge’. Finally, the representatives of legal information institutes in Montreal have forcefully sought the support of governmental institutions in their quest for OAP in law by stating that ‘organisations such as legal information institutes have the right to publish public legal information and the government bodies that create or control that information should provide access to it so that it can be published by other parties’. In contrast to other OA Declarations, Darner has argued that the Montreal Declaration seems to come closer to suggesting a rights-based justification for OAP by declaring the right of ‘Independent non-profit organizations [. . . ] to publish public legal information’. National emanations of the WorldLII, such as the Australian Legal Information Institute (AustLII), the Canadian Legal Information Institute (CanLII) and the Cornell Legal Information Institute (LII) have also promoted at local level the case of OA to the law and databases of public legal information. The British and Irish Legal Information Institute (BAILII) is a UK initiative furthering the goals of OA to the law. BAILII has also recently undertaken a JISC-funded Open Law Project to support teaching and learning in legal education by creating a free and open online database of important pre-2000 legal judgments – only in the late 1990s did the UK Court Service begin to assert explicitly Crown Copyright on the judgments and BAILII must presume that the vast majority of available

331 Declaration on Open Access to the Law (n 330).
332 Ibid.
334 Danner, ‘Open Access to Legal Scholarship’ (n 328) 66.
336 See Daniel Poulin, ‘Free Access to Law in Canada’ (2012) 12(3) LIM 165 (sketching the principles supporting free access and also trying to make the business case for establishing it; discussing also the creation of CanLII).
338 See Cynthia Fellows, Philip Leith and Joe Ury, ‘Assessing BAILII 2012’ (2012) 12(3) LIM 148. See also Philip Leith and Cynthia Fellows, ‘Enabling Free Online Access To UK Law Reports: The Copyright Problem’ (2010) 18 IJLIT 72 (discussing access to law reports in the UK within the context of BAILII, an open access legal database that came about in part because of the copyrighted, privatised nature of law reporting in the UK and noting that public access to case law is an essential requirement in a democratic common system and BAILII should be seen as a potential step towards a National Law Library).
judgments from the period prior to 2000 are subject to commercial copyright. All in all, the open access law movement has so far been quite successful, providing free access to nearly 1,200 databases from about 125 jurisdictions worldwide.

Promulgated in February 2009 by a group of academic law library directors from the top ten US Universities, the Durham Statement sought to promote OA to legal scholarship. The declaration strived to achieve two major goals. On the one hand, the Durham Statement called for open access publication of law school-published journals. On the other hand, the Statement set the goal of putting at rest the print publication of law journals, coupled with a commitment to keeping the electronic versions available in ‘stable, open, digital formats.’ In looking at the results of the Statement two years after it was issued, authors have noted that while there has been an increase in the publication of law journals in openly available electronic formats, little movement towards all-electronic publication has been seen.

Fostering goals similar to the Durham Statement, before being reintegrated with Creative Commons, the Science Commons launched the Open Access Law Program (OALP), a project to promote OA in law journal publishing, including a set of Open Access Law Journal Principles promulgated in 2005. These Principles require that a journal take only a limited term licence; provide a citable copy of the final version of the article; and provide public access to the journal’s standard publishing contract. In return, the author promises to attribute first publication to the journal. The OAL Program also provides an Open Access Model Publishing Agreement embodying the OAL Journal Principles in a contract, together

341 See World Legal Information Institute (WorldLII) (providing access through its website and regional and national sites to the databases). Cf Thomas Shaw, ‘Free v Fee: Drivers and Barriers to the Use of Free and Paid-for Legal Information Resources’ (2007) 7(1) LIM 23 (discussing legal information professionals’ perceptions of what facilitates and what impedes the use of free information resources and highlighting the need for content that is relevant for their user base, need of a guarantee of the provenance and quality of the information, need of speed of use and currency, need for such resources to promote themselves visibly; in the case of paid-for resources ‘added-value’ seems to be the key factor for their success against free resources).
343 Ibid.
with an easy mechanism for authors and journals to adopt Creative Commons licences. So far, however, the OAL Journal Principles have been only partially successful. Fewer than 50 law journals – nearly all from the US – have either adopted the principles or indicated that they are operating under policies consistent with them. In fact, the Directory of Open Access Journals (DOAJ) suggests that few law journals are freely available on the web. Of over 9,450 journals listed on DOAJ, only 180 are listed under law. The road to open access in legal scholarship is, therefore, still long and bumpy.

However, although numbers of OAP publications and repositories are still lagging behind when compared with other fields, legal scholarship now has a long tradition discussing the sustainability of traditional law review models in the digital environment and the additional issue of open access publishing. OAP seems to be changing legal scholarship in three different directions. In contrasting the old and the new world of legal scholarship, Lawrence Solum has argued that scholarship is moving from the long form to the short form, from a regime of exclusive rights to a regime of open access, and from intermediated to disintermediated forms of publication. However, although weblogs or blogs have become


350 For a literature review and historical discussion of open access and legal scholarship in the United States, see Stephanie L Plotin, ‘Legal Scholarship, Electronic Publishing, and Open Access: Transformation or Steadfast Stagnation?’ (2009) 101 L Library J 31, 40- <http://ssrn.com/abstract=1350138> accessed 18 January 2013. See also, for a description of a few practical implementations of OAP models in the legal arena, Josh Wilner, ‘Editor’s Note – Open Access to Legal Publishing’ (2008) 2 McGill J L & Health 1 (presenting the McGill Journal of Law and Health, a new Canadian law journal, that embraces an OAP model and was unique among Canadian law journals at the time); Steven Whittle, ‘Amicus Curiae Pro Bono Publico: Open Access Online Publication at the Institute of Advanced Legal Studies’ (2012) 12(3) LIM 189 (discussing recent work at the Institute of Advanced Legal Studies to provide open online access to the IALS/SALS official journal Amicus Curiae and selected papers from the Institute's annual W. G. Hart Legal Workshop)

351 See also Lawrence B Solum, ‘Download it While it’s Hot: Open Access and Legal Scholarship’ (2006) 841 Lewis & Clark L. Rev. 841, 847-857 (also recounting the experience of his own ‘Legal Theory Blog’). See also Lawrence B Solum, ‘Blogging and the Transformation of Legal Scholarship’ (2006) 84 Wash U L Rev 1071 (Solum’s contribution to the Bloggership Symposium argues that law professor blogs constitute important indicators of the above mentioned three transformative trends and concludes that although blogs alone are not transforming legal scholarship, they do contribute to the transformation of legal scholarship by enabling experimentation).
a prominent feature of scholarly legal culture, reputational value seems to guarantee the endurance of intermediated forms of publications and law reviews in particular.

Although law journal subscription rates have not escalated like other journal prices, open access models have been increasingly appealing also for legal scholars, also in light of the duopolistic power that Westlaw and Lexis exercise on the legal database market. In a Symposium on Open Access Publishing and the Future of Legal Scholarship organised by the Lewis & Clark Law Review, Joseph Miller highlighted four reasons why law professors should take an interest in the OAP movement. In Miller’s view, open access in scholarship extends the reach of participating scholars and conversely dramatically reduces the cost at which people outside the academic community can access the information. Again, OAP increases distribution speed and adds measures of scholarly impact. In fact, uploading a new paper on platforms like the Social Science Research Networks (SSRN) makes it available to others immediately and offers the possibility to view real-time, rank-ordered lists of the most frequently downloaded papers. Finally, open access scholarship may propel the cumulative creation of a new social layer of metadata connecting and commenting on scholarship. In turn, this may provide a new networked social capital of user-written semantic tags that define connection between works and that others can see and re-aggregate in an infinite number of ways.

In order to increase the OAP figures in legal scholarship, authors have been proposing that law schools or other entities form a consortium in order to publish and freely disseminate

352 See Plotin, ‘Legal Scholarship, Electronic Publishing, and Open Access’ (n 350) 54-56.
353 A discussion on the sustainability of law reviews in the digital environment has been started in the US by Bernard J Hibbits, ‘Last Writes? Reassessing the Law Review in the Age of Cyberspace’ (1996) 71 NYU L Rev 615. In his article, Hibbits predicted the demise of law reviews, with legal scholars instead self-publishing on their personal websites. Hibbits’ article has started a heated debate with many responses promoting the opinion that law reviews are likely to be around for quite a while, especially for their reputational value and their importance for tenure and promotion. See David A Rier, ‘The Future of Legal Scholarship and Scholarly Communication: Publication in the Age of Cyberspace’ (1996) 30 Akron L Rev. 183, 188-210; Thomas R Bruce, ‘Swift, Modest Proposals, Babies, and Bathwater: Are Hibbits’s Writes Right?’ (1996) 30 Akron L Rev. 243, 243. See also Shawn G Pearson, ‘Comment, Hype or Hypertext? A Plan for the Law Review to Move into the Twenty-First Century’ (1997) 1997 Utah L Rev 765, 798 (discussing the ‘young professor dilemma,’ the tension between publishing in electronic journals and the concern that tenure committees would not give weight to electronic publications).
356 Miller, ‘Foreword’ (n 354).
legal scholarship on the Internet.\[357\] With special emphasis on the United States legal market, Ian Gallacher explains why law schools are uniquely suited to respond to these problems and concludes with ten proposed principles that might guide an open-access legal information site, which should be (i) free and accessible to all, (ii) as complete and as comprehensive as possible, (iii) flexible, (iv) capable of permitting indexed and non-indexed searches, (v) able to permit fast retrieval of information, (vi) reliable, (vii) permanent, (viii) using a neutral citation format to identify source material, (ix) include a citatory, and (x) encourage community involvement in its growth.\[358\] Again, Hunter has argued that traditional law reviews should lead the way to the open-access model.\[359\] First, open access is particularly suited to law review publishing, as the content of law review articles is determined by non-commercial considerations.\[360\] Again, at least in the United States, law reviews seem to be a perfect fit for open access models, because both the first copy cost of generating and publishing legal scholarship is almost completely subsidised by the legal academy and the royalties that law reviews receive from legal databases should not be affected by open access, as users still purchase these databases for the search capabilities added value that they provide.\[361\]

1.5. FROM ‘ELITE-NMENT’ TO OPEN KNOWLEDGE ENVIRONMENTS

In reading the literature, there seems to be a shared perception that the path to digital enlightenment may pass through OA to scientific knowledge. In a momentous speech at the European Organization for Nuclear Research (CERN) in Geneva, Professor Lawrence Lessig reminded the audience of scientists and researchers that most scientific knowledge is locked away for the general public and can only be accessed by professors and students in a university setting. Lessig strongly made the point that ‘if you are a member of the knowledge elite, then there is free access, but for the rest of the world, not so much […] publisher
restrictions do not achieve the objective of enlightenment, but rather the reality of “elite-ment.” Other authors have largely reinforced this point. Willinsky, for example, suggested that, as its key contribution, OAP models may move ‘knowledge from the closed cloisters of privileged, well-endowed universities to institutions worldwide’. This idea has been closely connected with a true responsibility of the academic community towards expanding OAP. Willinsky again advocated the idea that scholars have a responsibility to make their work available OA globally by referring to an ‘access principle’ and noting that ‘a commitment to the value and quality of research carries with it a responsibility to extend the circulation of such work as far as possible and ideally to all who are interested in it and all who might profit by it’. Carroll has equally suggested that technological innovation, together with its benefits, imposes on scholars ‘a duty to make his or her work available to the general (or, for the time being, Internet-accessible) public’. Building on Willinsky and Carroll’s conclusions, Danner envisaged a similar responsibility with specific emphasis on legal scholarship. Danner stressed that these responsibilities should inform the behaviour of all the participants in the scholarly communications process, including not only the creators, but also the institutions that support their work. In this sense, the true challenge ahead for the OAP movement is to turn university environments, and the knowledge produced therein, into a more easily and freely accessible public good, perhaps better integrating the OAP movement with Open University and Open Learning.

1.5.1 Universities and Open Access


363 Willinsky, The Access Principle (n 3) 33.

364 Ibid xii.

365 Carroll, ‘The Movement for Open Access Law’ (n 326) 756.


367 Ibid 358-359.

Criticising the university for having become part of the problem of enclosure of scientific commons by ‘avidly defending their rights to patent their research results, and licence as they choose’, Richard Nelson has argued that ‘the key to assuring that a large portion of what comes out of future scientific research will be placed in the commons is staunch defense of the commons by universities’. Nelson continues by arguing that if universities ‘have policies of laying their research results largely open, most of science will continue to be in the commons’. The role of universities in the OA and OAP movement is indeed critical and more than any other institutions they may promote the goals of ‘open science’.

In this respect, a Statement from the European University Association (EUA) Working Group on Open Access has stressed ‘[u]niversities’ public role and responsibility as “guardians” of research knowledge/results as “public goods”’. In establishing its Working Group on Open Access, EUA aimed at creating a European platform of expert opinion to set European universities as major stakeholders in the OAP policy debate. The EUA Working Group highlighted the fact that the participation of universities in the OAP debate should be guided by the need for well-functioning networked OA repositories, the strengthening of non-exclusive copyright through the promotion of model copyright agreements at university/institutional, as well as individual researcher, level, and the encouragement of OAP business models and peer review and quality control mechanisms by academic researchers for OA journals.

### 1.5.2 Open University and Open Learning

Armbruster includes among the major innovations of OAP knowledge exchanges featuring ‘area reviews that delimit knowledge and method, contain extensive bibliographies and are suitable for teaching and learning.’ Examples in this respect are Open Learn at Open University, Open CourseWare at MIT and Living Reviews. Again, initiatives have been undertaken to open access to academic textbooks. While the OA movement has focused

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370 Ibid.


372 Ibid.

373 Ibid.

374 Ibid.

375 Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 428.

376 See Nicole A Nguyen, ‘Not All Textbooks are Created Equal: Copyright, Fair Use, and Open Access in the Open College Textbook Act Of 2010’ (2010) 21 DePaul J Art Tech & Intell Prop L. 105 (discussing a US federal initiative to create OA textbooks, the Open College Textbook Act of 2010). Also, specific proposals have been made to promote an open-source approach to casebooks in the legal field, for example. See Matthew T Bodie, The Future of the Casebook: An Argument for an Open-Source Approach, (2007) 57(1) J Leg Educ 10, 10-35 <http://ssrn.com/abstract=691985> accessed 15 June 2014 (arguing for the creation of ‘a database with all the
so far primarily on academic scholarship, OA principles and OAP could equally transform education and the pedagogical process by promoting ‘new pools of course materials for professors to draw on, new means of interaction and collaboration between professors and students, and new possibilities for restructuring the law school curriculum’.\textsuperscript{376}

In the same context, the future of the OA and OAP movements seems to be tightly intertwined with notions of Open Education (OE), open universities and Open Educational Resources (OERs). Also, the role of Massive Open Online Classes (MOOCs) in the transformation of higher education and science and OA to academic research is still to be seen, but the emergence of MOOCs is a factor soon to be considered in the global OAP debate.\textsuperscript{377} In connection with OE – a term referring to educational organisations striving to eliminate barriers to entry, such as the Open University in the United Kingdom\textsuperscript{378} – the OERs movement has emerged to counter commodification of learning and teaching resources, reduce the educational divide between developed and developing countries, and promote an alternative educational paradigm.\textsuperscript{379} The Organization for Economic Co-operation and

individual components of a casebook’ which contains editable files that professors could then pick up, choose and assemble into a package for the course; the database could also allow individual professors to upload their own compilations, becoming an open ongoing teaching tool updated daily by the users). Cf Lydia Pallas Loren, ‘The Viability of the $30 (or Less) Casebook’ (2013) Lewis & Clark Law School Legal Studies Research Paper 2013/19 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2268057##> accessed 13 July 2013.

\textsuperscript{376} Matthew T Bodie, ‘Open Access in Law Teaching: A New Approach to Legal Education’ (2006) 10 Lewis & Clark L Rev 885, 898 (arguing that an open-access approach to legal education could transform the nature and structure of legal education into open-access law school).


\textsuperscript{378} The open university movement was born in the United Kingdom during the 1960s. Open universities are now found in Hong Kong, Israel, Sri Lanka, Canada and elsewhere. See Open University, History of the OU <http://www.open.ac.uk/about/ou/p3.shtml> accessed 15 April 2013. The Open University also has a 17th century precedent in Gresham College, where the Royal Society of London took shape in the mid-1600s, as it had been established in 1598 with seven professorships lodged in Thomas Gresham’s London mansion for the purpose of, along with their studies, reading public lectures in Law, Rhetoric, Divinity, Music, Geometry and Astronomy. See Francis Johnson, ‘Gresham College: Precursor of the Royal Society’ (1940) 4(1) Journal of the History of Ideas 413, 413–438.

Development (OECD) has authoritatively defined OER as ‘digitised materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research. OERs include learning content, software tools to develop, use, and distribute content, and implementation resources such as open licences’.

Among the many international organisations and institutions fostering the agenda of OERs, the United Nations Educational, Scientific and Cultural Organization (UNESCO) had a leading role in the development and promotion of the notion of OER and its emphasis on the educational divide between global North and global South, with the term Open Educational Resources (OERs) coined at UNESCO’s 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries. The integrated effects of OE and OERs were restated—and formalised into a global movement—by the Cape Town Open Education Declaration stating, *inter alia*, that the emerging open education movement combines the established tradition of sharing good ideas with fellow educators and the collaborative, interactive culture of the Internet. It is built on the belief that everyone should have the freedom to use, customize, improve and redistribute educational resources without constraint.

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380 Center for Educational Research and Innovation (CERI), *Giving Knowledge for Free: The Emergence of Open Educational Resources* (OECD Publishing 2007) 10 <http://www.oecd.org/edu/ceri/38654317.pdf> accessed 15 June 2013. For additional often cited definitions and discussion of the notion of OERs, see Commonwealth of Learning, Open Educational Resources <http://www.col.org/resources/crsMaterials/Pages/OCW-OER.aspx> accessed 15 June 2013 (adopting the widest definition of OERs as ‘materials offered freely and openly to use and adapt for teaching, learning, development and research’); The William and Flora Hewlett Foundation, Open Educational Resources <http://www.hewlett.org/programs/education-program/open-educational-resources> accessed 15 June 2013 (‘OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge’).


In the context of the promotion of OERs, OER policies are increasingly emerging at different levels with the aim of setting principles in order to support and promote the production and circulation of open materials and practices in educational institutions. In the United Kingdom, for example, HEFCE, the UK Higher Education Academy and JISC have funded the OERs Programme in order to support projects and activities in connection with the open release of learning and teaching resources, which can be freely used and repurposed worldwide.383

The Massachusetts Institute of Technology (MIT) has been playing a leading role in the OERs movement through the Open Knowledge Initiative,384 Open CourseWare, and DSpace,385 all devoted to opening access to intellectual resources, including software and research, often with corporate patronage. Pivotal to MIT’s OERs action is OpenCourseWare (OCW), which has been a pioneer project in the field and an inspiration for the emerging OERs movement and also served as an inspiration for the first UNESCO Forum on OERs. OCW is the digital teaching library of MIT, which offers an open digital publication of teaching materials including MIT’s undergraduate and postgraduate syllabi, lectures and other course materials.386 The project gives access to materials from more than 2,100 courses to one million international visitors each month, for the majority self-learners and students.387 OCW materials have been translated into several languages and are made available under a Creative Commons Attribution Licence, which prohibits the commercial use of the materials. Similarly, OCW materials are used by educators, amounting to around 10 per cent of OCW users, for incorporation into their courses.

Among the other examples of OERs, the Open University’s website OpenLearn follows an emerging trend among some universities to make course materials freely available online.388 As the Open University website claims, the aim of OpenLearn is ‘to break the barriers to education by reaching millions of learners around the world, providing free educational resources and inviting all to sample courses that our registered students take – for free’.389

383 This OERs Programme had several phases, the last being phase 3, which ended in October 2012. Several ongoing projects, such as PARiS at the University of Nottingham, were started at the university level. See JISC, Research and Development, Programmes, Academy/JISC Open Educational Resources Programme Phase 3 <http://www.jisc.ac.uk/whatwedo/programmes/ukoer3.aspx> accessed 15 June 2013.


385 DSpace@MIT is the digital archive of MIT Libraries, offering predominantly OA content. See DSpace@MIT <http://dspace.mit.edu> accessed 15 June 2013.


387 See, for complete statistics of OCW, MIT OpenCourseWare, ‘2011 Program Evaluation Findings Summary’ (22 November 2011).


389 Ibid.
Independent learners can study a range of modules taken from current Open University degree programmes. All content is covered by a CC ‘Attribution Non-Commercial Share Alike’ licence. OpenLearn offers a mix of learning resources, including interactives, games, video, podcast, and more traditional scholarly outputs, together with community tools for joining debates about each subject matter, rating the project and sharing the materials with fellow learners.

1.5.4 Open Knowledge Environments

In conclusion, it is worth noting a proposal that is intended to integrate OA, OAP and the university infrastructure into an enhanced networked knowledge production environment. Seeking to reap the full value that open access can yield in the digital environment, Jerome Reichman and Paul Uhlir proposed a model of open knowledge environments (OKEs) for digitally networked scientific communication.\(^{390}\) OKEs would ‘bring the scholarly communication function back into the universities’ through ‘the development of interactive portals focused on knowledge production and on collaborative research and educational opportunities in specific thematic areas.’\(^{391}\) The OKE model would build upon online peer production and participative web 2.0 environments and techniques.

The OKEs would transform the traditional scientific journal model into a ‘truly interactive networked mechanism for integrated knowledge production and reuse.’\(^{392}\) The OKE would be developed around thematically linked open access journals. Additionally, openly available reports, grey literature and data would augment the OKE. Various interactive functions, such as wikis, discussion forums, blogs, post publication reviews, and distributed computing, would be added to stimulate discussions and contributions. Finally, semantic web technologies would be added to increase the opportunities for automated knowledge generation, extraction and integration, and the OKE could encode references under a unified numbering system for easy search and integration of information.

Several options would be available for setting up the physical location of the OKEs. The OKEs could be hosted at single universities, or the components of the OKEs may be

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\(^{391}\) Paul F Uhlir, ‘Revolution and Evolution in Scientific Communication: Moving from Restricted Dissemination of Publicly-Funded Knowledge to Open Knowledge Environments’ (2\(^{nd}\) COMMUNIA Conference, Turin, 28 June 2009). See also Paul F Uhlir, ‘Designing the Digital Commons in Microbiology — Moving from Restrictive Dissemination of Publicly Funded Knowledge to Open Knowledge Environments: A Case Study in Microbiology’ in Paul F Uhlir, Designing the Microbial Research Commons: Proceedings of an International Symposium (National Academies Press 2011)

\(^{392}\) Ibid.
distributed among a consortium of universities sharing a privileged interest in a specific subject matter. Alternatively, the OKEs could be based at not-for-profit research centres or government agencies. The OKEs would be multidisciplinary in character by bringing in the experts in the specific subject matters, in-house computer engineers, information scientists and librarians to help establish and manage the OKEs. As a consequence of being integrated directly into the curricula or research functions of the host organisations, the OKEs would have low overhead operating costs by using on-site personnel and students. Additionally, financial sustainability of OKEs would be provided by grants and other positive externalities that the OKEs will attract to the hosting organisations.

1.6 CONCLUSIONS

Authors have argued that the current economic crisis of academic publishing driving academia to alternative models is leading the system of formal scholarly publication to enter its third phase of evolution: a phase of ‘(re)de-commodification in academic knowledge distribution’.\(^{393}\) This phase is increasingly taking shape and ‘is characterized by a strong de-commodified core with only niches for commercial publishers – in contrast to phase II which was the age of increasing commodification’\(^{394}\). In this respect, the current phase seems to be witnessing a return to the traditional scientific ethos of openness that has dominated the field for many centuries in the past. As the Royal Society has stressed, the Internet plays a critical role in opening up opportunities to this new era of scientific publishing by providing ‘a conduit for networks of professional and amateur scientists to collaborate and communicate in new ways and [paving] the way for a second open science revolution, as great as that triggered by the creation of the first scientific journals’\(^{395}\).

New OA publication channels, such as repositories, journals and increasingly books, have promoted this ‘second open science revolution’ by giving practical implementation to a set of OAP principles that the civil society has been developing in the last two decades or so. This renewed emphasis on the openness of scholarly research has been consolidated into a real OAP movement, which has been quickly exported from the STEM sector to the social sciences and any other field of research. The next challenge and aspiration seems to be the full integration of the OAP principles into the university environment, through an integrated interplay between OAP, OE, OERs and possibly new educational venues, such as MOOCs.

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\(^{393}\) See Nentwich, ‘(Re-)De-Commodification in Academic Knowledge Distribution?’ (n 41) 21.

\(^{394}\) Ibid 21.

\(^{395}\) See also Royal Society, Science as Open Enterprise (n 161) 7.
PART 2 – LEGAL FRAMEWORK AND COPYRIGHT

ABSTRACT

This section examines the legal framework that governs access to scientific information, with special emphasis on the role of copyright in academic publishing and the possible collision between copyright protection and access to knowledge. Initially, Section 2.1 briefly introduces in general terms a review of the copyright paradox and the increasing tension between circulation of knowledge, the survival of a healthy public domain, and copyright protection due to a seemingly relentless expansion and extension of private entitlements over knowledge-based goods. This review is carried out with the principal goal of highlighting the unresolvable tensions that a wider diffusion of OA and OAP models would redress in part. Section 2.2 turns then to discuss specific issues surrounding copyright and scholarly publishing and the literature dealing with them. Special emphasis is given to a review of the sustainability of the traditional copyright rationale and economics in academic publishing. We also look at questions related to ownership, transfer and licensing of academic works. Finally, Section 2.3 contextualises OAP within the international framework, with the main goal of assessing the effects of OAP as part of a broader discourse on Access to Knowledge (A2K) and the cultural, educational and recently digital divide between developed and developing countries.

2.1 COPYRIGHT/ACCESS TENSIONS

The undeniable tension between access to information and the copyright system is represented by an equation where the enclosure of the public domain is proportional to the expansion of the copyright protection. This tension is unavoidable and originates from the dual functionality of knowledge as a commodity and as a driving social force. In the words of Lord Mansfield in Sayre v. Moore:

[w]e must take care to guard against two extremes equally prejudicial; the one, that men of ability, who have employed their time for the service of the community, may not be deprived of their just merits, and the reward of their ingenuity and labour; the other, that the world may not be deprived of improvements, nor the progress of the arts be retarded.


397 Sayre v. Moore (1785) 1 East 361 (Lord Mansfield).
Professor Hugenholtz has referred to this tension as the ‘paradox of intellectual property’ because intellectual property is a ‘system that promotes, or at least, aspires to promote knowledge, dissemination, cultural dissemination by restricting it,’ by creating temporary monopolies in expressed ideas or in applied invention.\textsuperscript{398} Article 27 of the Universal Declaration of Human Rights sets the modern legal reference to the intellectual property paradox.\textsuperscript{399} The acknowledgment of a right to access to knowledge is stated in paragraph one: ‘[e]everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.’ The second paragraph spells out the protection of the second term of the intellectual property paradox: ‘[e]everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.’

\textbf{2.1.1 Copyright Extension and Expansion}

As we have mentioned at the beginning of Section I of this study, the recent history of copyright has seen the progressive expansion of property rights. Protected subject matter has been systematically expanded for longer and longer periods of time. A strong intellectual property rhetoric has harshened the access/protection tension encompassed in the copyright paradox. By increasing the asset value of copyright interests, copyright term extension is one basic tool of commodification of information. Copyright term extension may be singled out as the clearest evidence of the progressive expansion of property rights. The Statute of Anne provided for fourteen years of protection renewable for a term of an additional fourteen years if the author was still alive at expiration of the first term.\textsuperscript{400} Today, the oldest work still in copyright in the United Kingdom dates from 1859.\textsuperscript{401} The timeline of temporal extension of copyright protection shows a similar steady elongation in all international jurisdictions.\textsuperscript{402} However, copyright term extension is one among several other

\textsuperscript{398} P Bernt Hugenholtz, ‘Owning Science: Intellectual Property Rights as Impediments to Knowledge Sharing’ (2\textsuperscript{nd} COMMUNIA Conference, Turin, June 29, 2011) \texttt{http://www.comm_unia-project.eu/communiafiles/Conf%202009\_%20Au\_KS_Hugenholtz.ogg} accessed 03 May 2013. See also Neil Netanel, Copyright’s Paradox (OUP 2008).


\textsuperscript{400} See Statute of Anne 1709 (8 Ann c 19).


\textsuperscript{402} In Europe, the Council Directive 93/98/EC has extended the copyright protection of authors from life plus 50 years to life plus 70 years. Recently, an additional extension of the term of protection for performers and sound recordings has been adopted by the European Parliament. See European Parliament and Council Directive 2011/77/EU Amending Directive 2006/116/EC on the Term of Protection of Copyright and Related Rights, 2011 O.J. (L 265) 1 (September 27, 2011) \texttt{http://eur-lex.europa.eu} accessed 3 May 2013. In the United States, see, for example, David and Rubin, ‘Restricting Access to Books on the Internet’ (n 435) 28-31 (noting that the term of copyright protection in the United States has crept steadily upward over the last two centuries as well, from
tools of commodification of information, including copyright subject-matter expansion, multiplication of strong commercial rights, and erosion of fair dealings rights, exceptions and limitations.403 Copyright protection has been expanded from books to maps and photographs, to sound recording and movies, to software and databases. As in the case of the introduction of sui generis database rights in the European Union – a quintessential example of the process of commodification of information – new quasi-copyrights have been created.404 Additionally, subject-matter expansion has been coupled with the attribution of

14 years with an option to renew for another 14 in 1790, to 28 years with an option to double that in 1909, to life plus first 50 years in 1976 and then plus 70 years in 1998; Eldred v. Ashcroft, 537 U.S. 186 (2003) (where the Supreme Court has backed up the practice of extending copyright, which was challenged on constitutional grounds); Golan et al. v. Holder, No. 10-545 (Supreme Court, 18 January 2012) (Syllabus) <www.supremecourt.gov> accessed 3 May 2013 (sustaining the practice of restoring into copyright public domain international works as introduced by U.S.C. §17-104A in 1994). For a discussion of the supporting economic arguments, which seems to be lacking, for retroactive copyright extension, see Hal R Varian, ‘Copyright Term Extension and Orphan Works’ (2006) 15 Industrial and Corporate Change 965, 968 (noting that ‘what matters for the authors are the incentives present at the time the work is created’); Natali Helberger, Nicole Dufft, Stef van Gompel and P. Bernt Hugenholtz, ‘Never Forever: Why Extending the Term of Protection for Sound Recordings is a Bad Idea’ (2008) IIPR 174; P Bernt Hugenholtz and others, ‘The Recasting of Copyright and Related Rights for the Knowledge Economy 83-137 (European Commission, DG Internal Market, November 2006) <http://www.ivir.nl/publications/_other/IViR_Recast_Final_Report_2006.pdf> (putting forward several legal, economic and competition arguments against the extension of neighbouring rights); Wendy J Gordon, ‘Authors, Publishers, And Public Goods - Trading Gold For Dross’ (2002) 36 Loy L A L Rev 159, 178-187 (discussing the issue of retrospective application and incentive in the CTEA). In particular, Paul Heald has shown that once the incentive to create is assured, any extension of the property right beyond that point should at least require affirmative proof that the market is incapable of responding efficiently to consumer demand, which can hardly be given. In contrast, data show a highly competitive and robust market for the production of public domain books, especially when production costs are low, whereas data do not show any off-setting social benefits in the form of increased availability attributable to copyright status. Paul J Heald, ‘Property Rights and the Efficient Exploitation of Copyrighted Works: An Empirical Analysis of Public Domain and Copyrighted Fiction Best Sellers’ in Fiona Macmillan (ed), New Directions in Copyright Law: Volume 6 (Edward Elgar Publishing 2007) 79-91.

403 See Neil W. Netanel, ‘Why Has Copyright Expanded: Analysis and Critique’ in Fiona Macmillan (ed), 6 New Directions In Copyright Law (Edward Elgar 2008) 16 <http://ssrn.com/abstract=106 6241> accessed 3 May 2013 (noting that ‘as we have moved to an economy in which information and communication is a highly valued resource, a broad array of expanding intellectual property rights have colonised uses and subject matter that were previously public domain’). Another additional dimension of the process of copyright expansion may be seen in the abolition of formalities that made copyright protection the default rule of creativity and access rights or the public domain the exception, in contrast to the traditional arrangement that was previously in place. See Berne Convention for the Protection of Literary and Artistic Works (adopted 9 September 1886, last revised in Paris July 24, 1971 and amended 28 September 1978) 1161 UNTS 30 (Berne Convention) art 5(2). See also Stef van Gompel, ‘Copyright Formalities and the Reasons for their Decline in Nineteenth Century Europe’ in Ronan Deazley, Martin Kretschmer and Lionel Bently (eds), Privilege and Property. Essays on the History of Copyright 6 (Open Book Publishers 2010) 137-15; Delia Lipszyc, ‘Historical Appearances and Disappearances of Formalities: from Berne to National Laws’ in Lionel Bently, Uma Suthersanen and Paul Torremans (eds), Global Copyright: Three Hundred Years Since the Statute of Anne, from 1709 to Cyberspace (Edward Elgar 2010) 367-394; Jane C Ginsburg, ‘The US Experience with Formalities: A Love/Hate Relationhship’ in Lionel Bently, Uma Suthersanen and Paul Torremans (eds), Global Copyright: Three Hundred Years Since the Statute of Anne, from 1709 to Cyberspace (Edward Elgar 2010) 425-459 (discussing the history of formalities in the United States).

404 See, for example, Estelle Derclaye, The Legal Protection of Databases: A Comparative Analysis (Edward Elgar Publishing 2008); Mark Davison, ‘Database Protection: The Commodification of Information’ in Lucie Guibault
strong commercial distribution rights, especially the right to control imports and rental rights, and the strengthening of the right to make derivative works.

2.1.2 Fair Dealings, Digital and Contractual Locks

Again, access rights have been eroded by narrowing the scope of fair dealing or fair use rights, exceptions and limitations to copyright and public interest rights. Although the erosion of fair dealing rights appeared early in the history of copyright – and has thrived on the increasing confusion regarding the scope of fair dealing rights which has made users reluctant to rely on them – it has recently reached its peak with the transition from the analogue to the digital medium. In particular, the enactment of anti-circumvention provisions as a response to the Internet threat played a decisive role in the process of contraction of fair dealing rights. As literature explained, digital networks may equally serve openness and perfect control. The initial open nature of the Internet has been gradually substituted by architectures of greater and greater control. Technology has been able to appropriate and fence informational value, which was previously unowned and unprotected, through the adoption of technological protection measures (TPMs) or digital rights management (DRM) systems to control access and use of creative works in the digital

and P Brent Hugenholtz (eds), The Future of the Public Domain: Identifying the Commons In Information Law 167-189 (Kluwer Law International 2006).

See Fiona Macmillan, ‘Commodification and Cultural Ownership’ in Jonathan Griffiths and Uma Suthersanen (eds), Copyright And Free Speech: Comparative And International Analyses (OUP 2003) 43 (mentioning Artt. 11 and 14(4) of the TRIPs Agreement, which include rental rights in relation to computer programs, films and phonograms, Art. 7 of the WIPO Copyright Treaty 1996 and Artt. 9 and 13 of the WIPO Performances and Phonograms Treaty 1996).

It is also worth noting that, in recent times, Free Trade Agreements (FTAs), which are negotiated between individual countries, have extended copyright protection beyond the minimum standards provided by international agreements. Often, FTAs between powerful and less powerful nations include even more restrictive provisions than those existing in the domestic legislation of powerful countries.

environment. TPMs actually served as a tool to turn information into perfect commodities. However, it was finally a mix of technology and legislation that empowered the modern drift towards commodification of information and substantially restricted users’ access rights and fair dealings. Under the framework initially set by the WIPO Internet Treaties, the Digital Millennium Copyright Act in the United States and the Information Society Directive in Europe enacted provisions aimed at forbidding the circumvention of copyright protection systems. In addition, the law banned any technology potentially designed to circumvent technological anti-copy protection measures. Consistent literature has highlighted the fact that the enactment of these provisions upset the delicate balance between copyright protection and access rights by bypassing those exceptions to copyright that allow privileged uses. In theory, both European and United States legislation mandate appropriate measures to protect fair use, fair dealing rights, limitations and exceptions. In Europe, the Information Society Directive provides that ‘Member States shall take appropriate measures to ensure that rightholders make available to the beneficiary of an exception or limitation provided for in national law the means of benefiting from that exception or limitation, to the extent necessary to benefit from that exception or limitation and where that beneficiary has legal access to the protected work or subject-matter


415 Ibid art 6 (2); DMCA (n 413) § 1201 (a) (2) and (b).

concerned.\textsuperscript{417} The United States DMCA takes a different approach and provides for a list of statutory exemptions, including an exemption for nonprofit libraries, archives, and educational institutions, for law enforcement, intelligence, and other government activities, for reverse engineering, and for encryption research.\textsuperscript{418} This list is also accompanied by a set of administratively created exemptions which are updated at regular intervals by the Library of Congress to cater for technological advancement.\textsuperscript{419} However, as the law stands, if those measures provided under EU law are not in place or the circumvention is not covered by any of the specific acts listed under US law, circumventing a digital right management technology that restricts acts permitted by the law is a civil wrong, and perhaps a crime, as such.\textsuperscript{420} For this reason, TPMs are viewed by librarians and users as a means of restricting access to academic publications.\textsuperscript{421}

In recent years, contracts and private ordering have also been deployed, together with technology and anti-circumvention provisions, to commodify and appropriate information.\textsuperscript{422} The result of the synergy between technology, contracts and supporting legal provisions is what Julie Cohen has called a ‘pervasively distributed copyright enforcement’ that has been implemented as a crisis management tool in the marketplace for digital content to protect established business models.\textsuperscript{423} Contracts may be employed to restrict or prohibit uses of works that would otherwise be permitted under copyright law. Current mass-market licensing practices increasingly tend to restrict or prohibit certain uses of works

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\textbf{Year} & \textbf{Event} \\
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1980 & First use of computer software protection \\
1998 & DMCA passed \textsuperscript{413} \\
2000 & EU Directive 2001/29/EC on copyright \textsuperscript{415} \\
2010 & Puckett Digital Rights Management as Information Access Barrier \textsuperscript{420} \\
2013 & Cohen Pervasively Distributed Copyright Enforcement \textsuperscript{421} \\
\hline
\end{tabular}
\caption{Timeline of Copyright Protection}
\end{table}

\textsuperscript{417} See Directive 2001/29/EC (n 414) art 6 (4).
\textsuperscript{418} See DMCA (n 413) § 1201.
\textsuperscript{419} Ibid § 1201 (a)(1)(C).
\textsuperscript{423} See Julie Cohen, ‘Pervasively Distributed Copyright Enforcement’ (2006) 95 Geo L J 1. See also Boyle, The Public Domain (n 56) 83-85.
over the Internet far beyond the exclusive rights granted by copyright law. The digital information marketplace has seen the emergence of standard form contracts restricting the capacity to use information not or no longer qualifying for intellectual property protection or whose use is privileged. Click-wrap agreements may imply that restrictions on the use of online content is extended to unprotected material or may prohibit any reproduction of the content for any purpose whatsoever.\footnote{Lucie Guibault, ‘Evaluating Directive 2001/29/EC in the light of the Digital Public Domain’ (1st COMMUNIA Conference, 1 July 2008) 13.} The most powerful example of these forms of technological and contractual enclosure is that of click-wrap agreements that state that some uses of a scanned public domain material are restricted or prohibited.\footnote{As an example, if you download any public domain books from the Google books website – a project to partner with international libraries to digitise public domain materials – the Usage Guidelines included at the front of each scan read as follows: ‘We also ask that you: + Make non-commercial use of the files. We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.’ In the preamble to the Usage Guidelines Google justifies these restrictions by stating that the digitisation work carried out by Google ‘is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties.’} As a reaction to these practices, OA for public domain materials has been strongly advocated in several different venues, with specific emphasis on libraries’ re-use policy of digitised public domain heritage material.\footnote{See Bas Savenije and Annemarie Beunen, ‘Cultural Heritage and the Public Domain’ (2012) 22 Liber Quarterly <http://liber.library.uu.nl/index.php/lq/article/view/8089/8470> accessed 10 March 2013.} In this respect, the Berlin Declaration on OA has encouraged ‘the holders of cultural heritage to support open access by providing their resources on the Internet’\footnote{See ‘Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities’ (Berlin Conference, Berlin, 20-22 October 2003) <http://oa.mpg.de/lang/en-uk/berlin-prozess/berliner-erklarung> accessed 16 January 2013.} In a similar fashion, but with more prescriptive effects, the European Commission has issued a Recommendation stating that ‘cultural institutions should make public domain material digitised with public funding as widely available as possible for access and re-use’.\footnote{Commission Recommendation 2011/711/EU of 29 October 2011 on the digitisation and online accessibility of cultural material and digital preservation [2011] OJ L283/39 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:283:0039:0045:EN:PDF> accessed 10 March 2013. See also ‘The Public Domain Manifesto’ (COMMUNIA 2010) Recommendation 7 <http://www.publicdomainmanifesto.org/manifesto> accessed 13 June 2013; Giancarlo F Frosio, ‘COMMUNIA Final Report on the Digital Public Domain’ (Report prepared for the European Commission on behalf of the COMMUNIA Network and the Nexa Center for Internet and Society, 2012) 154 <http://communia-project.eu/final-report> accessed 13 June 2013;}. Again, the handshake between technological and contractual enclosure has especially negative effects on academic library users. As David Hansen discusses, in electronic licence agreements between publishers and libraries, the default rules for
accessing copyrighted content are often altered and academic library users are deprived of basic fair dealing and fair use rights.  

2.2 COPYRIGHT AND SCHOLARLY PUBLISHING

As history has highlighted, from the ancient proverbial idea of *scientia donum dei est unde vendi non potest* to the emergence of the notion of ‘open science’, the normative structure of science presents an unresolvable tension with the exclusive and monopolistic structure of intellectual property entitlements. Merton has strongly emphasised the contrast between the ethos of science and intellectual property monopoly rights:

The substantive findings of science are a product of social collaboration and are assigned to the community. They constitute a common heritage in which the equity of the individual producer is severely limited. An eponymous law or theory does not enter into the exclusive possession of the discoverer and heirs, nor do the mores bestow upon them special rights of use and disposition. *Property rights in science are whittled down to the bare minimum by the rationale of the scientific ethic*. Scientists claim to ‘their’ intellectual ‘property’ are limited to those of recognition and esteem which, if the institution functions with a modicum of efficiency, are roughly commensurate with the significance of the increments brought to the common fund of knowledge.

Once scholars sign away their copyright, through contracts which are usually imposed unilaterally by academic publishers, the ‘rationale of scientific ethic’ to which Merton refers is inevitably undermined. In this respect, the conflict between the traditional copyright rationale and the rationale of scientific ethic is unresolvable. This tension becomes increasingly unsustainable because of the overexpansion of copyright entitlements and the monopolistic effects that it brings about, especially in terms of price increases, price discrimination and deadweight loss, which jeopardise global access to knowledge. Summing up the conundrum presented in the previous pages, Jerome Reichman and Ruth Okediji have recently clearly described the inherent collision between copyright law and science.

Access to, and use of, the cumulative scientific literature and data are frustrated by weak

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limitations and exceptions, fair dealings and fair use rights that should defend scientific research.\textsuperscript{432} The ‘coup de grâce’ to scientific users’ rights, as Reichman and Okediji refer to it, was finally given by digital locks and database protection laws.\textsuperscript{433} As Rufus Pollock has noted, the current paradigm ‘binds us to a narrow and erroneous viewpoint in which innovation is central but access is peripheral’.\textsuperscript{434} This narrow viewpoint and the intellectual property rhetoric have hidden the costs of extreme propertisation and restriction of access. In fact, today, those marginal social costs are rising as a consequence of the increase in value that the greater capacity of dissemination of the digital networked society produces over open access to information.\textsuperscript{435} In this respect, authors have been arguing repeatedly that an outmoded copyright system may be crippling ‘potentially boundless scientific opportunities in the digital environment’.\textsuperscript{436} The opportunities offered by technological innovation and disintermediated networked circulation of information have heightened the protection/access tension by increasing the social loss of public value that strong propertarian approaches to academic knowledge may produce.

### 2.2.1 Copyright Rationale in Academic Publishing

The traditional copyright incentive theory may be subject to an extremely peculiar construction, and partly lose its strength, when applied to academic works and academic publishing. The relevance of motivational arguments, as opposed to economic, for justifying a recalibration of the scope of copyright protection is especially strong in the academic field. As Müller-Langer and Scheufen have noted, ‘copyright seems negligible in academia as researchers are motivated by reputation gains and CV effects rather than direct financial returns from publishing their works’.\textsuperscript{437} Steven Shavell reinforces the same point by noting

\textsuperscript{432} Ibid 1372-1388.

\textsuperscript{433} Ibid 1414-1424.

\textsuperscript{434} Rufus Pollock, The Value of the Public Domain 4 (UK Institute for Public Policy Research 2006).

\textsuperscript{435} See Paul A David and Jared Rubin, ‘Restricting Access to Books on the Internet Some Unanticipated Effects of U.S. Copyright Legislation’ (2008) 5 Rev Econ Res Copyright Issues 23, 50 (’Today, the greater capacity for the dissemination of knowledge, for cultural creativity and for scientific research carried out by means of the enhanced facilities of computer-mediated telecommunication networks, has greatly raised the marginal social losses that are attributable to the restrictions that those adjustments in the copyright law have placed upon the domain of information search and exploitation’).

\textsuperscript{436} Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1365.

[t]he conventional rationale for copyright of written works, that copyright is needed to foster their creation, is seemingly of limited applicability to the academic domain. For in a world without copyright of academic writing, academics would still benefit from publishing in the major way that they do now, namely, from gaining scholarly esteem.\(^\text{438}\)

The incentive for scientific authors to publish is reputational rather than economic, only bringing indirectly to successful authors economic and social gains through scholarly esteem and professional advancement.\(^\text{439}\) Although caveats should be made in connection with some types of research outputs, such as textbooks,\(^\text{440}\) in scientific research and academic publishing, in contrast to other creative industries, motivational factors like reputation or social recognition are likely to be behind creative endeavours rather than financial gains.\(^\text{441}\) As Hilty stressed, for-profit publishers inevitably tend to impose greater restrictions on scientific publications than the scientific community would find acceptable, because the goals of commercial publishers and the community are different, perhaps even opposing. In actual fact, academic authors receive motivation through reputational benefits that are increased by the widest dissemination of their works, rather than from monetary profit from the sale of publications or subscriptions, as is the case for commercial publishers.\(^\text{442}\) In fact, ever since the first scientific journals were founded in the seventeenth century, journals have not paid authors for articles. In the academic publishing market, royalties are in most cases absent or negligible, and there is no empirical evidence that copyright increases the

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\(^\text{438}\) Steven Shavell, ‘Should Copyright of Academic Works Be Abolished?’ (2010) 2 J. Legal Analysis 301, 301.


\(^\text{440}\) Distinctions between motivational incentive – economic or reputational – for different academic research outputs have rarely been reviewed by the literature. Textbooks, for example, may be far more lucrative in terms of royalties than other publications, such as articles or monographs. A case could be made that the primary motivation for textbooks may be economic rather than reputational, although this may be debatable. In any event, a more nuanced consideration of different types of academic publications and how OA should apply to them seems to be a concern worth considering.


creators’ earnings. In this respect, Suber noted that ‘[t]he royalty-free nature of journal articles also explains why scholars would not be hurt if copyright law were dramatically reformed to restore balance between copyright holders and users’.

Again, the doubtful applicability of the traditional copyright incentive theory to academic authors is confirmed by the fact that the large majority of research is publicly funded. Therefore, the public or taxpayer’s money serves to support the creation of the scientific publications in the first place. However, the public must pay a second time to access that very same research it has already paid for through the fees that research institutions and libraries pay to commercial scientific publishers. In this regard, the Max Planck Institute has noted that

[s]ince both the production as well as the acquisition of scholarly contents is for the most part publicly financed, there is a legitimate public interest in a highly efficient and cost-effective publication process. Taxpayers in Europe need to be guaranteed that the relevant funds are not used to subsidise excessive profit margins of some commercial publishers, whose business models are based on the commodification of scientific information or knowledge.

Finally, we will return later, in Section 3.1, to an additional special feature of the academic publishing market, which has been characterised as a two-sided market, where the scientific community provides both the supply and the demand for scientific research. For now, let us note that, in light of this aspect of the academic publishing market, a stronger argument than in other publishing markets may be put forward to sustain openness. In fact, academic authors may be willing to surrender the small royalties they receive in exchange for unrestricted, easy and fast access to the global library of academic research, which is critical for their capacity to produce follow-on innovation and research.

2.2.2 Ownership of Rights in Academic Publishing

Ownership of rights in academic research – and the associated question of ownership of rights to open access to academic works – is a preliminary issue that is worth mentioning briefly. As highlighted by the literature, the question of ownership, namely whether it

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443 See Ruth Towse, Creativity, Incentive and Reward: An Economic Analysis of Copyright and Culture in the Information Age (Cheltenham 2001); Tenopir and King, Towards Electronic Journals (n 177).

444 Peter Suber, ‘Creating an Intellectual Commons through Open Access’ (n 90) 176.


446 See Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1426-1427.

447 Hilty and others, ‘European Commission: Green Paper: Copyright in the Knowledge Economy’ (n 511) 313.
resides with the academic authors or the research institution, still presents controversial aspects, especially due to lack of harmonisation. In Europe, the initial ownership of rights is determined by the law of each Member State, where the national rules may point to the authors themselves or the research institutions employing them, under the traditional ‘work for hire’ doctrine. Lucie Guibault, for example, has reviewed legal arrangements in France, the Netherlands and the United Kingdom to determine whether research carried out by scientists or scholars in a university is to be qualified as an employee creation. In all these countries, although the law might designate, quite unambiguously apart from the case of France, the university as the initial copyright owner of works created in the course of research activities within a university setting, relevant customs and practices in fact assign initial ownership to the individual academic author. In particular, in the United Kingdom, although a traditional ‘work for hire’ provision is included in Section 11(2) of the Copyright, Design And Patent Act 1988, building upon a dictum of Lord Evershed, Cornish concludes that works of academics employed in an environment devoid of commercial interests should give rise to copyrights initially belonging to the author, rather than the academic institution. Documents and internal policies published by Cambridge University and the University of Oxford seem to confirm the continued application of this rule. Concluding on the matter of initial ownership, Guibault noted that in practice, in the jurisdictions that she has reviewed, the individual academic authors seem to enjoy a consistent degree of freedom in the exercise of the copyright on their works, ‘especially in view of the rather vague university policies existing on the subject’ and ‘therefore, whether

448 See Lucie Guibault, ‘Owning the Right to Open Up Access to Scientific Publications’ in Guibault and Angelopoulos (eds), Open Content Licensing from Theory to Practice (Amsterdam U Press 2011).
449 Ibid 140-148.
450 See Intellectual Property Code, art L 131-3-1 (France); Copyright Act, art 7 (Netherlands). See also Guibault, ‘Owning the Right to Open Up Access to Scientific Publications’ (n 448) 141-143 (especially for a discussion of the applicability of ‘work for hire’ to the scientific personnel of French universities and research institutes)
452 See Copyright, Design And Patent Act 1988, s 11(2) (stating that ‘w[here a literary, dramatic, musical or artistic work or, a film, is made by an employee in the course of his employment, his employer is the first owner of any copyright in the work subject to any agreement to the contrary’).
453 See Stephenson Jordan v McDonald & Evans [1951] 69 RPC 10, 22 (noting that it would be ‘inconceivable’ that the lectures of a great scholar, in that case F W Maitland, would belong to anyone other than himself, even though he was employed by a university).
to publish [their] research results under open access terms or not will be the author’s own decision’. 456

Robert Denicola has discussed ownership of rights, and OAP in the United States. 457 Similarly to the arrangements that we have seen in place in some European countries, Denicola believes that a literal application of case law in the United States 458 yields a strong case for university ownership of copyright in academic research under the ‘work for hire’ rules, although ‘by tradition schools and universities have acquiesced in faculty ownership’. 459 In contrast to the traditional academic ownership of rights in the United States, Denicola makes a controversial proposal. He suggests that universities should exercise their legal right to claim ownership of copyright in the research outputs produced by their faculties, because only universities can yield sufficient leverage power against academic publishers to promote fundamental change in scholarly publishing.

2.2.3 Transfer of Rights in Academic Publishing

Regardless of the ownership of rights, the owner is usually required to transfer her rights to a publisher to enjoy publication. In fact, transfer of rights is an additional element that has a very peculiar characterisation in academic publishing. In order to enhance reputational value, scientific authors surrender their copyright for free, rather than selling it, to scientific publishers traditionally positioned in the market, whose publications enjoy high impact factors. 460 In light of these considerations of prestige, as Guibault noted, room for negotiation with respect to the terms of the contract is almost non-existent and academic authors have to face the widespread practice where terms are presented on a ‘take-it-or-leave-it’ basis. 461 Additionally, similarly to the rules relating to initial ownership, those on

459 Denicola, ‘Copyright and Open Access’ (n 457) 373.
460 See Caso, ‘Scientific Knowledge Unchained’ (n 439) 7-9; in fact, the authors benefit from the peer review mechanisms that these publishers manage and are reluctant to publish outside the well-established or high impact outlets. See Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1460
authors’ contracts do not enjoy harmonisation at European level, leaving the authors at the mercy of the Member State legislation, which only in some instances may have certain protective measures in place for the benefit of the authors. In fact, according to Guibault’s review of some European jurisdictions, only in France may the typical broad transfer of rights requested by academic publishers face challenges of validity, whereas ‘courts in the UK and the Netherlands would probably uphold the validity of such [clauses]’.

Given these market and contractual conditions, academic publishers, which are either commercial entities, learned societies or other non-profit entities, are usually broadly empowered to determine the conditions of access to, and reuse of, scientific authors’ research outputs. Once scientists and scholars sign away the copyright to publishers, publishers may use exclusive copyright to levy subscription fees, site licences and pay-per-view charges. The effect of publishers’ copyright exclusivity on academic knowledge is two-fold. On the one hand, scholars are prevented from distributing, copying and making transformative uses of their research outputs without publishers’ permission; on the other hand the publishers may sell scholars’ works back to the academic community itself, including libraries, researchers and students, at monopoly prices. Obviously, the traditional academic publishing arrangements regarding transfer of rights may potentially squash any type of OAP by the authors. Although, in some circumstances, as we will discuss later, academic publishers may authorise the pre-print to be made available green OA through an institutional repository or the authors’ website, often publishers only authorise the OAP of an abstract and will demand the removal of any other version of the article from OA availability.

2.2.4 Open Access and Licensing

There are two legal foundations for OAP: public domain and copyright-holder consent. If the copyright still resides with the academic author or institution, depending on initial ownership of rights, few issues arise and OAP can be permitted according to the desire of the original owner. However, in the traditional academic publishing scenario that we have described above, rights have been fully transferred to the publishers, whose permission

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Footnotes:

462 Ibid 151.
463 See Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 428.
464 Ibid 429. See also Guibault, ‘Owning the Right to Open Up Access to Scientific Publications’ (n 448) 148 (noting that, although the arrangements vary depending on the field of science, access restrictions may prevent academic authors from distributing their own works, even to colleagues and students, or reusing content, figures and tables from their own articles).
must be obtained by the original author for any OAP of the published research output, including any alternative versions or even pre-prints.

Among the key licensing issues that soon emerged for OA publications was to define the extent of permissible self-archiving. Early in the history of OAP, recognising that the desire of authors to self-archive seemed unlikely to hurt subscriptions, a right to do so was included by the publishers within the copyright transfer policies that authors were asked to sign. In recent years, almost all publishers have clearly spelled out what is permissible or not in terms of posting of self-archived copies. According to Björk, ‘[a] majority of publishers nowadays allow posting of the author’s accepted manuscript in an IR, sometimes with an embargo period’ and ‘[t]he general trend seems to be to allow posting only on home pages and in institutional repositories, perhaps since these are perceived as less of a threat compared to subject repositories’. In this regard, RoMEO – which has been launched as part of SHERPA Services based at the University of Nottingham as a directory of journal policies on author self-archiving – reports that 69 per cent of the nearly 1,300 publishers registered in the RoMEO database, including all the principal publishers and the core ISI journals, have formally allowed some form of author self-archiving.

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Again, Mikael Laakso has been running an ongoing study of the copyright policies of the 100 largest publishers with journals indexed in Scopus, representing a total volume of 1.15 million yearly articles. Laakso’s research has found that immediate self-archival of the accepted version was allowed for 62 per cent of the articles on home pages, 61 per cent in institutional repositories, but only 21 per cent in subject repositories. If journals allowing uploading

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466 See Peter Suber, ‘Creating an Intellectual Commons through Open Access’ (n 90) 179.

467 See John Willinsky, ‘The Stratified Economics of Open Access’ (2009) 39(1) Economics Analysis and Policy 59-60. See also Goodman, ‘The Criteria for Open Access’ (n 220) 260 (noting that most publishers permit the author to post the submitted manuscript or preprint in repositories, although some journals, especially medical journals, which have had a long standing rule against pre-publication disclosure, do not permit any form of preprint publication; in contrast, publishers tend not to allow the self-archiving of post prints, whereas more frequently explicitly permit the posting of the author’s approved peer-reviewed manuscript); Sally Morris, ‘Open publishing’ (2003) 16(3) Learned Publishing 171, 171-172 (discussing preprints and post prints and noting that while there is no real concern by the publishers that the availability of preprints may seriously undermine journals’ viability, posting the final published version may be another matter and the reaction of the publishers has been more cautious regarding the post prints).


469 Björk, ‘Open Access’ (n 484) 7.

470 Ibid 7-8 (also mentioning Elsevier as an interesting case because for a long time they have allowed posting in IR unconditionally and recently have changed policy, only allowing posting if it is voluntary, whereas if a mandate policy is in place at an institution, Elsevier requires a separate agreement with that institution).

only after an embargo period of up to 24 months are added, the total share for which green self-archiving is allowed rises to 81 per cent.472

Besides rights of self-archiving – or circulating gratis the research output – reuse rights equally constitute the core of OAP, as far as the libre OAP is concerned and endorsed by the major OAP declarations and definitions. As Suber highlighted, libre OA always needs a licence to spell out the terms in which the content is freed from some copyright restrictions, as the default mode of work of authorship and scholarship is all-rights-reserved since the moment of their creation.473 Clearly, in these licences, the degrees to which content is libre OA may vary according to the copyright restrictions that are waived. Therefore, the types of libre OA may vary accordingly. For this reason, as Suber points out, ‘there are many nonequivalent open licences and nonequivalent types of libre OA.’474 There are several ready-made open licences, and authors and publishers can always come up with their own; however, the CC open licences are the best-known, most widely used, and those generally endorsed by the OAP community and initiatives. Looking at the range of libre OA from the point of view of CC licences, the maximal degree of libre OA belongs to works dedicated to the public domain through a CC-Zero licence and works licensed under a CC-BY, allowing any use provided that attribution is given. Lesser degrees of libre OA are supported by CC-BY-NC, which requires attribution and prevents commercial use, and CC-BY-ND, which requires attribution and prevents derivative works. According to Suber, these licences represent the ‘different flavors of libre OA’.475 The CC-BY licence has a critical role within the OAP movement as it is recommended by relevant OAP initiatives, such as the recent OASPA476 and the DOAJ and SPARC Europe Seal of Approval Program for OA journals,477 or even made

472 Ibid.
473 See Suber, Open Access (n 179) 67.
474 Ibid 68.
477 See SPARC Europe, SPARC Europe Seal for Open Access Journals <http://sparceurope.org/our-work/sparc-europe-seal-for-open-access-journals> accessed 1 July 2013; DOAJ, How do I get the SPARC Europe Seal for Open Access Journals? <http://www.doaj.org/doaj?func=loadTempl&tmpl=faq> accessed 1 July 2013. See also, among leading OA journals using CC-BY, BioMed Central, The Open Access Publisher, About us
mandatory as in the case of the recent Research Councils of United Kingdom OA mandate policy.\(^{478}\)

Suber has noted that, although the BBB definition calls for both gratis and libre OA, so far ‘most of the notable OA success stories are gratis and not libre’\(^ {479}\). In truth, most OA journals are not using open licences and operate under an all-rights-reserved regime.\(^ {480}\) The DOAJ provides instructive data in this respect. Roughly 35 per cent of the titles listed in the directory use CC licences, with approximately 17 per cent using the DOAJ recommended CC-BY.\(^ {481}\) However, the numbers are rising at a fast pace. A couple of years ago, only 20 per cent of the DOAJ titles were using CC licences, with fewer than 11 per cent using CC-BY.\(^ {482}\) In fact, when publishing in some of the most reputable OA journals, including PLoS, Biomed Central, and Hindawi, authors retain the copyright on their articles, which are freely distributed under a Creative Commons Attribution Licence (CC-BY) and therefore can be unrestrictedly re-used, distributed in any medium, provided that the original work is correctly cited.\(^ {483}\)

Although still a minority, CC licences are becoming increasingly popular for OA journals – and publications at large – after an initial period in which ‘most born OA journals even lacked explicit agreement with the authors or information about usage rights’.\(^ {484}\) Among large publishers CC licences could be even more popular than across the entire market. In an EC funded study, Dallmeier-Tiessen and others found that 7 out of 14 large OA publishers, which represented 72 per cent of 616 journals, were using CC licences.\(^ {485}\) In contrast,
Dallmeier-Tiessen and others also reported, only 27 per cent of journals, among small publishers, were using CC licences.  

On a final note, it is worth noting that digitisation has changed the business models governing the publishing market. Dematerialisation has forced publishers to switch from the traditional sale of physical copies to licensing agreements governing the access and use of research outputs, the control of which is enforced by technological protection measures. Although these are broader issues than those reviewed in this study, nonetheless they crucially overlap with the discussion of OAP. In particular, technological protection measures have added additional restrictions to the use and reuse that users can make of research outputs circulating in digital form, especially e-books. As Suber noted above, very often gratis OA materials may still be subject to the restrictions that are enforced by digital rights management systems.

2.2.5 Economies of Prestige, Academic Careers, and OAP

As we have seen, scientific authors surrender their copyright for free to high impact factor publishers to maximise the reputational value that can be extracted from their works of scholarship. This, in turn, empowers publishers with absolute control over conditions of access to, and reuse of, scientific literature. In fact, it is worth noting, as some literature has highlighted, that the position of the academic community within this conundrum is far from transparent. Paul Horowitz has addressed the impact of online media on the gatekeepers who have traditionally certified scholars and their scholarship as elite. He observes that academic legal scholars who have benefited from online media and paid lip service to egalitarian distribution of scholarship have also sought validation and enhanced status from the traditional gatekeepers they criticise. This, he concludes, has perpetuated the tension between elitism and egalitarianism, in part because the legal academy is overly concerned with making and trading prestige as a cultural product.

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486 Ibid.
487 See Caso, ‘Scientific Knowledge Unchained’ (n 439) 11; Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1460-1465; Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 590) 583-584.
In this respect, Ulrich has discussed the acceptance of OA from the perspective of Bourdieu’s theory of scientific capital. In this context, traditional claims for OA, based on acceleration of scientific communication, financial arguments, reduction of the digital divide, enhanced participation, and levelling of disparities, become less relevant. Rather, ‘it is crucial for open access [ . . . ] to understand how scientists perceive its potential influence on existing processes of capital accumulation and how open access will affect their demand for status.’ Therefore, the reputational value that OA publications will produce will be determinant in defining its success. In this respect, according to Bourdieu’s theory, OA may face difficulties in replacing other forms of academic publishing, while OA journals continue to be partially ignored in efficiency ratings, evaluations and appointments.

Additional literature has focused on researchers’ attitude towards open access in light of the traditional economies of prestige of academic publishing. Generally, several authors have found that the coexistence of closed and open access may create an inefficient Nash Equilibrium as a consequence of the lock-in effects that follow from the reputation advantage of established non-OA publications. In similar fashion, after conducting a survey analysing attitudes from 481 scientists, Mann and others concluded that researchers tend to exhibit a ‘wait and see’ attitude towards OAP.

Mindful of the inefficiency of the present system, the literature has been investigating – with more research critically necessary in this field – new economies of prestige through Open Access. Michael Madison, for example, explored how the current economy of prestige of academic publishing thwarts efforts to supplant that economy via OAP and what can be done to change that economy. To counter the perception that open access threatens the status quo, Madison suggests recreating the economy of prestige by digitally tagging, classifying and rating articles so that Internet search engines can read them. Prestige would be associated with the tags, instead of, or in addition to, the journal’s institutional prestige.

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491 Ibid.
As an additional solution to enhance reputational value in the academic publishing market, Jens Prüfer and David Zetland have proposed an auction market for journal articles. Prüfer and Zetland’s auction model would like to replace the current system for submitting academic papers with an auction solution with virtual revenue sharing to fix, and enhance, academic reputational incentives. The authors describe the timeline of this system in the following terms:

[i]In period zero, the author writes, markets and submits his paper to the AMJA [Auction Market for Journal Articles] auction server. In period one, editors screen and value papers. In period two, editors bid for papers. Winning bids—in ‘academic dollars’ or A$—go to the authors, editors and referees of articles cited in auctioned papers. In period three, referees review papers. Editors decide to accept or reject papers in period four.

The ‘nonpecuniary income [‘academic dollars’]’, the authors explain, ‘indicates the academic impact of an article – facilitating decisions on tenure and promotion’. The key idea here is that the reputational revenues coming from the bid are not internalised by new authors for whom editors are bidding but by the academic publishing system from which the new work has been cumulatively created. The auction model, therefore, establishes a virtuous system of recognition of previous contributions in which reputational value is objectively compensated – through a virtual academic reputational currency – at the moment any new academic work is submitted. As Alex Tabarrok has suggested, turning virtual ‘academic dollars’ into real money may achieve the goal not only of redefining submission practice but also sustaining journal publishing and OA models. Actually, ‘publishers will be willing and able to pay for papers because they expect to earn revenues when in turn those papers are cited’. The practical question here is how the system might get off the ground in order to become self-sustaining, as it is clear that at the very beginning publishers will not earn any revenues, whereas they should be investing money in bidding. In any event, regardless of its capacity for materially supporting the publishing industry (which in fact Prüfer and Zetland do not discuss in their paper), the auction market for journal

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498 Ibid.


500 Ibid 379.
articles still remains a valuable proposal for moving reputational incentive at the core of the academic publishing system.

2.2.6 Recalibrating or Abolishing Copyright for Academic Works?

In light of the incentive mechanics of academic authorship that we have discussed earlier, Lydia Loren Pallas argues that ‘differently motivated works’, including scholarly articles, do not need robust copyright.\(^{501}\) This view has been largely shared by recent scholarship and exported well beyond the context of academic publishing. Several scholars have proposed copyright reform, arguing more broadly that motivation should be taken into consideration in determining the scope of copyright protection in any field.\(^{502}\) Suber, in particular, has discussed a reform of copyright law in the context of OAP that should tackle directly the collision between copyright and science evoked by Reichman and Okediji. Suber proposes three phases for creating an intellectual commons through OA, including a revision of copyright law that should (i) encompass enlargement and protection of the public domain by rolling back copyright term extensions, (ii) assure that copyright law preempts contract or

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501 Lydia Pallas Loren, ‘The Pope’s Copyright? Aligning Incentives with Reality by Using Creative Motivation to Shape Copyright Protection’ (2008) 69 La. L. Rev. 1 (noting that motivation should be taken into consideration in determining the scope of copyright protection and concluding that, for works created and distributed without the primary motivation being the marketable right provided by copyright law, robust copyright is not necessary).

502 Several scholars have argued that motivation should be taken into consideration in determining the scope of copyright protection. See, for example, in Europe, Marco Ricolfi, ‘Consume and Share: Making Copyright Fit for the Digital Agenda’ in M Dulong de Rosnay and J.C. De Martin (eds), The Digital Public Domain: Foundations for an Open Culture (Open Book Publishers 2012) 49-60; Marco Ricolfi, ‘Copyright Policies for Digital Libraries in the Context of the i2010 Strategy’ (1st COMMUNIA Conference, Louvain-la-Neuve, Belgium, 1 July 2008) 5-7, 12 <http://www.communia-project.eu/node/110>; Christoph Geiger, ‘Promoting Creativity through Copyright Limitations: Reflections on the Concept of Exclusivity in Copyright Law’ (2011) 12 Vand J Ent Tech L 547 (proposing the dual regime in the context of creative reuses); and A Peukert, ‘A Bipolar Copyright System for the Digital Network Environment’ (2005) 28 Hastings Comm & Ent L J 1 (proposing a dual system in the context of peer-to-peer file sharing). For similar views in the United States, see, for example, Christopher May, ‘Bounded Openness: The Future of Political Economy of Knowledge Management’ (2011) 33(8) EIPR 477, 479-480 (arguing that the system of IP will evolve into parallel hard and soft systems, which allow various levels of exclusivity and openness depending on the sectors and use of particular technologies that will dispense with the ‘one-size-fits-all’ approach of the TRIPS Agreement); Larry Lessig, ‘Keynote Speech’ (WIPO Global Meeting on Emerging Copyright Licensing Modalities – Facilitating Access to Culture in the Digital Age, Geneva, Switzerland, 4 November 2010) <http://www.freedomtodiffer.com/freedom_to_differ/2010/11/larry-lessig-calls-for-wipo-to-lead-radical-overhaul-of-copyright-law.html>; Lawrence Lessig, Remix: Making Art and Commerce Thrive in the Hybrid Economy 33, 254-259 (Bloomsbury 2008); Lydia Pallas Loren, ‘The Pope’s Copyright? Aligning Incentives with Reality by Using Creative Motivation to Shape Copyright Protection’ (2008) 69 La. L. Rev. 1 (noting that motivation should be taken into consideration in determining the scope of copyright protection and concluding that, for works created and distributed without the primary motivation being the marketable right provided by copyright law, robust copyright is not necessary).
licensing law, (iii) establish first sale doctrine for digital content, and (iv) restore fair dealing and fair-use rights denied by technological protection measures.\(^{503}\)

Some authors have gone even further and discussed the opportunity of abolishing copyright for academic works. Recently, in a widely discussed paper, Steven Shavell wonders: ‘Should Copyright for Academic Works be Abolished?’\(^{504}\) In seeking the abolishment of copyright, Shavell develops a model in which transitioning from a reader-pay to an author-pay system should increase readership and encourage research from readership-motivated academic authors. Shavell suggests that if copyright were to be abolished, this would render the supply of scientific journal content perfectly competitive, causing subscription prices to drop to marginal cost, which in the case of online access is close to zero.\(^{505}\) This, in turn, would maximise the diffusion of academic works – which is in itself a socially positive outcome – and enhance the reputational value for authors by expanding the size of the readership. In Shavell’s view, enhanced readership would increase the reputation benefit of research, thus also inducing universities to cover the authors’ publication fees. In addition, Gienas seems to conclude that copyright may hinder the circulation of scientific works.\(^{506}\)

However, as Gienas notes,\(^{507}\) together with Alexander Peukert, under a traditional copyright theory it may be difficult to justify abolition of copyright for academic works. In fact, in Peukert’s opinion – if we distinguish between a copyright perspective and a perspective that takes as its starting point the philosophy and sociology of science in discussing scientific works and the scholarly communication system in general – only the scientific perspective is capable of explaining and adequately regulating the current change taking place in the scholarly communication system.\(^{508}\) Again, literature has proved to be cautious regarding the abolition of copyright as it may have a negative impact on the quality

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\(^{503}\) Peter Suber, ‘Creating an Intellectual Commons through Open Access’ (n 90) 178. See also Ann Bartow, ‘Open Access, Law, Knowledge, Copyrights, Dominance and Subordination’ (2006), 10 Lewis & Clark L. Rev. 869 (discussing whether an OA approach to legal knowledge is realistically attainable without fundamental changes to the copyright laws – including the adoption of compulsory licensing regimes with respect to proprietary legal resources, and significant government subsidies as well – that would recalibrate the power balance between content owners and citizens desiring access to interpretive legal resources).

\(^{504}\) See Shavell, ‘Should Copyright of Academic Works Be Abolished?’ (n 438) 301-358.

\(^{505}\) Ibid 302.


\(^{507}\) Ibid 801-803 (arguing that as far as copyright theory is concerned, scientific works can be protected but their character is special).

of journals. Other literature has countered the proposal for abolishing copyright for academic works in the specific context of OAP, and in particular Shavell’s proposal, on the ground that ‘needlessly suggesting that copyright reservation/reform is or ought to be made a prerequisite for OA simply slows down progress toward reaching the universal Green OA that is already fully within the global research community's grasp.’

In a Position Paper on the knowledge economy focusing on scientific research by the Max Planck Institute for Intellectual Property, Competition and Tax Law, the authors comment on all the constraints that excessive copyright exclusivity, contractual arrangements between end-users and rightholders and technology protection measures may bring to the wider dissemination of scientific research. In looking at the scientific research market with the goal of suggesting legislative reform to the European Commission, the Position Paper argues that, as they stand, limitations are not sufficient to guarantee wider dissemination and accessibility of scholarship and, in any event, limitations alone may not be capable of reaching those goals. As the Position Paper states, ‘in the academic journal sector, the free flow of scientific knowledge may be impeded if the exclusive right enjoyed by a few academic publishers is exercised in an excessive manner, whereas the authors, by whom the content has been generated, usually care more about reputation and impact as important factors for their personal careers’. According to the Max Planck Institute, copyright exclusivity brings negative competitive effects on the disseminator’s level. The licensing practices urging academic authors to grant exclusive licences to one publisher narrow the number of potential sources of scholarly works for the end-user. Libraries and end-users may face a ‘single-source situation’ forcing them either to accept unreasonable conditions or desist from accessing the materials. At the same time, contractual arrangements are likely to benefit rightholders more than users. Therefore, legislative reform should intervene both at the end-user and intermediaries’ level. So, at the end-user level, ‘limitations most relevant

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512 Ibid 312.

513 Ibid 309.

514 Ibid 310.
to scientific research should be mandatory, immune towards contractual agreements and technological protection measures. At the intermediaries’ level the existence of multiple sources and fair competition among publishers and other intermediaries with respect to the individual research outputs should be better secured, considering additional legal measures based on copyright or competition law. In this respect, the Position Paper concludes that exclusivity could be constrained alternatively (i) introducing binding rules of copyright contract law, limiting the possibility for scientific authors to give away exclusive rights to single publishers; (ii) introducing an element of price control in case of exploitation with the establishment of some kind of expert body to settle disputes about pricing; (iii) allowing for parallel dissemination of the same content, provided a predetermined, collectively administered compensation to safeguard the legitimate interest of rightholders; or (iv) introducing an obligation to enter into negotiations between the parties involved to provide further intermediaries with a licence for parallel dissemination under adequate, competition-oriented terms and conditions, with an expert body determining the adequacy of the conditions in case of disputes between the parties.

2.3 Open Access, Developing Countries and Scientific Divide

The economist Joseph Stiglitz has suggested that ‘developing countries are poorer not only because they have fewer resources, but because there is a gap in knowledge. That is why access to knowledge is so important.’ A study by the UK Commission on Intellectual Property Rights (CIPR) serves as one of the most worrying reports on access to technology in education. The CIPR states that several consultations within developing countries have shown serious problems of access to software, textbooks, and specialised technical material. The Report explains:

The arrival of the digital era provides great opportunities for developing countries in accessing information and knowledge. The development of digital libraries and archives, Internet based distance learning programmes, and the ability of scientists and researchers to access sophisticated on-line computer databases of technical information in real time are just some examples. But the arrival of the digital era also poses some new and serious threats for access and dissemination of knowledge. In particular, there is a real risk that the potential of the Internet in the developing world will be lost as rights owners use technology to prevent public access through pay-to-view systems.

515 Ibid 310, 317-320.
516 Ibid 322-323.
518 See Berne Convention (n 403) art 9(2).
Developing on this point, Andres Guadamuz discussed how, together with literacy, technological, and linguistic barriers, strong propertarian models over access to educational materials may heighten, rather than reducing the digital divide.\(^{519}\) The potential for a ‘learning revolution’ that new digital technologies make possible\(^ {520}\) may be easily banished by ‘infogopolies’ increasingly pushing towards more international protection and more stringent copyright enforcement.\(^ {521}\)

Intellectual property – and the steady expansion of international minimum IP standards in the last few decades – lies at the core of the digital and educational divide insofar as it produces dead-weight loss by increasing the costs of purchasing content beyond levels that become unaffordable for users in developing countries. In fact, some exceptions in education related areas are provided by international agreements, such as Article 9(2) of the Berne Convention allowing signatory countries to pass exceptions to copying for public interest or educational purposes. However, they seem scarcely enough to overcome intellectual property strictures and, furthermore, rebalance the access to knowledge divide between the Global North and Global South. Throughout the decades, proposals have been made to increase the scope given to developing countries for enacting exceptions to international agreements in education-related works, such as translations, and other exceptions relating to works of scientific, research or educational interest, but they have been ratified only in extremely weak forms.\(^ {522}\) Given the unsatisfactory condition of the political economy of international IP, in recent times a trend towards advocating open IPR models by emerging and developing countries is increasingly emerging in an attempt to counter the traditional history of the international IPR treaty system, which in contrast has tended towards strong requirements of minimum IP standards.\(^ {523}\)

A large portion of the OAP literature has placed a special emphasis on the need to rebalance the discourse about knowledge between the Global North and South. Willinsky construed his ‘access principle’ with specific attention to the value that it may provide in


\(^{521}\) See Guadamuz Gonzalez, ‘The digital divide’ (n 207) 114. See also Drahos with Braithwaite, Information Feudalism (n 60) 169-186 (discussing the notion of ‘infogopolies’ and their effects on the cultural environment).


redressing the inequality of the North-South information order by arguing that the promise of OAP systems is precisely that they ‘can be installed and controlled locally, while offering a global presence through sophisticated indexing schemes’.\textsuperscript{524} As Danner noted, discussing Willinsky’s arguments, ‘the access principle thus calls not only for a freer flow of information from developed to developing nations, but (and more importantly in the long term), for creating the means for scholars everywhere to contribute to the discourse of their discipline.’\textsuperscript{525}

With specific emphasis on biomedical research literature, authors have argued that excluding the poor from access and free reuse of literature may harm global public health.\textsuperscript{526} In particular, Gavin Yamey has suggested that biomedical literature should be considered a global public good, according to international declarations, such as the Universal Declaration of Human Rights (UDHR) and the International Covenant on Economic, Social, and Cultural Rights (ICESCR), that promote access to scientific and medical knowledge as a human right.\textsuperscript{527} Again, the Geneva Declaration of Principles – adopted within the context of the World Summit on the Information Society – seems to support this idea even further by noting in Article B3.28 that ‘[w]e strive to promote universal access with equal opportunities for all to scientific knowledge and the creation and dissemination of scientific and technical information.’\textsuperscript{528}

There are programmes for providing low cost or free access to journals in selected subjects to researchers in developing countries.\textsuperscript{529} Among these programmes, Research4forLife is a partnership of the World Health Organization (WHO), Food and Agriculture Organization (FAO), United Nations Environment Program (UNEP), Cornell and Yale Universities, and the International Association of Scientific, Technical & Medical Publishers, which has been designed to provide free or low cost online access to peer-reviewed content to developing countries.\textsuperscript{530} This partnership has launched three subject-

\textsuperscript{524} Willinsky, \textit{The Access Principle} (n 3) 104-105.

\textsuperscript{525} Danner, ‘Applying the Access Principle in Law’ (n 366) 358. See also Richard A Danner, ‘Open Access to Legal Scholarship: Dropping the Barriers to Discourse and Dialogue’ (2012) 7(1) JICLT 65 (considering the challenges of providing open access legal scholarship to developing countries).

\textsuperscript{526} See Yamey, ‘Excluding the Poor from Accessing Biomedical Literature’ (n 185) 21.

\textsuperscript{527} Ibid 26-28. See also Willinsky, \textit{The Access Principle} (n 3) 143-154 (noting that these declarations make a distinction between sharing in scientific advancement and enjoying the benefits of such progress, both to be considered as a human right).


\textsuperscript{529} See Willinsky, \textit{The Access Principle} (n 3) 101-103. See also Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 584-585.

\textsuperscript{530} See Research4Life <http://www.research4life.org> accessed 1 June 2013.
specific programmes, including the WHO’s Health InterNetwork Access to Research Initiative (HINARI), FAO’s Access to Global Online Research in Agriculture (AGORA) and UNEP’s Online Access to Research in the Environment (OARE). Each of these programmes focuses on the sciences and provides access to a few law journals. In a broader perspective, and still with particular emphasis on African and other developing countries, UNESCO has promoted an Open Access Programme to facilitate the development and adoption of OA-enabling policies. Again, other initiatives have been created by journal publishers themselves. For example, the New England Journal of Medicine makes online access free to more than one hundred low-income countries, whose users are recognised automatically by their IP addresses. Biomed Central, as well as providing immediate online OA to the full text of the articles published by its portfolio of 255 peer-reviewed journals, has created a project that aims to increase the visibility of scientific research across the developing world and includes an OA waiver fund, enabling scientific authors in low-income countries to overcome the financial barriers to publishing in open access journals. Similarly, BioMed Central has established a Foundation Membership initiative and offers an Open Access Package for a small fee in order to enable institutions from developing countries to support both open access publishing and self-archiving in situ. Stanford Highwire Press also helps its journals offer immediate OA to developing countries through a Highwire based programme offering access to countries appearing in the World Bank’s list of ‘low income economies’ plus a number of other countries.

The long-term benefits of these programmes are questioned by some open access advocates. In addition, Chan, Kirsop and Arunachalam have questioned whether the Research4Life programmes (HINARI, AGORA and OARE) organised in partnership between commercial publishers and UN agencies to provide free or low-cost access to journals in developing countries ‘may be serving as a marketing device to prepare the ground for national site licenses in the countries with rising FNP or growing research needs’. They also note that because these programmes come ‘with the blessings of the UN agencies and powerful commercial publishers, it has been hard to wean research communities off dependency systems and onto true open access (OA) resources’. In contrast to programmes that make journals published in the developed countries available to developing countries, but do not foster creation and distribution of local journals, the Public Knowledge Project’s Open Journals Systems (OJS) programme makes open source software freely available worldwide for the purpose of making OAP a more viable option for journals with limited resources. The list of journals using OJS software includes 819 journals in Asia, 523 in Africa, 946 in Oceania, and 3,627 in South America.

Also, Herb Ulrich seems to be concerned as to whether open access supports Western imperialism as, in his view, the notion that open access may reduce information poverty ‘hides a glaring ethnocentrism’. Ulrich sees emerging countries represented as homogenous entities and objects, rather than actors, in the discourse about open access and the digital divide. In this discourse, developing countries are offered the opportunity to


Ibid 1-4.


partake in the Western scientific information free of charge by consuming open access publications. This construction, Ulrich concludes, ‘perpetuates the subordination of the developing countries under the expertise of the Western countries’ and impedes the creation by developing countries of their own ‘scientific capital’ in Pierre Bourdieu’s terms.

However, notwithstanding conflicting views and caveats, widely speaking authors see OA as an instrument that would reduce information poverty, as open access gives the opportunity to scientists anywhere to switch from the role of information consumers to information producers. In fact, studies have found that scientists and scientific information from emerging countries are strongly underrepresented in the global scientific discourse, both because journals from developed countries have significant higher impact factors and researchers from emerging countries are rarely found in editorial boards of high-impact journals. The explosive development of information and communications technologies in the North is often cited as widening the information gaps between researchers in the North and in the South, and making it harder for researchers and scholars in developing countries to participate fully in scholarly discourse. Visibility of research in developing countries has been highlighted as a critical issue in the discourse on access to knowledge and the scientific and educational divide. As put by Subbiah Arunachalam, ‘research conducted in developing countries lacks visibility. Nobody notices it. Nobody

545 Herb, ‘Sociological Implications of Scientific Publishing Open Access’ (n 544).
quotes it. It gets buried in an obscure corner of the world output of literature.\textsuperscript{551} Stressing the same critical point, Arunachalam, Chan and Kirsop have also noted that research generated in developing and emerging countries is "missing" to the international knowledge base because of financial restrictions affecting its publication and distribution.\textsuperscript{552} Pippa Smart has pointed out that in the sciences the imbalance in what is published and accessible to researchers between North and South results in duplication of research, waste of resources, and biased interpretations of findings, and that poor dissemination and indexing of African research outside the African continent compounds the problem of low investment in local research.\textsuperscript{553}

OAP seems a valuable option for the developing world to minimise this gap of underrepresentation\textsuperscript{554} and the geographic distribution of OA journals already shows that this option has been consistently embraced by the developing world.\textsuperscript{555} In ‘The Access Principle’, John Willinsky suggests that OAP models hold promise ‘for broadening the circulation and exchange of knowledge [. . .] [and] of moving knowledge from the closed cloisters of privileged, well-endowed universities to institutions worldwide.’\textsuperscript{556} However, considering the impact factor constraints, OA may affect mainly the quantity of scientific information from emerging countries, rather than its global impact.\textsuperscript{557} In any event, quantity and broader circulation may still have important positive externalities, especially for the South-South exchange of knowledge. In a recent article, Arunachalam, Chan and Kirsop suggest that OA also ‘provides an unprecedented opportunity for South-South exchange’,

\textsuperscript{551} Subbiah Arunachalam (2003), ‘Information for Research in Developing Countries—Information Technology, a Friend or Foe?’ (2003) 35 Int’l Info and Lib Rev 133, 137. See also Lor and Britz, ‘Knowledge Production from an African Perspective’ (n 539) 71-72.

\textsuperscript{552} See Chan, Kirsop and Arunachalam, ‘Towards Open and Equitable Access to Research and Knowledge for Development’ (n 540) 2.


\textsuperscript{554} But see, for a discussion of disincentives of emerging countries in participating in the OA movement, Jennifer I Papin–Ramcharan and Richard A Dawe, ‘Open Access Publishing: A Developing Country View’ (2006) 11(6) First Monday <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1332/1252> accessed 18 March 2013 (recounting the experience with open access publishing by researchers at the University of the West Indies (UWI) St. Augustine Campus in Trinidad and Tobago and noting that, together with well documented benefits for developing country researchers, there are some disincentives to participate in the OA movement, such as article fees and insufficient or absent technical infrastructures and Internet connectivity).


\textsuperscript{556} Willinsky, \textit{The Access Principle} (n 3) 33.

\textsuperscript{557} See Herb, ‘Sociological Implications of Scientific Publishing Open Access’ (n 544).
noting that ‘research findings from regions with similar socio-economic conditions may be far more relevant than research from the richer countries’. 558

The crucial question, however, remains how to practically implement OA in the developing world. Nwagwu and Ahmed, after pointing out that open access initiatives ‘are characterised by construction of websites containing resources which scientists are expected to use’, note that without ‘deliberate and organised efforts by communities in Africa, it will yet be proved whether the strategy of “build it and they will use it” will suffice in making the movement vibrant’. For Nwagwu and Ahmed, ‘[t]here is a need for a global community of stakeholder groups – librarians, authors, etc. – who will come together to champion the cause of OA’, funding from ‘non-profit foundations at global and national levels’, and backing by international organisations. 559 An article by Chan and Kirsop points out that repositories and other archiving initiatives provide opportunities ‘to contribute to the global knowledge base by archiving their own research literature, thereby reducing the south to north knowledge gap and professional isolation . . . [and employing] an increasingly available means to distribute local research in a way that is highly visible and without the difficulties that are sometimes met in publishing in journals (e.g. biased discrimination between submissions generated in the north and south). 560 Again, Arunachalam, Chan and Kirsop argue that open archiving is the solution to this problem and urge awareness-raising and sharing of technical knowledge regarding creating and maintaining archives. 561 The same authors in a later article mention a ‘growing [. . . ] awareness about institutional repositories’ in Africa due to the efforts of such organisations as Electronic Information for Libraries and the Electronic Publishing Trust for Development. 562

2.4 CONCLUSIONS

560 See Leslie Chan and Barbara Kirsop ‘Open Archiving Opportunities for Developing Countries: Towards Equitable Distribution of Global Knowledge’ (2002) 30 Ariadne 140-142 <http://www.ariadne.ac.uk/issue30/oai-chan> accessed 1 June 2013. See also Lor and Britz, ‘Knowledge Production from an African Perspective’ (n 539) 72.
Looking at the legal aspects of academic publishing and OAP, with emphasis on the tension between copyright protection and circulation of scientific research outputs, may give the impression that a redressing of critical imbalances may be necessary. A questionable arrangement seems to be in place both at the level of management of individual rights and in the global perspective of the political economy of international IP rights. OA and OAP have the potential to relieve, at least in part, both these aspects of the unresolved and recently heightened tension between access and protection. The literature has provided a detailed look at a large proportion of the most pressing issues, although additional reviews may be welcome in connection with licensing issues, especially related to the combined effects of CC-BY and OAP on moral rights of integrity, copyright reform and OAP, and the interaction between economies of academic prestige, copyright rationale and OAP. In the next section, we will observe in detail the economics of the academic publishing market and the emergence of several OAP business models that may serve as a solution to minimise the tensions that the legal framework seems not to be able to address convincingly enough.
PART 3 – THE ECONOMICS OF OPEN ACCESS AND EMERGING BUSINESS MODELS

ABSTRACT

The third part of this literature review examines the more specifically economic aspects of traditional and OA academic publishing. Section 3.1 introduces the ‘unusual’ economics of academic publishing, when compared with other traditional creative industries. Section 3.2 contextualises the general discourse on the economics of academic publishing within the practical mechanics and historical development of the academic publishing industry, re-emphasising aspects related to the so-called ‘serial crisis’ and pricing issues that have prompted the reaction of the OAP movement to the present market arrangement. Section 3.3 analyses the emergence of OAP in the electronic environment, briefly reviewing publication models and channels. In Section 3.4, special emphasis will be given to the description of the miscellaneous OAP business models, increasingly implemented in both the academic journal and book publishing industry. Finally, Section 3.5 discusses the metrics and the value of OAP – such as citation and research impact, economic value, quality and peer review of OA publications – with special emphasis on the economic literature dealing with the topic.

3.1 THE ECONOMICS OF ACADEMIC PUBLISHING

Traditional scientific publishing is based on copyright enforcement, which restricts access and reuse of the protected content, and payment of a fee by the reader in order to access and use the publication. As noted by standard economics, ‘since a positive fee, over and above marginal access cost, is charged for access to the content, [ . . . ] this content is accessed to a socially inefficient level’. This arrangement parallels that of the traditional publishing industry, and any other copyright-based industry. Generally, the economics of copyright justify this market inefficiency in exchange for an incentive to provide content in the first place. In fact, as we have seen in the previous section, authors have noted that there are critical differences between traditional and scientific publishing as far as the traditional copyright incentive is concerned, both in terms of the reputational rather than economic incentive that encourages academic authors to create and the publicly funded nature of academic research.

563 Müller-Langer and Watt, ‘Copyright and Open Access For Academic Works’ (n 509) 63.
As highlighted also by an emerging economics literature placing the publishing market in a two-sided market, where journals act as intermediaries linking authors and readers,\textsuperscript{564} scholarly publishing relies on an unusual business model compared with other traditional creative industries.\textsuperscript{565} Economics authors have noted that, as a group, the scientific community provides both the supply and the demand for scientific research.\textsuperscript{566} Together with composing the readership of academic publishing, the academic community performs the research and provides the final written research output. Additionally, filtering of research for quality in the form of peer review is performed by the academic community. An important feature of academic publishing is the peer review process, in which authors submit their manuscripts to an editorial board, which then sends the paper out to a panel of peers in the field who assess the paper’s quality and methods. Peer-review functions have traditionally been performed gratis by the academic community, which in return has gained prestige and reputation through that function.\textsuperscript{567} As McGuigan and Russell have described, this is a circular model in which faculty, scholars and students consume published knowledge, reuse it and create new content; academic publishers facilitate peer review, which is in fact performed by referee scholars, and package content in paper or electronic form; and academic libraries pay for the journal subscriptions in order to provide access to this content to faculty scholars and students.\textsuperscript{568} In this cycle, academic publishers simply


\textsuperscript{567}

channel the filtering task and package research into journals or other forms of publication and sell it back to the academic community. In summary, as Theodore Bergstrom noted, the academic community provides ‘free labour for costly journals.’

Looking at these dynamics, Jessica Litman argued that law journal publishing in the United States is one of the easiest cases for OAP. All who participate in the research, writing, editing and publication process do so because of reputational incentives. In fact, copyright is very much irrelevant to legal scholars and students involved in law journal publishing. Again, the first copy cost of law reviews is heavily subsidised by the academic institution. Litman observes that law schools invest in the creation and publication of legal scholarship because they consider it to be part of their core mission, not because it is profitable. As Litman concludes, ‘that subsidy [. . .] is an investment in the production and dissemination of legal scholarship, whose value is unambiguously enhanced by open access publishing.’

### 3.2 Academic Publishing Industry

The unusual economics of academic publishing have in fact evolved over time, reinforcing the perceived unfairness of the system only recently. For a long time since the creation of the Philosophical Transactions of the Royal Society of London by Henry Oldenburg in 1665, editors and publishers of scholarly journals have recuperated costs only. Actually, the logic behind the custom of surrendering the scientific authors’ copyright for free in exchange for wide circulation of peer reviewed journals must also be viewed as a consequence of the need to cover those costs. Initially, high front-end publishing costs and the costs of distribution of physical copies induced scientific sub-communities to entrust learned societies with publication tasks. As authors have noted, scientific publication became an increasing source of revenue for learned societies, which started to outsource publishing services to commercial publishers in exchange for a share of the profits. Finally, the large prospects of profit led to the acquisition of the learned societies by the commercial publishers.

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571 Ibid 779.
572 See Guedon, In Oldenburg’s Long Shadow (n 44) 5-10.
573 See Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1460; McGuigan and Russell, ‘The Business of Academic Publishing’ (n 564).
The Economics Information (ISI) started defining ‘core journals’ from impact factors and citation counts through the Science Citation Index (SCI) in 1960, corporate publishers have increasingly gained control over those titles, while learned societies running those journals could capitalise on them.\(^{575}\) The introduction of citation indexes and the definition of core journals made the journal publishing market extremely inelastic, increasing the commercial publishers’ capacity of raising prices as well as their expectations of large profit margins, as I will discuss in more details in the next paragraph.

Today, the scholarly publishing market can be said to be ‘stratified’ by being made up of three relatively distinct publishing economies: independent journals, scholarly/learned society publishers, and commercial publishers.\(^{576}\) In The STM Report: An Overview of Scientific and Scholarly Journals Publishing,\(^{577}\) Ware and Mabe point to how commercial publishers now constitute 64 per cent of the journals listed in the highly selective ISI Web of Science index.\(^{578}\) Again, according to McGuigan and Russell, in the STEM segment of academic journal publishing, the top ten publishers account for approximately 43 per cent of the total revenue.\(^{579}\) As mentioned by Lewis, ‘today the annual value of the peer-reviewed journal market is estimated at £25 billion ([$50 billion], and consists of 23,700 journals, which among them publish 1.59 million articles a year.\(^{580}\) Also, in discussing the scale of the industry for STEM journals, Mark Ware and Michael Mabe noted that the number of journals has grown at a rate of 3.5 per cent a year over the past two centuries.

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According to several authors, copyright monopoly and the shift of for-profit publishers into the academic journal market have led to a highly concentrated industry in which a handful of large firms increasingly control a substantial part of the market.\textsuperscript{581} Mergers, especially horizontal mergers, have played an important role in the recent history of academic publishing, with the number of academic publishers becoming much more concentrated in recent years.\textsuperscript{582} Today, the three largest publishers of scientific journals – Reed Elsevier, Taylor and Francis, and Springer Verlag – together control about 2,300 titles and 60 per cent of the scientific publishing market.\textsuperscript{583} As we will see later, the massive entrance of commercial publishers into the academic market had two-fold effects, which are somehow related: high concentration and price increases.

3.2.1 Pricing Models, Inelastic Demand and Market Inefficiency

Pricing models in the academic publishing industry have emerged as a critical issue in recent years.\textsuperscript{584} Print journals have traditionally obtained most of their revenues from subscription fees.\textsuperscript{585} In a study conducted in the United Kingdom in 2003, 83 per cent of academic journal


\textsuperscript{583} See Contreras, ‘Data Sharing, Latency Variables, and Science Commons’ (n 162) 1652-1655.


\textsuperscript{585} See McCabe and Snyder, ‘Academic Journal Prices in a Digital Age’ (n 564) (studying the division of fees between authors and readers in different market conditions and explaining why print journals traditionally obtained most of their revenues from subscription fees).
income came from subscriptions and only a negligible 5 per cent came from advertising, in sharp contrast to commercial news. This emphasis on the subscription revenues as the main business model for traditional academic publishing appears to be closely connected with the targeted consumer base of academic publishers. Non-OA academic publishing traditionally looks to libraries to define its consumer. In this respect, as authors have noted, there is a switch in focus on the user base of traditional and OA publishing. In contrast to non-OA academic publishing, OA publishing places a special emphasis on individual consumers, researchers and authors.

As we have already mentioned in Part I of this study discussing the origins and motivations of the OAP movement, this pricing subscription model has increasingly raised concerns and discontent in the academic community. This discontent has been caused by a phenomenon called the ‘serial crisis’ of ever-rising costs of journals, which has forced libraries to cancel a steadily increasing number of subscriptions, limiting the access of the scholarly community to important scientific literature.


589 As McGuigan and Russell explained, the ‘serial crisis’ is also the effect of the interaction between three giant oligopolistic companies and the fragmentation of the market into over 2,000 smaller companies, which can be accounted for by the increasing specialisation within each academic discipline. This dynamic has added to the ‘serial crisis’ because the smaller journals have fewer subscribers and, as a consequence, higher cost per issue. See McGuigan and Russell, ‘The Business of Academic Publishing (n 564). Okerson clarified this point by noting that ‘[i]n view of the increasing size of the periodicals universe (and the increasing specialization in journals), the relatively fixed materials-and-binding budgets at libraries have resulted in decreasing numbers of subscriptions per title. Prices per title increase further, and the vicious cycle continues’. Ann Okerson, ‘University Libraries and Scholarly Communication’ in Robin P Peek and Gregory B Newby (ed), Scholarly Publishing: The Electronic Frontier (MIT Press 1996) 190.
grown faster than both inflation and the growth of library budgets. Summing up the terms of the problem, the European Commission noted in 2007 that over the last twenty years, journal subscription prices have on average increased above inflation level - according to one study 4.5% per year above inflation - while there are considerable differences according to disciplines and journals. This has put publicly funded libraries, their main clients, under financial pressure and led to subscription cancellations in certain cases.

Price increases have been primarily a consequence of the inelasticity of the academic publishing market. As McCabe noted, in the academic publishing market a non-substitutable good with inelastic demand is subject to commercial exploitation because of the exclusivity principle of copyright. The inelastic demand – which stands at the advantage of the seller – is a consequence of a mix of prestige and specialisation that makes many academic

590 See David W Lewis, ‘Library Budgets, Open Access, and the Future of Scholarly Communication: Transformations in Academic Publishing’ (2008) 69(5) College & Research Libraries News 271 <http://crln.acrl.org/content/69/5/271.full.pdf+html> accessed 28 May 2013 (noting that ‘the cost of scholarly journals has increased at 10 percent per year for the last three decades. This is over six times the rate of general inflation and over two-and-a-half times the rate of increase of the cost of health care. Between 1975 and 2005 the average cost of journals in chemistry and physics rose from $76.84 to $1,879.56. In the same period, the cost of a gallon of unleaded regular gasoline rose from 55 cents to $1.82. If the gallon of gas had increased in price at the same rate as chemistry and physics journals over this period it would have reached $12.43 in 2005, and would be over $14.50 today’); Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 577 (noting that ‘in the UK, it has been estimated that between 1998 and 2003 the average price of an academic journal rose by 58%, while the UK retail price index rose by 11% in the same period’); Carol Tenopir and Donald W King, ‘Scholarly Journal and Digital Database Pricing: Threat or Opportunity?’ in Jeffrey Mackie-Mason and W Lougee (eds), Bits and Bucks: Economics and Usage of Digital Collections (MIT 2004) <http://web.utk.edu/~tenopir/eprints/database_pricing.pdf> accessed 21 May 2013; Ruth H Miller, ‘Electronic Resources and Academic Libraries, 1980-2000: A Historical Perspective’ (2000) 48 Library Trends 645, 645-671 <https://www.ideals.illinois.edu/bitstream/handle/2142/8303/librarytrendsv48i4c_opt.pdf?sequence=1> accessed 16 January 2013.

591 Commission, ‘Communication on Scientific Information in the Digital Age: Access, Dissemination and Preservation’ (Communication) COM (2007) 56 final, 3.2 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0056:FIN:EN:PDF> accessed 13 June 2013. See also Mathias Dewatripont and others, Study on the Economic and Technical Evolution of the Scientific Publication Markets in Europe (European Communities 2006) 5 <http://ec.europa.eu/research/science-society/pdf/scientific-publication-study_en.pdf> accessed 12 June 2013 (noting that ‘[i]n the last 30 years, the prices of scientific journals have been steadily increasing. Between 1975 and 1995, they increased 200%-300% beyond inflation. This was accompanied by a fall in subscriptions both by individual researchers and by libraries whose budgets got squeezed. Indeed, journal prices far outpaced the evolution of library budgets, which did increase at a somewhat slower pace than total academic research budgets’).

592 See McCabe, ‘Information Goods and Endogenous Pricing Strategies: The Case of Academic Journals’ (2004) 12(10) Economics Bulletin 1; see also Hilty and others, ‘European Commission: Green Paper: Copyright in the Knowledge Economy’ (n 511) 314 (noting that scientific information lacks substitutability ‘since users thrive on a comprehensive set of pre-existing information’ because deficits in the mapping of previous knowledge may undermine the success of a research project; therefore ‘the lack of substitute goods severely diminishes competition between information providers’).
journals a non-substitutable good. Recognising the relative inelasticity of both supply and demand, the commercial publishers ‘acquired top-quality journals, and then dramatically raised prices, expecting that they would lose relatively little of the market’. In fact, according to Bergstrom and Bergstrom, commercial publishers have charged three to nine times more than society publishers. Taking these considerations into account, the European Commission ‘Study on the economic and technical evolution of the scientific publication markets in Europe’ of 2006 has concluded that journal markets do not function properly because they lack sufficient competition and allow for a ‘significant amount of discretion in the setting of journal prices’.

The price increase has also been exacerbated by the high market concentration, mergers and acquisitions within the publishing industry, with a handful of companies owning most of the research articles indexed in the world’s leading citation indexes. Significant price increases seem to result after the mergers, such as in the case of Thomson Corporation and West Publishing Company in the legal publishing market, or Reed Elsevier purchasing Pergamon and later Harcourt in the biomedical field. Recurrently, when small publishing

593 Ibid. See also Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 429. See also Hilty and others, ‘European Commission: Green Paper: Copyright in the Knowledge Economy’ (n 511) 314-315 (stressing this point and noting that the inefficient competition of the scholarly publishing market ‘follows from the distinct, impact-driven publishing system inseparably linked to the reputation of scientific authors which is pre-eminent in today’s science and research’).

594 Edwards and Shulenburger, ‘The High Cost of Scholarly Journals’ (n 575) 14.


companies or journals are purchased by large commercial companies, price increases follow as a consequence.  

Together with pricing, bundling has increased dramatically in the academic publishing market over the past years. Many libraries acquire their subscriptions to journals from major academic publishers under so-called ‘Big Deal’ contracts, which may create strategic barriers to entry into markets for journals. ‘Big deals’ in fact push smaller, independent and not-for-profit publishers out of the market because libraries no longer have funds to acquire additional titles after signing a big deal. As Armbruster noted, if libraries form consortia to negotiate discounted deals or independent publishers opt to collaborate to offer smaller big deals, this only reinforces the logic of the ‘big deal’ and mergers and acquisitions. However, Armstrong has argued that non-profit journals should not necessarily abandon big deals – or collection sales programmes. Instead, they should withdraw from commercial publishers that are distributing their own for-profit journals, and join together to be distributed by a publishing consortium setting relatively low prices for their collections. Along similar lines, in order to minimise the anticompetitive effects of bundling on small and scholarly society publishers, Crow has proposed forming publishing cooperatives among scholarly societies. Willinsky has taken Crow’s proposal a step further.

599 See, e.g., ‘The Impact of Publisher Mergers on Journal Prices: An Update’ (n 597) 5 (noting that after Reed Elsevier acquired Pergamon Press, there was a resulting price increase of 22% for Pergamon press journals and 8% for Reed Elsevier journals).  


603 See Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 431.  


by envisaging the possibility for societies to form publishing cooperatives with research libraries.606

In reviewing the rapid shift from a paper-based system to one of predominantly electronic distribution,607 Bergstrom and Bergstrom have noted that bundled and tiered pricing structures have largely applied to academic publishing in electronic form.608 First, the sales of the electronic versions are often bundled with the sales of the print journals. Again, publishers use tiered pricing structures to sell their electronic journals, charging large university libraries substantially more than smaller institutions.609 This price-discrimination scheme allows a publisher to set prices by determining the amount a purchasing library is willing to pay, rather than setting prices based on the production costs of the product. In any event, in cases where electronic-only subscription packages have been made available, these are often sold at a price that is almost equivalent to the price of the print journals.610

The pricing model implemented by the academic publishing industry has led to very large gross margins for the publishers. As McGuigan and Russell have noted, commenting on Elsevier’s profit margins as an example, the academic publishing industry ‘reveals unusually high figures rarely found for firms in other industries’.611 According to Björk, the profitability of several major publishers has also steadily increased in recent years, with Elsevier increasing its profit margins from 31 per cent to 37 per cent between 2005 and 2011, Taylor & Francis from 25 per cent to 36 per cent and Wolters Kluwer from 16 per cent to 20 per cent in the same period, with the highest profitability reached by John Wiley STEM, which

606 See Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 64.
607 See Ware and Mabe, ‘The STM Report’ (n 577) 52 (reporting that 90% of journals in all academic areas are now online). But see, discussing the e-journal market, although market conditions may have been changed in part in the last few years, Caroline Christiansen, ‘Electronic Law Journals’ (2002) 30 Int’l J of L Info 337 (querying why electronic law journals have failed to grow at the pace experienced in other disciplines and examining two major obstacles to development of electronic law journals: the legal publishing market and the complexity of legal information published by various commercial, academic, governmental, and judicial institutions).
608 Bergstrom and Bergstrom, ‘The Costs and Benefits of Library Site Licenses to Academic Journals’ (n 595) 898.
609 Ibid 898-899.
has increased its profit margins from 39 per cent to 43 per cent between 2008 and 2011.\textsuperscript{612} Similarly, a Wellcome Trust study found that gross margins in the academic journal industry reached 38 per cent with production cost accounting for 58 per cent and postage and distribution cost accounting for 8 per cent.\textsuperscript{613}

According to the International Association of STM Publishing, the high fees charged and related high profit margins follow from the value that they add to the articles they publish.\textsuperscript{614} As a first explanation of the value they add, the publishers mention ‘the collective investment of hundreds of millions of euros in electronic developments’.\textsuperscript{615} In this respect, publishers have claimed price increases due to the transition to electronic publishing. In fact, as Dewatripont and others have shown, this transition cannot be held responsible for the high journal prices at the core of the serial crisis because, referring to McCabe, they note that ‘price increases were substantial during the period 1988-2001 and could be partly traced to previous merger activity’.\textsuperscript{616} Again, other explanations for the added value produced by academic publishers include ‘editorial management systems which facilitate online peer review’, the cost of substantive editing and preparing illustrations or special graphics as well as the additional review management costs for those journals that have a very high rejection rate, since the published articles must bear the costs of handling those that are rejected.\textsuperscript{617} In order to support the value of its business model, the International Association of STEM Publishing also points out that ‘profits are a major source of reinvestment and innovation’ and ‘society publishers frequently use surpluses from journals to support other activities’,\textsuperscript{618} and that they make ‘investments in the development of new journals around which emerging scientific communities seek to coalesce’.\textsuperscript{619}

In fact, the added value provided by the publishers, which they claim as a justification for the extraordinarily high fees charged, is minimal according to a study written by the

\begin{footnotes}
\item[612] See Björk, ‘Open Access’ (n 484) 9.
\item[613] Ibid.
\item[615] Ibid 7.
\item[616] Dewatripont and others, Study on the Economic and Technical Evolution of the Scientific Publication Markets in Europe (n 591) 43.
\item[618] Ibid.
\item[619] Ibid 6.
\end{footnotes}
Deutsche Bank.\footnote{Deutsche Bank AG, ‘Reed Elsevier: Moving the Supertanker. Company Focus: Global Equity Research Report’ (January 11, 2005) (noting that ‘[i]n justifying the margins earned, the publishers, REL [Reed Elsevier] included, point to the highly skilled nature of the staff they employ (to pre-vet submitted papers prior to the peer review process), the support they provide to the peer review panels, including modest stipends, the complex typesetting, printing and distribution activities, including Web publishing and hosting. REL employs around 7,000 people in its Science business as a whole. REL also argues that the high margins reflect economies of scale and the very high levels of efficiency with which they operate. We believe the publisher adds relatively little value to the publishing process. We are not attempting to dismiss what 7,000 people at REL do for a living. We are simply observing that if the process really were as complex, costly and value-added as the publishers protest that it is, 40% margins wouldn’t be available.’) as cited in McGuigan and Russell, ‘The Business of Academic Publishing (n 564).}

Due to this minimal added value, the Deutsche Bank’s study concludes, academic publishers, such as Reed Elsevier, make astronomical operating-profit margins close to 40 per cent.\footnote{Ibid. See also Monbiot, ‘Academic Publishers’ (n 193).} They do so because, regardless of the real amount of value publishers add to the research output, they still provide less value to the final product than the authors but retain all the exclusive rights in it, together with the monopolistic market advantage that those rights provide. In this respect, as Suber has noted, ‘publishers deserve to be paid for the value they add. But it doesn’t follow that they deserve to control access or that they deserve a package of exclusive rights that bars author-initiated OA’.\footnote{Peter Suber, ‘Balancing Author and Publisher Rights’ (2007) 110 SPARC Open Access Newsletter <http://legacy.earlham.edu/~peters/fos/newsletter/06-02-07.htm> accessed 4 July 2013.}

In light of the economics of academic publishing discussed earlier, pricing models and profitability of journal publishers, Reichman and Okediji have argued that ‘science publishers are the main pecuniary beneficiaries of the current state of the law, which they have lobbied hard to obtain, and they would resist any reforms likely to be put on the table’.\footnote{See Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1428.} In a similar fashion, referring to EU experience, Hilty argues that copyright law rather protects the publishing industry than the creators.\footnote{Reto Hilty, ‘Copyright Law and Scientific Research’ in Paul Torremans (ed), Copyright Law: A Handbook of Contemporary Research (Edward Elgar 2007).} Therefore, Willinsky highlights the point that ‘what is missing from the current economics of open access is a more exact accounting for pricing differences’ from commercial publishers and other academic publishers.\footnote{Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 66.}

After considering the explanations from the commercial STEM publishers for their pricing regimes, Willinsky concludes that they fail to provide ‘any acknowledgment that these same publishing services are being provided at far less cost by the academic community itself’.\footnote{Ibid.} In particular, Willinsky wonders ‘why [these pricing differences] should be sustained’.\footnote{Ibid.} The final question is, then, for Willinsky, whether there is any positive proof...
that monopolies granted to publishers by authors transferring copyright to them, which those pricing differences keep in place, can be said to promote progress to the greatest extent now made possible by technological advancement.\textsuperscript{628}

### 3.3 Digitisation and OAP

The Internet, dematerialisation and digitisation have substantially changed the market conditions that gave life to the traditional models of scientific publishing. Desktop publishing and automated formatting, in fact, have massively reduced the costly front-end publishing function. Meanwhile, the Internet and digitisation have reduced distribution costs to zero, making physical copy distribution potentially redundant. A move to an electronic-only environment and the abandonment of print publication have been subjects of discussion, under the assumption that the retention of both printed and e-journal formats adds unnecessary costs to the supply chain from publishers to library and users.\textsuperscript{629} Examining the most relevant barriers to a full move to the e-only environment in the United Kingdom, in a report commissioned by the Research Information Network, Cox and Cox have identified publishers’ pricing policies combining print and online versions of journals in a single price and the imposition of VAT on e-journals.\textsuperscript{630} In fact, objections to ending print publication have also been based by some commentators on the argument that paper retention should be considered as a superior form of permanent storage medium.\textsuperscript{631}

Digitisation and Internet distribution have enabled easy OAP, while making the services of traditional publishing houses less indispensable.\textsuperscript{632} Therefore, following the so-called ‘digital

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\textsuperscript{628} Ibid 66-67.

\textsuperscript{629} See John Cox and Laura Cox, ‘E-only scholarly Journals: Overcoming the Barriers’ (Research Information Network 2010) \textlangle http://www.rin.ac.uk/our-work/communicating-and-disseminating-research/e-only-scholarly-journals-overcoming-barriers\textrangle accessed 15 June 2013. See also Durham Statement on Open Access to Legal Scholarship (n 342) (calling for the abolition of print publication); Danner, Leong and Miller, ‘The Durham Statement Two Years Later’ (n 344) (noting that little progress towards all-electronic publication has been seen).

\textsuperscript{630} See Cox and Cox, ‘E-only scholarly Journals’ (n 629) 20-25.

\textsuperscript{631} This argument has been raised as one of the major objections to the call in the Durham Statement to end print publication. See Margaret A Leary, ‘A Response to the Durham Statement Two Years Later’ (2011) 103 Law Libr. J. 281. See also Judith Cobb and Joan Allen-Hart, ‘Preserving Legal Materials in Digital Formats’ (Legal Information Preservation Alliance 2005) 11-13 \textlangle http://www.aallnet.org/lipa/LIPA_White_Paper_Final.pdf\textrangle accessed 1 June 2013 (discussing the risk factors for digital materials, including storage media obsolescence, software obsolescence, organisational and cultural challenges, focus on access without addressing issues of preservation).

\textsuperscript{632} See Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1462-1463 (discussing the changed role of intermediaries in the digital society); Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 58; Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 431; Hilty, ‘Five Lessons About Copyright in the Information Society’ (n 442) 120-121; Michael Nentwich, ‘Cyberscience. Modelling ICT-induced
revolution’, the role of intermediaries in the academic publishing market – as in fact in most creative industries – has been put under scrutiny. In early discussions about the Internet and its impact on publishing, what dominated was the potential ‘liberation’ from the existing intermediaries. However, there seems to be agreement in the literature that the perceived disintermediation may be only apparent. According to Michael Carroll, for example, ‘after the revolutionary euphoria died down . . . many acknowledged that intermediaries are necessary to all kinds of transactions in commerce, culture, and news. Reintermediation soon follows from disintermediation, and the real question the Internet posed was not whether intermediaries are necessary but what kinds of intermediaries are necessary.’

Discussing legal scholarship, Solum reinforces this point and notes that it is not exactly correct that the new world of legal scholarship is about disintermediation ‘[b]ecause there are new intermediaries and the old ones haven’t gone away’. In connection with the new role that intermediaries may take in the foreseeable future, Paul Peters has noted that OA may lead to a major change in the scholarly publishing industry. A widespread shift from subscription-based models to an OA model based on publication charges may transform the fundamental nature of the scholarly publishing industry from that of a content-providing industry to a service-providing industry.

As Willinsky – echoing the conclusions of many other authors – has noted, ‘there is a growing recognition within the academic community that ‘open access’ to research and scholarship can increase its value and reach’. Besides an almost monolithic literature recognising the value of OAP, this conclusion has been confirmed by a large-scale survey on attitudes of researchers towards OAP run by the Study for Open Access Publishing (SOAP) project. The survey – collecting responses from more than 40,000 researchers – has shown overall support for the idea of OA, with a slightly more favourable opinion in the social sciences and humanities (90 per cent) than the scientific and engineering field (80 per cent). Together with the threats posed by the ‘serial crisis’, much of the support of the
academic community for OAP models seems to be framed within a reactionary movement to traditional publishing models turning academic research outputs into a commodity.\(^639\) Even when directly performing a publishing function, as in the case of scholarly society publishers and university presses, the academic community still seems to strongly favour the emergence of OAP models. In a 2011 report prepared by the Task Force on Economic Models for Scholarly Publishing of the Association of American University Presses (AAUP), for example, the authors of the report have stressed that OA should be a principle to be embraced if the publishing cost can be supported by the larger scholarly enterprise.\(^640\)

Reichman and Okediji have reconsidered ‘the wisdom of continuing to rely on proprietary publishing intermediaries in an environment increasingly characterized by an array of promising open access options’ and concluded that ‘the best outcome for the future of scientific research may well be for the scientific community itself to take responsibility for managing the conditions under which its own knowledge assets will be created and deployed’.\(^641\) Jessica Litman has qualified this point even further. For Litman, any analysis of the economics of scholarly publishing should focus on the economics of academic research at large rather than the budgets of journals propagating its results. In light of the fact that publication costs are minimal if compared with global expenditure on research, OAP is likely to have only an insignificant impact on the cost of generating and disseminating research. It may only require research centres to shift expenditures from one entry to the other. Therefore, regardless of whether OAP generates any significant cost savings, making research more accessible ‘seems likely to improve the quality of scholarly research across the board, and seems worth doing on those grounds alone’.\(^642\)

derived and discussed several results from the dataset, together with their correlations, including the number of OA journals and articles, their subject area, the starting date of open access journals, the size and business models of open access publishers, the licensing models, the presence of an impact factor, the uptake of hybrid OA. In addition, a number of qualitative features of OAP, relevant to understanding the present landscape, are also described. See Suenje Dallmeier-Tiessen and others, ‘Open Access Publishing - Models and Attributes’ (Max Planck Digital Library, Study of Open Access Publishing (SOAP) 2010) <http://edoc.mpg.de/478647> accessed 1 June 2013.

\(^{639}\) See Nentwich, ‘(Re-)De-Commodification in Academic Knowledge Distribution?’ (n 41) 21 (arguing that we have recently seen ‘an increasing awareness of the research community that its products should not be treated as a commodity, but should instead be freely available to the whole community’). See also Michael Gibbons and Björn Wittrock (eds), Science as a Commodity: Threats to the Open Community of Scholars (Longman 1985).

\(^{640}\) AAUP, ‘Sustaining Scholarly Publishing’ (n 576) 11.

\(^{641}\) Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1371-1372. See also Brown, Griffiths, and Rascoff, ‘University Publishing in a Digital Age’ (n 576) 4-5 (making ‘the case that universities should become more actively involved in publishing scholarship’).

\(^{642}\) Litman, ‘The Economics of Open Access Law Publishing’ (n 361) 795.
In fact, although identified as the main target of the OAP movement’s discontent, commercial publishers are also showing increasing interest in the academic OAP market, with special emphasis on business models based on the payment of a processing fee by the authors or their supporting institutions. Commercial publishers, despite only a marginal presence a decade ago, have grown to become key actors on the OA scene, responsible for 120,000 of the articles published in 2011. However, as Björk suggested, the entry of traditional publishers into the OAP market has been very much on a small experimental risk-free scale, because in fact traditional publishers’ operating profit margins have been fluctuating between 30 per cent and 40 per cent for the last fifteen years and do not seem to be in peril at the moment. Again, the repercussion of journal cancellations by libraries, because of an increase in OA materials, will still take some time to be felt by traditional publishers due to the fact that all the ‘big deals’ e-licences are usually multi-year deals.

### 3.4 Open Access Business Models

As we will describe in the next few pages, a vast number of possible business models have been tested in the past decade in search of sustainable solutions for OAP ventures. Depending on the publishing channel – repositories, journals or books – this search has found solutions at different degrees of stability. Although a large array of models have been proposed and implemented, the OA journal market has seen the consolidation of an arrangement in which authors – or their funding institutions – pay for the article processing fees as its dominant model, whereas the search for standard models in the OA book publishing domain is still very much ongoing.

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643 See Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 64; Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 584-585.


645 See Odlyzko, ‘Open Access, Library and Publisher Competition, and the Evolution of General Commerce’ (n 600) 2; Björk, ‘Open Access’ (n 484) 9.

646 Ibid.

The miscellaneous array of OAP business models that has so far emerged can be explained by the equally diverse interests of the academic publishing players. According to Willinsky, the economics of OA is largely determined by the ‘interests of a stratified scholarly publishing market’ which may be divided into independent journals, scholarly society publishers and commercial publishers, each of these experimenting with business models which hold promise for sustaining, if not extending, the sector’s current position.\textsuperscript{648} Again, the fact that publishers active in OA can be divided into born open access publishers and conventional publishers\textsuperscript{649} that have entered the market later to test its potential may be seen as an additional cause of the proliferation of different business models. Additionally, authors have shown that there are significant differences between scientific disciplines with respect to researchers’ awareness and experience of OA journals and self-archiving, therefore a ‘one-size-fits-all’ approach as promoted by most recent policy approaches may not prove very effective.\textsuperscript{650}

### 3.4.1 Repositories

In the majority of cases, subject repositories ‘are run predominantly using voluntary labour, open source IT platforms, and free hosting by a university or university department.’\textsuperscript{651} However, the largest repositories have had to deploy miscellaneous mechanisms to earn income. As a first example, ArXiv – which was the first notable OA subject-specific repository ever developed, as mentioned in Part I of this study – has based its business model on membership payments from research institutions. Since 2010, Cornell University Library (CUL)’s sustainability planning initiative has aimed to reduce ArXiv’s financial burden and dependence on a single institution, instead creating a broad-based, collaboratively governed, community-supported resource.\textsuperscript{652} ArXiv has set up a membership programme aiming to engage libraries and research laboratories worldwide that represent ArXiv’s heaviest institutional users. ArXiv’s membership programme is based on a business model for generating revenue that entails three sources of revenue: (i) a cash subsidy of 75,000 dollars from CUL; (ii) a contribution of 350,000 dollars from the Simons Foundation; and (iii) a five-year pledge set in four tiers from 1,500 to 3,000 dollars based on usage ranking from

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\textsuperscript{648} See Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 53.

\textsuperscript{649} Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 590) 586-587.

\textsuperscript{650} See Thomas Eger, Marc Scheufen and Daniel Meierrieks, ‘TheDeterminants of Open Access Publishing: Survey Evidence from Germany’ (2013) SSRN Working Paper Series <http://ssrn.com/abstract=2232675> accessed 8 April 2013. See also Brown, Griffiths, and Rascoff, ‘University Publishing in a Digital Age’ (n 576) 5 (noting that ‘[o]pen access efforts may be a solution to some of these problems, but we will argue that there is no one-size-fits-all solution across disciplines and types of content’).

\textsuperscript{651} Björk, ‘Open Access’ (n 484) 10. See also Björk, ‘Open Access Subject Repositories’ (n 230).

\textsuperscript{652} See ArXiv, Help, Support, Sustainability Initiative <http://arxiv.org/help/support/faq#1A> accessed 2 June 2013.
each member institution. Membership fees are based on an institutional ranking calculated according to the number of articles downloaded, with fees decreasing as the number of participating institutions increases. It is worth stressing that this is not a mandatory fee-based funding model that forces funding members to support ArXiv in order to access content – which still remains open to all downloaders and uploaders – but rather a gift economy model. The participating organisations enjoy as additional exclusive benefits participation in ArXiv governance, access to enhanced institutional use statistics and public acknowledgment of members’ role in financial support.

Again, looking at one of the most successful repositories in the social sciences and humanities, the SSRN has developed a business model based on providing dissemination services to institutions, both serving as a publishing platform for working paper series and acting as middleman for subscription or pay-per-view content. SSRN is a for-profit corporation that earns its revenues from abstracting journals, site subscription licence fees from the more than four hundred institutions that pay SSRN to host the Research Paper Series for the institution, ‘fees received for professional and job announcements, conference fees for SSRN’s Conference Management System, and . . . fees shared with SSRN by publishers who distribute their papers through SSRN on a pay per download basis.’ In the case of papers distributed on SSRN on a pay per download basis, SSRN’s rule is that the price for such papers on SSRN must be equal to or below the lowest price that such papers are available anywhere on the web to non-subscribers.

According to Björk, the development of business models for IRs, in contrast to subject repositories, is less of a problem as they are usually created by a managerial university decision and handled like any other university infrastructure, such as a library. Therefore, the standard business model for IRs may be broadly included in the category of institutional subsidy.

3.4.2 Journals

657 See Björk, ‘Open Access’ (n 484) 10.
The number of possible OA journal publishing business models is potentially very large and several categorisations have been attempted. As already mentioned, the market and consequently the business models that have emerged are characterised by the coexistence of born OA publishers and conventional publishers experimenting with OA. Some of the possible business models that have so far emerged in OA journal publishing will be outlined below.

### 3.4.2.1 Volunteer Effort

Voluntary work characterised the early stage of OA journal development. Initially, a large percentage of the OA journals were new born electronic only journals established by independent academics, which did not charge authors for publishing and were based on volunteer effort. According to Björk, the voluntary work model is operable for small journals but does not scale to bigger journals for which a steady income is necessary. A slight variation of this model has seen editorial staff being provided with an honorarium for their activities, which is usually given by an external sponsor.

### 3.4.2.2 Publication Fees

Article Processing Charges (APCs) as a business model for OA journals have shown a special vitality. However, whereas commercial publishers have increasingly embraced APCs, a vast array of critical views has equally been put forward, as we will detail in a moment. Also, the long-term sustainability of this business model has been a privileged subject of review as well as management of the APC system at university level.

Since 2000, the importance of APCs as a business model for funding OAP has grown steadily. Most STEM OA publishers, including PLoS, BioMed Central, Hindawi and Medknow, cover the publication costs through APCs for accepted manuscripts. In the case of Hindawi, for example, the charges apply only to peer-reviewed contributions for some of the Hindawi journals, while contributions on almost half of the Hindawi journals’ portfolio are free of charge. Hindawi also offers two different types of OA institutional membership: an Annual Membership, based on a flat rate payment covering all the accepted articles authored by

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658 See Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 586-587.


660 Björk, ‘Open Access’ (n 484) 8-9.

661 Ibid 9.

662 See Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 586.

663 See Hindawi, Article Processing Charges <http://www.hindawi.com/apc> accessed 10 June 2013 (the article processing charge for the Hindawi journals requesting them range from 300 to 1,500 dollars).
individuals affiliated with the member institution and depending on the research output level of the institution and its historical publishing pattern in Hindawi journals, and a Prepaid Membership, based on a prepayment starting at US$5,000 to cover the article processing charges of the researchers affiliated with an institution, then receiving a 10 per cent discount for any publication charges that are paid from their account.664

The workability of the APC business models has been proven by the increasing entry of established publishers into the market. Recently, they have either purchased newly founded publishers specialising in OA, such as Springer’s purchase of BioMed Central in 2008,665 or have established OA journals on their own, often, following the success of PLoS ONE, in the form of so-called ‘mega journals’, such as Nature Scientific Reports, Springer Plus or Sage Open.666 Similarly, university publishers have adopted APC business models. Oxford University Press, for example, have launched the Oxford Open initiative offering a £3,000 OA option for 70 of the over 240 journal titles included in the OUP portfolio.667

In connection with APC business models, attempts are being made to promote the so far quite rare conversion of subscription journals to APC-funded OA. In this respect, for example, the High Energy Physics (HEP) community – after pioneering pre-print repositories – has also been very active in promoting open access to peer-reviewed publications by setting up SCOAP³ under the aegis of CERN.668 SCOAP³ has created a consortium to convert high-quality HEP journals to OA by federating HEP funding agencies and libraries to cover the peer-review service, while publishers make the electronic versions of their journals OA.669 Basically, a US$15 million payment to the publishers based on APCs between US$1,500 and 3,000 multiplied by the number published in the field – which is less than the money paid by libraries in total subscription fees for the six journals in the field in which 80 per cent of the articles are published – could purchase OA for the entire field of particle physics.670 Willinsky has described the SCOAP³ experiment as the ‘sub-discipline processing fee’ and noted that

670 See Mele and others, ‘SCOAP3 and Open Access’ (n 668) 264-271.
this innovative form of cooperative where libraries and the sector-specific community enter into direct negotiations with publishers may be a viable option, especially in disciplines whose journals are at the high end of the pricing spectrum.  

As the dominant emerging OA model, APCs have been put under intensive scrutiny by the literature and criticised on several grounds. Concerns have been raised primarily in terms of dead-weight loss on the part of the authors, rather than the readers. SOAP has highlighted funding as one of the main barriers to OAP among the academic community. In particular, the payment of APCs has been mentioned by 39 per cent of the respondents – averaging almost 40,000 researchers worldwide – as a reason they had not published in OA journals. According to Björk and Salomon, the leading scientific OA journals using the APC model tend to charge between US$2,000 and US$3,000 for publishing, but overall the average APC was US$900 in 2010 across all journals charging APCs listed in the Directory of Open Access Journals, which still constitutes a substantial barrier to submissions in many fields. In this respect, the entry of commercial publishers into the APC funded OA market seems to add to this conundrum of unaffordable APCs by having the effect of raising APCs. For example, in the case of BioMed Central – bought by Springer in 2008 – fees have risen to a figure above US$1,500 – 2,000, depending on the journal, from the initial US$500 charged at the time of BioMed Central’s inception.

Dead-weight loss concerns have also been construed in terms of unequal standing in the capacity for circulating knowledge between top, well-endowed universities and researchers and other academic players. For example, Feess and Scheufen uphold the argument that ‘switching from a closed to an open access-mode is likely to increase the gap between researchers from top and mediocre universities’. Mediocre universities will often not pay fully for the submission fee under OA, while the best universities – which already tend to recruit the most talented researchers – will have more funds available for APCs, including also higher submission fees for fast tracks in journals. Additional concerns may be raised, Feess and Scheufen argue, when considering developing countries.

673 See Dallmeier-Tiessen and others, ‘Highlights from the SOAP Project Survey’ (n 638) 1.
674 Ibid 7.
675 See Björk and Solomon, ‘Open Access Versus Subscription Journals’ (n 806) 75.
676 See BioMed Central, Article-Processing Charges <http://www.biomedcentral.com/authors/apc> accessed 1 July 2013. See also Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 64.
677 Feess and Scheufen, ‘Academic Copyright in the Publishing Game’ (n 493) 2.
Rising costs for research intensive institutions have also been considered, flagging APCs with free-riding concerns. Michel Beaudouin-Lafor has opposed authors’ fees because they would be too expensive for research institutions publishing heavily and ‘those who benefit the most from this model are neither the scientific community nor the general public [but] the big pharmaceutical labs and the tech firms who publish very little but rely on the publication of scientific results for their businesses’. Again, Müller-Langer and Watt consider the possible detrimental effects of universal open access on research institutions with high publication outputs as publication fees would surpass savings in subscription fees for those institutions. They propose, therefore, a new pricing system based on the economics of insurance, so that ‘publishers would charge all academic institutions an ex ante premium that insures them against the risk of paying publication fees when papers of affiliated authors are published in one of their journals’.

Smith expressed concern with the ‘uncomfortable conflict of interest’ of having authors paying only if the article is accepted. Therefore, he is envisaging a model that may rebalance the contribution of journals in the creative process by having authors paying for peer-review and editing services that may actually improve authors’ scholarship. In Smith’s own words, he imagines a properly functioning market that may let resources flow to where they add most value by setting up

a model in which authors have a choice in paying for various services. They might pay $50 for a rapid rejection, $150 for a detailed rejection with ideas on how to improve the study for submission elsewhere, $250 for external review (more for more reviewers) with the journal passing on some of the money to the reviewers, and $450 for a detailed report from the editorial committee. They could then choose whether to pay to have their paper technically edited, perhaps even with a choice over how extensively, and choose whether to pay for the journal to prepare a short version for the paper journal. Subsequently they might pay for press releases, media support, or even a dissemination and change programme — funders fund research to achieve change not just a publication in a journal.

A partial implementation of Smith’s proposal, and a slight variation of the APC model, or in some instances an additional feature to that model, is a submission fee model, where a fee

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679 Müller-Langer and Watt, ‘Copyright and Open Access For Academic Works’ (n 509) 63.
681 Ibid.
is charged for evaluating a submitted paper, regardless of whether it is accepted or not. However, journal submission fees seem to be quite rare. Nonetheless, one of the major advantages of journal submission fees is that it would allow lowering the publication fees for journals with a high rejection rate.

Armbruster has noted that article processing fees may not work well in the social sciences and humanities because of the limited research grants, authors who are frequently not members of research institutions, and single-authored papers which are still the norm. He indicates as solutions for covering costs: (i) countrywide agreements to pool resources to fund OAP, such as those signed by Denmark and Norway with BioMed Central; (ii) centralising functions and running e-print repositories, knowledge exchange and e-journals in a more efficient manner through automation, while aiming for economies of scale; (iii) defraying costs by raising an endowment to have publication charges waived in the case of institutional and individual hardship; (iv) having library associations, university and national e-grids take over archiving in full in order to minimise the publication costs to authors. In Armbruster’s view, the key to the success of OAP, especially in social sciences and humanities, is the reduction of publishing costs by using digital and automated publishing processes and by spreading them among as many parties as possible, including scholarly institutions, funding agencies, libraries and authors.

Arrangements to enable researchers to meet the costs of publication fees have been discussed and implemented by research communities and institutions. Guidance on the payment of APCs has been provided by a report jointly prepared by the Research information Network (RIN) and University UK (UUK). The report considers four key areas

682 See Mark Ware Consulting, ‘Submission Fees – A Tool in the Transition to Open Access? (Knowledge Exchange 2010) <http://www.knowledge-exchange.info/Default.aspx?ID=413> accessed 13 June 2013. See also John Bell, ‘The Future of Legal Research’ (2012) 12 Legal Information Management 314 (noting that the right way forward is submission charges, rather than APCs, if we think that the real importance of a journal is peer review).

683 See Anna Sharman, ‘Journal Submission Fees: Why Are They so Rare?’ (Sharmanedit, 21 March 2012) <http://sharmanedit.wordpress.com/2012/03/21/submission-fees> accessed 13 June 2013.

684 Ibid.

685 Ibid 442-443.

686 See, for an early example of the establishment of a central, institutional fund for the payment of APCs and a systematic process to support investigators in disseminating their research by the University of Nottingham, University of Nottingham, Information Services, Open Access <http://www.nottingham.ac.uk/is/finding/openaccess.aspx> accessed 13 June 2013.

that institutions need to consider to ensure that publication fees can be supported in a sustainable way: coordination of policy, management of funding, communication, and interface with the researcher.\textsuperscript{689} Among the report recommendations, Higher Education Institutes should designate a single person to coordinate the activities in this field, establish a dedicated budget, establish clear criteria for applying for funds, and provide effective communication to all relevant academic and administrative staff.\textsuperscript{690} On the funders’ side, the RIN and UUK report recommends that funders provide support for researchers in meeting the payment of APCs.\textsuperscript{691} Again, the publishers are recommended to include in the submission process a requirement for authors to confirm that they will pay the fee, if the paper is accepted for publication, or in the case of hybrid journals a requirement to indicate whether or not authors wish to pay a publication fee.\textsuperscript{692} Publishers should also, if possible, alert authors to the funders’ policies on the use of grant income to pay for APCs and, where publishers operate membership or subscription schemes, alert the authors as to whether their institution is a member.\textsuperscript{693} Similarly member institutions should be informed when a paper from one of their affiliates is accepted for publication.\textsuperscript{694} On the authors’ side, the report recommends that they familiarise themselves with funders’ policies, especially the availability of funds for APCs, and make sure that they have access to the funds to meet the APCs.\textsuperscript{695}

Literature has also looked at the sustainability of a central institutional fund for the payment of APCs.\textsuperscript{696} Pinfield and Middleton have noted that ‘in the short term at an institutional level sustainability [. . . ] remains a challenge’, especially when institutions must face both rising subscription prices and increasing OA APCs.\textsuperscript{697} Therefore, Pinfield and

\textsuperscript{689} Ibid 11-14.
\textsuperscript{690} Ibid 19.
\textsuperscript{691} Ibid.
\textsuperscript{692} Ibid 20.
\textsuperscript{693} Ibid.
\textsuperscript{694} Ibid.
\textsuperscript{695} Ibid 21.
\textsuperscript{696} See, for a general overlook at sustainability in not-for-profit ‘online academic resources’ (OARs) projects, although not specifically addressed to OAP, Kevin Guthrie, Rebecca Griffiths, and Nancy L Maron, ‘Sustainability and Revenue Models for Online Academic Resources. An Ithaka Report’ (JSIC/ITHAKA 2008) <http://www.sr.ithaka.org/research-publications/sustainability-and-revenue-models-online-academic-resources> accessed 23 January 2013 (discussing specifically the sustainability of the ‘contributor [author] pays model’ at 33-35.
Middleton argued, publishers should take this into consideration by avoiding ‘double dipping’ and setting up policies for adjusting subscription levels in relation to income received from APCs. Discussing long-term sustainability, Cook and others regard gold OA as sustainable provided that the level of APCs remains at or below the value where ‘academic institutions have a zero change in annual net costs’. Cook and others set the average level of sustainable APC at or below £1,995, while Pinfield and Middleton identify the break-even point in the model for a university of the size of Nottingham at £1,255. Ware and Mabe estimate the cost of seeing through an article to publication as $3,800. They note that this figure is higher than the typical ‘article processing fees’ that are now charged by OA biomedical journals, while also observing that such fees cannot be applied to all fields, given that 25 per cent of researchers work in developing countries and 60 per cent do not have ‘separately identifiable research funding’ that might cover those costs.

3.4.2.3 Hybrid OA

Subscription publishers have also tried an OA option called hybrid OA journals where authors can pay fees – usually in the range of US$3,000 – to have the electronic versions of their articles OA as part of what is otherwise a subscription journal. The uptake for hybrid journals in general has been very limited at about 1 per cent to 2 per cent for the major publishers. Springer had already begun experimenting with the article-processing-fee model with its Open Choice option, in which authors are able to purchase for US$3,000 open access to their particular articles within an otherwise subscription-based journal.

Nariani, ‘Open Access Funds: a Canadian Library Survey’ (2011) 6(1) Partnership: The Canadian Journal of Library and Information Practice and Research http://journal.lib.uoguelph.ca/index.php/perj/article/view/1424 accessed 13 June 2013 (finding that there is substantial support for OAP, with twelve of eighteen respondents indicating that their libraries have dedicated open access funds with nine institutions covering author fees).

Pinfield and Middleton, ‘Open Access Central Funds in UK Universities’ (n 697) 116.


See Pinfield and Middleton, ‘Open Access Central Funds in UK Universities’ (n 697) 115. See also Alma Swan, ‘Modelling Scholarly Communication Options: Costs and Benefits for Universities’ (JISC 2010) <http://repository.jisc.ac.uk/442> accessed 13 June 2013 (defining a framework which allows individual institutions.

See Ware and Mabe, ‘The STM Report’ (n 577) 52 (excluding non-cash peer review costs).

Ibid.

See Björk and Solomon, ‘Open Access Versus Subscription Journals’ (n 806) 75.

are similar programmes under way at the other major publishers, Elsevier, Wiley-Blackwell, Taylor and Francis, and Sage.705

Authors have seen hybrid gold – having individual authors paying extra APCs in order to have their papers appear without the gatekeeping charges on publishers’ websites, while libraries and institutions still have to pay for the journals’ subscriptions – as a form of double-dipping by publishers that should be opposed.706 Stuart Shieber, for example, in his proposal discussing issues of implementation for an APC working programme at university level suggest that ‘journals with a hybrid open-access model or a delayed open-access model [should] not be eligible’ for reimbursement.707

3.4.2.4 Institutionally Subsidised OA

The institutional subsidy model encompasses any practice by which an institution subsidises, in whole or in part, directly or indirectly, an OA journal through any means including cash, facilities, equipment or personnel.708 Given the breadth of this category, the number of OA journals that may fall within it is extremely large. Institutional subsidies may vary according to the nature of the institutions providing the subsidy, including university subsidies, government subsidies, foundation subsidies, corporate subsidies and consortial subsidies.709 The most common form of university subsidy for OA journals is the in-house publication of the journal, but university subsidies also include funds for APCs or provision of facilities, equipment or personnel. Similarly, governmental subsidies for OA journals take several forms, ranging from ‘direct grants to OA journals or publishers; grants to researchers which they may use for publication fees or page charges at OA journals; in-house publication of OA journals; tax deductions for non-profit publishers of OA journals; budgetary support for public universities which the institutions may use to publish OA journals, subsidise OA journals, or hire faculty who spend part of their work time editing OA journals’.710 Consortial

705 See Willinsky, 'The Stratified Economics of Open Access' (n 576) 64; Charles Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 583-584. For a complete list of hybrid OA publishers, see SHERPA/RoMEO, Publishers with Paid Options for Open Access <http://www.sherpa.ac.uk/romeo/PaidOA.html> accessed 13 June 2013.

706 See Adams, ‘Copyright and Research’ (n 220) 288. See also Bo-Crhisto Björk, ‘The hybrid model for open access publication of scholarly articles – A failed experiment?’ (2012) 63(8) J of the American Soc’y of Info Sciences and Tech 1496. See also Björk, ‘Open Access’ (n 484) 9 (noting that hybrid OA ‘has not become popular due to the generally high price level and the perception that greedy publishers are trying to charge twice for the same service’).


709 For an exhaustive list of examples of journals and publications which have been made OA through these different institutional subsidy models, see OAD, OA Journal Business Models (n 659).

710 Ibid.
subsidies are popular as well. The SCOAP³ mentioned above is a good example of a customised or ad hoc coalition of organisations that has been created to support an OA resource. Other notable examples of consortial subsidies include D-Lib Magazine, which is supported by the D-Lib Alliance, and eLife, which is supported by a consortium composed of the Howard Hughes Medical Institute, the Max Planck Society and the Wellcome Trust.

A couple of other business models, which can be broadly included in the category of institutional subsidy, have enjoyed some success and may be singled out from the numerous variants. One form of institutional subsidy for an OA publication is to create an endowment and use the interests to cover the publication’s expenses. One example is represented by a number of reviews published by Americana: The Institute for the Study of American Popular Culture. The membership due model is an additional form of institutionally subsidised journal. In this instance, membership organisations, such as a learned society, subsidise, in whole or in part, an OA journal with membership dues.

Another popular business model is that of cross-subsidised OA or priced editions that serve to support OA to another edition. The arrangements in place within this model vary, including a delay in release of the OA edition, a difference in quality between the two editions, a short summary included in the priced edition as a form of added value, sale of reprints or offprints to help support an OA journal, subsidisation of OA publications with profits from a non-OA publication, or selection of articles from a priced journal or collection of journals to be featured in a full OA journal.

3.4.2.5 Fund-raised OA

Fund-raising, as a request for a periodic or continuous donation, is a popular model for supporting OA publication. The Public Library of Science, perhaps the most renowned OA journal publisher, adopts this model together with grants and gifts from foundations and publication fees. Fundraising is often deployed along with other sources of support. The

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711 See infra Section 3.4.2.2.
716 See OAD, OA Journal Business Models (n 659) (with examples for each type of sub-models).
so-called ‘street performer protocol’, written by John Kelsey and Bruce Schneier, is still another form of fundraising in which the creator requests a specific sum to be raised before creating the work. Once the private donations have fulfilled the author’s request, the work is created and delivered OA. Inspired by the same principles, crowdsourcing or crowdfunding is an increasingly popular tool for raising money online. In this case the wider online community should provide the financial donations to fund the publication projects. Online crowdfunding takes place on dedicated platforms. On Kickstarter and similar platforms, such as ChipIn for example, people can pledge for an economic goal which is set in advance by the project developer. Kickstarter works by giving creators a means to let other people crowdfund the creation of new works. Rather than being a platform for directly buying a work already created, it lets creators offer different tiers through which the ‘crowd’ can help fund a project, in the hope of reaching a funding threshold for the work to be created. Only after the threshold is met does the money change hands.

3.4.2.6 Other OA Journal Business Models

Several other miscellaneous models have also emerged to support OA journals with different degrees of diffusion and success. Certainly, advertising seems to be a model that could hold promise for the future, especially in view of the easy deployment of interactive and targeted advertising in digital publication. Under an advertising model, a journal can provide OA to content online in combination with advertising messages. In one scenario, the advertising model may require marketing staff at the journal directly selling advertising space, as in the

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722 See Randal C Picker, ‘The Mediated Book’ (2009) U of Chicago Law & Economics Olin Working Paper No. 463 <http://ssrn.com/abstract=1399613> accessed 13 June 2013 (noting that we have entered the era of the mediated book; digital texts can be produced at the instant a consumer wishes to interact with the text: additionally, on-demand texts can be financed through advertising, therefore, mediated texts can be updated instantly with new, continuously-timely updated personalised advertising; that process, of course, will raise standard privacy issues).

723 See Crow, ‘Income Models for Open Access’ (n 708) 2.2; Guthrie, Griffiths, and Maron, ‘Sustainability and Revenue Models for Online Academic Resources’ (n 696) 39-46 (discussing in detail the mechanics and sustainability of advertising business models).
case of the British Medical Journal. Alternatively, the journal may engage services like AdSense or Amazon Associates Program, which randomly place ads on the journal’s page based on an algorithmic reading of the content. As noted by Suber, the use of AdSense should be welcome as it may help to answer potential critical views that advertising may compromise editorial integrity.

Some journals have also implemented an e-commerce model and raise funds by offering branded products for sale. This can be done either internally or through an external vendor. CafePress, for example, is one popular vendor selling products for the Journal of Virtual Worlds Research, the Libertarian Papers and Rejecta Mathematica. Again, a value-added services model has also been used by some journals. With this arrangement, content is published OA but a range of additional services – such as article alert, site customisation or unlimited DRM-free download access to publications – are offered on top of the content. Finally, it is worth mentioning a publishing practice known as temporary OA, although this is not in fact a pure OA model, as a publisher offers free online access to content for a limited period of time, after which the content becomes or returns to be toll access. In truth, it is difficult to classify programs like the ‘New Launch Journals’ at Emeralds as anything close to OAP; they rather resemble market practices for promoting future subscriptions to new journals.

3.4.3 Books

In recent times, enhanced interest has also emerged in the viability of OAP for books and monographs. Understandably, the focus on OAP for books has been highest in the field of

724 See British Medical Journal Group, Advertising and Sponsorship <http://group.bmj.com/group/advertising> accessed 13 June 2013.
social sciences and humanities. Traditionally, books and monographs have been a privileged medium for the circulation of research findings especially in those fields of study, whereas the use of books and monographs is now secondary in the STEM sector. This also explains the delay in developing OAP for books, as in general the OAP movement was ignited and led by the STEM sector. Increased emphasis on OAP for books has been spearheaded by the efforts of OAPEN, Open Access Publishing in European Networks, a collaborative initiative to develop and implement a sustainable open access publication model for academic books in the humanities and social sciences. OAPEN has also paid special attention to business models for books, producing *inter alia* a survey of OA book publishing, comparing a wide international range of publishing initiatives and the business models they employ, while examining their reasons for engaging in OA.730 In the UK, JISC Collections and the Arts and Humanities Research Council (AHRC) have recently established OAPEN-UK, a parallel project gathering evidence to help stakeholders make informed decisions on the future of open access scholarly monograph publishing.

The 2011 AAUP report has discussed at length emerging business models for university presses, with special emphasis on book publishing. The report noted that widespread experimentation in the field is still ongoing and, unlike the case of journals, there is no primary business model emerging for books.731 For the foreseeable future, multiple business models will most likely be necessary, especially because print and digital books are likely to co-exist for some time.732 The AAUP report emphasised the increasing importance of partnerships in university press publishing, taking miscellaneous forms such as ‘groups of presses working together; presses working with a variety of other nonprofits, including museums, libraries, scholarly societies, and other research organizations; and presses creating closer alliances with other units within their parent institutions’.733

In the book publishing sector, experimentation with OA is still very much ongoing and the emergence of a dominant business model, as in the case of APCs in the journal publishing sector, has not yet occurred.734 Most of the business models tried out in the journal

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732 Ibid.

733 Ibid 11, 24-27.

publishing sector have also been employed by book publishers. Therefore, below, we will provide a brief overview of the OA business models that have emerged specifically in the book sector and look at some particular successful experiences in book publishing as per the business models already discussed. For the rest, we will refer to what was previously said.

3.4.3.1 Dual-edition Publishing

The dual-edition publishing model is the most common OA business model, being used by the majority of OA book publishers. It consists in offering full-text OA editions together with priced print-on-demand (POD) editions. This model is fully endorsed, for example, by Open Book Publishers (OBP). OBP offers a full-text online edition for free, a pdf or epub downloadable edition, which may be offered for free or for a small price, usually ranging from £4 to £6, and a priced paperback and hardback edition. OBP publishes all its titles using CC licences and suggests that authors opt for a CC-BY, although they are free to choose the CC licence that suits them best. A variant of dual-edition publishing is the so-called tiered-quality model. Bloomsbury Academic has applied this tiered structure by selling print and enhanced eBooks next to a free HTML OA version.

3.4.3.2 Collaborative Underwriting

Collaborative underwriting is among the most promising and radically innovative models to bring OA to the book publishing domain. Proposed by Frances Pinter of Bloomsbury Academic, this model would create a pool of participating institutions to share production costs for forthcoming OA books or OA book collections. Under this system, a consortium of libraries would pool funds to pay for the first-copy costs of monographs selected by members of the consortium. Publishers would propose titles to the consortium, whose members would then decide what to purchase, and cover the first-digital-file production costs. In exchange, the publisher would make the funded book OA in a sub-optimal format. Participating libraries would also obtain the additional benefit of securing access to added-

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736 For a list of publishers implementing the dual-edition publishing model, see OAD, OA Book Business Models (n 735).
value versions of the book, including extra metadata, POD and enhanced services or multimedia content. The same enhanced version of the book would be available to the general public for a price, together with printed books, which would be available to purchase separately.

This model has seen practical implementation through the pilot project Knowledge Unlatched. The project endorses the OA publication of the book via Hathi Trust or OAPEN Library on a Creative Commons Non-Commercial licence against the payment of a title fee to publishers. The per-library cost of ‘unlatching’ each title decreases as more libraries participate in the project.

### 3.4.3.3 Fund-raised OA

Several fund-raised models – that parallel those developed for OA journals – have been discussed or experimented also for OA books. A **commissioning model** – in which the public sets a sum that will be paid to an author to create content on a predefined topic – has been investigated by the medical publisher Amedeo through the Amedeo Challenge, which commissioned OA medical books from experts in the field to be paid through donations. In a similar fashion, Larry Sanger, Wikipedia cofounder, has proposed a commissioning model in which the public presents an offer to a publisher to write a work on a particular topic and the publisher selects an author to write the book, which is finally published OA. Besides Kickstarter, which has a publishing projects section, an interesting **crowdfunding** experiment has been set up by Crowdbooks, a photography book publisher, whose committee selects book submissions, which are then posted for 90 days on the website and

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743 Ibid.


published if the submission reaches the funding goal.747 Gluejar or Unglue is an example of an OA book publishing business model which is at the intersection of crowdfunding and a liberation fee model. Unglue crowdfunds resources to ‘unglue’ previously published works and make them available libre OA.748

3.4.3.4 Other OA Books Business Models

The advertising model has already been trialled successfully in the book market749 and, according to Randal Piker’s article The Mediated Books, promises to be a dominant feature of the future of book publishing. Bookboon, for example, finances free and openly available eBooks for students and business professionals through a low number of high quality advertisements, and limited to 15 per cent advertising per book.750

Publication fees have also been used to offer OA books. SpringerOpen Books is one example. In order to have an OA publication with SpringerOpen Books, the authors pay a publication fee – which varies depending on the number of pages – at the beginning of the publication process.751 The peer-reviewed eBooks are freely and immediately available online at Springerlinks upon publication and listed in the DOAB.752 Authors retain copyright and the books are published under a CC BY-NC.753 In addition to the free electronic copy, a printed version is also available for purchase.754

Miscellaneous forms of institutional subsidies have been implemented also for book publishing. As with journals, institutional subsidies may come from universities, governments, foundations, corporations, private societies or other sources.755 Also in the case of books, endowments have been set up by OA publishers to cover their expenses with the annual interest. Again, cross-subsidised OA books, where the OA publication is funded with the profits from non-OA publications, have been tried out, for example, by

747 See Crowdbooks <http://www.crowdbooks.com> accessed 23 August 2013 (the project is in a phase of relaunch at the moment).
748 See Gluejar <http://gluejar.com> accessed 23 August 2013 (linking also to the new Unglue website).
749 See OAD, OA Journal Business Models (n 735).
752 Ibid.
753 Ibid.
754 Ibid.
755 For a list of institutions subsidising OA book publishing, see OAD, OA Book Business Models (n 735).
Polimetrica. Although not all publications have an OA edition, in an increasing number of cases Polimetrica offers a printed edition for sale and an electronic edition OA. There have also been experiments with value-added service models and temporary OA models for OA books.

3.5 Assessing the Value/Metrics of OAP

Careful assessment of the metrics and value of OA publications in order to strike a comparison with traditional academic publishing has occupied a large part of the literature, especially in the economics field. As Feess and Scheufen have noted, this literature has addressed its research interests along three lines: evaluation of the economic impacts of alternative publishing models, assessment of the effects of OA on citation and readership, and investigation of the scholarly community’s attitude towards OAP. Within this theoretical framework, substantial attention has been devoted to reviewing the quality of OA and its peer-review process, the research impact of OA publications, and the alleged economic, citation and reputational advantage of OAP.

3.5.1 Economic Impact of OAP

Recent economic studies have been showing a positive net value of open access models when compared with other publishing models. A study written by Houghton and Oppenheim for the UK Joint Information System Committee has reviewed the impact on publishing cost and prices of OA business models and argued that in the long run both OA journals and self-archiving platforms will produce positive benefits. In June 2009, a study authored by John Houghton of the Centre for Strategic Economic Studies at Victoria University in Melbourne, Australia, compared the costs and benefits of three different publication models in the United Kingdom, Netherlands and Denmark. The report was commissioned by Knowledge Exchange and based on background studies undertaken in the UK by the Joint Information


757 See John Feess and Scheufen, ‘Academic Copyright in the Publishing Game’ (n 493) 2.


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Systems Committee (JISC), in the Netherlands by the SURF Foundation, and in Denmark by the Denmark’s Electronic Research Library (DEFF). The studies showed that adopting an open access model to scholarly publications could lead to annual savings of around €70 million in Denmark, €133 million in the Netherlands and €480 million in the United Kingdom. In addition, potential increases in the social returns to R&D resulting from more open access to research findings would largely outweigh the costs. More recently, in 2010, another study authored by the same Australian research team concluded that free access to US taxpayer-funded research papers could yield US$1 billion in benefits. The study was commissioned to examine the potential payoff of expanding a National Institutes of Health (NIH) policy requiring grantees to post their papers in a free database after a 12-month delay. A bill pending in the US Congress would extend the policy to 11 more agencies and shorten the disclosure delay to 6 months. The model developed by the Australian team found that, over a period of 30 years from implementation, the benefits of a policy opening access to publicly funded research would exceed the costs (e.g. of archiving) by eight times, or five times counting the benefits accruing in the United States only. In fact, the study found that one-third of these benefits would spill over to other countries.

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763 See Houghton, ‘Open Access’ (n 759) 9, 12-14.


766 See Victoria University, Centre for Strategic Economic Studies, Economic and Social Returns on Investment in Open Archiving Publicly Funded Research Outputs, <http://www.cfses.com/FRPAA> (for an online model which makes a subset of the cost-benefit modelling available to the public).
On a slightly different note, Adam argued that in all the economic discussion the cost of not moving to OA is ignored. While the quantitative exercise has focused on the billions that the academic publishing industries contribute to the global economy, no specific economic quantification has addressed the ‘constant and huge loss of efficient communication between scholars, and in particular the stifling of innovative interdisciplinary research and cross-discipline synergy of research’.  

3.5.2 Citation Advantage

One of the strands of research related to OAP on which economic literature has focused consistent attention is the assessment of the effects of OAP on readership and citation. A large proportion of the literature seems to find clear evidence of increased citation counts for OA materials. In one of the first works dedicated to the subject, Lawrence

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767 See Adams, ‘Copyright and Research’ (n 220) (evaluating the economic case for scholarly and scientific green OAP, especially whether green OAP poses a significant revenue threat for publishers, and concluding that it does not, as ‘it has been demonstrated very clearly in Physics, where close to 100% of the papers published each year are self-archived in the central [arXiv], that Green OA archiving has not had a dramatic effect on the subscription income of physics journal publishers’). In his article, Adams was confuting the publishers’ arguments that ‘a full-scale tilt into unrestricted Open Access would be too big a shift’. See Kevin Taylor, ‘Copyright and Research: an Academic Publisher’s Perspective’ (2007) 4(2) SCRIPT-ed 23, 233–236 <http://www.law.ed.ac.uk/ahrc/script-ed/vol4-2/taylor.asp> accessed 1 July 2013.

768 In fact, this is the area where the largest amount OAP related literature has been produced. For a map of the massive literature in question, please see The Open Citation Project - Reference Linking and Citation Analysis for Open Archives, The Effect of Open Access and Downloads (‘Hits’) on Citation Impact: Bibliography of Studies <http://opcit.eprints.org/oacitation-biblio.html#most-recent> accessed 13 June 2013 (‘OpCit Project’). See also A Ben Wagner, ‘Open Access Citation Advantage: an Annotated Bibliography’ (2010) 60 Issues in Science and Technology Librarianship <http://www.istl.org/10-winter/article2.html> 1 June 2013; Iain D Craig and others, ‘Do Open Access Articles Have Greater Citation Impact?: A Critical Review of the Literature’ (2007) 1(3) J of Infometrics 239.


found that online OA articles in computer science were cited substantially more than non-OA research outputs. Studying four disciplines, Kristin Antelman found that freely available articles do have a greater citation advantage, with a ‘relative increase in citations for open-access articles [ranging] from a low of 45 per cent in philosophy to 51 per cent in electrical and electronic engineering, 86 per cent in political science, and 91 per cent in mathematics.’ Also Norris, Oppenheim and Rowland looked at four different disciplines, including ecology, applied mathematics, sociology and economics, and found a higher citation impact of OA articles, which, in the sample examined, ‘had a mean citation count of 9.04 whereas the mean for TA [Toll Access] articles was 5.76.’ The same authors, however, have noted variations between disciplines, with sociology having the highest citation advantage but the lowest number of OA articles, whereas exactly the opposite is true for ecology. Hajjem and others reported on the citation advantage of OA articles in a cross-disciplinary analysis covering 10 academic fields – including biology, psychology, sociology, health, political science, economics, education, law, business and management – and more than 1 million articles published across 12 years. They noted that ‘comparing OA and NOA articles in the same journal/year, OA articles have consistently more citations, the advantage varying from 25%-250% by discipline and year’ and ‘the annual percentage of OA articles is growing significantly faster than NOA within every citation range [. . . ] and the effect is greater with the more highly cited articles.’ Eysenbach found that articles published as an immediate OA article on the journal site have higher impact than self-archived or otherwise openly accessible OA articles. Even in a journal that is widely available in research libraries, OA articles are more immediately recognised and cited by peers than non-OA articles published in the same journal. In light of this evidence, Eysenbach concludes that OA is likely to benefit science by accelerating the dissemination and uptake of research findings. More recently, Xia and Nakanishi have also found that OA articles in general receive more

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774 Ibid.


776 Ibid 39.

citations.\textsuperscript{778} As noted by Evans and Reimer, finally, the citation impact of OA is especially evident in developing countries.\textsuperscript{779}

More recent literature, however, has qualified these results showing the positive citation impacts of OA publications and contradicted them in part. This is the case of a range of papers from McCabe and Snyder. In a recent work, McCabe and Snyder have shown a zero effect of online access in the aggregate; however, these results also mask substantial heterogeneity across platforms.\textsuperscript{780} In particular, JSTOR shows significantly positive effects, averaging in a 10 per cent increase in citations when doubling JSTOR subscriptions.\textsuperscript{781} They conclude that, if a number of attractive features are in place, as in the case of JSTOR, a citation advantage may be present, although still modest compared with the huge results found in the previous literature.\textsuperscript{782} Also, looking at the large JSTOR effects for earlier content published between 1956 and 1975, McCabe and Snyder suggest that ‘benefits from online access should be greatest for the content that was heretofore more difficult to access in print’.\textsuperscript{783} Again, dissimilarities in citation advantage have been shown looking at the JSTOR citation effect in different regions of the world, with positive effects of citing in the United States, no effects in Europe and very positive effects in the rest of the world (almost double that in the United States).\textsuperscript{784} On average, however, when considering whether online availability boosts citations, McCabe and Snyder found that ‘the enormous effects found in previous studies were an artifact of their failure to control for article quality’.\textsuperscript{785} They conclude that the ‘lack of evidence that free online access performs better, implies that the citation benefits of open-access publishing have been exaggerated by its proponents’.\textsuperscript{786} Therefore,

\textsuperscript{778} Jingfeng Xia and Katie Nakanishi, ‘Self-selection and the Citation Advantage of Open Access Articles’ (2012) 36 Online Info Rev 40.

\textsuperscript{779} See James Evans and Jacob Reimer, ‘Open Access and Global Participation in Science’ (2009) 323 Science 1025 (finding a more modest influence of OA on citations at roughly 8 per cent for recently published works but providing clear support for the ability of OAP ‘to widen the global circle of those who can participate in science and benefit from it’ with the influence of OA more than twice as strong in the developing world).


\textsuperscript{781} Ibid 29.

\textsuperscript{782} Ibid.

\textsuperscript{783} Ibid.

\textsuperscript{784} Ibid 30.

\textsuperscript{785} Ibid 1.

\textsuperscript{786} Ibid 30-31.
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[even if publishing in an open-access journal were generally associated with a 10% boost in citations, it is not clear that authors in economics and business would be willing to pay several thousand dollars for this benefit, at least in lieu of subsidies. Author demand may not be sufficiently inelastic with respect to submission fees for two-sided-market models of the journal market [. . .] to provide a clear-cut case for the equilibrium dominance of open access or for its social efficiency.]

Tackling the citation advantage of OAP more directly, Kurtz and others suggest that in astronomy there is a strong early access effect and a strong self-selection bias effect but there is no indication of any OA effect, because ‘for a person to be in the position to write an article for a core astronomy journal that person must already be in a position to read those journals, and must also be in a position to perform astronomical research.’ Therefore, the authors conclude that ‘the claims that the citation rate ratio of papers openly available on the internet (via ArXiv or some other mechanism) vs those not available through those means is caused by the increased readership of the open articles (this is sometimes called the Lawrence Effect, or the OA advantage) are somewhat overstated, especially for well-funded disciplines with high barriers to entry.’ Other studies in different fields, such as ophthalmology and working papers in economics, have equally shown no evidence of an OA advantage.

Again, literature has pointed to the fact that, because downloading articles under OA is free of charge, the number of downloads does not function as a strong proxy for readership. In this respect, Philip Davis and others have found that, although OA articles

787 Ibid 31.
788 By ‘early access effect’ Kurtz and others mean that ‘[b]ecause the article appears sooner it gains both primacy and additional time in press, and is thus cited more,’ whereas by ‘self-selection bias,’ they mean that ‘[a]uthors preferentially tend to promote (in this case by posting to the internet) the most important, and thus most citable, articles.’ See Michael Kurtz and others, ‘The Effect of Use and Access on Citations’ 2005 41(6) Info Process Manage 1395, 1396 <www.cfa.harvard.edu/~kurtz/kurtz-effect.pdf> accessed 2 June 2013. See also Philip M Davis, ‘Do Open-access Articles Really Have a Greater Research Impact?’ (2006) 67(2) Coll Res Libr 103, 104 (noting that OA may not be the cause of greater research impact of articles freely accessible online, but ‘It may be more reasonable to say that author republishing (online and in print) may increase citation impact, especially among highly prestigious journals and authors’).
789 Ibid 1401.
790 Ibid.
792 See Feess and Scheufen, ‘Academic Copyright in the Publishing Game’ (n 493) 6.
enjoy more downloads, there is no difference between the number of citations in OA and non-OA articles. The same conclusions have been supported also by McCabe and Snyder.

Authors have found that OAP tends to increase citation only of the best content. McCabe and Snyder have found that moving from paid to OA increases cites by 8 per cent on average, but OA increases cites to the best content, including top ranked journals or articles in the upper quintile of citation within a volume, and reduces cites to lower-quality content. In a similar fashion, Gaulé and Maystre have provided theory and evidence suggesting that authors of higher-quality papers find OA relatively more attractive and are more likely to pay for open access, therefore regressing citation on OA yields upward biased estimates. In contrast, the authors find no evidence of a causal effect of open access on citations and explain part of the observed OA citation advantage as the self-selection of higher-quality articles into OA – authors would by preference make higher-quality articles OA. However, Xia and Nakanishi have come up with opposing results discussing this same issue of self-selection and suggested that articles in high-ranked journals do not have a higher open access rate, and articles in lower-ranked journals have a greater increase in rate of citations if they are freely accessible. Also Gargouri and others have rebutted the literature, suggesting that the ‘OA advantage’ may not be causal but just a self-selection bias by noting that there is greater OA advantage ‘for the more citable articles, not because of a quality bias from authors self-selecting what to make OA, but because of a quality

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794 See Feess and Scheufen, ‘Academic Copyright in the Publishing Game’ (n 493) 6.

795 See McCabe and Christopher M Snyder, ‘The Rich Get Richer and the Poor Get Poorer: The Effect of Open Access on Cites to Science Journals Across the Quality Spectrum’ (2013) SSRN Working Papers Series <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2269040> accessed 13 June 2013; McCabe and Christopher M Snyder, ‘Does Online Availability Increase Citations?’ (n ) 30 (finding that ‘online access decreases the percentage of articles within a volume that do not receive any cites’ and that, ‘[t]aken together, these results suggest that “superstar” articles as well as articles residing in the “long tail” benefit from online access’).


797 See Xia and Nakanishi, ‘Self-selection and the Citation Advantage of Open Access Articles’ (n 778).
advantage, from users self-selecting what to use and cite, freed by OA from the constraints of selective accessibility to subscribers only’. 798

3.5.3 Research Impact

As we have emphasised at length, the main incentive of academic authors is reputation and prestige, therefore in choosing a publication outlet academics are also equally influenced by the prestige of the journals. 799 Since the 1970s, the so-called ‘impact factor’ of a journal – which is calculated by several indexes as we have mentioned earlier – has become the most important representative of the journal’s prestige and reputation. 800 As a consequence of these dynamics, one of the key challenges for new entrants to the academic publishing market lies in the ability of newcomers to become prestigious. Looking at the effect of new media and OAP on academic publishing, Gabe Bloch concludes that ‘it remains an unresolved question as to whether the new competitors can attain a sufficient level of prestige to seriously rival established print-based publishers.’ 801 Although an increasing number of journals covered in the Thomson Reuters’ ISI Web of Science citation database are adopting OA distribution models, more of the currently available OA journals rank in the lower half of their subject category, despite the presence of some OA journals in the top ranks. 802 Indeed, novelty of OA journals represents a hurdle in achieving high impact status.


799 See Bernius and others, ‘Open Access Models and their Implications for the Players on the Scientific Publishing Market’ (n 227) 104-105 (describing the traditional market for scientific publishing as a reputation cycle evolving from the scientific authors and the publishers, where ‘both journals and especially authors strive for a maximization of their own reputation’); A Swan and S Brown, ‘What Authors Want, The ALPSP Research Study on the Motivations and Concerns of Contributors to Learned Journals. (1999) 12 Learn Publ 170–172.

800 The impact factor – a measure of the influence of a journal within its field, which is calculated as the average number of cited articles divided by the number of citable items in a journal in the past two years – came into use during the 1970s through the work of Eugene Garfield. See Eugene Garfield, ‘The History and Meaning of the Journal Impact Factor’ (2006) 295(1) JAMA 90, 90-93; Eugene Garfield, Citation Indexes to Science: a New Dimension in Documentation Through Association of Ideas’ (1955) 122 Science 108, 108-111 <http://garfield.library.upenn.edu/essays/v6p468y1983.pdf> accessed 13 June 2013.

801 Bloch, ‘Transformation in Publishing’ (n 586) 648. See also, with special emphasis on difficulties in positioning on the market for new OA journals, Piero Cavalieri and others, ‘Publishing an E-Journal on a Shoe String: Is It a Sustainable Project?’ (2009) 39(1) Economic Analysis & Policy 89 (finding that running a poorly endowed journal has shown that entry to the field may be easy, but that making it a sustainable enterprise is not straightforward).

802 See Marie E McVeigh ‘Open Access Journals and the ISI Citation Database: Analysis of Impact Factors and Citation Patterns’ (Thomson Scientific 2004) <www.thomsonisi.com/media/presentrep/essayspdf/openaccesscitations2.pdf> accessed 1 June 2013; Kristin Antelman, ‘Do Open-access Articles Have a Greater Research Impact?’ (2004) 65 Coll Res Libr News 372 (determining that traditional subscription journals enjoyed higher impact factors). In fact, some of the PLoS journals are now amongst those with the highest impact factor in their respective fields. See Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 220) 586.
Generally, prestige usually requires time to accumulate, which puts recently established OA journals at a disadvantage.\textsuperscript{803} Additionally, the specific mechanics of academic impact factors add additional hurdles for new born OA journals, as the ISI index begins tracking impact only after a journal has been published for at least five years.\textsuperscript{804} Again, the almost monopoly-like situation of Web of Science aggravates the disadvantaged position of OA journals because WoS accepts only a small percentage of new applicant journals each year.

In any event, although the literature has noted that there is concern over the lack of indexing of OA Journals,\textsuperscript{805} the indexing of OA journals has considerably improved in the last decade. Many of the top OA journals are nowadays ISI indexed. From the slightly more than 200 OA journals included in the Web of Science index in 2003, today over 2,000 OA journals are indexed in Elsevier’s Scopus and more than 600 in the Web of Science.\textsuperscript{806} Again, since its launch, the DOAJ has grown from 300 journals to over 10,000. In some cases the top OA journals have even achieved top ranking positions within their specialities. In a recent study, using the average number of citations to the articles in a journal as representative of scientific impact, Björk and Solomon have found results indicating that ‘OA journals indexed in Web of Science and/or Scopus are approaching the same scientific impact and quality as subscription journals, particularly in biomedicine and for journals funded by article processing charges’.\textsuperscript{807} Additionally they noted that APC-funded OA journals are on average cited more than other OA journals. They found that, except for journals that had been launched prior to 1996, average citation rates between OA and subscription journals are almost undifferentiated. In particular, ‘in medicine and health, OA journals founded in the last 10 years are receiving about as many citations as subscription journals launched during the same period’.\textsuperscript{808}

Also, impact seems to be closely connected with discovery of OA publications. Gregory Gordon, the President and CEO of SSRN, has highlighted the issues of discovery that OAP

\textsuperscript{803} Cf Björk, ‘Open Access’ (n 484) 9 (noting that ‘one way to quickly establish a high prestige for new OA journals is by involving very highly credited researchers with a journal, as is the case with e-Life, which aims to compete in the same league as Nature and Science’).

\textsuperscript{804} See Reichman and Okediji, ‘When Copyright Law and Science Collide’ (n 431) 1463-1464.


\textsuperscript{807} Björk and Solomon, ‘Open Access Versus Subscription Journals’ (n 806) 73.

\textsuperscript{808} Ibid.
may bring about.\textsuperscript{809} As Gordon argues, more does not mean better but just more and we should think about accessing content when and where we need it – ‘we should be accessing content strategically.’ In this respect, Article Level Metrics (ALMs) – such as downloads, citations and Eigenfactor\textsuperscript{TM} Score\textsuperscript{810} – should become familiar research tools for the scholarly researcher in order to make efficient use of the overabundance of scholarly communications. In order to measure the impact of its OA research, PLoS launched Article-Level Metrics (ALMs), a suite of established metrics that measure the overall performance and reach of published research articles.\textsuperscript{811} However, as Björk noted, even if innovative websites of some OA publishers include alternative article level metrics – such as downloads, mentions in social media or blogs, etc., which are definitely attractive to authors – such article level impact metrics are not yet a factor of importance in academic evaluations.\textsuperscript{812}

### 3.5.4 Quality of Research and Peer Review

One of the primary arguments against open access journals is that they possibly damage, or diminish the quality of, the peer-review system, whose critical role has recently been reinstated by a report of the UK Science and Technology Committee.\textsuperscript{813} In this respect, there is a widely held suspicion that peer-review quality may be inferior in OA journals.\textsuperscript{814} Traditional journals often contend that open access peer-review processes are ineffective or that peer review is conducted too quickly, giving articles inadequate scrutiny compared with the peer-review processes of traditional journals. A good example of mainstream criticism of OA in scholarly publishing may be seen in the statement below:

> By introducing an author-pays model, Open Access risks undermining public trust in the integrity and quality of scientific publications that has been established over


\textsuperscript{810} The Eigenfactor\textsuperscript{TM} Algorithm provides a methodology for determining the most important or influential authors and papers in a network. See Gordon, ‘Strategic Access’ (n \textsuperscript{809}) 200.


\textsuperscript{812} See Björk, ‘Open Access’ (n 484) 12.


\textsuperscript{814} See Oppenheim, ‘Electronic Scholarly Publishing and Open Access’ (n 590) 582. See also A Swan and S Brown, Authors and Open Access Publishing, Learned Publishing 17(3) (2004) 219, 219–224 (noting that this perception deters some authors from submitting to gold OA journals).
hundreds of years. The subscription model, in which the users pay (and institutions like libraries that serve them), ensures high quality, independent peer review and prevents commercial interests from influencing decisions to publish. This critical control measure would be removed in a system where the author – or indeed his/her sponsoring institution – pays. Because the number of articles published will drive revenues, Open Access publishers will continually be under pressure to increase output, potentially at the expense of quality. 815

Additional claims have been made that OA, because it involves author fees, may degrade quality as journals publish more lower-quality articles to boost revenue. 816 Jeon and Rochet have noted that if the journal’s objective was to maximise social welfare, open access would be optimal; however, if the journal has a different objective – such as maximising readers’ utility, the impact of the journal, or its profit – open access tends to induce it to choose a quality standard below the socially efficient level. 817 In reconsidering the assumptions of Shavell’s proposal of abolishing copyright in scientific works, Frank Müller-Langer and Richard Watt looked at the way in which the distribution of the sources of journal revenue would be altered and the effects upon the quality of journal content. 818 They argue that amount of readership alone cannot take the place of scholarly esteem and reputation, as claimed by Shavell, 819 because scholarly esteem depends also on the quality and impact value of the journal or other publication in which the author publishes. To avoid negative effects, they argue that the impact of quality-adjusted readership on scholarship esteem should be taken into consideration. Attempting to solve the conundrum caused by the possible effects of APCs and OAP models on the quality of published research, McCabe and Snyder have shown that a judicious division of author fees into submission and acceptance fees would mitigate the problem presented by this claim. 820

Quality-related concerns regarding OAP have been especially associated with the practice of so-called ‘predatory OA’. Predatory OA publishers typically spam professional mailing lists, broadly soliciting submissions to gain additional income. As one article dedicated to this


817 Jeon and Rochet, ‘The Pricing of Academic Journals’ (n 564) 222.

818 See Müller-Langer and Watt, ‘Copyright and Open Access For Academic Works’ (n 509) 45-65.

819 See Shavell, ‘Should Copyright Of Academic Works Be Abolished?’ (n 438) 301-358.

820 Ibid.
practice in the New England Journal of Medicine noted, ‘these publishers typically have a low acceptance threshold, with a false front or non-existent peer-review process’ and operate using ‘fly-by-night, unsustainable business models’. The issue is extremely sensitive in terms of the credibility and sustainability of OA business models in the long term as a viable alternative to traditional business models, also in consideration of the fact that even long-standing players in the OA publishing market, such as Hindawi, have been tainted with the accusation of predatory practices.

However, the concerns related to lower peer-review standards and falling OA publication quality have been partially removed in recent years, as evidenced by the emergence of high-quality, well-reviewed open access publishers and the growing understanding and expectation that open access content can and should require the same high levels of quality peer review that the more established traditional journals demand. In this regard, the previously mentioned survey of the Study for Open Access project has also discussed perceived poor quality as a barrier to OAP. In fact, this has changed to be one of the untruthful ‘myths’ about OAP. In the survey, actually, researchers tended to disagree with the statements: ‘Open access undermines the system of peer review’ and ‘Open access publishing leads to an increase in the publication of poor quality research’.

In OAP, the active participation of the scholarly community in the peer-review process offers literature awareness tools superior to (double)-blind peer review through open, documented and/or signed peer reviews, giving readers access to a live and ongoing literature review that usually takes place at a post-publication stage. In a recent report,
The Science and Technology Committee also noted the important role of post-publication review through online commentary and of social media tools in communicating published work and discussing its merits and weaknesses.\textsuperscript{826} The Atmospheric Chemistry and Physics (ACP)\textsuperscript{827} and the Journal of Interactive Media in Education (JIME)\textsuperscript{828} are the oldest examples of interactive OAP in making the pre-print and the post-print available for comment. In the case of interactive OAP the bar as regards peer review is raised, rather than lowered, by having pre-approval by the editor, verifying that the article is relevant and substantive, possibly as in the case of JIME a ‘private open peer review’, and a ‘public open peer review’ with the article published as discussion papers open to interactive and viewable comments from the referees and the community.\textsuperscript{829} Subject to a final revision by the author and then acceptance by the journal, the article is published by the editor with the discussion threads, enabling further commentary and serving as a logbook that records the advancement of knowledge claims, while giving due credit to reviewers and discussant.\textsuperscript{830} Faculty of 1000 Research is also an open access journal offering immediate publication and open peer review.\textsuperscript{831} After being published immediately following a quick internal check for obvious inappropriateness, the articles undergo a post-publication review in an open refereeing process. Two reviewers submit a public review, approving, not approving or approving with reservation the article. If not approved, the authors can review the article following the reviewers’ suggestions. If finally approved, the article will be listed in PubMed and other significant databases.

Living Reviews is another OA advanced literature awareness tool based on an ongoing community based process. Living Reviews in Relativity was founded in 1995 by the Max Planck Institute for Gravitational Physics.\textsuperscript{832} Several other Living Reviews Journals have been

\textsuperscript{826} See Science and Technology Committee, Peer Review in Scientific Publications.
\textsuperscript{829} See Armbruster, ‘Open Access in Social and Cultural Science’ (n 278) 436-437 (describing the publishing and peer-review models of the two journals.
\textsuperscript{830} Ibid 347.
created since then. Living Reviews are scientific open access journals publishing peer-reviewed articles reviewing the present status of a certain field based on a unique concept that allows authors to update their review articles regularly to incorporate the latest developments. The full history of the article, including revisions, updates and errata is viewable online and it is enhanced by web features, such as movies, downloadable source code, or cross-linking to other resources. Although subscription-based, Faculty of 1000 Prime is another interesting example of collaborative, public and documented peer review of scientific articles after publication. It is a directory of top articles in biology and medicine, as recommended by a faculty of over 5,000 expert scientists and clinical researchers, assisted by 5,000 associates.  

All these models, which entail post-publication peer review, are illustrations of Clay Shirky’s ‘publish then filter model’. The main assumption here seems to be that each publication adds value to scientific discourse in its own way and filtering and evaluation may take place at post-publication stage, also taking into consideration the decrease in publishing costs that digitisation has brought about.

### 3.6 Conclusions

About a decade ago, and building on the experience of the previous ten years, Bo-Christer Björk developed a framework conceptualising the barriers to change to OAP, including the legal framework, IT infrastructure, business models, indexing services and standards, academic reward system, marketing and critical mass. Although the move from subscription only academic publishing to OA has been much slower than previously anticipated, as Björk recently noted, the situation has nevertheless improved substantially. Building the IT infrastructure, support for indexing, and developing sustainable business models are no longer an issue, although long-term digital archiving is still a goal to be achieved by most OA titles. However, the academic reward system continues to be a major obstacle for gold OAP. Again, both gold and green OA still need

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836 See Björk, ‘Open Access’ (n 484) 5-15.

837 Ibid 8-11.


839 Ibid 11.
more marketing and critical mass, whereas the impediments posed by what subscription publishers allow still have a serious influence on green OA self-archiving.

Plenty of different business models have emerged in the journal publishing sector and the APC model has become dominant among all the others. Although the APC business model fits well with the present market structure, critical views have been voiced. APCs raise an entirely new set of concerns in terms of dead-weight loss on the part of the author or universities which should provide the funds to cover the publication charges. Therefore, the democratic process of access to publishing locations may be undermined as economic power may determine an author’s capacity to get published or not. In this respect smaller institutions and authors in the social sciences, which receive limited grants, may face related constraints. Research-intensive institutions may face free-rider problems as they will support most of the financial burdens of the system, while other institutions publishing fewer research outputs will have the same access to research and literature with minimal expenditure. On the other hand, conflicts of interest may taint the publication decision process as fees are paid only upon publication. For this reason, authors have made a case for a submission fee model rather than a publication fee. As an overall consideration, the academic community seems concerned with the long-term sustainability of the APC model, which still deprives academia of financial resources for content that in fact is almost wholly produced within academia itself. In relation to sustainability concerns, hybrid models have been largely criticised as a form of double dipping in university budgets. The interconnected and mass-productive nature of the digital networks may be a useful resource to overcome the limitations of the APC business models, allowing institutions to cooperate in covering publishing costs, or raising money through crowdsourcing or again boosting advertising models which may be especially effective with the aid of digital technologies. Value-added service models may also be an interesting option to implement on a larger scale, as they allow more endowed institutions to receive useful services, while supporting access for institutions with lesser means and also the general public. Indeed, OA book publishing is still in search of one or more sustainable business models that may be more largely endorsed by the academic community, research funders and academic publishers. In this respect, the concerns that have surrounded the APC model for journals seem to have led experimentation in other directions, especially consortial projects and dual-edition publishing. However, commercial publishers have still to react to the emergence of OA in academic book publishing. Once that reaction occurs, it will be easier to understand if conundrums similar to those posed by APCs will also emerge in the book publishing market.

Identifying the most efficient business models to support OAP is also critical in relation to the endorsement of those business models by OA mandate policies. The widespread

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diffusion of policies endorsing OAP as an institutional mandate for all the researchers affiliated with that institution will be the final subject we will try to address.
PART 4 – OPEN ACCESS PUBLISHING POLICIES

ABSTRACT

To overcome any resistance in the academic community, research funders, both public and private, increasingly support the idea that the research they fund should be openly accessible. The growing number of research institutions that are mandating OAP are doing so on the primary argument that, if public money was spent to fund research, the resulting published research should be available to the public for free and free of any restrictions on permissions to reuse, republish, and create derivatives of open access content. In Section 4.1, we will provide a brief overview of the emergence of OAP mandate policies as well as an international map of the main experiences so far. We will then focus on a few relevant regional and national experiences. Section 4.2 will discuss OA mandate policies in the United States, with special emphasis on the National Institute of Health policy. In Section 4.3, we will look at the increasing emphasis that the European Union is putting on OAP and the global plan to mandate OAP for publicly funded research under the Horizon 2020 programme. Section 4.4 will discuss OA mandate policies in the United Kingdom, looking at the Finch report and the responses that it provoked from the UK government, the Research Councils UK (RCUK) and the Higher Education Funding Council for England (HEFCE). Finally, Section 4.5 will also review some of the literature that has evaluated the effects and reception of OA policies.

4.1 OPEN ACCESS MANDATE POLICIES – AN OVERVIEW


842 See Research Councils UK <http://www.rcuk.ac.uk/Pages/Home.aspx> accessed 16 September 2013.

In close connection with the emergence of OA repositories and journals, the diffused emergence over the last decade of open-access mandate policies has become another critical contribution to the OAP movement. An open-access mandate is a policy—adopted by a research institution, research funder or government—that requires researchers to publish directly in OA publication locations (Golden OA mandate policies) or make their published, peer-reviewed journal and conference papers OA by self-archiving their final, peer-reviewed drafts in a freely accessible central or institutional repository (Green OA mandate policies).\(^{844}\) In fact, as well as traditionally more common Green OA mandate policies, Gold OA mandate policies have also been gaining momentum.\(^{845}\) For example, recently, mandate policies sponsored by the government in the United Kingdom seem to elect the golden OA route as the preferred mode of publication of publicly funded research. Also in light of the emerging emphasis on Gold OA mandate policies, one relevant characteristic of OA mandate policies is that they do not radically disrupt the traditional

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scientific publishing market. Commercial publishers are looking increasingly favourably on the option of having funding agencies that provide additional funds to pay publishing fees in exchange for the exclusive rights they have traditionally enjoyed. As Reichman and Okediji have noted, ‘obviously the sustainability of this approach depends on the continued availability of financial resources.’

OA mandate policies can be distinguished by content holder, such as institution, programme or funder. In this respect, we can have institutional and programme-based or departmental policies. OA mandates have also been distinguished by type of deposit, such as e-print publication or student dissertation. In fact, policies created for multiple institutions and for theses and dissertations are also on the rise. After institutional policies, requirements for the deposit of theses have become the second largest group of mandate policies. Mandate policies display a geographic diversity, with many in Australia, Europe and the United States, but also in Africa, Asia and South America. Complete listings of OA mandate policies worldwide have been compiled by several projects, in particular by the ROARMap – which is maintained by the University of Southampton and serves also as an online location for policy registration – and the SHERPA/JULIET research funders’ OA policy list. As at 21 August 2013, the total number of mandates recorded in ROARMAP rose to 178 institutional, 48 departmental, 81 funder, 165 thesis mandates, and 6 multi-institutional mandates. In total, the number of mandates is currently 410, with an additional 29 proposed mandates still pending.

The earliest OA mandate policy was established in January 2003 by the Department of Electronics & Computer Science (ECS) of the University of Southampton, which has operated a repository and had a programme-based or departmental deposit mandate. Shortly thereafter, the Queensland University of Technology was the first university in Australia to adopt an OA mandate policy in January 2004. In the following two years, several institutions in Western European countries, including France, Germany and Portugal,
implemented mandatory strategies to promote their repositories.\textsuperscript{853} The so-called Harvard OA Mandate represented a milestone in the development of OA mandate policies.\textsuperscript{854} In February 2008, the Harvard Faculty of Arts and Sciences decided to establish a compulsory mandate for their programme. Rather than being the product of administrative edicts, the Harvard OA Mandate was the first policy adopted through the democratic process. After the decision of Harvard University, the number of institutional repositories with a mandate policy dramatically increased worldwide. Confirming the effects of the Harvard mandate, Xia and others have observed a peak period of implementation of OA mandate policies in 2009-2010, with a decrease in the second half of 2010.\textsuperscript{855}

Next to OA mandate policies at the university level, in 2003 and 2004 the first proposals for OA funder mandate policies appeared in the United Kingdom and United States. The UK Parliament’s Science and Technology Committee recommended OA mandate policies for the research funded by the Research Councils and the Government\textsuperscript{856} and the National Institutes of Health (NIH) in the United States equally recommended OA deposit for federal grants recipients in PubMed Central, a particular subject-based repository.\textsuperscript{857} Since then, several research funders worldwide have instituted OA mandates, including for example the Wellcome Trust on 1 October 2005,\textsuperscript{858} the Swiss National Science Foundation on 4 September 2007,\textsuperscript{859} the Canadian Institutes of Health Research on 1 January 2008,\textsuperscript{860} seven of the eight UK research councils by 2008, and more recently the World Bank.\textsuperscript{861}

\textsuperscript{853} See Xia and others, ‘A Review of Open Access Self-Archiving Mandate Policies’ (n 844) 88.

\textsuperscript{854} See Priest, ‘Copyright and The Harvard Open Access Mandate’ (n 457) 377-430 (arguing also that permission mandates can create legally enforceable, durable nonexclusive licenses); Andrew Albanese, ‘Harvard Mandates Open Access’ (2008) 133(5) Library Journal 16, 16–17.

\textsuperscript{855} See Xia and others, ‘A Review of Open Access Self-Archiving Mandate Policies’ (n 844) 88.

\textsuperscript{856} See Science and Technology Committee (n 190) paras 117.

\textsuperscript{857} See Policy on Enhancing Public Access to Archived Publications Resulting From NIH-Funded Re-search, 70 Fed Reg 6891-01 (9 February 2005).

\textsuperscript{858} See Wellcome Trust, Open Access Policy (n 294) (requiring that ‘any research papers that have been accepted for publication in a peer-reviewed journal, and are supported in whole or in part by Wellcome Trust funding, to be deposited into PubMed Central (PMC) or UK PMC once established, to be made freely available as soon as possible and in any event within six months of the journal publisher’s official date of final publication’). See also Robert Terry and Robert Kiley, ‘Open Access to the Research Literature: A Funder’s Perspective’, in Neil Jacobs (ed), Open Access: Key Strategic, Technical and Economic Aspects (OUP 2006).


\textsuperscript{860} The policy was later amended on 1 January 2013. See Canadian Institutes of Health Research, ‘Open Access Policy’ <http://www.cihr-irsc.gc.ca/e/32005.html> accessed 13 June 2013 (requiring those receiving grant funds from the Institutes to ‘make their peer-reviewed publications accessible at no cost within 12 months of publication – at the latest’). See also Michael Geist, ‘Canada’s Digital Economy Strategy: Toward an Openness
Again, since December 2006 the Australian Research Council has requested that fundees make their work OA or explain the reasons why they do not, although in fact this rule is not enforced. In a Report issued by the Australian Department of Innovation, Industry, Science and Research in 2008, the Federal Government recommended: ‘a specific strategy for ensuring the scientific knowledge produced in Australia is placed in machine searchable repositories to be developed using public funding agencies and universities and drivers’ and that ‘[t]o the maximum extent practicable, information, research and content funded by the Australian government including national collections should be made freely available over the Internet as part of the global public commons’. The review panel recommends making this material available under a creative commons licence. While calling for its own contribution to OAP, the Australian Government also ‘encourages other countries to reciprocate by making their own contributions to the global digital public commons’.

In line with the encouragement of the Australian government, governmental action worldwide seems to be increasingly going in the direction of OA mandate policies. In 2008, OA mandate policies were reaffirmed for the first time at legislative level in the United States. In Europe, OA mandate policies have been increasingly backed up by governmental intervention both at regional level within the Horizon 2020 framework programme and national level, especially in the United Kingdom under the aegis of the government, the

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862 See Kennan, ‘Learning to Share’ (n 951) 310.


864 Ibid 98.

865 Ibid.

866 Ibid.

867 For example, very recently the Italian government introduced a provision mandating the public deposit and free use of research which has been funded with at least 50 per cent public money. See Decreto-Legge 8 agosto
UK Research Councils (RCUK) and the Higher Education Funding Council of England (HEFCE). We will discuss these actions in the US and Europe further in the next few pages. Before doing so, still looking at the global international framework, it should be mentioned that OAP policies are also gaining momentum within international organisations. Implementing its Open Access to Scientific Information Strategy, UNESCO has recently become the first member of the United Nations to adopt an OA policy for its publications. Starting from July 2013, UNESCO publications are available to users for free download through an OA Repository and released with an open licence allowing translation, adaptation, distribution and re-sharing of UNESCO publications and data.

### 4.2 United States and NIH Policy

In the US, several research funding agencies have instituted OA conditions. One important development in the past decade is that the NIH has created a mandate requiring authors

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with grant funding to upload copies to the PubMed Central repository. After the initial voluntary adoption in 2005 that was mentioned earlier, the NIH OA policy was reaffirmed at legislative level by the Consolidated Appropriations Act of 2008, which instituted an OA mandate for research projects funded by the NIH. To date, the NIH policy has enjoyed relative success. The NIH has reported a compliance rate of 75 per cent. The influence of this mandate has been so strong that many journals prefer to upload NIH funded articles (possibly after an embargo period) or even all articles directly to PubMed Central. According to Laakso, the NIH mandate policy had such a strong influence that 67 of the top 100 publishers have explicit NIH self-archiving compliance regulations.

However, the NIH OA policy has also triggered the reaction of a group of academic publishers, who have challenged the mandate policy. As Suber noted, every step along the way of the NIH OA mandate policy – the 2004 first proposal by the Congress, the 2005 adoption as a mere request, and the 2008 consolidation of OA into a mandatory requirement for publicly funded research – ‘was strenuously opposed by an aggressive and well-funded publishing lobby’. The lobbying efforts against the OA mandate policy have also been embodied in a bipartisan bill, the Research Works Act of 2011 (RWA), that *inter alia* was intended to prevent the NIH from continuing to require OA to articles it has...

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875 See Björk, ‘Open Access’ (n 484) 12.

876 Laakso, ‘Journal Publisher Self-Archiving Policies and the Potential for Growth in Open Access’ (n 471) 7.

877 See Suber, Open Access (n 179) 72.
funded. However, support for the bill seems to be increasingly lacking and legislative action on the RWA may not be taken further.

In any event, despite these reactions, the governmental promotion of OA mandate policies in the United States has progressed steadily. During 2009 and 2010, under the aegis of the Committee on Sciences and Technology of the United States House of Representatives, a Scholarly Publishing Roundtable (SPR) reviewed the state of scholarly publishing and recommended that public access to journal articles arising from research funded by governmental agencies be expanded. In particular, the SPR delivered as its core recommendation that each ‘research funding agency should expeditiously but carefully develop and implement an explicit public access policy that brings about free public access to the results of the research that it funds as soon as possible after those results have been published in a peer-reviewed journal’. As corollary principles, the SPR has recommended *inter alia* that (i) agencies establish embargo periods between publication and public access, if necessary, (ii) policies be guided by the need to foster interoperability between agencies and (iii) the need to resolve the challenges of long-term digital preservation, and (iv) efforts be made to have the version of record (VoR) as the version to which free access is provided.

Furthermore, on 14 February 2013 the Federal Research Public Access Act (FASTR) was introduced in both Houses of Congress as an effort to require US government agencies to improve public access to federally funded research. The new bill builds upon a previous bill, the Federal Research Public Access Act (FRPA), first introduced as a bipartisan effort on 25 June 2009. The FASTR requires that publicly funded research from grants made by US


880 Association of American Universities, ‘Scholarly Publishing Roundtable Report and Recommendations’ (n 813) ii.

881 Ibid.


government agencies with a funding turnaround greater than 100 million dollars annually be available OA on the Internet within six months of publication in a peer-reviewed journal. Eleven government agencies would be affected: The Departments of Agriculture, Commerce, Defense, Education, Energy, Health & Human Services, Homeland Security, and Transportation, as well as the Environmental Protection Agency, the National Aeronautics and Space Administration, and the National Science Foundation. In addition to the requirements included in the FRPAA Act, the new bill ‘calls for common deposit procedures among agencies; for formats that enable productive reuse, such as computational analysis; and for examining the potential of open licensing for the papers, to enable reuse by the public.’ Meanwhile, on 22 February 2013, the White House Office of Science and Technology issued a policy directive that extends an OA mandate to publicly funded research to more agencies than the FASTR. The directive gives Federal agencies with an annual spending of more than 100 million dollars in Research and Development six months to set up policies for making scientific publication and data they funded OA to the public within 12 months from publication.

4.3 Europe and Horizon 2020

In a similar fashion to other international jurisdictions, the European Union has actively promoted OAP of publicly funded research through OA mandate policies. Since December 2006, the European Research Council (ERC) Scientific Council stressed ‘the attractiveness of policies mandating the public availability of research results – in open access repositories – reasonably soon (ideally, 6 months, and in any case no later than 12 months) after publication’. In 2012, the ERC issued a set of guidelines supporting OA to published research outputs as a fundamental part of its mission and providing, *inter alia*, that the ERC


‘requires electronic copies of any research papers and monographs that are supported in whole, or in part, by ERC funding to be made publicly available as soon as possible, and no later than six months after the official publication date of the original article.’ ERC also encourages funded researchers to make their publications available in OA discipline-specific repositories, recommending the use of Europe PubMed Central for life science and ArXiv for physical science and engineering.

Besides the ERC OA conditions, the European Commission has set up a global plan to make OA the norm for research receiving funding from its Horizon 2020 programme – the EU’s Research and Innovation funding programme for 2014-2020. In July 2012, the European Commission released the announcement Scientific Data: Open Access to Research Results Will Boost Europe’s Innovation Capacity making the commitment to turn OA to ‘scientific publications a general principle of Horizon 2020’ and making 60 per cent of European publicly funded research articles available OA by 2016. As of 2014, all articles produced with the €87 billion annual investment in R&D from Horizon 2020 will have to be OA. This announcement leaves the way open to both Gold and Green OA. Horizon 2020 mandated OA should be achieved either through immediate open access by the publisher – with publication costs potentially eligible for reimbursement by the European Commission – or through deposit in an OA repository with a standard maximum 6 month embargo, which can


888 Ibid (noting also that OA infrastructures in social sciences and humanities are under review and recommendations will be issued in the future). See also European Research Council, ‘Open Access Status of Journal Articles from ERC-Funded Projects (June 2012) <http://erc.europa.eu/sites/default/files/document/file/open_access_study_status_journal_articles_ERC_funded_projects.pdf> accessed 14 June 2012.


be extended to 12 months for articles in the fields of social sciences and humanities. In this respect, the announcement clarifies the Commission Regulation Proposal laying down the rules for participation and dissemination in Horizon 2020, which has been under discussion since November 2011.

Together with the proposals related to the Horizon 2020 programme, grant recipients working in certain areas under the 2007-2013 European Commission’s Seventh Framework Programme (FP7) have already been requested to comply with OA policies. In 2008, the Commission launched an online project – covering around 20 per cent of the FP7 programme budget in certain areas – to provide ‘unrestricted online access to EU-funded research results, primarily research articles published in peer reviewed journals, after an embargo period of between 6 and 12 months’. Also, in the case of the pilot project under FP7, Gold OA fees, including ‘Open Access publishing’ and ‘author pays’ fees, are eligible for reimbursement.

4.4 United Kingdom

891 See European Commission, ‘Scientific Data’ (n 890).


895 See FP7 Grant Agreement – Annex II: General Conditions (15 June 2009) art II.16.4 (noting that ‘[f]or other activities not covered by paragraphs 1 and 2, inter alia, management activities, training, coordination, networking and dissemination (including publications), the contribution may reach a maximum of 100% of the total eligible costs’) <https://docs.google.com/viewer?url=ftp%3A%2F%2Fftp.cordis.europa.eu%2Fpub%2Ffp7%2Fdocs%2Ffp7-ga-annex2-v3_en.pdf> accessed 15 June 2013 (emphasis added).
The United Kingdom has increasingly become a major player in the international movement towards OAP. As early as August 2004, the UK House of Commons Science and Technology Committee, after noting the unsatisfactory state of the academic publishing market, recommended to the UK Government that funding bodies should require that authors retain copyright, and deposit a copy of their final papers in suitable repositories, and finally, funding bodies should make funds available to pay publication charges in open access journals (author-pays model).

In 2011, as part of its Innovation and Research Strategy for Growth, the UK government announced that it was ‘committed to ensuring that publicly-funded research should be accessible free of charge’. As part of this commitment, the government has helped establish an independent working group chaired by Janet Finch to consider how to improve access to research publications, including publicly funded research.

4.4.1 Finch Report

The Finch Report has established itself as a key document in the UK strategy for expanding OAP to scientific literature. The report is the outcome of the work of the Working Group on Expanding Access to Published Research Findings, chaired by Dame Janet Finch.

As a core suggestion, the recommendations included in the Finch report advocate a shift from a reader-pays to an author-pays system in academic publishing. Finch recommended a clear policy direction in the UK towards support for Gold OAP, where publishers receive their revenues from authors rather than readers, and so research articles become freely accessible to everyone immediately upon publication, funded by Article Processing Charges (APCs), as the main vehicle for the publication of research, especially when it is publicly funded. In order to cover these APCs, Finch concluded that the Research Councils and other public sector funding bodies should come up with relevant arrangements. In addition, Finchpaved the way for the establishment of dedicated publication funds within individual universities to cover the APCs, calling for the development of policies and

896 Science and Technology Committee (n 190) paras 126.
897 Ibid paras 117.
898 Ibid paras 165.
901 Ibid 7.
procedures regarding OAP and how it is funded. Meanwhile, pricing of big deals and other subscriptions should take into account the shift towards Gold OA and the resultant changes in revenues provided to publishers.

If, in Finch’s view, Gold OA becomes the main route for OA, Green OA seems to retain a residual role. Although Finch calls for the development of the infrastructure of subject and institutional repositories, the Report, nonetheless, noted that these play a valuable role but ‘complementary to formal publishing’, particularly in providing access to research data and to grey literature, including reports, working papers, theses and dissertations, and in digital preservation. The report seems to prioritise the sustainability of subscription-based journals, rather than aiming at increasing access through Green OA, by stressing that embargo periods should never be less than twelve months, if an appropriate level of dedicated funding is not provided to meet the costs of OAP.

Finch also called for enhanced libre OA by noting that ‘support for open access publication should be accompanied by policies to minimise restrictions on the rights of use and re-use, especially for non-commercial purposes’. The implementation of libre OA does imply the adoption of licences that allow free re-use of content. In fact, Finch does not take a specific stand on the issue of licensing, but noted that concerns have been raised regarding the adoption of too liberal an arrangement and seems to second those concerns. We will return to the question of OA licensing options in Section 4.4.3 below, when discussing the RCUK OA policy.

Finch finally briefly tackles the issue of OAP for books and monographs, initially noting that moves towards digital and open access publishing have been much slower here than with journal articles. Relatively few research monographs are as yet available online, and there has been relatively little progress towards the publication of open access books. Mindful of the unsettled state of OAP for books and monographs, Finch does not promote any specific policy recommendation in the field but only urges that ‘universities, funders, publishers, and learned societies should continue to work together to promote further experimentation in open access publishing for scholarly monographs’.

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902 Ibid.
903 Ibid 9.
904 Ibid 8.
905 Ibid 10.
906 Ibid 7.
907 Ibid.
The Finch Group met again in September 2013 to review progress in the implementation of its recommendations and, in addition, the Research Information Network (RIN) was commissioned to gather evidence from key stakeholder groups in preparation for that meeting.\(^908\) In response to the Finch Report: Survey of Progress, the Open Access Scholarly Publishers Association has submitted a set of comments asking the relevant stakeholders to put in place arrangements to gather and analyse reliable, high quality and agreed indicators of key features of the changing research communications landscape; [ . . . ]

keep under review the position of learned societies that rely on publishing revenues to fund their core activities, the speed with which they can change their publishing business models, and the impact on the services they provide to the UK research community; [ . . . ] support for open access publication should be accompanied by policies to minimise restrictions on the rights of use and re-use, especially for non-commercial purposes, and on the ability to use the latest tools and services to organise and manipulate text and other content; [ . . . ] establish effective and flexible mechanisms to enable universities and other research institutions to meet the costs of APCs [ . . . ]; and efficient arrangements for payment, minimising transaction costs while providing proper accountability.\(^909\)

In any event, it is worth noting that the move to gold OA, endorsed by the Finch Report, and then by the UK government and RCUK, has worried many. Expressing her concern, which seems to be shared also by others,\(^910\) Joanna Ptolomey has noted: ‘[c]oming down too heavily on the side of Gold OA and implementing policy so quickly based upon this dismisses the value in the Green institutional repository route. Why not keep a hybrid Green/Gold route for a while?’\(^911\) In an important recent study Gargouri and others criticise a key assumption of the Finch report. Finch has made a case for a privileged Gold route based upon the hypothesis that ‘[t]he [Green OA] policies of neither research funders nor universities themselves have yet had a major effect in ensuring that researchers make their


\(^910\) See, for example, ‘What to Do with Open Access Funding in Physics and Astronomy’ (In the Dark, 5 March 2013) <http://telescoper.wordpress.com/tag/finch-report> accessed 13 June 2013 (noting ‘instead of splashing money around for Gold Open Access, I think RCUK should mandate that all its research be published in Green Open Access mode’).

publications accessible in institutional repositories." Gargouri and others, as we will discuss in more detail in Section 4.5, rebuts this point by noting that ‘Green Open Access Mandates do have a major effect, and the stronger the mandate, the stronger the effect’. Hence, they conclude that the RCUK, or any other concerned institution worldwide, ‘would be well advised to adopt the strongest Green OA mandates and to integrate institutional and funder mandates’.

Paul Guinnessy reports the concern of academics and publishers arguing that the pressure to accept and publish papers faster in greater quantities may compromise the integrity of the editorial and peer-review process and, in the long term, publishing more articles that produce fewer citations will lower motivations for authors to submit to a given journal. Bailey and Bell have also voiced their concern about another aspect of the economics of the model proposed by Finch. It is unclear whether OA will lead institutions in all fields to cancel subscriptions to journals, which should release enough money to pay for the APCs. Bailey and Bell stressed that this may not be the case in the legal field for example. Subscriptions to non-UK journals, which may not be OA, and journals published for a practitioner audience, which are not OA, cannot be cancelled. Additionally, the saving on UK academic journals will probably not release enough money to pay for the APCs, as, for example, the Cambridge Law Journal online institutional subscription is £87, whereas the current Cambridge Law Journal APC fee is £850 per article.

4.4.2 Governmental Response and Other Open Access Projects

The UK government responded to the Finch Group Report in July 2012 by accepting all the proposals in the report, with the exception of one point on the reduction of VAT for e-journals. In accepting the Finch proposal, the government has expressed its preference for

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912 Finch Report (n 900) 82 (7.54).
914 Ibid.
915 See Guinnessy, ‘Europe Moves Closer to Open-Access Publishing’ (n 281) 22-23.
916 See Stephen Bailey and John Bell, ‘Memorandum on Open Access Implementation’ (submitted to BIS, 7 February 2013) 4-5 (in file with the author).
917 Ibid 4.
918 Ibid.
the ‘gold’ over the ‘green’ model, especially where the research is taxpayer funded.\(^{920}\) In the response letter to Finch, the government also noted that embargo periods should be short where publishers do not offer the preferred Gold OA route coupled with APCs.\(^ {921}\) If the APC funds are not available, however, publishers may insist on a longer embargo period that should be up to 12 months in the STEM sector and up to 24 months in other disciplines.\(^ {922}\)

Apart from entirely endorsing Finch’s conclusions, the UK government responded to the report by also investing money. It has set aside an initial fund of 10 million pounds, to enable research-intensive UK institutions to kick-start the process of developing policies and setting up funds to meet the costs of APCs.\(^ {923}\)

The government support to OAP goes hand in hand with the promotion of open data through establishing a Research Transparency Sector Board to consider how to develop policies on access to research data.\(^ {924}\) Among other key initiatives in the domain of OA, with the support of the Open Knowledge Foundation, the UK government announced the launch of the data.gov.uk project, a collection of more than 2,500 UK government databases – now freely available to the public for consultation and re-use.\(^ {925}\)

4.4.3 RCUK

Using the findings of the Finch Report – and the government’s response to Finch – to further develop the policies that they had in place since 2005, the RCUK announced a new OA policy in July 2012, which was finally consolidated in the RCUK Policy on Open Access and

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\(^ {921}\) Ibid.

\(^ {922}\) Ibid.


Supporting Guidance, last updated in May 2013.\(^{926}\) Essentially, the new RCUK OA policy, which has been in effect since April 2013, requires that peer-reviewed papers that report on research funded by the Research Councils be made OA.\(^{927}\) Additionally, all papers including research publicly funded by RCUK must include a statement on how the underlying research materials such as data, samples or models can be accessed.\(^{928}\) From the outset, the RCUK OA Policy states ‘a preference for immediate Open Access with the maximum opportunity for re-use’.\(^{929}\) If Gold OA is an option available from the publishers and APC funds are available from the research funder, immediate Gold OA is the route that RCUK mandates to be followed. If the publisher does not offer Gold OA, the ‘final accepted manuscript’\(^{930}\) must be made available in a repository (Green OA) within 6 months of publication, which are extended to 12 in the case of papers in the arts, humanities and social sciences, mainly funded by AHRC and ESRC. If the publishers offer Gold OA but APC funds are not available, the published article must be made Green OA after 12-24 months, still depending on whether the funding is for arts, humanities and social science papers, which enjoy a longer embargo.

As a key element of the implementation of the RCUK OA Policy, the Research Councils have introduced a new funding mechanism from April 2013, consisting of a block grant to universities and eligible research organisations to cover the cost of article processing charges (APCs).\(^{931}\) However, notwithstanding the block grant, it has been noted that the RCUK decision tree seems to lack a few branches. In fact, it is unclear what the scenario would be if the APC funds ran dry and the author wanted to publish with a journal that offers Gold OA but is set up only to accept APCs and does not offer an option that includes an embargo period.\(^{932}\)

In order to assure maximum opportunity for re-use, the RCUK mandates that Gold OA publications must be made available using the Creative Commons Attribution (CC-BY)

\(^{926}\) See RCUK, ‘Policy on Open Access and Supporting Guidance’ (n 478).

\(^{927}\) Ibid 2.

\(^{928}\) Ibid.

\(^{929}\) Ibid 1.

\(^{930}\) Ibid 8 (noting that ‘[t]he Accepted Manuscript is the version of a journal article submitted by an author that has been accepted for publication in a journal, and that has been through a peer-review process. Peer-review is a crucial part of the quality assurance process for research, and RCUK want to ensure that all users have access to research papers that have been peer-reviewed’).

\(^{931}\) See RCUK, ‘Policy on Open Access and Supporting Guidance’ (n 478).

licence. In the case of Green OA, however, the RCUK policy does not request that a specific licence type be used but only stipulates that the final accepted manuscript is made available without restrictions on non-commercial use. The RCUK decision to mandate the use of a CC-BY for Gold OA has raised concerns. The report has responded to those concerns by noting that the journals using CC-BY, predominantly in the STEM sector, do not report any significant problem and, in any event, RCUK will include an assessment of the impact of CC-BY in the 2014 review in order to tackle any emerging problem. In this respect, it is worth noting that the Finch Report also reported the preoccupation of publishers – and some researchers – with the use of a CC-BY licence. Finch noted that, for subscription-based publishers, re-use rights may pose a problem due to the fact that ‘[m]edical journal publishers, who derive a considerable part of their revenues from the sale of reprints to pharmaceutical companies, could face significant loss of income’ and ‘more generally, commercial re-use would allow third parties to harvest published content from repositories and present them on new platforms that would compete with the original publisher.’ Again, Finch also argued that, although all publishers need to consider the extent to which current restriction on rights of use and re-use can be reduced or eliminated, while publishers of OA and hybrid journals should be able to adopt a relaxed attitude to such restrictions, ‘[f]or subscription-based content, however, the issues are more complex, and it would not be reasonable to expect publishers of such content to adopt a CC-BY or similar licence which would allow commercial re-use of the content they publish.’

4.4.4 HEFCE

In response to Finch, and as part of the global UK OAP efforts, HEFCE has set as a goal the increase of the proportion of research outputs published OA by introducing OAP as a requirement in the post-2014 Research Excellence Framework (REF). The process of developing the HEFCE OA policy proposal is still ongoing and HEFCE launched a Consultation on Open Access in the Post-2014 REF on 24 July 2013, whose responses were due by 30

933 See RCUK, ‘Policy on Open Access and Supporting Guidance’ (n 478) 5.
934 Ibid 8 (in this case the RCUK notes that this requirement can be supported by the use of the Creative Commons Attribution-non-commercial licence (CC-BY NC); however, the Research Councils also note that ideally they would like research papers in repositories to be made available using a CC-BY licence).
935 Ibid 7-8.
936 Ibid.
937 See Finch Report (n 900) 87-88, 96, 110.
938 Ibid 110.
939 The Research Excellence Framework (REF) is the new system for assessing the quality of research in UK higher education institutions. See REF2014, Research Excellence Framework <http://www.ref.ac.uk> accessed 16 September 2013.
October 2013.\textsuperscript{940} The consultation document set out proposals for implementing an OA requirement in the post-2014 REF. The HEFCE policy proposal emphasises the requirement that compliant research outputs – whether published through the Gold OA or Green OA route – will be made available through an institutional repository. In order to meet the HEFCE OA requirements, a research output – which is defined as a journal article or conference proceedings\textsuperscript{941} – should be (i) accessible through a UK Higher Education Institution (HEI) repository, upon acceptance or publication, subject to an embargo period if necessary, (ii) in the final peer-reviewed version, and (iii) in a form allowing the reader to search for and re-use content.\textsuperscript{942} It is also worth noting that the consultation was anticipated by a HEFCE statement on implementing open access\textsuperscript{943} and a HEFCE Open Access Letter, which already included the core principles later transposed in the consultation proposals.\textsuperscript{944} Indeed, the HEFCE policy proposal’s push for a ‘pay-to-say’ model has been criticised because it threatens (i) academic freedom by pressuring institutions to make decisions in order to allocate scarce APC funds, (ii) research funding by diverging it into paying for publication costs, rather than research, and (iii) academic equality and the democratic process by linking publications to the capacity to pay for APCs.\textsuperscript{945}

\section*{4.5 Evaluating the Effects of OA Mandate Policies}

Two types of policies are prevalent in OA research repositories: voluntary deposit, where the decision to deposit a research article is made voluntarily by the author/researcher, and mandatory deposit, where the deposit of research articles is required by the employing institution. In the past, voluntary deposit policies have often proved inadequate to promote OA to scholarly research, and OA mandate policies have also emerged in response to


\textsuperscript{941} Ibid 6.

\textsuperscript{942} Ibid.


relatively low levels of participation in self-archiving by the academic community.\textsuperscript{946} Therefore, the literature has devoted a good deal of attention to evaluating the reception and effects of OA mandate policies in the academic community. As mentioned in Section 4.4.1, careful evaluation of the effects of mandate policies has also become relevant within the debate that recent UK policies have ignited regarding which OA route would best serve public interest.

Generally, authors have found positive effects of OA mandate policies on self-archiving, although caveats have been made and many seem to seek a global long-term OA strategy. Xia and others, for example, have concluded that an OA mandate policy, by itself, will not change the practice of self-archiving. In fact, the success of an OA mandate policy in terms of compliance and full participation may be obtained ‘only if the entire scholarly communications system is adjusted.’\textsuperscript{947} Additionally, the advantages of OA mandate policies will be better understood only when a comprehensive picture of their history and current practice is provided in systematic studies.\textsuperscript{948}

In any event, the study by Xia and others found that comparing the effect of a mandate policy both before and after its introduction reveals that self-archiving rates increased in many repositories after the policy’s implementation.\textsuperscript{949} As for the size of the repositories, a little more than half of the repositories display an increase in their content size, while about 29 per cent of the repositories have shown a decrease in their content accumulation rate after the implementation of the policy.\textsuperscript{950} Comparing two different institutions, one having a long-standing OA mandate policy and the other not, Mary Kennan found that the institution with an OA mandate policy not only has a far greater proportion of its research in its OA institutional repositories but also the academic body at that university had a much deeper understanding of issues surrounding scholarly publishing at large. Kennan concludes that ‘[w]ithout a mandate the OA message is ambiguous, it does not appear as if the university has unconditional support for OA or its own IR [. . . ] [a]n institutional mandate or policy promoting OA signals the university’s support for OA to the scholarly corpus’.\textsuperscript{951} Similarly, comparing the uptake levels of all published journal articles for universities and research institutes with OA mandates and a bigger selection of universities without mandates, Gargouri and others found an average deposit rate of approximately 60 per cent for

\textsuperscript{946} See Willinsky, ‘The Stratified Economics of Open Access’ (n 576) 59.
\textsuperscript{947} Xia and others, ‘A Review of Open Access Self-Archiving Mandate Policies’ (n 844) 86.
\textsuperscript{948} Xia and others, ‘A Review of Open Access Self-Archiving Mandate Policies’ (n 844) 87.
\textsuperscript{949} Ibid 90.
\textsuperscript{950} Ibid 91.
institutions with mandates and 15 per cent for institutions without.\textsuperscript{952} Again, looking at researchers’ behaviour in depositing research articles in open access institutional repositories, Sale has found that it takes several years for a mandatory policy to become routine, but once this has happened authors deposit less than six months after publication, or in some cases even before.\textsuperscript{953}

This literature appears to confirm the conclusions that led Gargouri and others to reject Finch’s hypothesis on the effects of Green OA, as mentioned in Section 4.4.1. In their response to Finch, Gargouri and others have also noted that stronger mandates produce stronger effects. In this regard, they have identified the University of Liège’s ID/OA repository mandate as the strongest mandate model.\textsuperscript{954} The University of Liège has set up an immediate deposit/optional access mandate – meaning that deposit of the reference and full text in the repository must be immediate but access to the research output will only be granted with the author’s consent and according to the rules applicable to author’s rights and copyrights.\textsuperscript{955} However, the strength of this mandate resides in being linked to research performance evaluations. In fact, since 1 October 2009, only the references introduced in the Liège repository ORBi have been taken into consideration as the official list of publications accompanying any curriculum vitae in all internal evaluation procedures, including designations, promotions, grant applications, etc. The University of Liège’s approach is especially relevant as it goes in the direction of integrating OA mandate policy within the mechanisms of academic career and promotion. Additionally, this approach provides indirect enforcement tools for ensuring compliance with mandate policies.

However, the appropriateness and applicability of OA mandate policies have also been questioned by the literature. These researchers found no solid evidence showing an increase in faculty awareness or an increase in self-archiving as the result of a mandate. According to

\textsuperscript{952} Gargouri and others, ‘Self-selected or Mandated’ (n 798).


\textsuperscript{954} See Gargouri and others, ‘Testing the Finch Hypothesis on Green OA Mandate Ineffectiveness’ (n 913) 1.

Baker, the disagreement with OA mandate policies may be primarily rooted in a widespread concern by faculty that ‘open access policies will restrict their publication opportunities’. Similarly, in a recent study, a survey among academic authors from a variety of Carnegie-classified doctorate universities indicated that concerns regarding self-archiving were still shared by many faculty members who were particularly concerned about copyright. Again, scholars’ willingness to comply with a policy may not be translated into action because, as Sally Morris and Sue Thorn suggest, ‘there is much more support for OA publication in theory than in practice’. Further, an increased rate of self-archiving in an institutional repository may be for reasons other than the adoption of a policy. For example, Xia and others have noted that, by taking a closer look at the items placed in QUT’s repository, it was obvious that a few librarians were very active in the construction of the repository and, not surprisingly, those librarians deposited or encouraged the deposit of the majority of the items.

Authors have also offered suggestions on the best way to implement OA mandate policies. Peter Suber, for example, suggests that the university provides OA to all research outputs, uses mandatory language regarding university expectations, provides incentives to use the repository and does not limit the freedom of the faculty to submit articles to favoured journals by allowing repository submission waivers for those journals that prohibit OA archiving. Providing a monetary incentive has been considered as an additional tool. Suber also warns that academic freedom, in particular, may become an extremely critical issue to be dealt with in implementing OA mandate policies, especially if the Gold OA route is increasingly promoted as the standard for publicly funded research. In this respect, the concerns that Gold OA and APCs may raise are twofold. On one hand, some journals with high reputational value may not offer an OA option and academics should have total freedom to publish where they want, otherwise academic freedom may be limited. On the

962 Cf Robin Osborne, Why Open Access Makes No Sense’ in Nigel Vincent and Chris Wickham (eds), Debating Open Access (British Academy 2013) 97-105 (hinting at the question of research freedom by noting that
other hand, limited APC resources may force universities to make decisions on which contributions should or should not receive financial support to cover APCs, thus still curtailing the academic freedom of certain authors to have their work published OA. Therefore, authors’ decisions on what to publish and where to publish it may be subject to financial considerations, rather than academic.

4.6 Conclusions

Mandates, both institutional and from funding organisations, are growing apace. If this trend is confirmed in the years to come, OA, institutional repositories, and mandates will become an increasingly interdependent set of tools that will dominate the scholarly landscape and promote the accessibility and dissemination of scholarly research outputs. Whether the standard for OA mandate policies should be the Green or the Gold route is a question that will inflame the debate in future years. Critical views have been expressed on the financial sustainability of the Gold OA models and the threats that it may pose to academic freedom. Again, if unregulated APC models are implemented as dominant standards by commercial publishers, there is no assurance that future increases in APCs will not pose the same unsustainable financial constraints on academic budgets that have promoted the ‘serial crisis’ today. Reaching the land of OA seems indisputably a goal that will enhance democratisation and contribute to building a better society; however, the route we take to get there must be carefully planned or we may end up in a place that does not meet our expectations.

‘academics [. . .] should retain the right to determine the form and location of the [research] outputs); Priest, ‘Copyright and The Harvard Open Access Mandate’ (n 457) 430-438 (considering whether the opt-out nature of permission mandates offends notions of authorial autonomy in copyright and arguing that it does not).
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